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## **Section 1: Asia Pacific Economies: Opportunities and Challenges**

# **The Japanese Business System in the 21st Century: A Comparative Analysis**

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## **Abstract**

Japan, the leading Asian economy and the second most powerful economy in the world, is currently recovering from a long and harrowing period of recession. In order to maintain the current positive momentum, and to have any chance of maintaining relativities with rapidly developing China and India, numerous commentators have suggested that fundamental changes to the Japanese business system are urgently required. The common wisdom is that changes towards a more US style, market driven economy would be beneficial. To better understand the dynamics and logics surrounding such claims, an appropriate departure point would be a structured analysis of Japan's contemporary business system. Within this context, the fundamental objective of this paper is to present an introductory, but necessarily brief descriptive overview and analysis of the current Japanese system. For this purpose, an adaptation of Redding's (2005) comparative business systems model will be utilised.

## **Introduction**

Japan has been on an economic roller coaster ride since the Meiji Administration began its modernization drive in the last third of the nineteenth century - although this engaging story is well known, and does not require retelling in detail here, a very brief overview will be useful. Japan, under pressure from Western colonialist powers from the mid-1800s, began an industrialization program which in less than 50 years saw it transformed from an essentially agrarian to an advanced economy, and supplier of manufactured war materials to Great Britain in World War One. Territorial and imperial ambition followed rapid economic expansion, and, tragically, in time this led Japan into conflict with the West. After just four years of the Pacific War (1942-45), Japan's advanced industrial economy was reduced to the baseline, and massive reconstruction was required. With the support of the

allied occupiers of Japan, and a unique collaboration of government, bureaucracy, the corporate sector and ultimately a compliant union movement, the Japanese people responded magnificently with the result that Japan was on the verge of dominating the world economic scene by the beginning of the 1980s. This did not eventuate. Instead, a snowballing asset collapse beginning in late 1980s threw Japan into a prolonged economic recession and a crisis of self-confidence, from which it is only now emerging.

Whilst Japan's most recent economic drama has been played out, the global and regional economic environment has moved on. In particular, the United States has re-established its global economic leadership with strong economic growth since the early 1990s, and China and India, both closed to the world economy in past decades, are now established as major global market players. Importantly, the US economic and business model, philosophically based on open markets, free trade, small government, low taxation and an emphasis on the creation of 'shareholder value' has attained widespread acceptance around the world. It stands in considerable contrast to the long-term communitarian ideas of the once successful 'Japanese Management Model'. The Japanese model is no longer considered a major threat by the West, but economic history suggests that the Japanese approach to economics and business should not be dismissed lightly, and that better understanding of the status quo in Japan might well pay dividends in the longer term.

This paper utilises an adapted and simplified version of a highly sophisticated comparative business systems model developed by Redding (2005) based on the idea that business systems are best understood in terms of their unique societal circumstances. The adapted model (see Figure 1 below), which has previously been utilised in an earlier conference paper by Grainger and Chatterjee (2007) to compare and contrast the business systems of China and India, relies upon Whitley's (cited in Redding, 2005) interpretation that socio-cultural factors underpin relevant institutions, and that the dynamic interrelationship between the resultant institutional framework and the business system itself is critical. Specifically, the adapted model will be used to describe the Japanese business system in terms of its global and regional context, key historical influences, culture, role of the state and institutional framework.

Following Redding, the institutional framework is conceived of as the institutions affecting financial, human and social capital, where social capital is conceived of as the legacy of formal or informal institutions which provide certainty, or trust, in the conduct of business in a national context. The business system itself is conceptualised as the interaction of enterprise ownership (also taking into



account the concept of corporate governance), corporate networks and alliances, and enterprise level management, focusing on the coordination and control of financial, technological and human resources. The model is to be understood in a holistic way (from Ragin, cited in Redding, 2005), and ultimately relies on understanding through detailed or 'thick' description (following Geertz, cited in Redding, 2005). Although the current exercise is necessarily limited within the constraints of this relatively short paper, the principal objective is towards a better understanding of the Japanese business system, and in particular, to see if there are indications of a convergence towards the currently triumphant US free market model, or if Japan's traditional communitarian approach might survive, in one form or another.

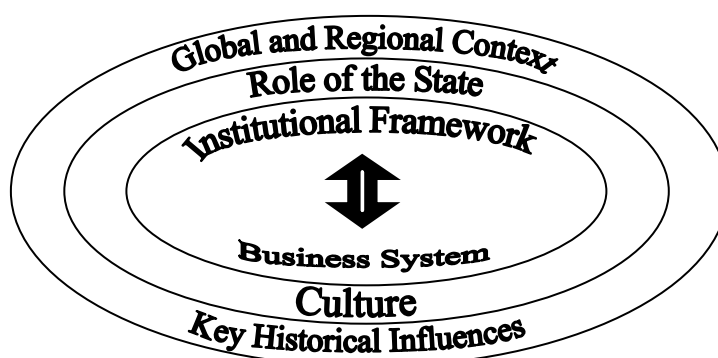


FIG. 1: COMPARATIVE BUSINESS MODEL (ADAPTED FROM REDDING, 2005)

## Modelling the Japanese Business System

### Global and Regional Context

During post-war reconstruction, the Japanese bureaucracy and private sector worked closely together (Chen, 2004) to take advantage of unique conditions which were highly favourable for Japanese economic expansion, export growth and the maintenance of stability and order in domestic markets. As Noland (2001) noted, Japan was a major, perhaps the greatest, beneficiary of the post - war liberal international economic order established by the victorious allied nations. For example, the GATT and its successor, the WTO, orchestrated reductions in international trade barriers which considerably benefited Japanese industry and enabled increased living standards, and in the earlier stages of Japan's postwar reconstruction the IMF and the World Bank financed major infrastructure projects. Beeson (2007) also saw the benefits that Japan reaped from direct assistance from the US, coupled with access

to developing American markets, suggesting that although Japan emerged as the main engine of economic development and Asian regional integration after WW2, this was because of special and possibly non-repeatable historical circumstances.

The Japanese post war boom reached its zenith in the late 1980s, with real estate prices reaching their highest levels in 1988, and stock market prices peaking in 1989. These markets crashed in early 1991, and by 1992 the Nikkei stock index had fallen by more than 40% of the 1989 level. The central problem of the 1990s recession which followed was the large number of non-performing loans made by banks and other financial institutions. It is also believed that even more loans were extended to defaulters in order to give the appearance that they were meeting their payment responsibilities. Further, as the banks began to lose profitability, they started to restrict lending, which led to an increased cycle of bankruptcies, and the downward spiral had started. Firms failed, and unemployment began to rise. Corruption scandals began to emerge in the press, and public confidence in corporate Japan was rapidly eroded (Hamada, 2005). In combination with this domestic chaos, externally generated competitive pressures resulting from economic globalization, created an environment in which industry restructuring and different approaches to economic policy were seen as imperatives. In particular, intense competition from East Asian nations in industries the Japanese once dominated, and the globalization of production in major industries such as automobiles and IT hardware, further exacerbated the situation. At the same time, Japan has been inevitably propelled towards economic liberalization and the opening of markets by the increasing influence of multilateralism in the international political economy, where both the scope and enforceability of multilateral agreements has increased significantly since the peak of Japanese economic prosperity in the 1980s (Schaede and Grimes, 2003).

The rapid appreciation as a result of the 1985 Plaza Accord provided considerable encouragement for many large and small Japanese manufacturers to at least partially re-locate offshore (Beeson, 2007). Considerable funds were invested by Japanese corporations in low wage high skill economies in East and South East Asia, while at the same time, producers in Korea and Taiwan enjoyed productivity gains combined with a devaluation of their currencies against the yen, which further placed Japan's domestically based lower technology and assembling industries under pressure. In the high technology area, US and European IT and bio-technology firms were outperforming Japanese companies. Conditions in this new environment did not favour Japan's strengths in quality assured, mass production of consumer durables and industry policies which had fostered such industries were unsuited in facilitating the newer knowledge based industries. In sum, at the close of the twentieth century, the

industrial base that Japan had so successfully established in the post war reconstruction period and beyond, was under threat from global and regional competitors, and was being moved offshore or 'hollowed-out'. An entirely new industrial platform, together with appropriate economic and currency policies was urgently required (Schaede and Grimes, 2003).

On the world political stage, Japan's performance throughout this period was also a cause for concern. Despite the fact that Japan was the second largest economy in the world, its influence on global economic policy through international economic institutions such as the WTO, or other forums was far less than was generally expected. Broadly speaking, Japan's attempts to exert greater influence on such institutions and through them the world trading environment, has been limited by a general reluctance to oppose the US, the world's sole superpower, regional antipathy towards Japan following the Pacific War, and the primacy of domestic political interests (Noland, 2001). In its own region, Japan has really failed to wield significant political influence, or to establish itself as a political leader, although in economic terms, Japanese engagement with East Asia has certainly been substantial. Through collaboration with the private sector, the Japanese government has been able to encourage the regional relocation of domestically declining industries, as well as to orchestrate effective control of important resources in offshore locations through the use of official development assistance (ODA) and technical, advisory, insurance and financial support of Japanese businesses. Despite this, outward investment flows from Japan towards East Asia have actually declined by about 80% since the mid 1990s (coincidental with the Asian Financial Crisis), but FDI towards the US has continued to grow. Importantly, this indicates that Japan's most important economic and political relationships lie outside the region (Beeson, 2007).

Internally, the official Japanese response to the various pressures surrounding globalization has been '*kokusaika*' (internationalization). Prime Minister Nakasone made internationalization public policy at the declaration of '*kokusaika kokka*' Nihon (Japan, an international nation) in the Diet in February 1984. In terms of economics, *kokusaika* referred to a general deregulation and liberalization of the Japanese way of doing business. Politically, internationalization meant making reforms that would make the Japanese system more representative, for example by removing or reducing the rural gerrymander, and acting on political corruption. Social *kokusaika* meant opening Japanese society to foreigners, and eliminating all forms of discrimination, and external *kokusaika* meant that Japan would make an appreciable contribution to the international community (Itoh, 1998).

According to Clammer (2001), two fundamental Japanese cultural phenomena, so-called

*'Nihonjinron'* (theories of Japaneseness), which centre on Japanese uniqueness and difference to others, in terms of culture, language, psyche and physical make-up, and what is seen as the right to be different from externally imposed norms and constraints, have resulted in an insular, conservative society, which is, for example, generally resistant to immigration, and is unwilling to moderate the negative effects Japanese foreign aid, especially on the ecologies of various South East Asian nations. In particular, it has resulted in the trivialization of *kokusaika*, which has been reduced to a fashion for learning English, adding foreign words to advertising, consuming small quantities of foreign foods or other goods, and going overseas for holidays. Itoh (1998), concluded that a *'sakoku'* (secluded nation) mentality is at the core of Japanese resistance to trade liberalization and economic deregulation, suggesting that the Japanese proclivity to isolation was rooted in the cultural effects of geographic isolation as an island state, and the Tokugawa regime policy of isolationism from 1639 - 1868.

### **Key Historical Influences**

The purpose of the following table is to identify, with maximum efficiency in terms of space, those events or influences from Japan's recorded history, which have had the most significant impact upon the contemporary Japanese business system. It is necessarily a subjective process and does not purport to be a history of Japan. It will inevitably draw criticism from some because, in their view, some important factors have been omitted, and from others because, from their perspective, it has included factors which ought not to be included. Reference will be made to various historical events in the following discussion.

TABLE 1: SELECTIVE CHRONOLOGY OF EVENTS IN JAPANESE HISTORY

EVENT / PERIOD	IMPACT
<b>Unification</b> (Yamato 300 - 701)	Emergence of unified state under powerful clan. Origins of contemporary imperial dynasty. Prince Shotoku (574 - 622) promotes adoption of Chinese social and administrative ideas and adopts Buddhism. Chinese written characters are introduced. Taika Reforms and Taiho Code undertaken.
<b>Nara and Heian</b> (710 - 1185)	Imperial cities built on Chinese models at Nara and later Kyoto. Buddhism adopted as a state religion. Invention of kana (Japanese script adapted from Chinese characters).
<b>Kamakura</b> (1185 - 1333)	Military government established at Kamakura in Eastern Japan., while Emperor remains in Kyoto. Influential Buddhist sects founded.
<b>Ashikaga</b> (1333 - 1573)	Muromachi district of Kyoto becomes headquarters for Ashikaga shogunate. Prolonged civil unrest - the Onin War 1467 - 1477. Pacification and reunification of Japan begins with Oda Nobunaga, and completed by Toyotomi Hideyoshi in 1600.
<b>Edo (Tokugawa)</b> (1600 - 1868)	250 years of stability under Tokugawa shogunate, assured by centralist political controls, state sanctioned social hierarchical relations and isolation. Emperor remains in Kyoto. Japan closed to outside world. US Commodore Perry arrives in 1853, and Treaty of Kanagawa signed, establishing trade relations with US.
<b>Meiji</b> (1868 - 1912)	Daimyo system collapses, with restoration of emperor to real power in Tokyo; rapid modernization: Western style political institutions, industrial technologies and military. Sino-Japanese and Russo-Japanese wars.
<b>Imperialism</b> (1912 - 1945)	Japan aggressively expands in East Asia in military and economic terms; emergence of zaibatsu industrial groups; Japan invades China, attacks Pearl Harbour and subsequent catastrophic defeat by Allied Powers.
<b>Postwar Era</b> (1945 - 1983)	Spectacular economic reconstruction of Japan utilising cohesive relationships between the Japanese state, bureaucracy and emergent keiretsu industrial conglomerates. Oil crisis 1973.

Sources: Beasley, (1973); Hane (1986); Reischauer (1988) and Whitehill (1991).

## Culture

As can be seen from Table 1, Japan has been a major beneficiary of imported cultures and technologies, despite that fact that it has been officially closed to the outside world for long periods in its history. Over the past one hundred years or so, Japan has been at times the focus of international attention, most famously on the basis of its rapid industrialization following the Meiji restoration, its infamous regional international relations activities and aggression in the early to middle twentieth century, and economic reconstruction and return to first world status and the world community following the end of the Pacific War. Largely because of this history, knowledge about the country and culture was enthusiastically sought and developed by both Japanese and Western scholars. Among classic authorities in the field are Nitobe, (1905), Reischauer (1977, 1988), and Hane (1986) for socio-

cultural insights, and Dore (1987) and Morishima (1982) for socio-economic accounts. These authors collectively outline the behavioural characteristics and manifestations of Japanese culture, which are built on the *Yamato Damashii*, the spirit of the land of Japanese, or *Bushido* values, which can be summarised as strong group loyalties based on selfless service, orderliness, self-discipline, and pragmatism.

Despite these foundations, certainty is diminishing with respect to Japanese cultural values and national psyche in the face of the recent and dynamic changes to both external and internal environments. In short, the nation is in transition, and some would say facing cultural and identity crises. The asset collapse of the early 1990s which ushered in a decade of recession resulted in bankruptcies, job losses on an unprecedented scale, and a high unemployment rate. These drastic changes in the socio-economic environment coupled with the drastic domestic demographic changes, especially aging of the population and workforce, as well as the tidal wave of global influences and digitisation have accelerated the otherwise gradual process of cultural evolution in the country, resulting in a paradigm shift.

Major generational change in corporate Japan is also highly relevant to this discussion. According to Grainger and Miyamoto (2007), there were three significant cohorts in post-WWII corporate Japan: 1) the so-called 'corporate warriors' who grew up and live with the traditional *Bushido* values and work ethos and constituted the backbone of Japan's post-WWII socio-economic developments; 2) 'company men' as represented by the Japanese first 'baby boomers' (born between 1947 and 49) who were raised at home with the traditional Japanese values but at (at least elementary) school under the reformed education paradigm built on the liberal American values (i.e., independence - individual freedom and right); and 3) 'pseudo-career men' represented by the second-Baby Boomers (born between 1971 and 1974) who grew up with the Western ideology both at home and school, but who seemed to lack both mental and professional discipline. From the 1990s onwards, an increasing number of the self-disciplined, loyal corporate warriors began to leave the workplace to be replaced by the new generational Japanese who reputedly have a much lower regard for the traditional virtues of selfless service and painstaking pursuit of self-enrichment. Unfortunately for Japan, this dynamic socio-cultural and demographic change took place just as the country began to face a myriad of complex global and domestic challenges.

Morishima (1982) noted that there have been a number of major crises in Japan's history, although without exception, the country has demonstrated its ability to successfully reinvent itself

through innovative and conscientious 'indigenisation' of advanced foreign cultures and technologies. To be more specific, on those occasions, Japanese leaders pursued the country's institutional renewal utilising the so-called *Yamato* spirit and *Bushido* values (Morishima, 1982; Grainger and Miyamoto, 2007). In the early 21st century, however, the reform and renewal logic in both public and private sectors has been dominated not by traditional cultural principles and values, but by the Western logic of economic and market efficiency. Reform efforts by contemporary political and corporate leaders have been radically redefining the parameters of the country's institutions. This is particularly evident in corporate Japan, where there is evidence that a growing number of Japanese companies have been experimenting with Western management and human resource management logics and models in their reform efforts (Grainger and Miyamoto, 2007).

From 2007 onwards, the first baby-boomers will begin to retire, and they will inevitably pass their managerial level decision-making authority to the next generation. Given the considerations in the previous paragraph, it seems possible that the Japanese would experience quite a dramatic culture swing away from the traditional and values. However, close observation of Japanese society in the recent past suggests such logic might be premature. The recent resurgence of popularity of Nitobe's *Bushidō* and strong interest in Fujiwara's (2005) book '*Kotsuka-no-Hinkaku*' (Dignity of the State), which have both emphasised traditionalist and conservative values, is noteworthy. Both seem, on face value, out-of-place in the era of globalisation and in the context of Japanese institutional and corporate renewal driven by the Western logic. Some idea of the popularity of these works can be gained when it is understood that Suchi's (2006) version of Nitobe has been reprinted 18 times since 1998 by 2006 and Naramoto's (2004) interpretation has been reprinted even 36 times between 1997 and 2004. Fujiwara's book, which prescribes the precepts of the Japanese in the 21 century on the basis of the *Yamato* spirit and *Bushidō* values, sold over 2.5 million copies and earned the title of 'best selling book' for 2006. These phenomena indicate strong grass-roots interest by contemporary Japanese in traditional principles and values. A reasonable assessment of the cultural status quo might be that the Japanese are re-examining the reform process in the light of traditional Japanese principles and values, and at the same time the relevance, significance and applicability of those principles and values in the emergent globalisation of their society, economy and political situation.



## **Role of the State**

Traditionally Japanese state leaders have promoted the idea of big government, in which their general approach to policy planning and implementation has been 'economy first and social security second'. As a late modernising state following the Meiji Restoration, and later a post-WWII state under reconstruction, both sets of leaders desperately needed to prioritise economic development and prosperity as a means of restoring the full sovereignty and social and economic stability. They did the job superbly well, and the economics literature commonly attributes the resource-poor island nation's economic success to the active intervention of the state, and the development of political and bureaucratic partnerships with the private sector (Nakamura, 1981).

As for social security, the state has mainly left the matter to society itself, calling for the country's cultural heritage of collective identity, mutual help and self-reliance. These ideas have been traditionally embedded in Japanese communities and families, and are more or less equivalent to the recently popularised concept of 'social capital', or Abramovitz's (1986) 'social capability' concept. In fact, the Japanese state has always remained reactive and somewhat reluctant to engage in comprehensive social welfare programs, both in the pre-war era as suggested by Taira (1967), and also in the post-war era. Although the US-led Allied Occupation Force introduced and prompted modernisation of the state's social welfare system, the post-war Japanese government, in absence of sufficient economic infrastructure, simply could not afford a new approach. Against this background, companies were left to assume responsibility for meeting the social welfare needs of workers (Shinkawa, 2003).

Public spending in Japan has been increasingly financed through the issuance of government bonds. State leaders began to issue government bonds to raise capital in 1965 and have gradually grown more reliant upon this financial tool. More recently, in a desperate effort to revive the post-bubble economy and implement structural reforms, the government began to issue new bonds at quite a concerning rate. According to one estimate, the Japanese government had outstanding bond payments liabilities of 541,798 *billion yen* as of the end of 2006, which was 1.05 times more than Japan's GDP (Ministry of Finance of Japan). Given the rapidly aging population, a declining workforce, and the future need for greater social welfare for the aged, the geared state financing has placed a shadow over Japan's future. It is increasingly evident that the state can no longer continue its conventional

management approach, in the context of the changing domestic environment, and the growing intensity of globalisation fuelled by neo-liberal economic logic.

## **Institutional Framework**

### **Financial Capital**

After the end of the Second World War, Japan's economy was decimated and required a very large amount of capital investment. This required the Japanese government to provide sponsored financial services to augment the existing commercial banking system. The Bank of Japan (BOJ) guaranteed and allowed commercial banks to make large, long term loans to corporate clients, where ongoing capital injections without demands for immediate repayment were required to facilitate reconstruction. Effectively, Japan's banks became corporate investors, and this was most commonly achieved through a 'main' bank, which was part of an industrial group (Turetsky and Tudor, 1996). This became known as the 'main bank system', or MBS.

Financial regulation was also used as a means of encouraging economic growth. Artificially low interest rates and strategic allocation of capital, determined as a matter of government policy, were important in this context. During this high growth era, low cost investment funds were made available, and priority was given to the iron, steel and shipbuilding industries. The bond market was constrained as part of the low interest rate policy, and firms were therefore obliged to utilize the banking system to raise funds. The Japanese financial authorities utilized a so-called 'convoy system' (in this analogy, the convoy could only proceed at the pace of its 'slowest' member) to protect weaker banks. The system restricted the entry of new banks, expansion of existing banks, development of new products and set deposit rates to manage profitability and minimize or mitigate bank failures. When member banks experienced financial difficulties, stronger banks provided 'rescue' loans, or absorbed failed banks into their own operations (Nabeshima, 2000).

The full significance of these financial arrangements is best understood in the context of the so-called 'keiretsu' system, which are 'groups of closely affiliated corporations and lending institutions that own a large proportion of one another's common stock and share common Directors of their Board' (Constand and Freitas in Turetsky and Tudor, 1996). In the Japanese postwar financial system, the power of shareholders was limited, and interlocking shareholdings amongst firms protected corporate management from non-firm shareholder influence or takeover. During this high growth era, the main

bank system monitored the performance of corporate management on behalf of shareholders. "In short, the financial mode of regulation in post-war Japan may be characterized by the disciplining of the corporate management by the MBS and the socialization of risks by the government and the BOJ (Nabeshima, 2000: 109)".

This was a highly successful system from the beginning of Japan's postwar economic recovery until the mid-1970's, or just after the 'oil-shock' of 1973, when the OPEC nations dramatically increased the price of crude oil, causing great consternation in the developed world, but particularly in Japan, which was totally dependent upon imported petroleum products. As noted by Tohyama (2000) (2000), relative economic stagnation from the mid-1970s (annual sales growth rate from 1965-73 was approx. 16% and from 1974-80 was approx. 12%) saw a decline in the demand for capital from larger firms, and pressure on the price of capital. That is, less capital at lower prices was needed. As it happened, capital already accumulated by firms in the 1970s and 1980s meant that they were able to increasingly utilize internal funding sources. This change is reflected in the fact that between 1965 and 1973 internal financing accounted for almost 32% and external financing around 42%, and between 1981-93, approx. 57% was raised internally and 34.8% externally. Where external funding was sought, firms began to look beyond the Japanese banking system such that bank borrowings declined from almost 39% in the 1960s to approx. 9% in the 1980s. Raising money via the issue of shares in foreign markets became popular, leveraging the deregulation of domestic financial markets in response to US pressure after the 1980s. Firms became investors to increase their earnings, and the established mediating role of the banks was reduced, as non - bank money flowed into stock markets and real estate speculation.

Nabeshima (2000) observed that in the late 1980s, corporate financial deficits began to increase, as companies facilitated by deregulation, increasingly borrowed using equity related financing methods, in order to invest and take advantage of an economic boom. The disciplinary or monitoring function the main banks was compromised as a result of these changes in financial arrangements, and by the late 1980s there was excessive investment by firms. Banks, which were under pressure to find new business, commonly entered into high risk investments which they would have previously avoided. The end result of this was abnormally high rates of expansion, and ultimately, the bursting of the asset price bubble in the late 1980s. Clearly the financial system which had been developed in the post war era had become dysfunctional. As Katz (1998), put it, when capital markets allocate money efficiently, the economy was likely to be healthy, and this was no longer the case in Japan. The Hashimoto government introduced a package of reforms (so-called 'Big Bang') which it hoped would transform the over

regulated financial system into a more efficient and competitive system. However, there was substantial resistance and many banks, securities firms and insurance companies resisted the changes because it meant each of these types of financial firms would be able to enter each other's previously quarantined business area, with the competitive pressures potentially resulting in large numbers of each of these kinds of firms exiting the financial services industry.

### **Human Capital**

The 1989 asset price collapse had a savage effect on Japanese employment rates. The ensuing corporate restructuring sharply increased Japan's unemployment rate to 5% by the first years of the twenty first century, which was a shock to a Japan which was accustomed to having the lowest levels of unemployment amongst developed nations ("Business: Working Harder: Employment Agencies in Japan," 2004). The recession, which lasted for a decade, was an unsettling period and the self - confidence of the nation was challenged.

After a very difficult ten years or so, Bank of Japan (BOJ) has quite recently noted ongoing and healthy exports and business investments, as well as rising household incomes and consumption patterns. ("Asia: Depends on Where You Are: Japan's Economic Recovery", 2006). In the year 2006 to April, the numbers of those actually working or seeking work rose by 150,000, taking the total to more than 66.5 million. There were more jobs on offer in Japan than applicants, albeit that not all such jobs were permanent, and nor were they necessarily conveniently located. There was, in fact, a strong regional bias to Japan's employment profile. In the 480 km stretch from Tokyo to Osaka and beyond Kobe, job prospects were very positive. For example, in Aichi prefecture there were 1.8 jobs on offer for every applicant - in Tokyo, the ratio was 1.6:1. At the remote extremities of Japan, however, the picture was quite different. In Okinawa and Hokkaido, for example, unemployment figures remained stubbornly high. Regional variations such as these were repeated all over Japan (ibid).

Now that Japan has seemingly returned to a period of economic expansion, it raises the issue of appropriate human resources or capital, to staff the upturn and there are some major challenges. The first of these lies in the demographic profile of Japan. In June 2006, it was announced by the Japanese government that fertility rates (the average number of children a Japanese woman bears in her lifetime) had fallen to a record low of 1.25 in the previous year. Based on these figures, the government predicted that the Japanese population would fall to 100 million (down from 128 million) by the middle of the 21st century ("Ageing Japan," 2006). Another major challenge is the aging of Japan's population. Japan's proportion of elderly persons is forecast to reach 30% by 2025, and a very large group of Japanese, the

baby boomers, will begin to retire from 2007. Accompanying this trend, will be a fall in the population of youngest workers - currently, there are 16 million Japanese in their mid - 20s, but this will fall by 3 million over the next 10 years. Ultimately, fewer workers will support more retirees, and commentators suggest that this will lead to a decline in living and education standards, and government under extreme financial pressure because of obligations to retirees. Solutions may lie in making it possible for people to work longer - today, 90% of companies have a mandatory retirement age which is most often 60, the legal minimum. Other ways of alleviating the situation would be by more radically lifting the minimum age for pensions to 67 or 70, ending age discrimination in employment, and ending the seniority based payment system, which often makes it unattractive to maintain older people in employment ("The Downturn: Greying Japan," 2006).

Japanese corporate sector response to these trends has been less than comprehensive. In order to provide more flexibility in quite difficult circumstances, corporate Japan is making a transition from the formerly pervasive 'lifetime employment' and seniority based wages and promotions systems, towards a system where only a carefully screened inner core of staff would be guaranteed ongoing employment, and where there was much more emphasis on merit or performance based remuneration. Benson and Debroux (2004) were quite critical of the experimental nature of the response, noting that changes appeared to be creating a hybrid HRM system, which had internal contradictions. These contradictions had their origins in the fact that job-based payment and performance criteria for rewards and promotions fundamentally clashed with the traditional Japanese idea of belonging to a company with long-term accrual of benefits, such as a high standard of retirement allowances and conditions. They argued that it was difficult to see how seniority could be eliminated as a criterion for salary increases or promotion while companies continued to use certain levels of seniority as a pre-requisite for promotion, and skills acquisition was still dependent upon on-the-job training. Overall, there were fundamental incompatibilities between the Japanese and Western approaches to HRM, which made a hybrid system problematic.

### **Social Capital**

Fukuyama (1995a) posited that institutional differences around the developed world have narrowed after end of the cold war and the triumph of democratic institutions and capitalist economics. What is left to differentiate such societies in the modern world has its basis in social and cultural phenomena. "In the post Cold War World, the most important distinctions between nations are no longer institutional but cultural: it is the character of their civil societies, the social and moral habits that underlie institutions

that differentiate them (1995a:103)". Further, Fukuyama argued that it was differences in social and cultural phenomena which set economic or business systems apart, since economic activity between and within organizations depend upon social cooperation. The nature and pervasiveness of this cooperation, otherwise know as social capital, is an important determinant for the form and relative success of business and economic systems.

According to Fukuyama, the two most distinctive features of the successful Japanese business system have been the keiretsu network organization, and the lifetime employment system. The keiretsu system encouraged the formation of very large groupings of companies (the six largest horizontally organized keiretsu groups had an average of 31 companies each), preferential trading amongst group members, high levels of internal information exchange which has facilitated highly competitive financial support from member banks, and long term, intimate relationships with supplier companies which has enabled costing flexibility in difficult economic times. Essentially, the lifetime employment system has enabled long term HR strategy and planned professional development, mutual commitment to the success of the corporation between management and workers, and has been highly compatible with the enterprise based union system which has been a feature of the Japanese industrial relations scene in the post war era. Both the networked organizational system and lifetime employment have been voluntary systems not mandated by laws or binding regulations, but based on the high levels of trust amongst persons brought together in the course of Japanese economic life. In other words, a well-stocked inventory of social capital has facilitated the rise of the Japanese keiretsu groups and the concomitant rise of the Japanese economy in the post war era.

There are challenges to this system, however. The first of these was the bursting of the economic bubble in the late 1980s and subsequent prolonged recession that has put the high cost lifetime employment system under pressure. As noted by Fukuyama (1995), Japanese corporate employers have tried every tactic to avoid a wholesale dismantlement of the system. They have shifted employees to other areas of the business, moved them to smaller, second-tier companies in the group, slashed bonuses, forced early retirements, kept workers on the payroll more or less without work, and sharply reduced the employment of new graduates. Although some large corporations resorted to lay-offs, the established lifetime employment system has restrained Japanese corporations from wholesale staff retrenchments. A second major challenge to the high levels of cooperation and trust in the Japanese workplace is the effect of changing work values in Japanese younger workers, already noted above in the 'human capital' section of this paper. It seems likely that the diminution of reciprocal obligation bonds between employers and

employees which is a result of these changing work values, might have the effect of running down Japans' social capital inventories.

## **Japan's Business System**

Japan's business system, as per Redding's (2005) conceptualization, consists of the dynamic interaction of ownership arrangements and corporate governance, networks and alliances, and the operational management of corporations, especially financial, technology and human resources management. As outlined earlier in this paper, the Japanese business system exists in a context which is shaped and limited by its global and regional context, key historical influences, national culture, the role of the state, and the institutional framework. The key point of interest for the Japanese variety of capitalism is really its differences from Anglo-American approaches, and whether or not these differences will persist in the face of contemporary global and domestic economic and socio-cultural pressures.

According to Okabe (2002), there are two distinctive features of the ownership of Japanese corporations. The first is that they (both financial and non-financial firms) have a strong tendency to have their equity owned by the corporations with which they do business, and oppositely, own equity in those counterpart organizations. As at the end of March 2000, financial institutions (commercial banks, trust banks and insurance companies) held 36.1% and non-financial firms held 23.7% of the market value of all the stocks issued and traded publicly, and the proportion owned by corporations was around 60% (Council of Japanese Stock Exchanges, cited in Okabe, 2002). Although these figures do not necessarily indicate the cross shareholding arrangements of particular firms, they do indicate the prevalence of corporate cross shareholding in Japan. The second notable feature, is that shares held by corporations are not generally held for short term income gain, but for the longer term for the purposes of maintaining stability in business relationships - so-called 'stable share holdings' (antei kabunishi).

These unique cross shareholding arrangements have significant historical origins. After the Meiji industrial re-organization of the final third of the nineteenth century, so-called 'zaibatsu' conglomerates as the engines driving industrial Japan. By 1941 they controlled 32% of heavy industry and half of Japan's banking resources, and the four most prominent companies were Mitsubishi, Mitsui, Sumitomo and Yasuda (Clark, cited in Charkham, 2005). The basic structure was a holding company controlled by a founding family, where the holding company controlled a dozen or more companies including a bank, an insurance company, an international trading company and other subsidiaries,



affiliates and associated companies. After World War Two, the zaibatsu were disbanded by the occupying authorities, and subsequently replaced by so-called 'keiretsu' conglomerates, where cross shareholdings between group companies were substituted for family ownership and holding companies. They are arranged vertically (eg. Toyota) or in diversified horizontally arranged company groups - Mitsubishi, Mitsui and Sumitomo are examples (Charkham, 2005).

Okabe (2002) suggested that the benefits of cross shareholding included the maintenance of long term economic relationships with clients, and the prevention of hostile takeovers. The disadvantages include increases in corporate risk, inefficient allocation of capital and that corporate monitoring may not be sufficiently vigorously maintained between companies which mutually hold shares, a situation which is exacerbated by the fact that the majority of managers of Japanese corporations have been appointed from within, and they are generally biased towards the rights of employees, as opposed to the creation of shareholder value. Overall, there is consensus that cross shareholding arrangements in Japan are in decline, but remain important in holding conglomerates together, and preventing hostile takeover bids (Charkham, 2005; Okabe, 2002). Abegglen (2001), for example, noted that the Nissei Kiso Kenkyujo (1998) analysis of 2,426 companies suggested that stable shareholders (banks, insurance companies and keiretsu members) steadily declined from around 48% to 41% between 1987 and 1998. Over the same period, cross shareholdings declined from 21% to 16%.

These persistent but declining cross shareholding arrangements are significant in a debate surrounding corporate governance in Japan which arose after the collapse of Japan's economy in early 1990s and the onset of recession. As Abegglen (2001) observed, there are major differences between Japan and the West in the conceptualization and understanding roles and purposes of corporations. The Anglo - American world has accepted the idea that shareholders have an undisputed claim to corporate property, which implies that the value of a corporation is exclusively a function of capital investment, with other stakeholders having no significant role. This view generally accepts the position that the principal objective of a corporation is the generation of long-term capital gain to increase 'shareholder value'. The acceptance of the objective of corporate governance as the maintenance and development of shareholder value has no general equivalent in Japan, where it is most commonly understood to mean the maintenance and development of the company for the purpose of protecting the long term interests of employees and other, non-shareholder interest groups. Profit making is regarded as important, but is essentially secondary. Abegglen noted: "The consensus view is rather clear. The shareholder is one of the several stakeholders in the company, and management must take a long view in dealing with all the

stakeholders. Relations with employees, and honoring obligations to employees and their careers, remain the central focus. The Anglo-American focus on the shareholders' interest as the purpose of the corporation is quite clearly rejected (p179)".

Charkham (2005) observed that the idea of family has affected the development of the Japanese market economy. In fact, the Japanese economic system has been described as having its basis on 'community logic', where corporations have an important social welfare role to play and where the government really only becomes involved where unavoidable change or restructuring occurs. The concept of family has been extended to the work organization, and corporate life tends to be all encompassing, demanding the allegiance of all employees in return for paternalistic concern from one's superiors. Consensus within these kinds of family style relationships is an important ideal state in Japan, and is highly valued, just as conflict, is held in low esteem. In line with this ethos, Japanese unions are commonly based on the enterprise and direct confrontation between unions and management is now unusual. Japanese managers generally work diligently to ensure that workers understand policies, and on their part, unions try to understand what company requirements. Generally, Japanese companies are reluctant to 'downsize', placing a high value on the maintaining the employment of their staff. All of this is clearly different in the US and the UK, where markets are allowed to operate more or less freely, and the state has the final responsibility for social welfare.

As noted by Ahmadjian (2003), especially in the US in the 1980s, corporate governance and investor activism became the mantra of institutional investors. Maximisation of shareholder value was the vaunted objective, and appropriate corporate governance was seen as being achieved through strong, independent boards of directors, and adequately compensated managers. These investors began to demand these standards of non-US corporations, and subsequently brought these attitudes and beliefs with them to Japan. The 1990s economic recession combined with a number of corporate scandals (eg. concealing of stock trading losses at Daiwa Bank, product liability claims at Mitsubishi Motors, and sales of tainted milk by Snow Brand) had raised additional concerns about the corporate accountability so that within Japan there was popular acceptance of the need to improve corporate governance. Following this, there were various reforms in the 1980s towards this end: the issue of stock options became legal in 1997, and quickly spread; boards of directors were downsized, and many companies introduced the position of 'shikkou yakuin' (corporate executive officer) to try to separate the supervisory responsibilities of directors from the operational responsibilities of senior managers.

Despite legislative initiatives and a great deal of rhetoric, there has in fact been little substantial

change to Japanese corporate governance arrangements. Cosmetic changes (stock options and corporate executive officers to replace some managers with board representation) were readily taken up, but greater board independence which would challenge managerial autonomy was more elusive. Perhaps the major reason for the slow progress was that the changes required to have made boards more independent, would have needed to have come from boards which were dominated by senior managers. It is true that Japanese firms with high levels of foreign ownership and a truly global orientation (such as Sony and Orix), have made real governance reforms in Japan, but more domestically oriented firm have been much less proactive (Ahmadjian, 2003).

After the bursting of the asset bubble in the late 1980s, and the recession of the 1990s, macro level challenges to Japan's business system were matched by micro level criticisms of what had become famously known as the 'Japanese management model'. As summarized by McCormick (2004), this model has been useful to embrace a number of distinctive facets of Japanese business and management, and it has its origins factory level studies of the 1950s, in which particular emphasis was placed upon the employment system for 'regular male workers' (Abegglen cited in McCormick, 2004). Japan's spectacular economic successes of the 1970s and 1980s meant that by the 1990s, the components of the Japanese business and management model had been expanded to include consideration of the special characteristics of Japanese culture (group orientation, hierarchical and relationships based upon obligations), government business relations (administrative guidance), the education system (discipline and high standards to produce a capable and conscientious workforce), labor markets (secure employment, seniority system and enterprise unionism), corporate governance systems (main bank system, bank financing and cross shareholdings), factory level arrangements (quality control systems, non-specialized approach to job specifications, JIT) and the keiretsu system (long term alliances within a group of related companies).

In particular, as post bubble criticisms of Japan's long term employment arrangements began to mount, it was increasingly suggested that the existing system limited the flexibility of companies to react to changing global circumstances, and did not adequately reward initiative, risk taking and entrepreneurship amongst managers and workers. Major concerns were the capacity of Japanese industry to pay for an increasing number of older workers, a lack of incentives for younger workers, inflexibility for employers, inadequate opportunities for working mothers, and insufficient training to cope with a fast changing economic environment (McCormick, 2004). Sato (cited in McCormick, 2004) noted that 'lifetime employment' was increasingly interpreted as secure employment with a group of companies, as

opposed to in one company. Despite this, Japanese males still are relatively secure in their jobs, although there has been an increase in management initiated retirements amongst older workers, younger workers have faced difficulties entering the labor market, and there have been revisions to the seniority based salary system, where there has been a trend towards performance based pay, and larger individual differences in salaries according to capability and performance. The resultant picture in relation to human resources management reflects adaptation and incremental change (McCormick, 2004; Holzhausen cited in McCormick, 2004; Rebeck, cited in McCormick, 2004).

## **Conclusion**

Japan's unique business system, arising from a combination of historically and socio-culturally determined circumstances, appears to be on the cusp of major change. This is evidenced by a number of factors. For example, the influence of the cross shareholding system has declined, as has the main bank system, with major companies currently more prepared to seek finance outside the banking system. Further, pressure from external and domestic sources, has resulted in major changes in legal arrangements for corporate governance, although only a relatively small number of Japanese companies have taken up the available options. The Japanese management model, especially those aspects which emphasize the social welfare role of corporate Japan, in terms of security of employment and seniority based remuneration systems, are in a process of adaptation towards market and performance orientation. The institutional framework underpinning the business system, is in the midst of change - foreign players have entered Japan's financial markets and board rooms, and an aging, declining population, and changing attitudes to work amongst those who will replace the 'baby boomer' generation will ensure that the systems which underpin the Japanese business system of the first decades of the 21st century are not the same as those which currently exist, or which have existed in recent times. Even Japanese culture, based as it is on the historical legacy of communitarian consensus and mutual obligation, and respect for established hierarchy, is under strain from within and without - the social capital and trust which has been hard won by the mutually cooperative efforts of Japanese employers, enterprise based unions and workers, is at risk, as major corporations struggle to maintain established systems of secure employment arrangements in conditions of heightened competitiveness.

In sum, if we could use a simple analogy, the Japanese business system could be likened to a pedestrian who knows that he (or she) must cross a very busy highway, and must therefore take

considerable risks in reaching the other side. We could say that at this time the notional pedestrian is looking very carefully both right and left at the heavy traffic, and making the occasional foray into the road, but so far always coming back to the safety of the original curbside, or at least staying close enough to the curb to make an emergency return. In reality, there seems to be a lot of common sense in such caution, as an ill-considered rush into unknown circumstances might well have disastrous consequences. Japan's very considerable industrial successes in the course of its economic history have always been carefully constructed upon solid cultural and social foundations - to abandon this strategy in favor of alien philosophies or approaches without careful consideration would seem to be risky and ill-advised. Indeed, dramatic events in Japan's economic history indicate that conditions can change without much warning, and today's omnipotent economics and business philosophies might be regarded as worthless tomorrow. Change is inevitable, but tailoring responses to unique societal circumstances seems entirely appropriate, even if that process is difficult and time consuming.

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# **Restructuring of Japanese Manufacturers Amidst Global Competition**

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## **Abstract**

**This paper is to analyze how Japanese manufacturers changed cost structures in their business to cope with intensifying global competition. The primary framework for analysis depends on the contingency theory, which claims that firms have to adapt themselves to the environment around them in order to survive or acquire competitive edge. The paper first clarifies what globalization is and what impact it has given on Japanese manufacturers. In this context two hypotheses are proposed and tested regarding their cost control strategy. H1: In the industry in which market fluctuates in its size, firms convert fixed cost into variable cost in order to hedge such risk. H2: In the market with slowing growth where economies of scale are strategically achievable, firms reduce the rate of variable cost in order to reduce the average cost. H3: In the market where demands for the product fluctuate and technology continuously changes, firms convert fixed cost into variable cost in order to hedge such risk.**

## **Introduction**

The Japanese economy has been internationalized since the late 1980s with sharp appreciation of the yen as a turning point. Chinese manufacturers as well as Koreans began to enter into the Japanese domestic product markets in the beginning of 1990s, and European or American firms also began to take over Japanese manufactures in the late 1990s. It is an undisputable fact that the globalization in economic competition has given great impact on Japanese manufactures and such impact was amplified by the endogenous factor in Japanese domestic economy: the collapse of bubble economy in the beginning of 1990s. The purpose of this paper is to analyze how Japanese manufactures changed cost structures to cope with intensifying global competition. The primary framework for analysis depends on the contingency theory that claims that firms have to adapt themselves to the environment around them in order to survive or acquire competitive edge. The paper first clarifies what globalization is and



what impact it has given on Japanese manufacturers. In this context two hypotheses are proposed on their cost control strategy. These hypotheses are tested by the data of 238 companies' financial statement. The results of the analysis gave us enough evidence to support the hypotheses. Another detail analysis on automobile companies showed that their cost strategies were different in effect and pattern though most companies in the industry take the same cost strategy based on the second hypothesis.

## **Theoretical Background & Hypothesis**

### **Theoretical Background**

The primary framework to analyze in this paper depends on the contingency theory, which insists that firms have to adapt themselves to the business environment surrounding them to survive. Based on this theoretical framework, the proposition will be proposed; what cost control strategy Japanese manufacturers designed and how they implemented (or have being implementing) it, in order to cope with intensifying global competition. We first consider what impacts the development of globalization has made on Japanese manufacturers. Then we propose hypotheses about compatibility between conditions of competition and cost control strategy.

Before we discuss this issue, however, we must define what globalization is. Needless to say, globalization is a phenomenon affecting all the aspects of our lives, for example, politics, economics and culture. In the economic field, the International Monetary Found defines globalization as “the growing economic interdependence of countries worldwide through increasing volume and variety of cross-border transactions in goods and services, freer international capital flows, and more rapid and widespread diffusion of technology” (IMF, World Economic Outlook, May, 1997). In the business field, globalization has intensified international competition. Increasing volume and a variety of cross-border transactions in goods and services has pushed down market profitability. Freer international capital flows have helped foreign investors to become stake holders of domestic companies and claim more returns. More rapid and widespread diffusion of technology helped the companies in developing countries to enter into incumbent markets. In a word, globalization in business field means that constant entries of new competitors intensify the competition in the incumbent markets. The effects of globalization on Japanese manufacturers have been amplified by the macro-economy problem in Japanese domestic markets: the collapse of the bubble economy (assets inflated economy in the late

1980s up to the early 1990s). The globalization of the Japanese economy has developed intensively since the late 1980s. Japanese manufacturers exported many products abroad and earned a lot of foreign currency despite of the sharp appreciation of the yen. The foreign currency that Japanese manufacturers earned flowed into the domestic real estate market and the domestic stock market. All the assets in Japan, to say nothing of stock, were inflated. Many manufacturing firms were able to finance much low-cost money by making the most of their appreciated stock prices in the market. With the money financed like this, some of them employed more people and invested a huge amount of money to extend their business; others bought real estate or stock for speculative profit. As a result, all kinds of assets in Japan were more than ever inflated. Eventually such a bubble economy, however, collapsed in the early 1990s. The Japanese manufacturers had redundant capacity in production facilities and redundant human resources. In other words, they became too big to make profit in the shrunken market. The Japanese economy in the 1990s fell into a deflationary spiral. The prices of stocks and the value of land had been consecutively declining for several years. The decade of the 1990s in the Japanese economy was called “a lost decade.” However, under such circumstances various deregulations were implemented and entries of foreign firms into the Japanese market increased. As a result, product markets have gotten to be in a state of excess-supply, where market participants have been engaged in cutthroat price competition.

In a nutshell, at the same time Japanese manufacturers have had to compete with foreign companies as well as those domestic, they have had to restructure and reengineer their businesses. We should consider their cost control strategy to cope with global competition in this context. Therefore, we may propose the following proposition based on this theoretical framework.

Proposition: Under global competitive pressure, the surviving firms must have change patterns of cost behavior successfully to ensure profits.

## **Hypotheses**

Considering the wide scope of Japanese manufacturing industries, however, we can guess that their cost control strategies have variety. We may, however, propose two different types of hypotheses based on the condition of competition in industries, because firms change their cost strategy according to the change of market's conditions. We can find a change of market's conditions in market's size trend after Japanese manufactures got involved in global competition. Japanese companies enjoyed

consistent growth in sales amount until the beginning of 1990s, namely before they were involved in global competition. They, however, faced with both downward pressure of product's price and fluctuation of sales amount after the development of global competition. As a result, some markets began to show fluctuation in sales amount and other began to show sluggish growth.

Electric equipment industry, for example, is an industry in which market size began to fluctuate after globalization because many competitors continuously provide new products with innovation and consumers' need is diversified. Manufactures in the industry cannot have product-lines that have big sales amount with a long life-cycle in such a market. They have to produce many kinds of products with small amount because expected amount of sales in each product is uncertain and is not so large. They have to produce each goods as much as consumers want otherwise they are exposed to the risk of holding dead-stocks. In such an industry with uncertain consumer demands and continuous innovation, manufacturers have to reduce break-even-point down in order to hedge such risk. Improvement in break-even-point requires them to reduce fixed cost or the rate of variable cost (marginal cost). Since it is, however, difficult for them to reduce both fixed cost and the rate of variable cost at the same time, they try to reduce fixed cost instead of the rate of variable cost. In other words they convert fixed cost into variable cost.

For example, let us indicate fixed cost, the rate of variable cost ( $< 1$ ) and the sales amount of break-even-point by  $F$ ,  $v$  and  $BEP$  respectively. Then we can define  $BEP$  as  $F/(1-v)$ . Here  $(1-v)$  is referred to as marginal profit. Supposing that fixed cost decrease from  $F$  down to  $F'$  and the rate of variable cost increase from  $v$  up to  $v'$ . New break-even-point moves to  $F'/(1-v')$ . New break-even-point become smaller than the old one as long as the rate of new fixed cost to old one is less than that of new marginal profit to old marginal profit. We can induce the first hypothesis from this context. ( $\square F'/(1-v') < F/(1-v)$   $\square$   $F'/F < (1-v')/(1-v)$ )

H1: In the industry in which market fluctuates in its size, firms convert fixed cost into variable cost in order to hedge such risk.

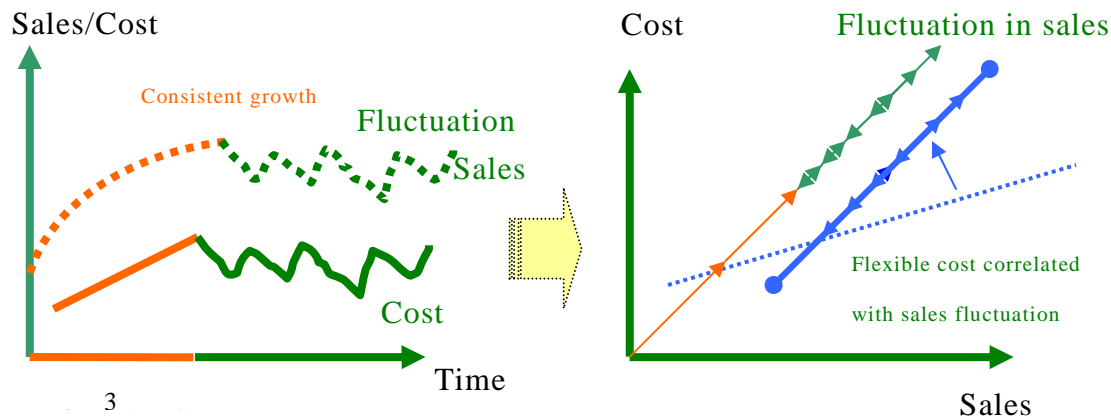


FIG.1: COST STRUCTURE CHANGE; PATTERN-'A'

On the other hand automobile industry is an industry that still grows in its market size though its growth rate slowed. A limited number of competitors (11 companies) dominate market and achieve economies of scale. Although firms in this kind of industry have to invest huge amount of money to install facilities for production, they usually enjoy a low rate of variable cost. When markets continue to expand each incumbent firm in the markets can turn a profit. They, however, have difficulties in striking a profit when the market stops to expand and new entrants come into the market, because the market share given for each firm reduces. Since a large volume of production is most important in economies of scale, they try to achieve a large share of market in a shrinking market. In such a case, they try to reduce the rate of variable cost instead of reducing fixed cost in order to reduce of average cost, which prescribes the strategic (the lowest) price with which each company can compete. Some firms merge each other and other firms take over another firm in the industry in order to acquire a large share of the market. We can induce the second hypothesis from this context.

H2: In the market with slowing growth where economies of scale are strategically achievable, firms reduce the rate of variable cost in order to reduce the average cost. (See FIG.2).

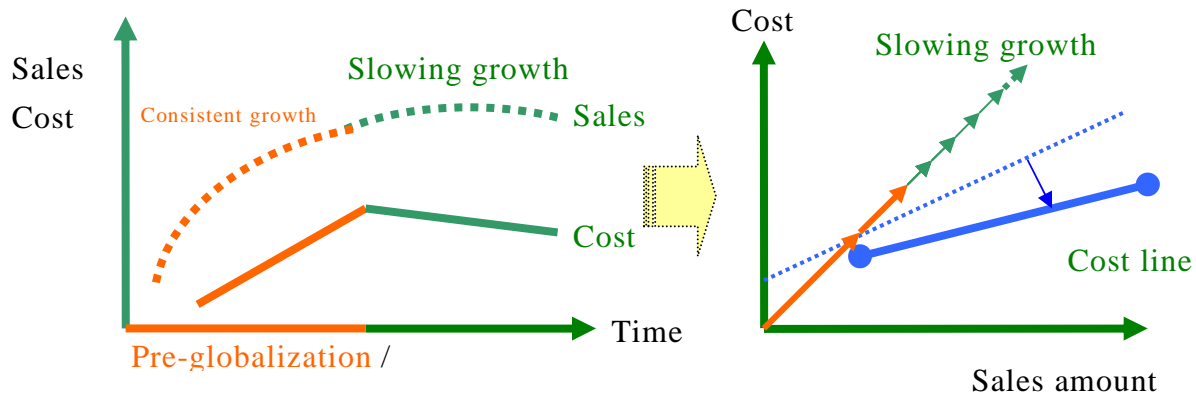


FIG.2: COST STRUCTURE CHANGE: PATTERN-'B'

## Data and Method

### Data

Unconsolidated-basis accounting data of 238 public companies in electric equipment industry, automobiles and auto parts & accessories industry were collected for 12 years (1994 fiscal year to 2005 fiscal year) from the database of Development Bank of Japan. Unconsolidated-basis accounting data of 11 automobiles maker were also collected for 26 years (1980 fiscal year to 2005 fiscal year) from the database of NIKKEY Financial Data for another detailed analysis. Electric equipment industry, automobiles and auto-parts & accessories industries are one of Japanese leading industries. The firms in these industries have been confronting with fierce global competitions. The reason why unconsolidated-basis accounting data were used is that the core companies (or parent companies) in these industries are corporate giants that have variety of subsidiaries in peripheral industries. Therefore if we try to analyze the core business of these companies, we should put focus on the unconsolidated-basis data.

### Method

Comparing two cost-lines estimated respectively for both pre-adaptive period and post adaptive period tests the hypotheses. Pre-adaptive period is the period in which firms had not yet taken any measures to change their cost structure in order to cope with the change of the market. Post-adaptive period is

the period in which firms had taken some measures and changed the cost structure. A ramification point between the pre-adaptive and the post-adaptive was defined as the point at which a time-series cost trend changed remarkably on the scatter graph of sales amount (X axis) and cost (Y axis).

Two cost lines were estimated, respectively for the two periods: the pre-adaptive period and the post-adaptive period. A cost line consists of two terms; fixed cost and the rate of variable cost. Fixed cost is the cost that does not change according to the activity (sales amount). The rate of variable cost is the percentage with which cost changes based on the activity (sales amount). Therefore a cost line equation can be described as

$$\text{Cost} = \text{Fixed Cost} + \text{the Rate of Variable Cost} \times \text{Sales Amount}$$

Cost in the above equation is total cost in business operation that means the sum of cost of goods sold and selling & general administrative cost. Fixed cost for each period was estimated by the average of selling & general administrative costs in each period. The rate of variable cost for each period was estimated as  $\beta_1$  in the following linear regression model.

$$C_t = \beta_0 + \beta_1 S_t + \varepsilon_t$$

$C_t$  = cost of goods sold  
 $S_t$  = sales revenue

If firms can successfully cope with fluctuation of markets, they will shift the cost line upward, which means that the fixed cost estimated for the post-adaptive period should be reduced less than the fixed cost estimated for the pre-adaptive period, and which, at the same time, means that the rate of variable cost estimated for the post-adaptive period should be bigger than that estimated for the pre-adaptive period.

On the other hand if firms can successfully cope with the markets with slowing growth, they will shift cost lines downward, which means that the rate of variable cost estimated for the post-adaptive period should be reduced less than that estimated for the pre-adaptive period, and which, at the same time, means that the fixed cost estimated for the post-adaptive period should be bigger than that estimated for the pre-adaptive period.

We should note that the method to analyze changes of cost structure above mentioned is not statistically rigorous, because of the arbitrariness of determination of a ramification point, and because of inadequacy in numbers of time series data. However this method can tell us a rough trend of cost structure changes.

## Results & Discussion

The results of the analyses for 238 companies were summarized in Table 1. The companies in the three industries: computers & electric equipment industry, communications equipment industry and household electric appliances industry seem to have changed their cost lines according to the pattern-A in the first hypothesis. They seem to have shifted cost lines upward and reduced the fixed cost in accordance with the fluctuating markets.

The companies in other three industries: electric equipment & component industry, other electric equipment industry and automobiles industry seem to have changed their cost lines according to the pattern-B in the second hypothesis. They seem to have shifted cost lines downward by reducing the rate of variable cost, but by increasing the fixed cost, in the markets that have been still growing.

On the other hand, the companies in electric measuring instrument industry and auto parts & accessories industry seem to have shifted their cost lines upward with the increases in both the rate of variable cost and the fixed cost. The companies in these two industries can enjoy still growing markets. They may have invested more according to the growth of the markets.

The companies in industrial electric equipment industry, however, seem to have shifted their cost lines downward with the reductions of both the rate of variable cost and the fixed cost. The effect of reduction in the rate of variable cost seems to be more remarkable than that of reduction in the fixed cost. The companies in this industry seem to have to cope with a shrinking market size. This pattern of cost behavior change may tell us that the companies in a fast-shrinking market give a first step to the reduction in the rate of variable cost instead of the reduction in fixed cost.

Let's take a look at the results of another analysis on the automobiles industry. In this analysis the data were collected in company-basis for 26 years. The purpose of collecting data for such a long time was that the emphasis of analysis was put on comparing the two cost lines between pre-globalization period and post-adaptive period. Pre-globalization was defined as the period until 1980 to the beginning of the 1990s in which the companies had not yet been exposed to the global competition.

Automobiles industry in Japan consists of eleven companies: Nissan, Isuzu, Toyota, Hino, Nissan Diesel, Mitsubishi, Mazda, Daihatsu, Honda, Suzuki, and Fuji Heavy Industry. Nissan, Toyota, Mitsubishi, Mazda, Honda, and Fuji Heavy Industry produce almost all the types of passenger vehicles. Hino and Nissan Diesel are specialized in producing trucks. Daihatsu and Suzuki have been making



only light cars with a less than one liter engine. Honda and Suzuki also have been producing motorcycles for more than half a century.

The results of the analysis in the table 2-1 and 2-2 show that nine companies except Nissan Motor Corporation and Mitsubishi Motors Corporation among eleven companies in automobiles industry seem to have shifted the cost lines downward with the remarkable reduction in the rate of variable cost, but with the increase in the fixed cost. The results obtained were in accordance with the second hypothesis that supposes that firms reduce the rate of variable cost at the expense of increase in fixed costs in the market with slowing growth where economies of scale are strategically achievable.

Nissan Motor Corporation and Mitsubishi Motors Corporation faced with sluggish sales around turn of the century, though nine companies among eleven automobiles-makers have been still expanding their sales amount. Actually both Nissan and Mitsubishi had the great trouble in their business from the late of last century to the beginning of this century. Nissan had hold excessive production capacity because of the sluggish sales, and the company had reduced those redundant resources by what they called “Nissan Revival Plan” under the command of new president, Carlos Ghosn.

**TABLE 1. Results of the Analysis on Change in Cost Structure Index:1995's SALES=100**

Industry	Computers & Electric Eq.(5)			Industrial Electric Eq.(36)			Communications Equipment (23)		
Fiscal Year	SALES	COST OF GOODS SOLD	SELLING, GENERAL & ADMINISTRATIVE EXPENSE	SALES	COST OF GOODS SOLD	SELLING, GENERAL & ADMINISTRATIVE EXPENSE	SALES	COST OF GOODS SOLD	SELLING, GENERAL & ADMINISTRATIVE EXPENSE
1994	89.0	65.9	20.7	96.0	73.2	20.3	96.1	72.7	18.0
1995	100.0	73.9	22.5	100.0	75.4	21.0	100.0	75.6	18.6
1996	108.9	82.7	23.4	105.2	79.4	21.7	106.1	82.9	19.0
1997	107.5	82.6	23.1	106.0	79.9	22.3	105.9	84.7	19.0
1998	101.2	79.6	21.5	94.8	73.0	20.7	95.6	79.0	17.5
1999	102.3	80.0	20.4	94.7	72.1	19.3	94.4	75.8	16.2
2000	108.8	84.1	21.1	100.2	75.5	19.9	97.7	78.3	16.1
2001	94.5	76.5	20.9	87.2	67.6	19.2	82.1	68.1	15.8
2002	86.0	67.7	17.5	85.2	65.1	18.5	75.6	61.4	14.7
2003	76.9	60.5	15.6	88.8	67.0	18.6	79.5	63.0	14.3
2004	76.4	60.1	15.4	94.8	71.3	19.0	80.7	63.3	14.6
2005	80.6	63.1	16.1	95.7	71.9	19.2	79.8	63.6	14.2
	Period	Fixed Cost	Var. Cost Ratio	Period	Fixed Cost	Var. Cost Ratio	Period	Fixed Cost	Var. Cost Ratio
Pre- Adaptive	1994-2000	21.8	88.8	1994-2000	20.7	65.6	1994-2000	17.8	70.5
Post- Adaptive	2001-2005	17.1	90.3	2001-2005	18.9	60.9	2001-2005	14.7	84.6
Industry	Electric Measuring Instrument(11)			Electric Equipment & component(57)			Household Electric Appliances(22)		
Fiscal Year	SALES	COST OF GOODS SOLD	SELLING, GENERAL & ADMINISTRATIVE EXPENSE	SALES	COST OF GOODS SOLD	SELLING, GENERAL & ADMINISTRATIVE EXPENSE	SALES	COST OF GOODS SOLD	SELLING, GENERAL & ADMINISTRATIVE EXPENSE
1994	87.8	59.3	25.4	91.3	73.2	12.7	98.7	80.0	17.1
1995	100.0	65.1	27.1	100.0	78.9	13.7	100.0	80.8	17.3
1996	107.2	68.5	29.1	107.3	84.8	14.3	106.9	85.6	18.2
1997	124.2	76.6	32.4	116.2	91.4	15.0	110.3	89.1	18.1
1998	94.8	64.3	25.8	110.6	88.9	13.8	106.4	87.6	17.7
1999	91.9	61.3	25.4	117.2	93.5	14.5	107.8	89.5	17.0
2000	115.7	73.7	30.0	131.6	103.0	15.5	117.2	97.3	17.6
2001	78.3	58.0	27.4	104.7	86.0	15.2	100.9	84.8	16.9
2002	80.6	57.0	27.5	109.0	88.0	15.2	104.7	86.5	17.8
2003	120.7	78.8	33.7	114.7	91.8	15.7	109.4	91.0	17.5
2004	139.5	88.3	37.7	121.4	96.6	16.3	113.4	94.5	17.4
2005	141.4	87.8	38.2	127.6	100.4	17.0	120.8	100.7	18.1
	Period	Fixed Cost	Var. Cost Ratio	Period	Fixed Cost	Var. Cost Ratio	Period	Fixed Cost	Var. Cost Ratio
Pre- Adaptive	1994-2000	27.9	47.7	1994-2000	14.2	75.7	1994-1998	17.7	80.9
Post- Adaptive	2001-2005	32.9	50.1	2001-2005	15.9	64.8	1999-2005	17.5	82.4
Industry	Other Electric Equipment(9)			Automobiles(11)			Auto Parts & Accessories(68)		
Fiscal Year	SALES	COST OF GOODS SOLD	SELLING, GENERAL & ADMINISTRATIVE EXPENSE	SALES	COST OF GOODS SOLD	SELLING, GENERAL & ADMINISTRATIVE EXPENSE	SALES	COST OF GOODS SOLD	SELLING, GENERAL & ADMINISTRATIVE EXPENSE
1994	94.8	73.7	16.3	102.4	90.4	10.7	102.4	91.1	8.1
1995	100.0	77.5	16.9	100.0	86.7	11.2	100.0	88.8	8.3
1996	97.9	78.2	16.2	108.9	91.1	13.4	105.8	93.2	8.8
1997	104.5	83.4	16.5	102.8	84.6	13.9	106.8	95.1	8.8
1998	94.9	77.2	15.8	97.7	80.9	12.8	100.6	90.4	7.9
1999	108.7	86.6	17.1	95.1	78.6	13.4	104.0	92.9	8.1
2000	129.9	99.4	19.9	97.3	80.1	13.8	109.0	96.9	8.1
2001	93.6	75.3	18.8	99.0	78.3	14.7	113.4	101.4	8.3
2002	93.7	74.3	17.8	104.7	82.3	15.5	124.3	110.6	8.7
2003	98.6	77.6	17.6	106.5	83.9	15.8	131.1	116.2	9.2
2004	102.2	79.7	17.6	110.3	88.7	16.0	144.3	127.7	10.1
2005	110.1	85.7	18.8	119.6	95.3	17.0	162.9	145.3	10.6
	Period	Fixed Cost	Var. Cost Ratio	Period	Fixed Cost	Var. Cost Ratio	Period	Fixed Cost	Var. Cost Ratio
Pre- Adaptive	1994-1998	16.3	77.0	1994-2000	12.7	96.0	1994-2000	8.3	82.2
Post- Adaptive	1999-2005	18.2	68.9	2001-2005	15.8	85.0	2001-2005	9.4	88.6

Variable Cost Ratio: Percentage

TABLE 2-1. Results of the Analysis on Change in Cost Structure/ Automobile Companies Index:1980's SALES=100

FINANCIAL YEAR	NISSAN MOTOR CO. LTD.			ISUZU MOTORS LTD.			TOYOTA MOTOR COP.		
	SALES	COST OF GOODS SOLD	Selling, General & Administrative Expense	SALES	COST OF GOODS SOLD	Selling, General & Administrative Expense	SALES	COST OF GOODS SOLD	Selling, General & Administrative Expense
1980	100.0	79.7	16.3	100.0	90.6	7.5	100.0	87.5	5.5
1981	106.1	84.8	16.8	105.8	94.4	8.3	105.9	96.9	4.8
1982	105.7	85.4	17.2	104.5	93.2	9.1	116.3	104.0	5.4
1983	114.7	93.2	19.5	99.6	89.9	9.1	147.8	122.1	16.5
1984	120.0	97.9	20.0	111.8	100.1	10.7	165.3	137.2	15.8
1985	124.5	102.8	19.8	147.8	131.6	12.6	183.2	149.8	18.1
1986	113.7	97.7	16.2	147.4	134.8	12.2	190.5	162.9	17.6
1987	113.3	95.6	16.2	132.3	122.5	12.0	182.0	159.1	15.4
1988	118.7	98.9	16.8	148.8	135.9	11.3	202.1	174.6	16.4
1989	132.8	109.1	19.1	158.8	144.3	12.5	217.2	187.3	17.9
1990	138.4	116.7	17.7	173.9	158.7	13.7	241.6	204.5	20.8
1991	141.6	123.5	17.0	166.6	156.8	15.9	258.7	227.4	21.1
1992	129.2	114.2	16.1	174.3	162.5	14.4	270.1	244.7	21.6
1993	118.8	104.7	15.4	170.6	158.7	13.3	272.8	249.7	20.0
1994	113.0	99.2	16.3	73.6	65.1	6.5	186.2	166.4	15.1
1995	116.6	98.3	17.0	177.7	157.9	13.9	240.4	211.8	21.5
1996	122.4	98.3	20.3	173.7	151.0	17.9	275.1	232.5	26.9
1997	117.6	96.3	18.4	164.0	141.6	19.6	234.7	189.3	28.5
1998	110.1	92.1	17.5	135.9	119.3	15.9	227.3	184.7	26.2
1999	99.4	86.4	13.4	121.6	111.2	17.2	223.8	185.2	23.7
2000	98.8	81.9	12.7	120.7	105.7	15.6	238.8	198.8	24.7
2001	100.1	78.3	13.8	110.8	95.3	14.3	250.3	199.9	27.7
2002	113.4	89.0	13.9	110.6	95.5	13.2	264.0	209.4	28.6
2003	115.4	91.2	16.1	129.5	106.2	13.5	270.8	217.1	28.5
2004	123.3	101.9	13.7	128.0	105.9	13.3	278.5	226.8	30.5
2005	129.2	105.8	15.0	133.5	109.5	16.2	307.9	249.2	33.1
	Period	Fixed Cost	Var. Cost Ratio	Period	Fixed Cost	Var. Cost Ratio	Period	Fixed Cost	Var. Cost Ratio
Pre- Globalization	1980- 1989	17.8	90.1	1980- 1990	10.8	93.1	1980- 1996	16.5	88.9
Post- Adaptive	2000- 2005	14.2	86.8	1996- 2005	15.7	86.4	1997- 2005	27.9	76.8

FINANCIAL YEAR	HINO MOTORS LTD.			NISSAN DIESEL MOTOR CO. LTD.			MITSUBISHI MOTORS CORP.		
	SALES	COST OF GOODS SOLD	Selling, General & Administrative Expense	SALES	COST OF GOODS SOLD	Selling, General & Administrative Expense	SALES	COST OF GOODS SOLD	Selling, General & Administrative Expense
1980	100.0	95.5	3.4	100.0	88.8	9.1	100.0	87.1	11.1
1981	107.9	100.8	4.3	100.8	90.3	8.7	97.7	82.5	12.6
1982	101.8	96.0	4.0	98.0	88.9	8.1	95.8	79.5	14.3
1983	100.8	96.2	3.4	88.0	80.7	7.6	105.9	92.2	12.7
1984	114.1	108.6	3.8	103.5	93.8	8.8	127.1	108.6	15.7
1985	120.9	114.8	4.3	96.5	87.2	8.8	142.5	121.4	18.4
1986	101.4	96.6	3.7	81.4	73.5	8.9	140.7	121.6	16.2
1987	115.2	107.2	5.2	96.2	84.5	11.2	158.2	136.3	18.3
1988	137.4	125.5	7.6	118.0	102.7	13.6	171.4	147.4	20.0
1989	154.1	141.4	8.1	129.4	113.5	14.0	182.8	155.0	23.4
1990	168.7	156.0	8.5	145.3	129.7	13.7	208.8	177.4	25.5
1991	163.7	154.7	8.2	139.2	127.3	10.4	230.5	200.5	24.9
1992	162.4	153.0	8.7	126.4	117.1	9.5	236.1	206.6	24.3
1993	137.5	130.2	7.1	108.0	101.3	10.2	221.7	194.6	23.5
1994	164.8	149.6	10.3	127.2	112.7	12.5	239.4	209.2	24.1
1995	150.7	137.4	10.1	128.7	111.8	14.6	227.7	197.8	24.2
1996	159.8	146.5	11.0	125.0	107.4	15.1	233.4	198.9	29.4
1997	147.7	138.0	9.4	110.2	96.1	13.9	225.7	196.2	30.9
1998	107.8	108.4	10.1	82.6	78.2	11.0	210.7	182.7	26.0
1999	121.8	115.9	10.9	88.3	79.9	9.8	190.1	168.6	20.3
2000	133.6	120.7	11.7	102.0	85.3	13.6	181.7	166.2	23.2
2001	144.8	129.9	12.7	96.1	79.3	13.9	166.9	144.0	21.3
2002	169.3	151.0	14.1	98.2	81.5	14.2	169.4	143.2	21.7
2003	219.8	193.4	18.5	128.9	100.4	19.7	128.3	109.1	16.5
2004	229.5	204.4	18.0	125.5	104.1	15.9	105.0	94.6	16.0
2005	236.3	207.0	20.3	135.2	111.2	14.6	113.7	99.4	15.6
	Period	Fixed Cost	Var. Cost Ratio	Period	Fixed Cost	Var. Cost Ratio	Period	Fixed Cost	Var. Cost Ratio
Pre- Globalization	1980- 1993	5.7	90.3	1980- 1993	10.2	89.6	1980- 1990	17.1	87.5
Post- Adaptive	2000- 2005	15.9	85.4	2000- 2005	15.3	75.3	2000- 2005	19.1	88.3

TABLE 2-2. Results of the Analysis on Change in Cost Structure/ Automobile Companies Index:1980's SALES=100

FINANCIAL YEAR	MAZDA MOTOR CORP.			DAIHATSU MOTOR CO.,LTD.			HONDA MOTOR CO.,LTD.		
	SALES	COST OF GOODS SOLD	Selling, General & Administrative	SALES	COST OF GOODS SOLD	Selling, General & Administrative	SALES	COST OF GOODS SOLD	Selling, General & Administrative
1980	100.0	81.8	14.8	100.0	90.8	7.8	100.0	77.5	19.1
1981	112.8	95.0	14.7	114.2	105.2	7.6	114.8	89.7	21.6
1982	114.4	95.2	15.5	120.9	108.7	11.3	129.9	102.0	23.9
1983	132.3	111.3	16.8	128.5	114.4	13.1	137.3	108.5	24.0
1984	138.9	117.8	16.1	141.8	124.7	15.1	143.5	114.0	24.2
1985	152.2	128.8	16.7	155.7	136.8	16.7	167.0	136.5	25.1
1986	157.7	141.9	14.3	161.7	142.6	17.8	173.6	143.9	23.5
1987	155.4	142.2	12.7	134.5	115.1	17.3	92.9	79.3	12.1
1988	76.1	67.9	6.8	206.4	178.2	25.2	196.1	165.0	25.5
1989	198.4	175.0	19.5	209.6	183.2	24.9	204.4	169.9	27.1
1990	215.9	188.4	23.2	237.7	208.0	27.6	208.2	174.8	28.6
1991	223.5	197.2	24.2	236.4	209.5	26.7	216.5	182.7	29.7
1992	212.5	187.5	23.8	236.9	212.9	24.9	200.4	170.8	27.1
1993	171.5	154.8	21.0	220.5	196.7	23.1	186.3	158.7	26.1
1994	164.8	149.6	18.7	211.7	185.8	24.2	183.6	156.5	24.7
1995	140.0	124.9	16.4	204.8	176.6	25.3	182.0	154.2	24.5
1996	138.4	121.6	17.3	237.7	202.1	29.8	211.6	170.8	28.8
1997	146.7	124.5	19.2	236.4	203.0	29.5	228.8	180.6	33.4
1998	141.0	118.5	17.1	235.1	205.0	25.9	220.3	171.5	32.7
1999	142.2	115.0	26.0	257.3	219.5	31.7	217.1	152.2	54.6
2000	128.3	108.7	22.6	262.4	222.4	33.0	226.2	159.0	58.4
2001	132.4	108.8	21.0	247.1	210.8	32.4	238.8	162.4	62.5
2002	149.1	122.3	24.0	229.4	195.8	30.6	247.1	167.1	69.2
2003	161.2	133.6	25.6	236.7	198.1	32.8	246.8	164.8	68.3
2004	179.5	149.3	27.8	280.6	236.9	35.1	259.4	177.3	71.1
2005	197.1	162.5	28.0	308.2	267.1	32.4	279.4	186.5	75.1
	Period	Fixed Cost	Var. Cost Ratio	Period	Fixed Cost	Var. Cost Ratio	Period	Fixed Cost	Var. Cost Ratio
Pre-Globalization	1980-1985	15.8	89.5	1980-1994	18.9	87.1	1986-1996	25.2	81.8
Post-Adaptive	2000-2005	24.8	81.3	1995-2005	30.8	85.8	1999-2005	65.6	54.8
	SUZUKI MOTOR CORP.			FUJI HEAVY INDUSTRIES,LTD.					
FINANCIAL YEAR	SALES	COST OF GOODS SOLD	Selling, General & Administrative Expense	SALES	COST OF GOODS SOLD	Selling, General & Administrative Expense			
1980	100.0	81.7	16.0	100.0	86.8	10.2			
1981	120.5	97.2	19.9	114.8	95.3	13.5			
1982	118.5	95.1	21.3	124.8	103.4	14.4			
1983	114.5	94.6	17.1	129.7	109.8	14.8			
1984	126.9	104.6	18.4	144.6	123.2	15.9			
1985	157.8	133.0	21.1	165.3	138.4	21.8			
1986	162.7	138.5	19.9	154.0	131.3	20.2			
1987	165.9	140.8	19.9	147.6	124.2	22.0			
1988	178.4	154.1	21.7	142.7	122.8	20.1			
1989	184.3	156.2	23.8	141.6	124.7	23.2			
1990	220.9	185.9	29.7	162.6	146.4	28.6			
1991	228.7	195.9	29.1	177.2	154.0	22.8			
1992	230.0	196.2	28.8	187.8	161.3	25.4			
1993	220.3	186.3	29.2	164.3	144.9	25.0			
1994	229.1	192.6	29.7	178.8	151.4	24.6			
1995	244.9	202.6	34.9	160.7	130.9	25.6			
1996	258.2	211.4	39.2	177.4	137.7	30.5			
1997	257.6	208.4	42.8	184.2	139.6	33.1			
1998	259.9	214.4	38.8	199.7	153.9	31.7			
1999	278.3	228.7	43.6	197.4	156.7	29.1			
2000	282.8	227.6	48.0	198.6	155.1	31.3			
2001	288.4	224.2	54.9	198.3	150.0	34.5			
2002	308.3	237.1	59.4	196.2	149.3	36.2			
2003	304.2	232.7	59.5	201.6	159.4	35.6			
2004	323.7	249.0	63.1	204.3	163.7	32.9			
2005	369.2	285.5	73.3	210.0	167.4	31.4			
	Period	Fixed Cost	Var. Cost Ratio	Period	Fixed Cost	Var. Cost Ratio			
Pre-Globalization	1980-1994	23.1	88.1	1980-1988	17.0	83.9	Variable Cost Ratio :Percentage		
Post-Adaptive	2000-2005	59.7	71.6	1995-2005	32.0	75.9			

On the other hand Toyota Motor Corporation and Honda Motor Corporation have remarkably reduced the rate of the variable cost. The cases of both companies were graphically represented in the Figure 3. They successfully have reduced the average cost by reducing the rate of variable cost, but by increasing the fixed cost.

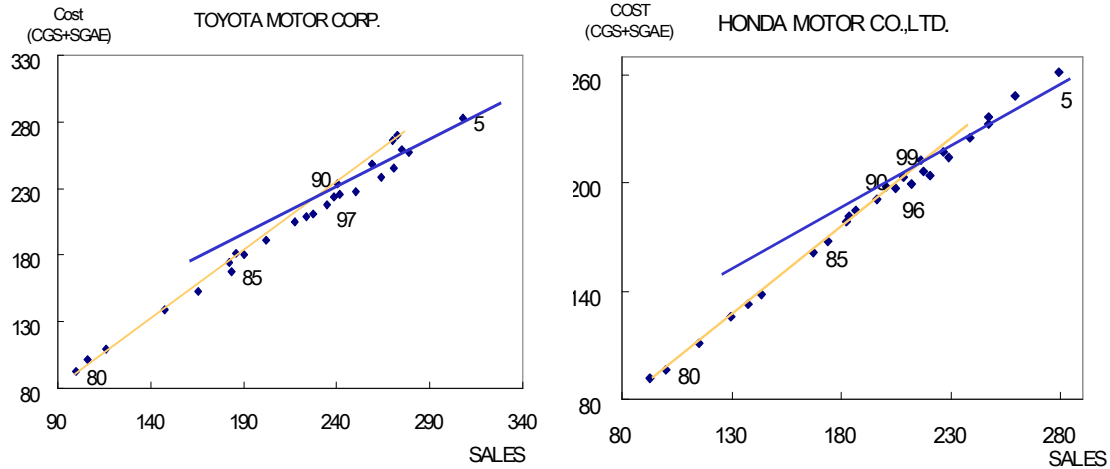


FIG.3

## Conclusion

This paper aimed to explore how Japanese manufactures have shifted their cost structures under the influence of intensifying global competition. The contingency theory claims that firms have to adapt themselves to the altering environment around them in order to survive or acquire competitive edge. The globalization in business environment has been having a great impact on Japanese manufacturers. Intensifying global competition has put pressure on manufacturers to change their strategy, organization and management process. In these interactions with a rapid changing environment Japanese manufacturers changed their cost structure to cope with the uncertain market situation. With this context in mind we proposed the following proposition:

Under global competitive pressure, the surviving firms must have changed patterns of cost behavior successfully to ensure profits. Based on this proposition two hypotheses were proposed and examined.

H1: In the industry in which market fluctuates in its size, firms convert fixed cost into variable cost in order to hedge such risk.

H2: In the market with slowing growth where economies of scale are strategically achievable, firms reduce the rate of variable cost.

With the financial data of 238 public companies in electric equipment industry, automobiles and auto parts & accessories industry, the hypotheses were examined by comparing two cost lines estimated respectively for the pre-adaptive period and the post-adaptive period. We confirmed that most companies in these industries shifted cost lines effectively to cope with the change of the markets according to the hypotheses. We should note, however, that our findings are not statistically rigorous because of the arbitrariness of determination of a ramification point and because of inadequacy in numbers of time-series data. In order to secure the statistical rigorousness or theoretical universality, a further extended study should be required with enough panel data of all manufacturing industries.

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## The Paradox of Korea's Globalization

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### Abstract

The paper argues that Korea's prevailing strong belief in self-sufficiency and the legacy of the state-led and overly regulated external policies which dominated prior to the 1997 financial crisis had become an obstacle to Korea's pursuit of market-driven globalization strategy. Although the momentum of globalization ignited during the financial crisis has become a blessing in disguise, enabling Korea to undertake speedier market opening and draconian structural reforms, if not done by Korean themselves, there has been no fundamental turnaround yet in the mindset of the Korean people, the ultimate measure of globalization. The paper critically evaluates the Korean government's inbound FDI policies since the 1997 financial crisis and realistically appraises apparently inconsistent behaviour of the FDI regime through, in part, the eyes of foreign investors in Korea.

### Introduction

Since the opening of its market to the outside, international capital flows into Korea rose from a meager US\$27.4 million in 1987 to more than \$32 billion in 1996 (Economist Intelligence Unit, 2002: 8). Beginning in the early 1990s, the affiliates of more than 16,000 foreign multinational corporations (MNCs) have established operations in fields ranging from consumer products to high-tech industries operating in Korea. In addition to International Monetary Fund (IMF) -mandated structural reforms, a lower value of the currency (won), declining status of the *chaebol*, or a group of mostly family-owned and managed conglomerates in Korea, and the government's strong push for investment liberalization measures, there was an upsurge of FDI inflows into Korea (Shin, 2005; Kwon, 2006; Harris, 2002; Noland, 2005; Kim and Rowley, 2001; Weiss and Hobson, 1988; Chang, 1988). For instance, during the four-year period after the financial crisis from 1998 to 2001, Korea attracted about US\$52 billion in foreign direct investment (FDI), which is almost more than double the entire amount of the previous four decades (Kim and Choo, 2002: 30). More recently, while the amount of total inward FDI during

the period from 1962 to 1997 was minimal, total FDI during the eight-year period from 1998 to 2005 alone tallied about US\$91 billion on a notification basis, which is nearly quadruple the US\$25 billion posted during the previous 35 years, or about 79 per cent of the US\$115 billion aggregate FDI figure recorded from 1962 to 2005 (Ministry of Commerce, Industry and Energy, 2006). Managing and exploiting the influx of FDI requires a new approach to incoming foreign investment and major adaptations to MNC business practices within Korea. The highly-successful export-driven policies as well as state-centred approach of the past may no longer be a guide to future economic success, at least as far as welcoming, integrating and upgrading foreign business activities within Korea is concerned.

In one important respect, the momentum of globalization gathered during the financial crisis of 1997 was, however, a blessing in disguise. Severe as they were, the IMF-mandated reform programs enabled Korean policy makers to tackle head-on some of the practices that had hobbled the Korean economy for several decades – restrictions to trade and investment, the rigidities of the labour market, excessive regulatory regime, and *chaebol*-led industrial structure. Indeed, Korea's unprecedented liberalization drive in the wake of the financial crisis was *par excellence* in comparison with some other countries that had been similarly inflicted. As a result, given a forward-looking leadership, Korea could end up becoming one of the most open, market-driven economies in the world, rivaling such countries like Singapore, Netherlands, and Ireland. Yet, many Koreans have tended to believe that their government was forced to adopt liberalization measures under external pressure, rather than viewing them being truly beneficial to themselves and to their own economy.

In other words, there has been no fundamental turnaround in the closed mindset of the Korean people in general and some policy makers in particular, being commensurate with their shining achievements in trade and investment liberalization. As soon as a full recovery from the crisis was believed to be in sight, Koreans' innate suspicion of liberalization efforts and their deeply-rooted nationalism have resurfaced, caricaturing foreign capital as ominous vultures that suck out precious national wealth. For example, there have been a host of foreign business grievance cases that cast serious doubts on the Roh government's announced commitment to FDI liberalization and its adherence to the globalization path. Likewise, in view of the recent upsurge in Korea of sentiment opposed to foreign capital due to the growing presence of foreign-controlled banks and to the entry of foreign equity funds, one wonders if we are reverting to the Korea of old – a country once dictated by isolationism, myopia, autarky, and the closed mindset of the people. There are many reasons why such negative perceptions continue to prevail within the foreign business community in Korea. This study shows that a combination of frequent policy changes, lacklustre efforts in policy implementation, excessive regulations, anti-foreign business sentiment within and outside government, and militant labour unions each play significant roles. Equally



important is the Roh government's failure to shift its economic growth paradigm from a mercantilist developmental state to a truly open, market-driven, dynamic economy, thus forever shedding the labels of autarkic "Land of the Morning Calm" and "Hermit Kingdom." This study also identifies that Korean bureaucrats' and policymakers' misperceptions of a basic but fundamental neo-liberal principle of globalization or the IMF bailout packages – minimal state intervention in market and social affairs (Y.H. Kim, 2000) - should not be ignored as a detrimental factor in facilitating Korea's FDI-led globalization.

A major lesson one can draw from the way the government has dealt with the financial crisis and its aftermath is that without a sure turnaround in the closed mindset at the grass-roots level, policy and institutional reforms are doomed to be short-lived. For the government to push the momentum of globalization drive kindled during the financial crisis, Korea must show its strong leadership in demonstrating the benefits of open economy and educating and enlightening the public so that they may develop a more globalized mindset.

### **Research Question: Paradigm Shift?**

Korea's a state-led developmental economic growth model (Jones and Sakong, 1980; Kuznets, 1985; Cheng and Haggard, 1987; Moon, 1988; Wade, 1988; Chu, 1989; Amsden, 1989; Haggard and Moon, 1990; Woo, 1991; Wade, 1992), which has been embedded in strong nationalistic and mercantilistic leadership faced the challenges of the IMF, an unavoidable globalization force. This is true especially if globalization would imply the realization of market democratization and minimization of state involvement. But it was a result of being forced to do that by a crisis. Major structural reforms mandated by the IMF consisted of restructuring troubled financial institutions, improving corporate governance, and enhancing labour market flexibility. The liberalization of Korea's investment regime, however, is a key external reform area for which the substantial efforts of the new government were forced to make. One of the top economic policy priorities of the new administration under President Kim Dae-jung (1998-2002) centred on attracting FDI to Korea with the aim of overcoming the currency crisis and strengthening the competitiveness of Korean industry. Further, the Korean government officially unveiled, in July 2002, a detailed plan to transform Korea into a world-class logistics centre, a knowledge-based economy, as well as an international business and financial hub of Northeast Asia; by rivaling Hong Kong, Singapore, and Shanghai within five years (Lamers, 2002; Kim, 2002a; Kim, 2002b; Raubach, 2002; Seitz, 2002). This was a totally contradictory economic

choice from the previous decades of Korea's export-led industrialization policy whereby the government drew foreign loans as an alternative to FDI (Shin, 2005:387) and pervasive government intervention, combined with large-scale technological development and foreign capital borrowings, were necessary to produce the nation's dynamic comparative advantage (Amsden, 1987; Amsden, 1992; Amsden, 1994). One conspicuous result of the financial crisis-driven reforms was a massive influx of foreign capital, which jumped from US\$6.97 billion in 1997 to \$8.85 billion in 1998 (Graham, 2003; 111). Eventual disintegration of the state from the market and its declining capacity seemed inevitable.

However the prevailing psyche within Korea is that it is perceived by foreign investors to be anti-foreign. And the government still classifies the FDI as a nationalist goal (Shin, 2003). To witness, there has been a host of international business grievance cases that cast serious doubt on the government's announced commitment to FDI liberalization and its adherence to a globalization path. For example, the recent rise in Korea of sentiment opposed to foreign capital due to the growing presence of foreign-controlled banks and to the entry of foreign equity funds (Norland, 2005; Faircolough, 2005), questions whether Korea is reverting to its old tradition. This contradicts statements from the Korean government, which believes and argues that there has been a total transformation in terms of the Korean business environment from a mercantalistic (before 1997 financial crisis) to free-market driven economy (Ministry of Finance and Economy, 2006). The following comment made from a foreign company operating in Korea reflects some insight into the popular attitudes toward globalization:

The Korean government on the one hand wants desperately to encourage foreign investment while there are still other parts of the Government and other parts of society that really don't want to see foreigners become too dominant in Korea. You can't have your cake and eat it too. They (government) have either got to be open like they claim to be and they really got to listen to the needs of foreign investors and accommodate what those people want and be more flexible....

Not surprisingly, as shown in Table 1, our interviewed data shows that 85 per cent (or 40 interviewees) out of 47 foreign CEOs viewed Korea's strong nationalism as the most challenging constraint to the success of the Korea's globalization drive.

TABLE 1: MNCS' PERCEPTIONS ON CONSTRAINTS TO KOREA'S FDI-LED GLOBALIZATION

Areas	Negative factor (number of respondents)	Per cent (%)
Feasibility to become a business centre in the Northeast Asian region (eg finance, logistics)	43	91%
Nationalism/xenophobia/anti-foreign sentiment among bureaucrats and the public	40	85%
Labour inflexibility	36	77%
Lack of Globalization mindset among bureaucrats and the public	30	64%
Inconsistency/unpredictability/ambiguity of policies/regulations	21	45%
Policy implementation	15	32%
Regulatory controls	15	32%
Korean business culture (strong relationship)	9	19%
<i>Chaebol's</i> dominance in domestic markets	8	17%
Lack of leadership	4	9%
Communication (language)	3	6%
North Korea factor	2	4%
Corruption	2	4%

Korea's rather meandering path to globalization, that oscillates between insularity and openness, motivated often by national ethos of self-sufficiency and sovereign obsession as a policy priority may not be a phenomenon only unique to Korea. Indeed it could quite commonly surface in countries with strong traditional values and racial cohesiveness that are at a transitional stage, planning a shift towards a more mature country. But it is clear that the Korean government's ambitions to transform the country into an attractive, adaptable, and responsible world-class country will depend largely upon its dealings with the legacy of its decades of old nationalistic and excessive state interventionist economic growth model with the wide-range of impacts stemming from globalization, which require the principles of market economics.

## Methodology

In-depth interviews have been used as the primary method for data collection. In particular, this research is in part based on findings from recently completed field work carried out between September and November of 2005 and April in 2006, in which 47 face-to-face interviews were conducted with senior executive officers (CEOs) of foreign companies and various foreign chambers of commerce in Korea. Companies interviewed in this study reflected a variety of sources of ownership:

American (United States), Australian, British, Canadian, Dutch, French, German, Irish, Japanese, Korean, New Zealander, Norwegian, Swedish, etc, as did the nationality of the interviewees. Although sample of the firms was small and not fully representative, MNCs were selected based on a wide range of sectors, length of stay in Korea, nationalities of firms, individuals and firm sizes. Sectors include agro-industrial products, automobile products, industrial products, consumer products, petrochemicals, distribution, insurance, finance, advertising, logistics consultancy, lawyers and foreign chambers of commerce etc. The sample covered wholly-owned subsidiaries of MNCs, joint ventures and recent takeovers, both hostile and non-hostile. In all cases of joint ventures, the MNC was the dominant partner. The length of stay in Korea ranged from more than 30 years to recent start ups, with five or six beginning since the financial crisis in 1997. Market structures included oligopolistic, monopolistic, competitive and duopolistic. Some firms were working in a 'sellers market' (e.g. high technology capital goods and raw materials), while others were operating in highly competitive 'buyers' markets' (e.g. final consumer products, including brown and white goods and automobiles). Manufacturers (hardware and software), distributors, and value added retailers were all represented in the sample. The sample was therefore constructed to allow for possible contrasts according to nationality, the nature of the market, the type of business activity and size of firm. The advantage of this approach is that face-to-face interviews are able to delve into important business processes, strategies, interpretations and perceptions which, though extremely important, are very hard to identify using conventional quantitative, survey and macro assessment methods.

Given the highly sensitive nature of the data collected, confidentiality was guaranteed and the views of individual firms are not given in the article, although anonymous quotations are used to make some of the points directly. A list of questions for in-depth interviews and un-structured open-ended format was developed based on the research framework and the findings from the pilot interviews. Interviews were taped, transcribed, and subsequently interrogated, then deconstructed. In this way, according to the principles of grounded theory, the findings and any theory emerge from the data rather than having been forced from some prior hypotheses (Glaser and Strauss, 1967; Bailey, 1987). Qualitative software, Nvivo, is used for data analysis to identify the patterns, themes and causal-effects relationships (Yin, 1994). This entails categorizing respondents' comments according to their subject matter. The programme can then arrange for all comments on related issues, or concerning particular themes, to be viewed together. These comments are cross-referenced with the interview context so that, for example, it will be apparent whether the speakers were from western or Asian firms, with which industries they might be involved and so forth. Interviewees were invited to give their comments on the following subjects:

- The Korean government's FDI policies and institutions such as Ministry of Commerce, Industry and Energy (MOCIE), Ministry of Finance and Economy (MOFE) and Korea Trade-Investment Promotion Agency (KOTRA), and local governments;
- Perceptions and realities of the Korea's FDI policies;
- Does the Roh government have a serious intention to accelerate an effort to make the nation integrate into global economy? Why is Korea's FDI regime, particularly under the Roh administration, viewed as moving backward to the pre-1997 financial crisis? Why is the government attitude towards FDI viewed as nationalistic, neo-mercantilistic and parochial? How is the concept of globalization viewed by the government and the people in general?
- Korean market and its political economy in a broad spectrum and its critical and strategic implications for the better and strengthened future of Korea's effort to induce FDI and integrate into global economy; and
- Korea's current efforts to become a Northeast Asian business centre (eg., logistics, finance, multinational Headquarters (HQs), corporate Research and Development (R&D)) and identify and develop strategies on how the Korean government strengthens its ways of inducing inflow of foreign capital (eg sectors, industries, countries) and maintaining (reinvestment, aftercare services) existing foreign investment.

However, it should be said that one of the weaknesses of this approach is that the sample was relatively small and the responses were therefore indicative of general perceptions, rather than conclusive. Also, the interviews did not focus on all possible issues, but only those raised by MNC directors as critical to Korea's FDI-led globalization.

## **Data Analysis**

As shown in Table 2, two thirds of interviewed company managers saw in Korea strong nationalism; different concept on globalization or xenophobic attitude towards FDI, transparency and inconsistent regulations, bureaucratic red-tape and regulatory bodies, as major challenges and impediments for Korea's moving into a mature economy. Most interestingly, over 91 per cent of the interviewees (43 out of 47) do not believe in realization of Korea's ambition to become a business centre in the Northeast Asian region;

The overwhelming majority of interviewees said they would encourage other foreign companies to invest in Korea. The major reason for the encouragement was the market (48 million people) and the size of the Korean economy coupled with its potential.

TABLE 2: MNCS' PERCEPTIONS ON CONSTRAINTS TO KOREA'S FDI-LED GLOBALIZATION

Areas	Negative factor (number of respondents)	Per cent (%)
Feasibility to become a business centre in the Northeast Asian region (eg finance, logistics)	43	91%
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Lack of leadership	4	9%
Communication (language)	3	6%
North Korea factor	2	4%
Corruption	2	4%

Each interviewee was asked to comment on major areas to be improved in the Korea's transition to a mature economy. Interestingly, contrary to the Korean government's strong belief (Ministry of Finance of Economy, 2006), over 95 per cent out of 47 interviewees believed several factors would delay FDI-driven industrialization. These factors include strong Korean nationalism, unawareness of the principles of market economics, labour inflexibility, inconsistency and unpredictability of government regulations, bureaucratic red-tape and excessive regulatory bodies.

## Discussion

The impressive and positive portrayal of Korea's openness to FDI, particularly since the financial crisis of 1997, is not meant to mislead readers or disguise the fact that reform has not proceeded in an entirely trouble-free fashion. It is now public knowledge that Korea has been slow in implementing its

financial, corporate, labour, and government sector restructuring due to the painful and difficult decisions that must be made along the road towards conforming to international standards and becoming more competitive on the global stage. As inefficient businesses and public enterprises are allowed to go bankrupt or are restructured or privatized, widespread layoffs and unemployment cannot be avoided. Such inevitable fallouts from reform have led trade unions to vehemently oppose the ongoing restructuring process and labour unrest continues to be a sore topic for foreign-invested companies. In 2006, IMD's *World Competitiveness Yearbook*, Korea ranked as the world's 38<sup>th</sup> most competitive nation out of 61 nations, 9 steps below last year's achievement. What is much more embarrassing is, however, Korea was placed 61<sup>st</sup> among the total number of countries surveyed, the lowest rank, in terms of the labour/management stability, one of the core factors that has not only hindered foreign companies from investing in Korea but also dragged down Korea's international competitiveness (Maeil Economic Daily, 2006). The following is a detailed account on the major obstacles encountered by foreign investors and most frequently mentioned during interviews.

#### **Anti-Globalization Forces in Korea**

The perceptions of Korea as being insular and parochial and as a country that is only lukewarm in implementing its liberalization policies can be explained by examining Korea's historical background and its concept of apparent racial cohesiveness and homogenous culture (Shin, 2003). Although a source of national pride for many Koreans, it has also served as a debilitating obstacle for Koreans and their capacity to understand and accept foreign ideals and cultures (Noland, 2005). This narrow and self-destructive mentality is the key variable that has haunted Korea for centuries and explains its tendency to isolate itself from international society. One would expect that with its past history of being subject to numerous invasions Korea would be more inclined to assimilate foreign cultures, but, in fact, such pressure from the outside has made Koreans even more reluctant to accept foreign influences. So, it is not at all surprising that in February 2006, the Swiss Institute for Business Cycle Research ranked Korea 63<sup>rd</sup> among 123 countries surveyed in the area of economic globalization, which is calculated chiefly by trade volume, FDI and equity investment as a proportion of gross domestic product (GDP) (Swiss Institute for Business Cycle Research, 2006).

As was also pointed out earlier in terms of the United Nations Conferences for Trade and Development's (UNCTAD) transnationality index as well as performance index, Korea's globalization indicators remain low among the world's major economies. Korean mentality, which is still ridden at times with a ludicrous form of nationalism, embarrassingly bucks the irreversible tide of globalization.

The following comment from the executive, who is the head of a foreign consulting company and has been in Korea more than a decade, well reflects the above:

Businesswise it has improved a lot and you see a lot of the big companies like POSCO, for example, who are truly global. And Samsung is truly global. I mean, they think global. I think LG have done a tremendous job promoting their name and the logo LG is global. Whoever the marketing man is there is first-class. There is a lot though. I mean if you go back to Samsung again, although they are globalized, they are still pulling everything back to Korea. As far as the people go, not they are not globalized. I mean everyone wants to go to Australia to play golf or send their kids to America or Australia or Canada to study but I don't think they, in the older age groups that I deal with, you know middle-aged and older senior business people, they are very insular or very Korean focused and don't understand the Western cultures are breaking free or won't accept them. And I'm the first to admit that I'm a guest in their country so I have to go more than 50 per cent here and I think I've got a pretty good understanding of Korean culture and what I should and should not do here. But Koreans, I mean I've taken Koreans to Australia for a road show, taking 10 down to Sydney this year actually and the first night out I organized at a seafood restaurant, one of the best seafood restaurants and they said no we want to go Korean. Down in the bottom half of the world and they want to try their own, they won't try the Aussie culture and then they organized a Korean man to take them around on nights when there was nothing on. I went to a seminar at the University of Washington, Seattle a few years ago and there were 12 men from Korean banks there. There were 50 people and the 12 Koreans stuck together the whole time.

A brief depiction of the national ethos exuded during Korea's economic development over four decades substantiates the above view. As pointed out earlier, during the 1960s when the Korean economy was about to take off, the inflow of foreign capital supplemented the shortage of domestic savings. Despite the relatively negligible amount of inward FDI, however, it was either closed or restricted in order to protect flagging domestic industries. Likewise, though inward FDI played a vital role in helping to resuscitating the ailing Korean economy following the financial crisis of 1997, a suspicion that foreign capital is really means for foreigners to subjugate Korean industries under their control stays quite alive even today. Instead of mutually benefiting from the inevitability of increased interdependence, growing presence in Korea of foreign entities has been regarded as a threat to national sovereignty. Such behaviour is an all-out disregard for global standards and is unacceptable for a mature and responsible country entering the new century. In short, the *weltanschauung* held by many Koreans remains parochial and myopic yet. There is no fundamental turnaround in the closed



mindset of the Korean people. This view is well reflected in our interviews. Except for a couple of companies involved in the Korean government's high-priority inward FDI areas such as high and biotechnology, the majority of respondents felt there was anti-foreign sentiment from the government. The following comment made by one of the interviewees on the government's recent tax audit on foreign companies well reflects this view:

The tax audits came out of the blue, totally out of the blue and it was because the companies were too successful. And in the end, I believe that those companies will be fairly assessed which means that if they have not broken any laws they are not going to be hit with any taxes. But the reality is that Korea's reputation globally as a good place, a friendly place to do business, suffered. At the end of the day the Korean government will say these companies did great. They made all this money legally. We have tax treaties. They followed those tax treaties, they did everything right and there is no tax to do. So I think in the end those companies will be allowed to do what they are doing. But the amount of legal fees generated and the audits ... the way the media reports if the auditors haven't found anything wrong so we have to extend the audit. So it is almost like the foreigner can not win and we are going to keep looking until we find something.

#### **The Outflow of National Wealth Syndrome**

As a result of Korea's unprecedented liberalization drive in the wake of the financial crisis of 1997, foreigners owned about 40 per cent of the shares of the companies listed on Korea's stock exchanges in terms of market capitalization at the end of December 2005, higher than the U.S. (10 per cent), Japan (18 per cent), Taiwan (23 per cent), and Thailand (33 per cent). On the other side of the coin, due to growing foreign ownership in Korea's leading manufacturing firms as well as in the domestic banking sector (22 per cent in 2004), there is a disturbing revival of economic nationalism in the name of the outflow of national wealth. As in the case of the U.S. during the 1980s, the wave of foreign investment raised the fears of "giving away America's future" (Martin and Tolchin, 1988: 274).

In Korea, too, there are views that the government is "selling out" to foreign enterprises and "practically giving away" Korea's hard-earned assets at fire sale prices and that FDI only accelerates foreign dependence of domestic industries. Such anti-foreign capital sentiments have given rise to the spurious controversy surrounding the outflow of national wealth, sparked chiefly by the media, business circles, the Bank of Korea and indirectly by the Financial Supervisory Commission and the tax authority. In his reaction to Korea's poor performance in economic globalization, according to the Swiss survey referred to earlier, the Minister of Finance and Economy views not only the general

public and the news media but also the National Assembly as far too nationalistic when it comes to foreign capital (Korea Herald, 15 February 2006). Take the well-publicized case of the sale of Korea First Bank to Newbridge Capital in December 1999 referred to earlier. The mass media carried blown-up news that the final sale price of Korea First Bank was practically a “give away.” But they failed to see the enormous social cost and massive fiscal burden that could have impinged on the economy if a transaction of such significance was delayed. They also failed to see how the disposition of the then debt-ridden, distressed Korea First Bank contributed to improved foreign investor confidence in Korea, the benefits of which inevitably spread to other Korean financial institutions in the form of lower borrowing costs from abroad. In short, M&As indeed proved to be a powerful mechanism by which inefficient management could be disciplined. Speaking of the Korean media, the following comments have been shared by many of the interviewees for this study:

The mass media here for the most part ignores foreign content of anything. I don't think that is healthy. And I think that attributes to the protectionist and this cultural isolationism that exists. I think we need to get away from this Korean-centric approach and we need to get to more of a success-centred approach. You know and it can be a success for a foreign company and a Korean company at the same time and the news needs to be reported objectively in that fashion. So there seems to be, there is a foreign press here and there is a Korean press and I can't digest a lot of the Korean press but based on the English translations of it that I see, the Korean Times, the Herald and some of the translations in the business magazines, even the ones that are done in English are very Korea-centric. I mean you'll see Korean labels on foreign designs, you'll see Korean business announcements to the exclusion of any foreign partnership or content and I don't think that is a healthy situation because I don't think it supports this success-based scenario rather than a Korea-based situation. So I think that is unhealthy.

The KFTC reform measure referred to earlier has also generated a flurry of objections by the *chaebol* in Korea. They are adamant in indicating that it unduly discriminates against domestic companies in favor of foreign enterprises since they are now vulnerable to hostile M&As by foreign investors and their managerial rights are in danger due to the ceiling imposed on the total amount of shareholding of other domestic companies or affiliates. In fact, a recent surge in foreign ownership of some of Korea's high-profile firms suggests that the *chaebol* could become either friendly or hostile takeover targets.

In this age of increasing interdependence among nations, can Korea afford to return to the old days when foreign investments were screened rigorously according to political priorities and non-economic considerations? Enhancing accountability and effectiveness of business management is probably the best defense against the encroachment on managerial rights by outside corporate hunters. M&As can play a useful role in Korea as stressed earlier, since they are a powerful mechanism by which inefficient management can be disciplined, thus producing healthy competition and strengthening transparency and accountable business management. This helps Korean companies recover credibility in the eyes of overseas investors by improving their corporate structures, introducing new management techniques, and obtaining state-of-the art technology. One interviewee, who has been in Korea for decades, argues:

Probably because of the perception or the pressure that they are under, but I think; 'Yeah, that is right' and I think where there is a bit of an issue there for Korea is that. you know, the thing that really will turn off foreign companies is just getting a feeling that there is an environment of constant investigation and constant auditing. Because if you are going to locate your business somewhere in Asia why are you going to do it in a country where you feel that you are going to be investigated and audited without, you know, potentially without a logical basis for that. There is no logical basis ... that is the issue. Now there could be a logical basis, but my perception is that is ... just a spark on the fire and generally there is nothing to it. So you know the environment, the culture and the feeling is all being affected and why now? You know strangely, ironically it is sort of a reaction to them wanting to send a message that this is a global standard of economy and a global environment. It is sort of ironical that their way of dealing with wanting to create that perception is one of countless bureaucrats doing enquiries on countless companies based often on rumour.

The prejudice against foreign-invested companies in general and foreign private equity funds in particular, as well as the associated fears of imperialism, constitute Korea's main bottleneck in maximizing economic gains and stability through FDI-led globalization. The trepidation that raising the ceiling on foreigners' equity ownership would invite hostile takeovers of Korean companies has proven to be unfounded, as not only have friendly M&As been the mainstream but also foreign shareholders have been shown to play a positive role in improving the corporate governance and managerial transparency of Korean firms through their strict monitoring function, thereby contributing to increased firm value and decreasing possibility of hostile takeovers (Jang, Lee and Park, 2006: 2-13).

Belatedly, financial authorities have come forward with constructive ways to salvage the domestic banking sector from falling into the hands of overseas investment fund managers. Recently, the government enacted a law on home-grown private equity funds that allows businesses, banks and individuals to participate in the restructuring of distressed companies, which in essence amounts to an effort by the government to counter the presence of foreign private equity funds (AltAssets, 2005).

Also, the government should seriously consider activating its pension funds, which are currently minor players in the equity market. While they manage about 124 trillion won (about US\$104 billion) less than 5 per cent of the total was invested in domestic stocks, compared with pension funds in advanced countries where about 50 per cent of their assets are in equities (Korea Herald, 2 June 2004; Han, 2003: 4-8).

Furthermore, though an ownership ceiling of four per cent may be justified to discourage *chaebol* from trying to take control of banks in an effort to secure easy loans; this could lead to unfair competition between Korean and foreign players. In fact, the *chaebol* groups argue that reverse discrimination against domestic investors, vis-à-vis foreign counterparts who are free from ownership, would result in the domestic banking sector falling into the hands of foreign private equity funds. As long as ownership is separated from management, the government should lift a range of regulations on the ownership of commercial banks by local industrial groups. Furthermore, such measures could quiet down the nationalistic outcry that financial liberalization has done more harm than good.

#### **Labour Unrest and Korean Industrial Relations**

Having languished in the National Assembly for 15 months without action since being proposed in November 2004, the labour reform bills were finally approved by the National Assembly's plenary session on 30 November 2006 following a long-standing deadlock. The three passed bills are the Act on the Protection of Fixed Term and Part-time Employees, amendment of the Act on the Protection of Dispatched Employees, and Labour Relations Commission Act, despite strong objections from labour unions. To the government's dismay, however, while management holds the view that the bills are largely in favour of labour, making the labour market more rigid, the trade unions deny the government's stance on all labour measures, claiming the legislation would only increase the number of non-regular workers and make their employment status unstable. Speaking of labour inflexibility, the following comments from an interviewee reflect the perception among the foreign community in Korea:

Well, one of the biggest things I hear from others is the labour inflexibility. Now as I say, my company does not have that issue so I typically don't have a huge participation in those dialogues, but I hear that and I see that a lot from people that have larger local presences and especially from those that have unionized labour forces. Labour here tends to be much more militant, much more inflexible and I would say the work regulations here are, how would I characterize them? The labour regulations in Korea I would characterize as being the least flexible of any place that we do business.

Although, in theory, the labour reform bills oblige a company to grant regular status to its non-regular workers who have been employed for more than two years, the new measures neither seem likely to contribute much to creating flexibility in the labour market nor offer greater job security to non-regular workers, contrary to the government's intention. An attempt to remove the current wage discrimination against non-regular workers by raising their current wage level would probably result in a steep rise in labour costs, which management would counter by laying off non-regular workers within the first two years of employment. In other words, it is unlikely that non-regular workers could serve as a safety valve for those businesses that are already confronted with rising labour costs and militant trade unions. In order to address the issues related to non-regular workers on the one hand and to entice FDI into Korea on the other, the rigid procedural restrictions on layoff measures imposed on management and excessive protection given to regular workers must first be ameliorated.

The problem is because of these labour issues even the domestic companies like Hyundai and the others, some general groups try to move out and Hyundai Motors is already going to America to set up their own factories. And they are simply the labour complex so how can we explain this environment as the foreign friendly market environment? How do we encourage foreigners to come in?

Labour-management discord at foreign-invested companies due to labour unions' combative and unyielding posture during wage negotiations was the most disparaging economy-related issue in 2003, as evidenced by the well-publicized strikes at companies such as Owens Corning Korea, KGI Securities, Tetra Pak and Nestle Korea, among others. Although Korea's unionization rate of 11 per cent is significantly lower than that of many OECD economies, the labour unions could exploit 89 per cent of less privileged employees. In 2003, there were 32 labour disputes reported at foreign-invested companies, exceeding the annual total of 26 cases a year earlier (OIO, 2004). The Korean labour unions are militant and tend to pursue their aims in a merciless way. A failure to understand the nature and style of the process will be, at the very least, demoralizing for an expatriate manager. Perceptions of rational negotiations are quickly dispelled. Interviewees voiced unanimously that when they try to

initiate what they considered from management's point of view to be sensible negotiations – showing them the books and trying to tell the negotiators what shape the company was in – there was disinterest on the negotiators' behalf. These attitudes have their antecedents. During the boom years labour negotiators were conditioned to the process of being bought off with unjustifiable wage increases. This was true of Korean companies in general and particularly true in the case of the *chaebol*. This practice is now haunting all companies present in Korea. It is especially true of foreign companies as they are considered softer targets. In particular, foreign companies are perceived by the average Korean as being short-term oriented and in the market for the 'fast buck'. For foreign companies to make serious progress, this is a perception that must be dispelled.

Well if you wanted trade barriers from overall you start with the unions for instance. Everybody will tell you that the unions here are not looking for solutions but for compensation. I find it as a big hazard in attracting FDI. The unions in Korea have not at any time changed. They act almost like traditionalist. At the moment they have almost started their annual pilgrimage, you know their strikes and there is no need. There is no, should I say sensibility. If you want to be really and truly working for the workers you should be coming up with deals that you can finally make. Everybody will tell you that the unions here are not looking for solutions but for compensation. I find it as a big hazard in attracting FDI. The unions in Korea have not at any time changed. They act almost like traditionalist. At the moment they have almost started their annual pilgrimage, you know their strikes and there is no need.... There is no, should I say sensibility. If you want to be really and truly working for the workers you should be coming up with deals that you can finally make.

Some interviewed companies admitted to making mistakes by trying to rush changes. Some attribute their bad experiences to being insensitive to the reactions of people to many centuries of foreign domination. Of course, the vast majority of foreign-invested firms have never experienced labour-management conflicts, particularly in the high-tech and capital-intensive industries (Park and Hyun, 2004; Blaszczyk, 2003). But it is critical to understand the prevailing mindset and the behaviours of the unions in Korea which dictates that employees are entitled to a return without actually committing to productivity gains. As such, there is not a productivity-orientated culture in Korea and that is a problem that most of the MNCs face in Korea today. The following comment from our interviewee well substantiates the view:

For some of the big companies like Hyundai and Kia, you know the unions are militant, if you will. They have been broken down in financial services to a large degree so they are far more cooperative when they

work but the reality is their reach is not that far because most people work for small businesses and self-proprietors that are not part of the union. But it seems true in many cases that where the unions do exist, their viewpoint is unrealistic. For example, there is news today that the X union wants X to be sold to minority investors. They don't want it to be sold to a foreign investor. Now that is ridiculous. In any other country the union would accept they were not shareholders and therefore don't have a say in who buys this company. But in Korea they believe that because they are employees, they have a stake in this.

Other than union militancy, rising labour costs have been seen as one of the major reasons for the slowdown of FDI into Korea as multinationals relocate their manufacturing operations to cheaper countries. According to the US Bureau of Labour Statistics, average hourly compensation costs for Korean production workers in manufacturing increased by 17.3 per cent in 2003 to US\$9.16, representing the second sharpest increase behind Norway among the 29 economies sampled. Furthermore, Korea's average wage costs were higher than those in competing economies such as Hong Kong (US\$5.83), Singapore (US\$7.27), Taiwan (US\$5.41) and Mexico (US\$2.38). In terms of labour unit costs, defined as the cost of labour compensation per unit of output, the figure for Korea rose by 6.6 per cent between 2001 and 2002 because wage costs grew faster than labour productivity (12 per cent versus 4.3 per cent) (US Department of Labour, 2003; Korean Ministry of Labour, 2003).

If wages continue to rise at the current pace while labour persists with its incessant demands for job security, it can only be expected that more and more foreign firms, particularly in the manufacturing sector, will relocate production facilities to countries such as China and Vietnam, leaving behind mere branch sales offices. Although labour unions strive to protect the job security of workers, the migration of foreign companies to countries that offer more favorable conditions cannot be halted. Not only is the outflow of foreign capital and jobs becoming a serious problem, but Korea is also losing potential new investments.

It is no wonder that Korea's labour-management relations have been criticized as a major impediment to achieving increased productivity and prosperity. In fact, the Organization for Economic Co-operation and Development's (OECD) *Annual Economic Surveys: Korea* (2004) stated that Korea needed to increase labour market flexibility and reduce protection for regular workers. In a 2003 InvestKOREA survey of CEOs of foreign-invested firms that have experienced labour-management discord, all the respondents praised Korea for its talented and highly-educated workforce. Apart from manpower considerations, Korea boasts an advanced infrastructure such as roads and electrical supply, a world-leading IT communications network and geographical proximity to the large markets of

Northeast Asia. But for the past several years, rising production costs due to sharp wage increases far exceeding productivity gains resulted in severe cost pressure compared to other investment destinations. In addition, labour unions' combative nature and unyielding posture during negotiations reached a level that foreign management finds too hard to endure, thus shrouding the aforementioned merits of Korea as a friendly investment location in a cloud of uncertainty (InvestKOREA, 2003).

By 2004, however, there were indications that industrial relations practices were beginning to mature and that confrontational labour-management relations could soon evolve into a labour culture marked by compromise and negotiation. This was vindicated by the successful resolution of both the LG Caltex and the subway strikes in which the firm stance held by management and government led workers to call off the action themselves.

#### **Unpredictable Tax Environment**

Korea's tax environment is another poorly evaluated area in comparison with its neighboring competitors for world FDI flows. In 2005, although Korea's highest corporate tax rate of 27.5 per cent, which also reflects the local tax burden of 2.5 per cent, was lower than that of any G-7 country, it was certainly higher than that of Hong Kong (17.5 per cent), Taiwan (25 per cent), and Singapore (22 per cent). In the case of China, its highest corporate tax rate of 33 per cent is greater than that of Korea, but a relatively low corporate tax rate of 15 per cent is imposed on most foreign-invested firms. In addition to the corporate tax liability, Korea also levies a corporate dividend income tax of 15 per cent, whereas Singapore does not have such a dividend income taxation scheme (KPMG, 2004; China Daily, 18 January 2006; Ministry of Finance and Economy, 2004; International Tax Division, 2006).

Since a large share of corporate firms are, in reality, entitled to a variety of tax preferences under FIPA and the RPTA in the form of liberal capital depreciation charges, investment credit allowances, tax-free reserves, and tax holidays offered to foreign-invested firms, what is critically important is the level of effective marginal tax rates. In 2001, with its effective marginal tax rate of 15.5 per cent, Korea was found to have a low tax burden among the leading 17 OECD countries. However, a recent OECD report indicates that Korea's tax burden compared with other member countries, in terms of the tax wedge (the difference between the net take home pay of workers and their gross income pay), has seen the sharpest rise from 13.87 per cent in 1988 to 15.76 per cent in 2004 due to increased taxes and social security contributions (Digital Chosun Ilbo, 8 February 2006). Another hypothetical study in which a U.S. firm invests in East Asian countries, taking into account corporate tax burdens both in the source and host countries, shows that Korea has the least advantageous tax



environment for foreign investors compared with China, Hong Kong, Singapore and Malaysia (Park, 2004: 52-78).

Although governments in general do not usually initiate tax reform just because the top marginal rates of personal and corporate income taxes happen to be a bit high in comparison with competing countries, reduction of tax rates and offering of tax incentives may be necessary as a welcoming sign to foreign investors. This may be particularly true in the case of Korea. The importance of granting fiscal incentives to foreign investors in order to entice FDI is well illustrated by the dramatic increase of Japanese investment in 2004, which rose by more than four times to US\$2.26 billion from US\$541 million in 2003, triggered partly by a tax reduction period from 10 years to seven starting at the beginning of 2005. In short, in the case of Korea, which is in the midst of intense competition for world FDI flows, attractive fiscal incentives are a must if it is to overcome its unfavorable tax regime for foreign investors.

Equally important as the level of tax rates and various tax incentives is the need to radically reform Korea's unpredictable tax administration that is based on arbitrary interpretation of tax laws and that has shown little concern for international taxation norms and practices. Korea's non-competitive and unpredictable tax environment is further exacerbated by the rise of prejudiced sentiments toward foreign private equity funds operating in Korea, to which the drop in FDI inflows to Korea in 2005 may be attributable. When the media announced that the U.S. private equity fund Newbridge Capital agreed in early January 2005 to sell its 48.6 per cent stake (worth about US\$3.36 billion) in Korea First Bank to British Standard Chartered Bank after nearly five years of ownership, reaping more than US\$990 million in profit, there was public outrage at the huge, perhaps tax-exempt, gains to be taken out of the country (Korea Herald, 30 September 2005; Korea Times, 9 October 2005; Tax-News.Com, 25 April 2006). While the National Tax Service speedily reacted by launching a tax audit of Newbridge Capital, the investor under fire invoked a Malaysia-Korea tax treaty to legally avoid Korean taxes on its capital gains. With Newbridge Capital having invested in Korea First Bank via Labuan, a tax haven in Malaysia, the tax authority needs to demonstrate that the US investor's subsidiary is indeed a bogus company. But this is merely a cosmetic, makeshift attempt only aimed at pleasing the uninformed public since neither the Korean tax treaty with Malaysia nor Korean law contains any anti-treaty shopping or anti-abuse provisions on the basis of which the tax authorities could assess domestic taxes on Newbridge. Furthermore, Korea's discrimination between "treaty" and "non-treaty" investors to tax "non-treaty" investors in the context of foreign private equity funds

would be unwise. Such discrimination would make Korea uncompetitive with other countries seeking to attract FDI which make no such distinction and it will be very burdensome for fund managers raising administration costs and limiting the audience of potential investors. The National Tax Service is unilaterally relying on vague substance-over-form provisions under domestic law to challenge a foreign investor's entitlement to tax treaty relief in respect of capital gains (Thompson, 2003). In the meantime, nationalistic backlash was sparked by the media, which portrayed foreign private equity funds as vultures that suck out wealth from Korea (Graham, 2005). A well-known international consultant, who has been in Korea more than 10 years:

I think where there is a bit of an issue there for Korea is that, you know, the thing that really will turn off foreign companies is just getting a feeling that there is an environment of constant investigation and constant auditing. Because if you are going to locate your business somewhere in Asia why are you going to do it in a country where you feel that you are going to be investigated and audited without, you know, potentially without a logical basis for that.

The government authorities are also to be blamed for adding fuel to the rise of corporate xenophobia triggered by the media. On 29 September 2005, the National Tax Service announced it would impose about US\$220 million in deferred taxes on five foreign private equity funds; Lone Star, Carlyle Group, Goldman Sachs, Westbrook and AIG, which the tax authority claimed had abused tax treaty codes by under-reporting cash transfers to their respective headquarters overseas and inflating transaction costs for possible tax evasion (Korea Herald, 30 September 2005).

In particular, the Dallas-based Lone Star Funds, which bought a 50.53 per cent stake in Korea Exchange Bank, the fifth largest bank in Korea, in October 2003 at a knockdown price (about US\$1.2 billion), but which is now valued at about US\$5.2 billion, has come under close legal scrutiny by Korean government authorities on two accounts. First, on 30 March 2006, Lone Star was raided by prosecution investigators over allegations that it evaded US\$146 million in taxes on the proceeds of property sales in Seoul in 2005, committed fraud in acquiring its majority stake in Korea Exchange Bank in October 2003, breached foreign exchange rules governing international transactions by illegally transferring US\$8.6 million overseas and committed other irregularities in financial dealings. Second, contentious issues surround the sale of Lone Star's 50.53 per cent stake in Korea Exchange Bank to Kookmin Bank and when the deal goes through, the seller reportedly stands to reap more than US\$4 billion in capital gains in less than three years (Reuters, 22 March 2006; Bloomberg, 30 March 2006; MK English News, 30 March 2006).

It is indeed a sovereign right of all countries to investigate earned income to see if legitimate taxes have been paid and the processes involved have followed all relevant laws and obligations. But what is completely lost in the media coverage is the acknowledgement that through the provision of needed funds and restructuring know-how, foreign private equity funds rescued a good number of distressed Korean manufacturing firms and financial institutions to which neither domestic financial firms nor the government were ready to offer any assistance. The punitive actions taken by Korean financial regulators led a number of foreign investors to wonder if they have been victims of the current whirlwind of nationalistic outrage against foreign capital. Should foreign private equity funds reaping huge capital gains, which conform to the relevant tax treaty provisions and are seemingly justifiable returns on risky ventures, be penalized in a capitalist economy?

So yeah, ... there is still to this day government intervention at the micro-economic level that affects individual firms. Taxes, they affect everybody. Two issues on taxes, the fundamental one is that they are not transparent. Just last week I was talking to a Korean businessman and he said that he ran his business very, very transparently and his books were valid. And he got audited, he gets audited every three years, everybody gets audited about once every three to five years, he got audited and the auditor looked through his books and President Kim, yes it was President Kim, said to the auditor if my books are transparent and the man from the tax office says I cannot go back to my office without generating additional tax from every country I visit. My job is not to make sure you pay fair tax, my job is to extract more taxes out of every company that I audit. That is what he said. That was, I heard it last week and he was talking about something that happened in the most recent tax year. Now it is not personal experience but I have heard the same thing from many people. I have an American friend who had a business here and he had the same issue. He was an entrepreneur who started his own company, this was about 10 years ago, but the same thing, he did his books honestly and the tax man came and he said; 'No I don't err in taxes' and he took it to court and he won. But they wanted him to pay extra in taxes and it cost him double that to defend. But it cost him double that in the courts to win the court case, the tax case. So the tax man's attitude is; 'Everybody cheats and it is my job to squeeze money out of them'. Korea is a long way from a pro-business environment. Not only for foreigners, but for Koreans too. It is the same for Mr X (Korean) who was explaining to me why he had established a factory in the United States and one of the reasons he said was that the tax man in the United States is fair, unlike the one in Korea. He said it is a headache to run a small business in Korea. It is much easier in America, so he moved his facility from Korea, 80 per cent of his business was in America, so he moved his factory from Korea, shut it down and moved to the United

States. So the things we are talking about here is not just making a good environment for foreign firms and that is a very important issue.

Similar to the case of Newbridge Capital, which claims it is entitled to the benefits of the Malaysia-Korea tax treaty (that is, an exemption from capital gains tax), the National Tax Office is trying to find ways to tax Lone Star Funds, which could also resort to the benefit provisions in both the Korea-U.S. as well as Korea-Belgium tax treaties that provide exemption from domestic taxes on capital gains, since Lone Star's stake in Korea Exchange Bank is held by its Belgian subsidiary, LSF-KEB Holdings. Unless the National Tax Office demonstrates that Lone Star had business representatives and did business in Korea, thereby designating Lone Star as a "permanent establishment," it may not be able to impose capital gains taxes on Lone Star Funds (JoongAng Ilbo, 15 March 2006; Korea Times, 24 March 2006; Korea Times, 4 May 2006).

The general practice around the world has been to recognize foreign private equity funds such as Newbridge and Lone Star as being essentially a distinct form of portfolio investment and, accordingly, to provide an exemption from the capital gains tax imposed by the host country. Therefore, it seems that neither the National Tax Office's enforcement of retroactive taxation of capital gains, nor its unilateral attempt to exercise fiscal sovereignty rights on the basis of disputable domestic substance-over-form legal principles to justify levying taxes on capital gains, are in accordance with global standards and practices. Such corporate xenophobia by the media and the one-sided punitive actions taken by government authorities only damage the country's efforts to reinvigorate FDI and impair Korea's image and credibility as a favorable destination for becoming a financial hub in Northeast Asia.

Xenophobia for sure ... interestingly, in general Koreans look at a foreigner and they say; 'Well when are you going home?' The expectation is that you will be temporary and I don't know, countless, countless times people have said it to me when they hear me speaking in Korean. .... And opening up requires a much greater change and I think people felt very threatened by that. I think in government particularly they felt very threatened that all of a sudden they were going to have all these foreigners and foreign products being inundated. And so they were very resistant to change and it wasn't about foreign policy, it was about how you interact on a working level with the Korean government and even today, there is still ... that still exists to a great extent.

The time is certainly ripe for Korea to revise its taxation system for international transactions in light of the country's virtual recovery from the aftermath of the financial crisis of 1997, the growing

global stature of the economy in both increasing inward and outward capital flows and the changes in international taxation norms and practices. Yet the actions taken by the Korean government in revising its international tax laws in general and with regards to the tax haven abuses in which Newbridge Capital, Lone Star Funds, and Sovereign Asset Management are implicated, are certainly ill-timed. The countermeasures dealing with the illegal use of tax havens have been conceived in the xenophobic atmosphere of the country, where the media is unequivocally skewed toward exaggerating tax haven abuses and the perceived profiteering by tax-delinquent foreign private equity funds. The only internationally acceptable way for Korea to remove the conflicting provisions is to renegotiate appropriate amendments to its tax treaties.

#### **Korea as a Northeast Asian Business Hub**

Korea is waking up to the fact that it may have no other choice but to chart a radically different new course for the Korean economy in the 21st century in order to adjust to the changing economic dynamics of Northeast Asia and to prosper despite limited natural resources. It was against this background that the Kim Dae-jung government (1998-2003) officially unveiled, in July 2002, a detailed strategic plan to transform the nation into a world-class logistics centre, a knowledge-based economy, and an international business and financial hub (Lamers, 2002; Kim, 2002a; Kim, 2002b; Raubach, 2002; Seitz, 2002).

Indeed, Korea does possess some advantageous factors that could make its regional hub ambitions feasible. For example, the country's pivotal geo-economic location at the heart of Northeast Asia and its well-equipped infrastructure poise it to become a base for logistics activities of countries wishing to do business in the region. Its talented and well-educated workforce ensures competitive staffing for both manufacturing and service industries. And Korea's global position as an IT powerhouse, coupled with its strong traditional as well as cutting-edge industries, provides a diverse industrial structure that holds many unlocked opportunities.

However, as shown in Table 3, the interviews revealed differing views over the potential for Korea to become a business hub of any kind. Not surprisingly, over 90 per cent believes Korea's ambition to become a Northeast Asian business hub was unrealistic. Speaking of the 'financial hub', the following comments represent the overall view of the interviewees:

I'm not a banker but I have the feeling that financial hub in Korea is not going to be the way it goes okay. This is just lip service to be very blunt. Lip service because what I read regarding the latest acquisitions or things by foreign firms shows that they are not very welcome. They want to make money and they complain of them and whereas when they

were coming in everybody was their heart and soul. All of this is not very sound and not very long term ...It is a nice word that doesn't follow. It doesn't mean that the Government doesn't have this kind of willingness but we see as well that there is a big discrepancy between the willingness of the Government and mid level administration. We need to be consistent below the line....

TABLE 3: MNCS' PERCEPTIONS AMONG INTERVIEWED FOREIGN COMPANIES ON KOREA'S HUB VISION

Ambiguous motivation?	Yes
Attention seeking?	Yes
Realistic?	No
Korea: Centre of Business activities or interests?	No
Vision = Long-termism?	No
Ambitious?	Yes
Consensus?	No
Opportunity?	Yes
Potential?	Yes
Fed up?	Yes

Interviewees were, however, overwhelmingly positive about the prospects for their businesses in Korea. The sheer scale of the market opportunity coupled with the ongoing and progressive process of deregulation combines to create a major upside. More than 70 per cent of the interviewees had clearly developed visions for their businesses in Korea. More than 90 per cent of those held positive views about the Korean market and were bullish about the position they aimed to develop. The vast majority are seeking aspirational positions. Despite these positive aspects of the market image, there are many fundamental challenges for Korea to overcome before it can hope to transform the nation into a home for international business. The McKinsey Report, released on July 2003, revealed that Seoul (Korea) must overcome many significant barriers to becoming a business centre in Northeast Asia, including its restrictive and anti-market regulatory legal practices, lack of English language abilities and disruptive unions (FIAC, 2003:57).

The following comments from an experienced foreign CEO in Korea reflect the view from the majority:

I think potential they (Korea) have got the opportunity to do it but they (Korea) have got to become more open. There is a lot of hard work that they need to open themselves up into the global environment. They need to get some consistency in the rules and regulations and rather than saying they need that, but I mean

in terms of infrastructure potentially here is very good because you know it is one of the most highly boarded economies in the world. You have all these new satellites that are better so bringing ICT but they still have those barriers and there are too many investors think they have been playing by the rules and then unfairly dealt with, they will try and move out or they will look at other regions to occupy. At least they have got an advantage over China at the moment but China is catching up at a rapid rate in terms of the hub. I think Korea is better placed at the moment to do it. But for how long, I don't know.

If not a logistics hub or a financial hub by reasons of impeding factors as elaborated above, Korea is well positioned to become a destination for technology-driven research centres of multinational entities. In July 2003, the Korean government unveiled a plan to transform itself into a knowledge-based economy and since then has been searching in earnest for foreign corporate R&D investments as an integral component of Korea's technological catch-up process. Prior to that, there was neither a need to measure the technology intensity of FDI at the firm level nor the R&D intensity of foreign subsidiaries. Instead, technology-licensing agreements, capital goods imports, technological collaboration and manufacturing on an OEM basis had been the principal conduits of technology acquisition.

Particularly, in its attempt to gain close access to core technologies, Korean firms relied heavily on imported technologies or entered extensive strategic alliances with multinationals, rather than emphasizing equity-based FDI as chief means to acquire needed technologies or to facilitate their diffusion. Samsung Semiconductor's 64K DRAM technology, for instance, was licensed in 1983 from the U.S. firm Micron Technologies. Though non-equity cooperative agreements were known to be less efficient and more expensive methods of obtaining technology than FDI, which generally benefits host economies through a variety of positive spillovers, Koreans' obsession with the loss of managerial control dictated policymakers to be rather restrictive toward FDI inducement. Therefore, the focus of FDI was placed on promoting the country as a manufacturing platform to serve the domestic markets to achieve certain immediate objectives, such as improving the trade balance, creating employment, enhancing the industrial structure and building foreign reserves. This is clearly shown by the fact that the ratio of technology imports to private R&D spending was about 34 per cent in 2002 and that Korea's royalty payments for foreign technology licensing reached US\$2.7 billion in 1999, exceeding the amount for foreign corporate R&D spending by about 13 times. It was only after the financial crisis of 1997 that equity-based collaborations became a viable option to Korean firms wishing to acquire frontier technology from abroad.

Likewise, foreign investors were only interested in increasing their market shares in Korea, and in general chose to form non-equity-based agreements with Korean firms for technology cooperation solely in order to sustain their market penetration objectives. Hence, of the foreign corporate R&D spending in Korea in 2002, 71 per cent was allotted to the development of new products in the manufacturing sector catering to local needs; and only 8.6 per cent was devoted to the development of core technologies and basic research. In short, if they possessed offshore R&D centres, foreign investors' major interest in Korea was in product development, in line with their localization strategy for the Korean market (Invest Korea, 2004:2-30; Korea Times, 25 March 2004).

However, there have been several developments that have strongly pushed the Korean government to orchestrate programs to achieve an advanced level of technological sophistication by attracting multinationals' R and D centres, to which the government has given its top priority, rather than non-corporate, profit-making, high-technology R and D institutions, and by emphasizing the promotion of new technology-based venture firms in Korea. First, as multinationals operating in Korea have seen a continuous and sharp rise in profits, they have taken a new look at Korea as a springboard to advance into other countries through their participation in Korea's R&D efforts. As in the case of 3M's Asia Display Technical Centre that opened in Korea in October 2002, a growing number of foreign-invested companies are using Korea as an R&D hub for their operations for Asia and the rest of the world.

Second, with the rapid growth in information and communications technology, the government has made significant efforts to move away from traditional, production-oriented industrial structures of the past and focus instead on the commercialization of state-of-the-art technologies. With these developments in mind, the Korean government has formulated policies to enable Korea to become a regional centre of research excellence – or, in other words, an R&D hub for Northeast Asia. This is an inevitable direction for Korea to follow to ensure its economic competitiveness in light of the hollowing out of Korea's traditional core industries as more and more Korean firms cross the Yellow Sea to take advantage of China's cheaper labour supply.

Third, realizing that venture firms will play a key role in shifting the Korean economy from a mature industrial economy to a knowledge-based centre, the Korean government has taken major initiatives aimed at creating and supporting venture capital companies as a way of fostering small technology-based firms.



The government's efforts have begun to bear some results. As of September 2005, total number of foreign R and D centres reached 901, including 137 corporate R and D centres that are wholly owned by foreign investors; some of them are Microsoft, Motorola, IBM, Dupont, 3M, Oracle, Siemens, Bosch, Fuji Xerox, LG Philips, Fairchild, Sumitomo and Merck. In 2004 alone, Intel, HP and National Semiconductor launched research centres in Seoul, while the Paris-based Institute Pasteur opened a branch engaging in research ranging from genetic studies to innovative drug development. In 2005, Fraunhofer-Gesellschaft, Europe's leading institute for technical and organizational innovation, set up an R&D centre, whereas Bell laboratories, the R&D arm of U.S. telecommunications company Lucent Technologies, planned to build an R&D centre at the Seoul Digital Media Centre by October 2006. The lab is expected to invest about 5 billion won (US\$5.2 million) annually. In 2005 Korea lured 30 foreign research centres and aimed to attract 41 in 2006 (Invest Korea Journal, January-February 2006: 8-14; MK English News, 4 December 2005).

The primary roles of these R&D centres in general include a variety of research activities related to new product development and support given to local operations. But as Korea is rapidly becoming a global leader in information technology (IT), a number of world-class companies that are leaders in high value-added industries have started operating their R&D centres in Korea in preparation for developing next-generation market-leading core technologies and for gaining a technological advantage in the Northeast Asian market. An excellent case in point is the Dutch company Philips, a world-class LCD producer, which established an LCD production complex in February 2003 through a joint venture with Korea's LG Group. When the 408-acre, US\$10 billion complex goes into full operation in June 2006, the 5,000 employees will turn out products worth about US\$2.9 billion in domestic sales and nearly US\$2.7 billion in annual exports. The complex will produce incomparably high added-value seventh and eighth generation display screens for large televisions (Invest Korea Journal, January-February 2006: 10-4).

Another illuminating case is that of Honeywell, the first U.S. firm to move its global R&D centre to Korea (from Minneapolis to Cheonan City). Established in 1984 and reorganized in 1999, Honeywell Korea made a significant technological breakthrough in December 2000 by developing a 25x-zoom model for closed circuit TV and an automobile electrical equipment sensor. As a result of these innovative achievements, Honeywell Korea was selected as a centre of excellence by its head office and its R&D quality is on par with that of the firm's headquarters in Minneapolis (Park 2005:online).

But can Korea be a serious consideration as a high-profile host country for multinationals' offshore R&D facilities? Does Korea possess the industrial conditions or environmental factors that may lead to the deepening of the offshore R&D activities of multinationals? The answer to both questions is qualified "Yes".

## **Conclusion**

The impressive and positive portrayal of Korea's openness to FDI in the aftermath of the financial crisis should not mislead readers by disguising the fact that post-crisis reforms have often not proceeded in an entirely trouble-free fashion. It is now public knowledge that Korea has been slow in implementing its financial, corporate, labour, and government sector restructuring due to the painful and difficult decisions that must be made along the road towards conforming to international standards and becoming more competitive on the global stage.

Of the main obstacles to inducing FDI into Korea, such as militant labour unions, unpredictable tax administration, excessive regulatory regime, and inconvenient living environment, it is the prejudice against foreign companies and the associated fears of imperialism that are most daunting. Although the negative attitude toward FDI held by many Koreans has slowly altered with growing recognition that FDI has, in fact, played a vital role in helping to revitalize the Korean economy following the financial crisis of 1997, the Korean people's deep-rooted pro-indigenous and anti-foreign sentiments have lain dormant, only waiting to erupt as soon as they believe anything foreign becomes too prominent within their society. If Korea really intends to maintain the continued globalization of its economy, as we emphasize once again, there should be a major overhaul of our outmoded educational system characterized by curricula and teachers that infuse anti-market, anti-globalization and chauvinistic ideals inimical to entrepreneurship, innovation, investment and growth. It is also our firm belief that the leadership has a major responsibility to educate and enlighten the public so that they may develop a more globalized mindset as well as the ability to cope with the emerging challenges and opportunities of today's era of increased interconnectedness and rapid globalization.

Korea's regulatory regime needs to continue to be reviewed and streamlined to ensure that the rules are consistent with the principles set forth in the Korean Constitution and improved in line with global best practice. There are many laws which need considerable review as they restrict market

competition, fail to reflect real-life, and too broad and vague, and often conflict with regulations among various government agencies at all levels. Such revision calls for a more far-sighted, forward-looking and global mindset and requires the government to design appropriate and consistent policies that promote efficiency, innovation, and entrepreneurship. Senior Korean policy makers and leaders must understand the impact of inward FDI on the country's integration into global economy and be open to fresh ideas and criticism aimed at cultivating the country as a more open, transparent, competitive, globalized and culturally dynamic society. Based on the research, the following are recommendations for Korea should it wish to implement globalization strategies:

- Create a sense of security and stability among foreign investors to encourage them to upgrade their investments step by step;
- Establish a 'control tower' for the policy implementations with clear and senior responsibility within government. For instance, the government must adhere to laws and principles in dealing with labour disputes in order to counter radical and illegal acts by labour unions. It is also applicable to the case of the tax authority that seeks overzealously its revenue objective. Instead, all related government agencies together should weigh the small gains of tapping tax revenues through the overly rigorous tax audits of foreign firms against the high cost of choking off FDI inflows;
- Publish (both in Korean and English) widely the government's clear and transparent strategic visions to communicate the approach both within government and across the business (both local and foreign) sector;
- Focus on the implementation of strategic priorities. For instance, if Korea's hub strategy to build a world-class R & D centre is a top priority, improve its R & D environment at home in order to counter against the massive flight of high quality human capital;
- Educational reform at the middle and high school levels takes priority over the college issue; it should be geared toward fostering both an open mindset and the basic skills needed to prosper in the globalized and information-based era of the 21<sup>st</sup> century;
- Ensure that barriers to policy implementation, especially within the government administration itself, are removed with speed and decisiveness; and
- Remain open to fresh thinking and criticisms.

By way of conclusion, it should be noted that various findings resulting from this study cannot be taken as conclusive but must be seen as tentative and exploratory. This is largely due to data

limitations, the newness of the trends and the scarcity of prior research on this subject. Rather, these results imply that further research on the challenges of Korea's FDI-led globalization is justified. It should also be said that the research conducted here should be treated as part of a continuing effort to reformulate new information and insight as it becomes available.

Overall, despite the above and other limitations of this study, it is hoped that the research conducted here has gone far beyond anything previously attempted in examining Korea's newly-adopted globalization strategy. It is also hoped this study can contribute to a rich discussion on contemporary issues in the international political economy that include the debate on structural adjustment, the role of the state, class formation and capital accumulation and the changing nature of economic or industrial policies in the course of capitalist industrialization.

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## End Notes

Among the organisations interviewed were: OSRAM, EUKORAIL, Lee & DDB, Alstom, CLSA, Achates Korea, Samsung Fire and Marine Insurance, Kim, Shin & Yu (law firm), Korea Vilene, University of Phoenix, Daimler Chrysler, Hankuk Sekurit Ltd., Panalpina, Telus International Korea, Novo Nordisk Pharma Korea, Saint-Gobain Sekurit, PanAsia Paper, Unilever Korea, Fuji Xerox Korea, Samsung Total Petrochemicals, National Australia Bank, Macquaire Corporate Finance Advisory Group, Meat & Livestock Australia, BP, Canadian Chamber of Commerce, European Union Chamber of Commerce, American Chamber of Commerce in Korea, Grand Hyatt, Australia-New Zealand Chamber of Commerce in Korea, Australian Trade Commission, New Zealand Trade Commission, Bosch, Westing House, BASF, LG Philips, VA TECH International, Korea Exchange Bank, Siemens, Hong Kong Shanghai Bank Corporation (HSBC), Market Force, Asia Connection, Seoul-Japan Club and *Financial Times* in Seoul. Some organizations preferred not to be named.

<sup>2</sup>In terms of its proportion to GDP, foreign equity ownership in Korea's publicly traded corporation was

21 per cent, lower than Taiwan (30 per cent) and Thailand (26 per cent), thus reflecting the relatively smaller size of Korea's equity market (Korea Times, 30 January 2006).

<sup>3</sup>Lone Star Funds is placed under suspicion that it collaborated together with the high-ranking officials of the Korea Exchange Bank (KEB) in manipulation of the BIS (Bank for International Settlements) capital adequacy ratio, that is, understating KEB's BIS ratio below its actual worth (from 9.14 per cent to 6.16 per cent) to quicken the sale of KEB to the buyer at a knockdown price. The BIS ratio is a critical measurement that grades the financial health of banks. Banks are regarded as financially shaky when the ratio goes below eight per cent. See "FSS Official Accused of Fiddling KEB Figures in 2003," (English Chosun.com, 10 April 2006).

<sup>4</sup>Authors' interview conducted in November 2005 in Seoul Korea.

<sup>5</sup> Authors' interview conducted in October 2005 in Seoul Korea.

# **The ‘Michi-No-Eki’ Program for Creation of Vibrant Community and Civil Society in Japan**

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## **Abstracts**

Globalisation has forced governments in many developed countries to redefine their roles. The emerged trend is a governing paradigm shift from large, centralised to small, decentralised government. Over the recent decades, resultant curtailment of public spending and increasingly privatisation and marketisation of public services have entailed a growing vacuum in society. Against this background, ‘civil society’ and ‘third sector’ have regained popularity in public discourse. Japan is no exception. Although the country lags behind their Western counterparts, it has begun to chart its course of civil society and third sector development. This paper discusses the issues drawing from the country’s recent experience with a multi-faceted nation-wide road safety program, Michi-no-Eki (Road Station). Focusing on the innate versatile property of the program from a community perspective, this paper explores a potential of the program as a vehicle of a bottom-up, community organising and building movement based on cross-sectoral partnership for the development of vibrant and self-reliant community and civil society.

## **Introduction**

Since the early 1990s globalisation has been reshaping the world, creating both growth opportunities and development challenges. The phenomenon (i.e., a blurring boundary of national economy, legal framework, culture, and society) has promoted a divergence in values in society and a convergence in political, socioeconomic institutional arrangements, shaking the foundation of nation’s sovereignty. In response to the emerged globalisation trend, governments in developed countries have been forced to redefine their role as the state. The popular approach has been to curb its political influence through a pursuit of smaller government and power redistribution to local so as to meet the country’s

developmental challenges more cost effectively. Although the power redistribution has offered better opportunities to locals in meeting their unique needs and wants, resultant curtailment of public spending and increasingly privatisation and marketisation of public services have entailed a growing vacuum in society. Against this background, ‘sustainability’ and ‘civil society’ have been popularised in development policy and political debate, respectively.

Current development debate as well as past experiences of developed countries suggests that a pursuit of sustainable development triple-bottom lines be more productive when public, private and communal sectors work together. The underlying logic is simple – i.e., synergy. For instance, in the case of a sustainable local development pursuit, public policy makers and corporate philanthropists are too often ill-equipped with local knowledge whereas communal grassroots movements lack necessary financial resources and management expertise. Yet, when their respective values, skills and resources are pooled and synergised effectively through their partnership, many challenging development goals become attainable. The renewed interest in civil society over the recent decades seems to stem from the increased importance of communal sector or public sphere, in national, regional and local development. Now communal sector is expected to expand its sphere of influence based on its vibrancy and through associational participation. And this realisation has also been fuelling an interest in the third sector - i.e., “a mix of non-profit and cooperative economic organizations and their activities” (Gunn 2004, p. 2).

Japan is no exception. Though lagged behind their Western European and U.S. counterparts, it has been charting its course of civil society renewal and a development of third sector more vigorously than ever, following the infamous burst of bubble economy. As can be expected, the country’s journey is uniquely different from the Western counterparts. Recently Kerlin (2006) contrasts experiences of Western European countries and the U.S. as for the development of social enterprises and their conceptualisation. She attributes observed differences to a unique development trajectory of the two regions, or their idiosyncratic social, cultural, economic, political, regulatory, and technological experiences (c.f., Redding 2005). As for Japan, such notion has been supported by Chambers and Kymlicka (2002) and Pekkanen (2006) as well as Osborne (2003) for a development of civil society and third-sector, respectively. For instance, the available literature on civil society highlights two unique features of Japan’s civil society development: the traditional state dominance in the civil society development and highly interdependent, partner-like relationship between the state and civil society (Schwartz 2003; Pekkanen 2006).



This paper aims to add some new insights into the literature from the Japanese perspective, drawing on the country's recent experience with a multi-faceted nation-wide road safety program. The paper focuses on the innate versatile property of the program from a community perspective. It explores the program's potential as a vehicle of a bottom-up, community development pursuit of vibrant and self-reliant community (i.e., civil society) through a cross-sectoral partnership. The road safety program is known as Michi-no-Eki (MnE) in the country. Since its introduction in 1993 it has enjoyed phenomenal popularity and (economic and social) market success. In Japan it has earned recognition as an enabler of a community-driven, local development. And for the national success, the program has been actively promoted outside the country by the Japan Bank of International Cooperation (JBIC) and the World Bank in their respective efforts to promote community-driven local developments in less developed countries.

### **Michi-no-Eki (MnE) Program**

Michi-no-Eki (MnE) can be translated in English as a 'road station'. The original concept was born at one of regional development symposiums in 1990 with the following remark of one of participants – 'Why do not we have stations along major roads like train stations?' (The Road Management Technology Centre, RMTC, 1993). Reflected in the remark is the frustration of local communities which have long been deprived of social and economic development opportunities available only to those communities which host railway stations. The concept captured an interest of the Road Bureau of the former Ministry of Construction, which was exploring an implementation strategy of its new policy focusing on road travel service infrastructure developments in response to diversifying motorist demands in the highly motorised society. Following a social experiment of the concept in three regions, the Road Bureau organised successive advisory committee meetings to explore a MnE potential, discuss its feasibility, and finalise a MnE model as part of its nation-wide road safety program. In 1993, the MnE program was officially launched as part of the ministry's 11<sup>th</sup> 5-Year Road Maintenance Plan in 1993 (RMTC 1993).

The MnE registration guidance operationalises the basic concept of MnE model along the following three parameters - 1) location: easily accessible and appropriately distanced from the neighbouring MnEs; 2) infrastructure and facilities: a) a sufficient free parking space, clean toilets, and barrier-free access to MnE service facilities and b) an information kiosk powered with IT for road and

traffic information as well as host community information; 3) services offered: a) 24-hour accessibility to free car park, clean toilet and public telephone and b) face-to-face interaction at the information kiosk (RMTC 1993). As for the MnE service facilities, each MnE is required to facilitate and promote visitor-community interactions unique to a MnE host community (i.e., economic, social and/or cultural). Detailed features of each MnE are widely made public via official MnE websites of the RMTC and the Road Bureau as well as MnE user club websites. In public, a MnE has come to be more commonly known as a ‘place’ where visitors can: 1) expect a free, safe, comfortable and convenient resting place; 2) obtain real-time traffic information as well as local information (i.e., emergency medical centre and tourist attractions); and 3) buy locally produced goods (e.g., fresh agricultural produces, processed local produces, traditional craft works, etc.) and/or social and cultural experience-based services unique to the host community. Some MnEs have even grown to become a popular tourism destination themselves from a mere stop-over place for road travellers. As of March, 2007 after the 23rd registration, there are 858 MnEs across Japan (The Road Bureau-b n.d.). Table 1 presents two sets of time-series data on the MnE growth indicators (i.e., numbers of the total MnEs registered and new MnE registration for each year) since its Year 1 in 1993.

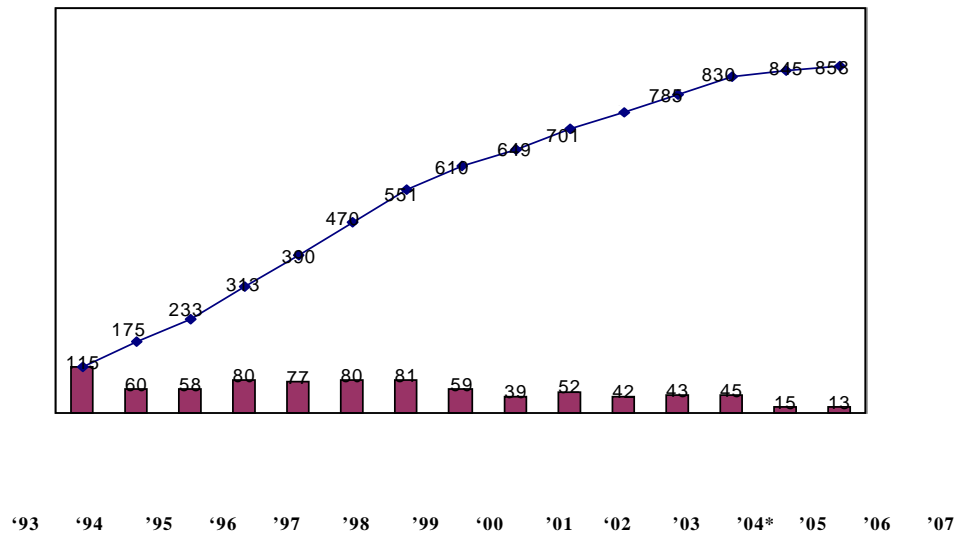


FIGURE 1: A MNE GROWTH

\* In 2004, one MnE was de-registered.

As evident in Table 1, every year in its history the MnE program has been joined by new MnEs. However, in terms of new MnE registration over the 15-year history, Table 1 highlights two points. First, after reaching its peak in 1999 with 81 new registrations, the number of new registrations has remained low. In particular, remarkable is a substantial drop in the new registration over the recent two years. However, this should not be interpreted as a downfall of the MnE program. Given its sustained popularity, it should be understood as the end of the MnE development rush and the beginning of another chapter of the MnE program development.

### **The Michi-no-Eki (MnE) Development Model**

The MnE program is not the conventional state-guided Japanese model of civil society as commonly documented in the literature (c.f., Pharr 2003). The program is sponsored, but not guided. For its registration, certain requirements need to be met as presented earlier. However, beyond the requirements for registration, everything is left to the hand of each MnE administrative organisation. The Road Bureau takes no intervention and guiding policy on the MnE management (Kayano and Kondo 2006). There seem to be several reasons for this: a simple fact that the MnE management issues fall outside the bureau's administrative terrain; a respect to the community spirit behind the original conception of MnE; the manifestation of the recent paradigm shift in the state policy from central control to local autonomy; or a combination of these. As will be explored in the subsequent sections, the true potential of the MnE program is its flexibility to facilitate different types of partnership within its host community and capacity to function as a vehicle of community organising - "a process in which local people, united by concern for renewing their own small territory, plan and act together from an organizational base that they control" (Murphy and Cunningham 2003, p. 79) and community building.

For a MnE development, there first must be a local initiative and enduring commitment to the MnE concept, which eventually evolves into the establishment of a MnE administrative organisation (AO). The Road Bureau's MnE guidance (RMTC 1993) requires a MnE administrative organisation for registration and defines it as one of the following: 1) a municipal government, 2) a prefecture government, 3) a corporation established through joint investment of public and private or third sector (e.g., communal or agricultural cooperatives) where a municipal government holds more than a third of

the share, or 4) a *Koeki Hoji* (i.e., public interest corporation, such as an incorporated foundation and chamber of commerce) recommended by a municipal government.

The establishment of a MnE AO alone is necessary but sufficient. Initial investment necessary for construction of the required MnE infrastructure far exceeds a financial capacity of a single municipality. The establishment of a MnE commonly involves financial supports from all of the three levels of government administration of the country – i.e., central (i.e., state), regional (i.e., prefecture) and local (i.e., a municipality at a city, town, or village level) (see Figure 2). A MnE hosting municipality seeks external funds available from its respective prefecture government as well as central government to overcome its budgetary constraint, such as subsidies, grants, and/or loans tied to a development of facility for community development/promotion. The Road Bureau, the MnE program sponsor, is one of the funding sources. It offers a subsidy for car parking, IT-powered information kiosk, and toilet facilities development when such a support is justifiable from a road safety promotion perspective (RMTC 1993). Of the aforementioned 858 MnE currently in operation, more than 40 per cent of them received the subsidy (MILTa,b,c.). However, owing to this highly selective nature and specialised purpose of the subsidy, even fortunate MnE AOs find themselves in short of funds. To make their MnE vision and dream reality, a prospective MnE hosting community takes advantage of community-focused project subsidies, grants and/or loans available from its respective prefecture and other central government agencies. For instance, according to RMTC (1993), MnE Shishigashuku in Miyagi Prefecture funded its infrastructure development through the following funding mix: Road Bureau subsidy (8% or 30 million yen), National Land Agency subsidy (1% or 4 million yen), local bond issuance (80% or 313 million yen), and the municipal government budget (11% or 42 million yen); in contrast, Pascal Kiyomi in Gifu Prefecture funded the investment without the Road Bureau subsidy but the following contribution: the Ministry of Agriculture, Forestry and Fisheries subsidy (50% or 130 million yen), Gifu Prefecture subsidy (4.5% or 11.7 million yen) and the municipal government budget (44.5% or 118.3 million yen).

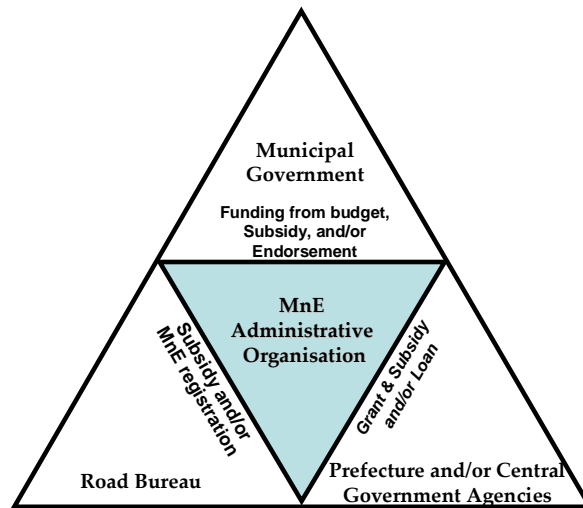


FIGURE 2: THE MICHI-NO-EKI INFRASTRUCTURE DEVELOPMENT MODEL

### The MnE Business Model

Once a MnE AO acquires the entitlement to operate under the MnE national brand, the MnE AO takes a full responsibility for the management of the established community asset (i.e., MnE service infrastructure). Here it is worthy to note the discrepancy in priority of the three MnE functions between Road Bureau and MnE AOs. From the Road Bureau’s perspective, the MnE program is a nation-wide road safety program. Thus, the bureau places more emphasis on rest and (traffic) information service functions over unique visitor-community interface services. From a MnE AO’s perspective, on the contrary, the ranking is reversed completely. A MnE AO views it as a local development program. In particular, when a MnE AO has financed its infrastructure based largely from those subsidies, grants and loans tied to promotion of local economic, cultural, and/or social developments, it bears an extra incentive and pressure to pursue such cause.

For a MnE to be sustainable, a MnE AO needs to ensure its MnE financial viability. The MnE registration guidance, though abstract and vague, stipulates basic requirements of the MnE maintenance, such as clean, comfortable, safe and 24-hour accessibility. Compliance to the registration guidance will incur a MnE costs. Such costs include expenses of utility, waste management, and labour for maintenance of safe parking and clean toilet facilities. Some cost items

might be covered by local volunteers. For instance, they may take or share responsibility for cleaning a more or less standard-number of 10 or more toilets periodically during the opening hours. However, if the MnE AO keeps failing to reward their goodwill in the form of tangible or discernable community promotion outcomes through the operations, it is most likely that their volunteer spirit will wither eventually. In such a case, the host community will soon or later find their MnE as a drainer of community capital, rather than as an enabler of community and local development. In fact, there was one such case in 2004 whereby a MnE AO and host community found the managing of MnE services a burden and requested its de-registration. From a perspective of MnE sustainability, this underscores the importance of a MnE AO to be financially self-reliant with some capacity to generate operational profits. Taking this one step further from a perspective of sustainable community development, a MnE AO in rural areas where income generation opportunities are largely limited are prompted to promote the MnE as a driver of such job and income opportunity creation. Furthermore, if the MnE infrastructure development involved loan financing, pressure for economic gains in the MnE management is more substantial. It is this need for economic gains that underscore the criticality of management discipline of private sector (i.e., marketing, entrepreneurship, and innovation among others) for the management of a MnE and its survival.

The MnE registration guidance accommodates this latent MnE AO need. It leaves the option of infusion of the commercial discipline into the MnE management. As noted earlier, the registration guidance allows the involvement of private sector in the formation of a MnE AO through an establishment of a corporation where a respective municipal government holds more than a third of the share. MnE Fujikawa Rakuza in Shizuoka Prefecture is renowned for its success under this type of a MnE organisational arrangement. Furthermore, the guidance also leaves the MnE AO another public-private partnering option - outsourcing of the MnE management function to a private organisation. MnE Hari Terrace in Nara Prefecture represents this type of arrangement. The MnE has come to be renowned not only as the first of this kind of MnE whereby a private corporation was involved as a contracted MnE managing organisation from its initial design and planning phase, also as a popular tourist destination and commercially successful MnE for its attractive services mix (Kensetus Keiei Service 2004).

Figure 3 presents the MnE business model. The model defines three key players in the MnE business model. They are a MnE host community; community agents (i.e., social, public, private actors, and their partnerships); and visitors (intra- and trans-community). From the perspective of

MnE as a vehicle of community promotion and renewal in line with the MnE registration guidance, the model places in the centre a MnE's visitor-host community interface (i.e., economic exchange and social and/or cultural interaction). For a MnE to be sustainable, the managing organisation must be able to offer something of value to its visitors. And instrumental to such a value creation is idiosyncratic host community capital (i.e., social, human, physical, financial, cultural, historical and environmental) and community-spirited entrepreneurship which transforms the former into unique and attractive value. Here the latter concept is defined, drawing on a definition of social entrepreneurship (Mair and Marti cited in Perrini 2006, p. 10) but with the focus on community needs, as the innovative application of resources so as to maximise opportunities that serve community needs in a sustainable manner.

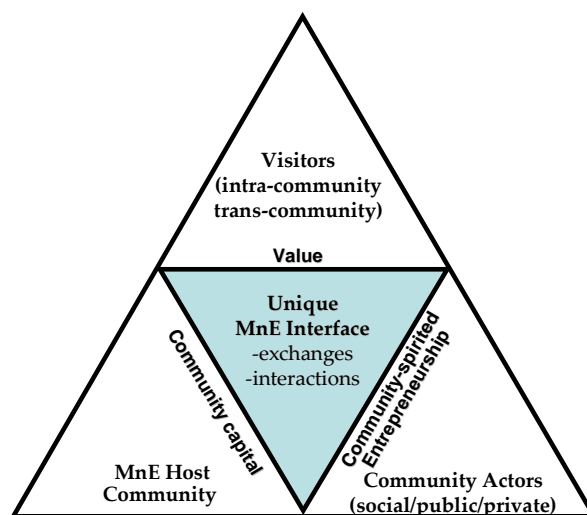


FIGURE 3: THE MICHINO-EKI BUSINESS MODEL

For the visitor-host community interface, a typical MnE is equipped with a restaurant and a selling floor or space. The former commonly serves unique dishes based on seasonal, fresh local produces whereas the latter sells fresh local produces which individual local farmers bring in every morning and/or processed local produces. Each unit of fresh produces (oftentimes local agricultural products) and processed produces is labelled with the name of its grower, so that growers can be rewarded in accordance with the actual sale of their produces. Interestingly, this operational necessity has also evolved to mean a brand name in the minds of intra- and trans-community visitors or

customers. It should also be noted that here is another opportunity for a public-private partnership or outsourcing. Many MnEs invite capable, community-spirited local businesses as a tenant at the premise. This arrangement has at least three benefits. First it ensures a source of fixed incomes to a MnE managing organisation. Second it enables each MnE to showcase its local commercial talents. And lastly, it provides a better or additional business opportunity to local businesses. On the other hand, it is also true that there are some MnE managing organisations insisting to remain distanced from this MnE commercialism. Among them is MnE Obah-chan Ichi Yamaoka in Gifu Prefecture. According to its managing director Ms Goto (2006), the MnE is a spin-off from their conventional social activity among local farm housewives who used to organise regular social gatherings for mutual teaching and learning of handcraft and cooking which eventually evolved to organise a flea market for their products; hence, the MnE still preserves its original communal spirit and is proud of its merchandise - local handcrafts, traditional processed foods and agricultural goods produced by the local farm housewives.

### **The MNE Value Creation: Current and Future Challenges**

Earlier Miyamoto, Grainger and Iwasaki (2005) envisaged two trends in a future MnE development: an increase of MnEs with a greater profitability drive and changing rules of MnE market competition. As noted earlier, the Road Bureau's subsidy to a MnE development needs to be justified from a perspective of the bureau's road travel service infrastructure development and particularly road safety. When a prospective MnE host community plans to establish its MnE in addition to the already established road safety network nodes (i.e., existing neighbouring MnEs along the main national/prefectural road), literally it has no chance of securing the bureau's subsidy. The option left to the community is, then, to look for top-up funds more heavily from other sources (subsidies, grants, and loans) with a bearing of innate profit-making pressure. The arrival of this type of MnE not only intensifies (market) competition for visitors in the region, but also alters the very nature of the competition. Simply stated, a mere offering of unique MnE local attractions are increasingly losing their relevance in the competition for visitors unless such attractions are found more valuable to prospective visitors. In this intensifying MnE market competition and under the new rule of competition, a MnE managing organisation, regardless of their establishment backgrounds, will most likely follow one of the following three paths: Rise (i.e., to dominate the region for visitor traffic), Sustain (i.e., to coexist through collaboration with the



neighbouring MnEs to compete more effectively with the neighbouring regions, and Fall (i.e., to be forced to minimise its service functions to the MnE basic – rest and road information, or even de-registration).

One of a few available MnE research reports, the MnE Study Group (MLIT 2001), earlier underscored the need for a more disciplined approach to the design and management of the MnE visitor-host community interface service facilities. In particular, the report was indicative of a lack of innovation and poor management of market intelligence (i.e., generation, dissemination and application of market intelligence) in the management of MnE. The report highlights the need for unique service offerings based on each MnE idiosyncratic community capital and community-spirited entrepreneurship, and urges MnE managing organisation to go beyond the conventional practice of the mere promotion of fresh and processed local produces. Unfortunately this message has failed to find a large audience according to a recent survey by a MnE seminar organiser who found that more than a third of 108 seminar participants indicated their strong interest, as a desired seminar topic, in the conventional local produce-driven marketing and MnE promotion (Itochu Corp. n.d.).

To understand this rather obsolete mindset of many MnE managing organisations and its context, it is appropriate here to review briefly the country's recent tradition in rural community development and renewal effort. That is, the 'One Village One Product' (OVOP) movement. A government policy report (Central Cabinet Office 2005) traces its origin back to a prefecture governor who in the 1970s began to promote a community-driven initiative for and a development of a self-reliant, proud rural community. He operationalised his OVOP vision along the following three dimensions: 1) a development of a local good or service which has global appeals at each village; 2) a self-reliant and creative community pursuit; and 3) human resource development (Oita OVOP 21 Promotion Committee, 2000). This local bottom-up effort and its unprecedented success soon found followers outside the prefecture. Accordingly to the Japan Center for Regional Development's report, in 1988 there were over 70 per cent of municipalities across the country were involved with some sort of the OVOP movement (Aso 2003). However, later the nation-wide passion for the OVOP movement soon began to wane outside the prefecture, following the introduction of the state government's overly generous grant program for regional (economic) developments (Central Cabinet Office 2005). Given that the community spirit enriched through their earlier OVOP movement is not something that disappears easily, it is not at all a far fetched argument that the community spirit is driving collective effort behind many MnE managing organisations. The OVOP movement has also provides a useful bass model for a

branding pursuit of community assets by MnE managing organisations. However, they need to be aware of one important shortcoming in the convention of the OVOP movement. The aforementioned central cabinet report (2005) underscores a strong tangible product focus in the past OVOP movement. Unfortunately, this traditional mind-set appears to be still intact in the marketing and brand development pursuit of many MnE managing organisations.

A growing importance of services to business and economy is now shared widely. In private sector, it has been understood as 'servitisation' of business (Vandermerwe and Rada 1988) to underscore the growing importance of services in a business. Some progressive MnE managing organisations have been exploring different MnE servitisation opportunities in their MnE visitor-host community interface. For instance, at MnE Tamba Markeds in Shiga Prefecture, local farmers attend, in turn, a sales floor of fresh and processed local produces and readily engage in personalized social interactions with MnE visitors to disseminate product, cooking, and local knowledge. On the other hand, the aforementioned MnE Fujikawa Rakuza organises a variety of participative, experience-based services in collaboration with its neighbouring local farmers, such as planting and harvesting of local agricultural produces. Similarly the MnE Toki Minoyaki Kaido offers interested visitors an opportunity to experience the whole making process of the nationally renowned local ceramic art. One of front runners in this race of MnE servitisation seems to be MnE Kunma Suisha-no-Sato in Shizuoka Prefecture. It has been successfully drawing over-night family visitors from urban cities, appealing to their nostalgic sentiment for the country's traditions preserved in the mountain-side natural environment (Shizuoka Chamber of Commerce, 2004). In a word, the MnE is staging 'a memorable experience' (Pine and Gilmore, 1999) for its family visitors from urban cities. However, even to these progressive MnE managing organisations, their journey of MnE servitisation is far from over.

According to Miyamoto (2005), any pursuit of servitisation of businesses involves a varying degree of relationship building and customisation. Furthermore, for effective customisation, he asserts that such effort needs to be driven by identification and manipulation of 'determinant attributes' (Hansotia, Shaikh and Sheth 1985 cited in Hutt and Speh 1998, p. 305) of the focal product - i.e., both important and differentiating product attributes in the eyes of customers. And instrumental to this servitisation pursuit is the effective management of marketing intelligence for effective relationship building through service customisation. As evidence suggests, many MnE managing organisations are not familiar with the practice of marketing intelligence management. Instrumental to a further development of the MnE program is a paradigm shift in strategic thinking and practice at each MnE

managing organisation in the visitor-host community interface management – a shift from a good to service focus, from a transactional quantity to relational quality focus, and from what service to how of service delivery focus. The importance of this proposed paradigm shift is more evident in the context where neighbouring MnEs compete with each other in their more or less homogeneous host community geographical, cultural and environmental settings.

In the eyes of the Road Bureau, the MnE program is a highly successful nation-wide road safety program. The bureau now has built enough confidence in the program and even seems to be eagerly exploring more MnE service functions like a crisis management centre in case of natural disasters. However, from a community organising and building perspective, many MnE managing organisations do not seem to have established a solid root in the host community yet. For instance, the aforementioned short-comings of many MnE managing organisations can be partially accounted for their lack of wider host community involvement or ‘communitisation’ of the MnE program. This point can be illustrated by the success enjoyed by the aforementioned front runner of the MnE servitisation pursuit, MnE Kunma Shusha-no-Koya. The MnE managing organisation differs remarkably from others in that it is owned, managed, and governed by a community cooperative composed of all community households. This unique inclusive and engaging approach, which nurture a community-wide sense of shared ownership, leadership and accountability, as the enabler of their successful management of marketing intelligence, innovation and, thus, superior community-visitor interface service offerings. This MnE managing organization can be labeled as a ‘community-based enterprise’ which Peredo and Chrisman (2006, p. 310) define as “a community acting corporately as both entrepreneur and enterprise in pursuit of the common good”.

Furthermore, from a sustainable community development perspective, it remains highly questionable to what extent each MnE managing organisation is strategically addressing challenges and opportunities associated with their pursuit of short-term gains against its long-term implications to the host community. There is no evidence on the current practices of such ‘ambidextrous’ management. Reality is that any MnE decision and action made today has long-term implications on a well-being of the host community capital. For instance, there were, in fact, some unfortunate cases where natural beauty was utterly ruined by an eccentric MnE building design. What about untapped cultural wisdom embedded within those aging locals? What about a future or sustainability of those MnEs in rural areas where the country’s aging problem is the long established reality? These are just a few of many present and future issues concerning the management of MnE host community capital. In addition to the

aforementioned paradigm shift into MnE servitisation, a MnE managing organisation also needs to adopt a more holistic strategic approach to its planning and practice. Under this holistic strategic paradigm, a MnE managing organisation needs to take willingly a leadership role in the pursuit of community organising and building. By addressing its opportunities and challenges in light of sustainable community development agenda to its host community, the MnE managing organisation should be able to generate a community-wide interest in its latent interdependent relationship with the host community as well as collective concern with a future well-being of the community. In a word, the MnE managing organisation can initiate the so-called 'community visioning' (Murphy and Cunningham 2003) and take a lead in the process of 'community organising'. Building on information generated and shared from the broader community stakeholders, new contacts and relationships will emerge (or enhanced 'civic value' and 'social capital' within the community) as well as a collective future vision. Then the MnE managing organisation will finally find itself in a position to be able to communitise the MnE, and transform the MnE into a true vehicle of community organising and building. And importantly, this potentially highly political process would be better facilitated if prominent community actors representing communal, public, and private sectors work together under the shared community future vision. As discussed earlier, the MnE program is equipped with the capacity to accommodate different types of cross-sectoral partnership. Figure 4 depicts four possible partnership arrangements across communal, public, and private sectors, such as CP1 denoting a partnership between communal and public sector. In particular, when the tripartite cross-sectoral partnership (CP1P2) constitutes the driver of MnE management, representatives of each sector can see their future through the lens of the MnE managing organisation and along its development. Only then, a MnE managing organisation can develop unique, resourceful, and attractive interface service offerings to its intra- and trans-community visitors whilst paving the way for the community to its sustainable future.

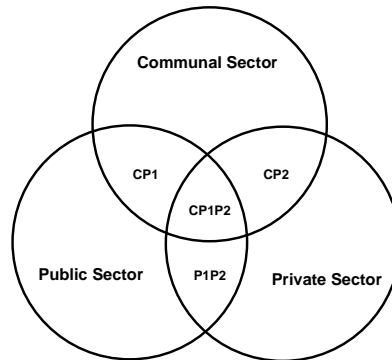


FIGURE 4: THE MICHI-NO-EKI PARTNERING MODEL

### **Internationalisation of the MnE Program: A Case of Thailand**

When measured by its popularity in public and participating municipality number, the MnE program without doubt has been a highly successful nation-wide program. The principle and philosophy of this successful program as a road safety as well as community-driven community development program has also caught attention and interest of the Japan Bank of International Cooperation (JBIC) and the World Bank. The former has been promoting the program in addition to its loans to finance infrastructure development (e.g., road construction) in less developed countries (JBIC 2001) whereas the latter has adopted the program as a model for promotion of bottom-up, community-driven, local developments in less developed countries (World Bank 2004). The following section reviews the background context prior to the introduction of the MnE program in Thailand and how the program has been integrated into the country’s industrial policy and programs to promote rural economic developments.

The Industrial Villages Project initiated by the Department of Industrial Promotion (DIP), Thailand was approved by the Cabinet on 24 May 1993 (Department of Industrial Promotion, 1999a). The project corresponded with the Ministry of Industry’s policy on the development of rural areas, and the distribution of income in order to help lessen the gap between the wealthy and the poor within the nation. The project was also designed to support the 7<sup>th</sup> National Economic and Societal Development Plan with an emphasis on the establishment of the industries throughout all regions in the country, including increasing the efficiency of production and business systems (Department of Industrial Promotion, 1997). The general goals of the Industrial Villages Project were (1) to establish industrial

villages whereby there is a well-designed business system on goods production, management, marketing, as well as administration; (2) to generate and to increase the income of villagers, including to help better the standards of their living, reducing the number of labour movement among villages; and (3) to improve the self-sufficiency of villagers (Department of Industrial Promotion, 1996). The specific aim was to improve the overall well-being of these citizens. To summarise the essence of the initiative, the underpinning idea for launching the Industrial Villages Project was to create a long-term growth and sustainable development of the nation by firstly focusing on creating jobs and generating income for citizens in rural areas. The plan was to be achieved by effectively utilising natural resources and improving skills of villagers.

At the outset of the Project in 1994, Industrial Villages were defined as the villages whereby the number of villagers maintained their vocations in producing handicrafts for a number of years such as from five to 15 years or more. Industrial Villages were, moreover, defined as potential villages that received continuous support from the government in helping develop vocations in producing handicrafts until villagers could plan, implement, execute, and manage all the pertinent activities by themselves (Department of Industrial Promotion, 1996).

The first phase of the project was implemented from 1994 until 1996 with a budget of 43 million baht. The key concept to help realise the objectives of the Project was achieved by adapting the incubation model to prospective industrial villages, which were divided into three stages over three years. The first year or at the preparation stage was to create villages' profiles, to synthesise the empirical evidence, and to select target villages. The second year, or during the executing stage, was to provide necessary activities supporting the development of industrial villages such as financial support, advising services, and the establishment of vocation units. During the last stage or the third year, was for the government to evaluate and follow-up on those incubated villages. The expected numbers of industrial villages were at first 58 villages; however, at the end of the project year, there were 117 industrial villages throughout the country. The products from each village were made from local, natural resources found in those villages, such as coconut shells, cotton, clay, java weed, pandan leaves, and bamboo. In 1996, among those 117 industrial villages, there were 22 villages selected to be champions in producing high quality handicraft products (Department of Industrial Promotion, 1996).

The success of the first phase prompted the Department of Industrial Promotion to further strengthen the development of the existing industrial villages and establish new ones through the

implementation of the second phase from 1997 until 1999 under Prime Minister Leekpai. The second Project also corresponded to the 8<sup>th</sup> National Economic and Societal Development Plan on increasing the skills of national human resources (Chiang Mai University, 1998). The objectives of the second phase were modified to be as follows: (1) to strengthen the self-sufficiency of the business units in the villages; (2) to increase the skills, knowledge, efficiency, and performance of the villagers, including leaders of villages; (3) to create positive attitudes among the villagers towards industrial vocations; and (4) to continue improving the capabilities of each village. With a budget of 65 million baht (Department of Industrial Promotion, 1997), the number of activities such as seminars/workshops educating villagers, public relation for the Project, and management support were added. At the end of 1999, the number of industrial villages was increased from 117 to 153 villages throughout the country. There were 36 champion villages selected in 1999 (Department of Industrial Promotion, 1999b).

According to the 8<sup>th</sup> National Economic and Societal Development Plan, the tourism industry in Thailand was also supported (“Sustainable Tourism,” 2002). The implication was to help improve the living conditions of citizens in rural areas. Therefore, in 1999, the Tourism Authority of Thailand teamed up with the Ministry of Industry to implement the Industrial Villages Development for Tourism Project with a financial support of 54.6 million baht from the Japan Bank of International Cooperation (JBIC), including a budget contributed by the Department of Industrial Promotion. Based upon the performance of the village and its leader, including the readiness of the villagers, 20 villages from 19 provinces were selected to take part in the Project from 1999 to 2003. Out of which, six villages were in the North, four villages were in the Northeast, five villages in Central Thailand, and five villages were in the Southern part of Thailand. Following the MnE model, the aim of the Project was to establish community centres in those villages as a vehicle of community-building and organising. Each selected village should establish own community centre for providing information on attractions of its own and nearby provinces to tourists, selling food and local handicrafts and products, providing services such as a guided tours, car/van rental, and home stay accommodations, and serving as a showcase for local handicrafts and their production (Department of Industrial Promotion 2003). To further promote the concept of community-driven local development, JBIC has organised grass-roots learning and knowledge transfer of Japanese MnE experience through workshops and staff study tour to Japan (Miyao 2005). More recently, Industrial Villages and Industrial Villages for tourism were incorporated and renamed into the Thai versions of the aforementioned ‘One Village One Product’ - “One Tambon (District) One Product (OTOP)” and “OTOP Tourism Villages” Projects - introduced by

the then-Thaksin administration in 2001 and 2004, respectively (“Big Project,” 2004). It may take many years for the principle and philosophy of the MnE program to be fully rooted in the local context. Nonetheless, the program has helped the locals institutionalise a model of bottom-up, community organising and building.

## **Conclusion**

In the recent decades, Japan has been exploring various avenues to re-engineer itself to be a sustainable state in a mature, slow economic and social growth era through promotion of stronger communal sector. This paper presented the recent experience with the nation-wide road safety program, MnE program. More specifically, it defines the MnE program as the vehicle of a bottom-up, community organising and building movement for a sustainable local development, and explores the potential. The program has enjoyed a nation-wide success and been enlightening life of those involved in the MnE program. However, it should be stressed that a full development of the MnE program is not realised. As discussed in this paper, the program can offer and return more to its host community. In order to realise its full potential, this paper advise a MnE managing organisation to pursue a communitisation of its operations actively by spearheading collective efforts of community visioning, building and organising for a sustainable development of the host community. Notably, the past economic, social and political experiences of developed economies are not at all irrelevant to less developed countries. For instance, those economies which currently enjoy a rapid growth mode of economy will also one day become a mature economy, which inevitably necessitates some sorts of re-configuration of the state systems. It seems that the creation of vibrant, self-reliant local communities and civil society constitutes one of critical ingredients for a successful state transformation. As examined in the context of recent Thai’s experience with the MnE program, the program seems to have a capacity to transcend national boundaries as the bottom-up, community development model.



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# Economic Growth and Convergence of Asian NIEs: The Empirical Analysis Based on the Panel Unit Root Tests

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## Abstract

This study examines the growth patterns of per capita real output across the Newly Industrializing Economies in Asia (Asian NIEs): Hong Kong, Singapore, South Korea, and Taiwan. First, some concepts of convergence that are frequently referred in literature on economic growth have been arranged. Then, using panel data from 1960 to 2004, the unit root tests are applied to check whether convergence of per capita output can be found across the economies or not. By setting the models fit for the graphical features of data, the economies are significantly grouped into two different types in terms of growth experiences.

## The Model

$y_{it}$  denotes the logarithm of output or income per capita of economy  $i$  at period  $t$ . This study assumes that a series  $\tilde{y}_{it}$  ( $\equiv y_{it} - y_{jt}$ ) is generated by the following data generating process (DGP).

$$\text{Under Null} \quad \tilde{y}_{it} = \alpha_i + \tilde{y}_{it-1} + \varepsilon_{it} \quad (1)$$

$$\text{Under Alternative} \quad \tilde{y}_{it} = \alpha_i + \beta_i t + \rho_i \tilde{y}_{it-1} + \sum_{h=1}^2 \delta_{hi} D_{hit} + \varepsilon_{it}, \quad |\rho_i| < 1 \quad (2)$$

$$i = 1, \dots, N, \quad t = 1, \dots, T$$

Where  $\varepsilon_{it}$  is independently and identically distributed across  $i$  and  $t$  with a zero mean and a finite variance. Under the stationarity alternative hypothesis (2), the DGP has up to two-time shifts in the level or the slope in the trend function.  $\delta_{hi}$  denotes the size of the  $h$ th break ( $h = 1, 2$ );  $D_{hit}$  is the dummy variable which represents the  $h$ th break.  $D_{hit} = DU_{hit}$  for the shift in the level and  $D_{hit} = DT_{hit}$

for the shift in the slope.  $DU_{hit} = 1$  for  $t > TB_{hi}$  or zero otherwise, and  $DT_{hit} = t - TB_{hi}$  for  $t > TB_{hi}$  or zero otherwise, where  $TB_{hi}$  is the date of the  $h$ th break.

The regression model in this study nests the DGPs (1) and (2):

$$\Delta\tilde{y}_{it} = \hat{\alpha}_i + \hat{\beta}_i t + \hat{\phi}_i \tilde{y}_{it-1} + \sum_{h=1}^2 \hat{\delta}_{hi} D_{hit} + \sum_{l=1}^{\bar{l}_i} \hat{a}_{il} \Delta\tilde{y}_{it-l} + u_{it} \quad (3)$$

$$i = 1, \dots, N, \quad t = 1, \dots, T$$

Where  $\Delta\tilde{y}_{it} = \tilde{y}_{it} - \tilde{y}_{it-1}$ ,  $\hat{\phi}_i = \hat{\rho}_i - 1$ , and  $u_{it}$  is a serially uncorrelated error.  $\bar{l}_i$  is a lag order parameter and is specified by following the ‘general-to-specific’ procedure described in Perron (1989) and suggested in Ng and Perron (1995).

Let  $t_i$  be the  $t$ -statistic testing the null hypothesis  $\hat{\phi}_i = 0$  and  $\hat{\delta}_{1i} = \hat{\delta}_{2i} = 0$  against the alternative hypothesis  $\hat{\phi}_i \neq 0$  and  $\hat{\delta}_{1i} \neq 0$ ,  $\hat{\delta}_{2i} \neq 0$  in model (3) for each  $i$ . As carried out in Zivot and Andrews (1992) and Lumsdaine and Papell (1997), the break dates  $\{TB_{1i}, TB_{2i}\}$  are endogenously determined to be where the one-sided  $t_i$  is minimized in sequential estimations over all possible break dates. Refer to that  $t_i$  as the minimum  $t_i$ . The limiting distribution of the minimum  $t_i$  as  $T \rightarrow \infty$  for fixed  $i$  is given by Zivot and Andrews (1992) and Lumsdaine and Papell (1997) for the case of one time break and two times breaks, respectively. For the case that  $\hat{\beta}_i = 0$ , which holds for the level-shift breaks, it is shown by Matsuki and Usami (2007).

## The Criteria for Convergence

This analysis grasps convergence in terms of the historical features of the series, taking the definition shown in Oxley and Greasley (1995) and Lim and McAleer (2004). The convergence means that the output gap between any two countries is stationary, and is divided into two types or phases.

The first is catching-up. For the series of the difference in the logarithm of per capita real output between country  $i$  and  $j$ ,  $\tilde{y}_{it}$ , if  $\tilde{y}_{it}$  is stationary, that is,  $\hat{\phi}_i \neq 0$ , and  $\hat{\beta}_i \neq 0$  in model (3), it is said that one country is catching up to the other. Catching-up implies that the per capita output difference between two countries is narrowing over the period, i.e. two countries are on their way to converging. The second is long-run convergence. For  $\tilde{y}_{it}$ , if  $\hat{\phi}_i \neq 0$  and  $\hat{\beta}_i = 0$  in model (3), it is said that two countries are on long-run convergence. Long-run convergence implies that the converging process has completed. If  $\tilde{y}_{it}$  is nonstationary, that is,  $\hat{\phi}_i = 0$ , in model (3), per capita outputs for countries  $i$  and  $j$  diverge over time.

The growth patterns of per capita real outputs among the economies, catching-up, long-run convergence, or divergence, will be concluded based on the panel unit root tests, described in the next section, assuming  $\hat{\beta}_i \neq 0$  or  $\hat{\beta}_i = 0$  for model (3). Hereafter, refer to the former assumption in which model (3) has a (deterministic) time trend term and the latter in which it does not as the trend model and the no trend model, respectively.

## Test Procedure

The tests for the hypotheses are principally based on the *Fisher\_B* test statistic presented in Matsuki and Usami (2007). It is the revised Fisher statistic for the panel unit root test to allow multiple breaks, and is defined as follows:

$$Fisher\_B = -2 \sum_{i=1}^N \log p_i \quad (4)$$

Where  $p_i$  is a  $p$ -value from the minimum  $t_i$ . The *Fisher\_B* statistic has the chi-square distribution with  $2N$  degrees of freedom.

The following three reasons lead to adopt the *Fisher\_B* statistic. Firstly, the panel tests work well for the panel data. Specifically, the panel tests generally have high power relative to testing individually for each possible pair of cross-sectional units, because some pieces of the set of tests in the latter could indicate the contrary results to the true relationship in terms of probability. Secondly, among the panel tests, ones based on Fisher's  $p$ -value combination approach are just the right feature for the panel data here. They do not require a large cross-sectional dimension, and their accuracy is not affected by cross-sectional dependence among the data. Thirdly, the *Fisher\_B* test can receive flexibly modeling. It permits the regression equations to be allotted the trend model or the no trend unit by unit, where the slope-shift break in the trend model is compatible with the level-shift in the no trend, and each equation to have different break points.

In order to calculate  $p_i$ , we skillfully (and approximately) materialize the theoretical formula for the limiting distribution of the minimum  $t_i$  under the small sample size by Monte Carlo simulations. On the simulations, this study takes up the following two models as the DGP representing the unit root null hypothesis:

$$\tilde{y}_{it} = \tilde{y}_{it-1} + \varepsilon_{it} \quad (5)$$

$$\Delta \tilde{y}_{it}^* = \hat{\alpha}_i + \sum_{k=1}^{\bar{k}_i} \hat{\gamma}_{ik} \Delta \tilde{y}_{it-k}^* + \varepsilon_{it}^* \quad (6)$$

In model (5),  $\tilde{y}_{it}$  is generated for each  $i$  by a driftless random walk, where  $\varepsilon_{it}$  is an *i.i.d.*  $N(0,1)$  error across  $i$  and  $t$ . In model (6),  $\Delta \tilde{y}_{it}^*$  is the bootstrap sample for  $\Delta \tilde{y}_{it}$ ;  $\varepsilon_{it}^*$  reflects a serially uncorrelated but possibly cross-sectionally correlated error, and  $\hat{\alpha}_i$  is set at 0 when the regression model (3) does not contain a time trend. To make the bootstrap sample out of the actual data, we follow a sequence of procedure shown in Maddala and Wu (1999) and Wu and Wu (2001), and also adopt Berkowitz and Kilian's (1996) block resampling method for the artifice of the lagged augmentation samples  $\tilde{y}_{it-1}^*, \dots, \tilde{y}_{it-\bar{k}}^*$ .

For each  $i$ , Monte Carlo simulation with 5000 replications is conducted under each of DGP models (5) and (6), which provides the empirical distribution of the minimum  $t_i$ . That distribution, in turn, provides  $p_i$  for the *Fisher\_B* statistic. The simulations are, in particular, useful when data have correlation among cross-section as assumed in model (6), because, in that case, it is difficult to make theoretically clear the limiting distribution of the minimum  $t_i$ .

We will also refer to the results obtain from the common panel unit root tests to compare with ones from the *Fisher\_B* test. They are the tests proposed in Levin, Lin and Chu (2002), Im, Pesaran, and Shin (2003), and Maddala and Wu (1999), what is called the LLC test, the IPS test or  $z$ -bar test, and the MW test, respectively, which allow for no structural break in the historical series.

## Data

The data source is the Penn World Table (PWT) 6.2. It has calculated some kinds of the real outputs per capita for the countries in the world. In this empirical analysis, real GDP per capita adjusted for terms of trade changes (RGDPPT) is employed as the data for Asian NIEs from 1960 to 2004, since the economic relations with foreign countries have played as vital roles for these economies as for the ASEAN-5 countries analyzed in Lim and McAleer (2004). RGDPPT is the 1996 international price value of domestic absorption of a country in a given year plus current exports minus current imports deflated by the deflator and the 1996 PPP of domestic absorption (Data Appendix for a Space-Time System of National Accounts: Penn World Table 6.1, p. 12). All the series used in this study are taken in natural logarithms.

## Empirical Results

In the first place, let us mention the results from the LLC test and the IPS test briefly. Both of these tests reject the unit root null hypothesis, where significance level is 1 % for the LLC and 10% for the IPS, in the case of regression with time trend, while neither rejects in the case without time trend. The results seem to imply that Asian NIEs show the way of economic growth that the followers are catching up toward the leading economies among them. There is, however, reservation about reliability of those tests here. When structural breaks in the series and dependence among the cross-sectional units are likely to exist, the LLC test and the IPS test ignoring them are pointed out to tend to mistakenly reject the null ().

The Fisher statistic can free us from the above question. The results are given in Table 1. The third column presents the estimates of the MW statistic, which indicate no rejection of the null in either regression model. In particular, why the test on the first row is in favor of the null differently from the LLC and the IPS would be because the Fisher statistic does not have such a tendency toward over-rejection of the null as subsist in the LLC and the IPS. The fourth and fifth column of Table 1 presents the estimates of the *Fishier\_B* statistic taking account of one time level-shift break and two times, respectively. The *Fishier\_B* tests just partly suggest convergence. This result may have arisen from restraint that the identical form of regression equation, whether the trend model or the no trend, was applied to all of six pairs of economies.

Therefore, in order to capture the changes of the data more faithfully, each pair is separately matched with the trend or no trend model, and level or slope shift as a type of structural break in the case of the trend model. For that, in total, there are 727 ways of combination excluding extreme two cases in just the previous paragraph where refer to the case of the trend model and the no trend model with level-shift break for every pair as Case A and Case B, respectively, for convenience for comparing with Cases presented just below. Among those 727 ways, simple 10 are taken up for the Fisher tests here, and are put in order in Table 2.

The results of the tests are given in Table 3. Rivet our attention to the estimates of the *Fishier\_B* statistics in the fourth and the fifth column which is computed on the supposition that structural break has happened once, One Break, and twice, Two Breaks, in the series, respectively. The null hypothesis is, on the whole, likely to be rejected in One Break rather than in Two Breaks. It would be one reason for this that test power in the latter has become weak relative to that in the

former due to decrease in the degrees of freedom. When model (5) is used as the null GDP on the simulation, all Cases in One Break significantly reject the null, whereas only four Cases do in Two Breaks. These results may be roughly interpreted as follow: each of Asian NIEs has experienced such a change as to cause discontinuity in the time series of per capita output, but has been on some convergence process to each other since 1960. Then which type in the world should some convergence be, catching-up or long-run convergence?

The lower half of the fourth column of Table 3 ushers us to the answer to the last question. Since model (6) used for the simulation there contains more reasonable supposition than model (5), the *Fishier\_B* test becomes unlikely to reject the null hypothesis. In that situation, Case 7, Case 8, and Case 10 survive as possibility of convergence. What should be stated concerning the possibility is extracted from Table 2. According to it, among Case 7, 8, and 10, the trend model has been commonly assumed for pairs of Hong Kong and Korea, and Hong Kong and Taiwan, and the no trend model for pairs of Hong Kong and Singapore, and Korea and Taiwan in regression. All things considered, we can reach the conclusion that Hong-Kong and Singapore have been on long-run convergence as the economic leaders in Asian NIEs, while Korea and Taiwan have been catching up to them, especially Hong Kong, as the followers.

## **Conclusion**

This research has inspected the convergence hypothesis of per capita real output in Asian NIEs based on more realistic conditions and more flexible methods than those in usual analysis. As a result, the panel unit root tests have indicated evidence favoring convergence though somewhat weakly. In addition, a closer study has cleared up the growth patterns of Asian NIEs as follows: per capita real output gap between Hong Kong and Singapore has been more or less small and steady since 1960. That between Hong Kong and Korea or Taiwan has been narrowing over the period. Consequently, Hong Kong and Singapore are considered the leaders, and Korea and Taiwan the followers among four economies still at present, however, unless any catastrophic event will happen, they will grow up into a group of developed economies of Asian type in future.

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## Appendix

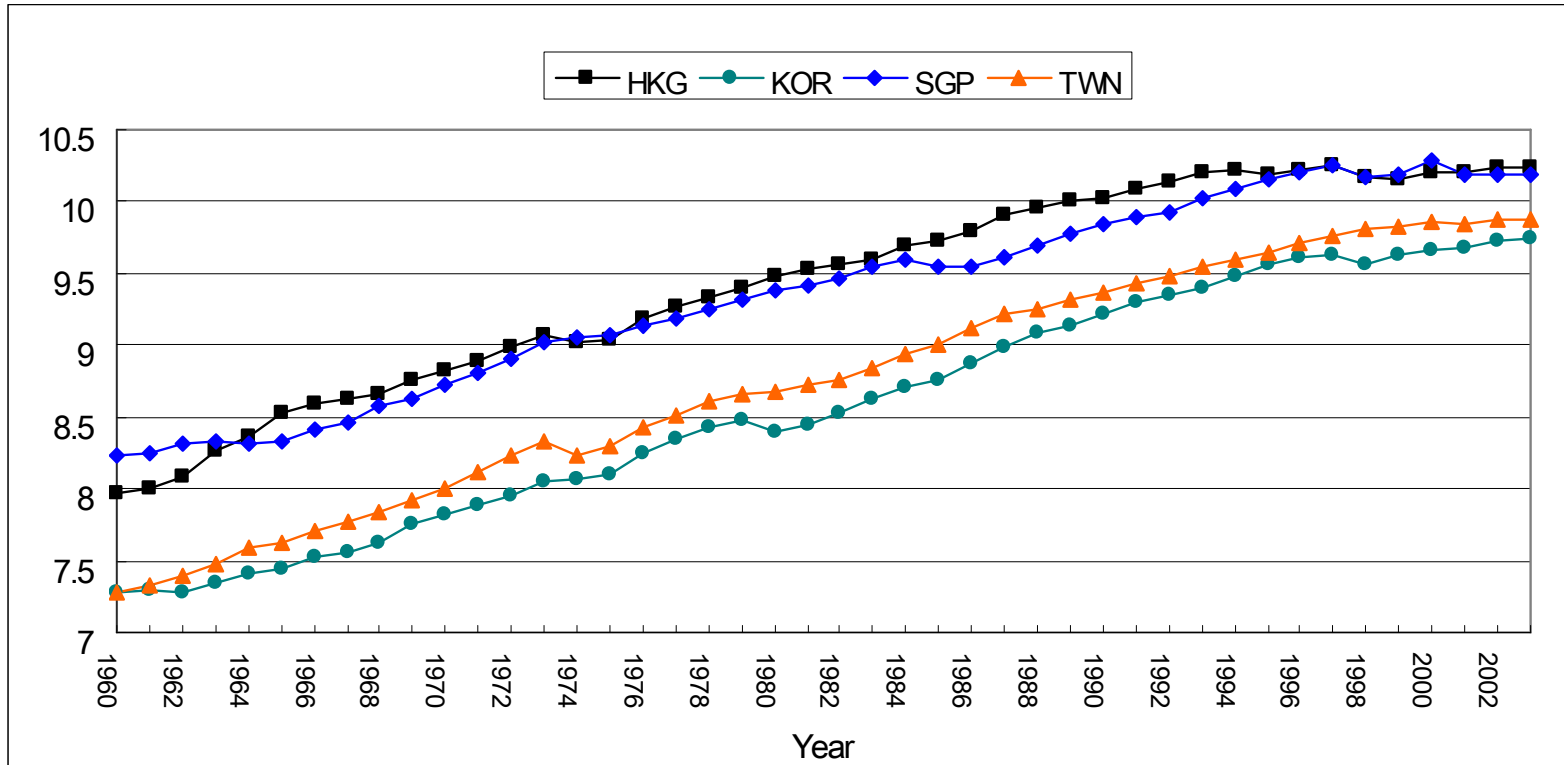


FIG.1: LOG OF REAL PER CAPITA GDP OF ASIAN NIES

TABLE 1: THE RESULTS IN THE CASE OF SHIFTS IN THE LEVEL

Regression Model Time Trend Term	DGP Model	MW test (No Break)	<i>Fisher_B</i> test	
			One Break	Two Breaks
<i>Case A</i> (with trend)	(5)	16.477	16.357	20.407 *
	(6) <sup>a</sup>	16.869	14.564	15.355
<i>Case B</i> (without trend)	(5)	16.893	17.969	15.208
	(6) <sup>a</sup>	19.651	21.114 *	18.157

\* denotes statistical significance at the 10% levels

<sup>a</sup> In the case of cross-sectionally dependent errors in the DGP, the critical values of the MW test and the *Fisher\_B* test are tabulated in Table 1A in Appendix.

TABLE 2: THE CASES OF THE SERIES AND REGRESSION

	Series <sup>a</sup>	Regression Model	
		Time Trend Term	Type of Break
Case 1	HKG-KOR, HKG-TWN, KOR-SGP, SGP-TWN	with	level shift
	HKG-SGP, KOR-TWN	without	level shift
Case 2	HKG-KOR, HKG-TWN, KOR-SGP	with	level shift
	HKG-SGP, KOR-TWN, SGP-TWN	without	level shift
Case 3	HKG-KOR, HKG-TWN, SGP-TWN	with	level shift
	HKG-SGP, KOR-SGP, KOR-TWN	without	level shift
Case 4	HKG-KOR, KOR-SGP	with	level shift
	HKG-SGP, HKG-TWN, KOR-TWN, SGP-TWN	without	level shift
Case 5	HKG-KOR, HKG-TWN	with	level shift
	HKG-SGP, KOR-SGP, KOR-TWN, SGP-TWN	without	level shift
Case 6	HKG-KOR, HKG-TWN, KOR-SGP, SGP-TWN	with	slope shift
	HKG-SGP, KOR-TWN	without	level shift
Case 7	HKG-KOR, HKG-TWN, KOR-SGP	with	slope shift
	HKG-SGP, KOR-TWN, SGP-TWN	without	level shift
Case 8	HKG-KOR, HKG-TWN, SGP-TWN	with	slope shift
	HKG-SGP, KOR-SGP, KOR-TWN	without	level shift
Case 9	HKG-KOR, KOR-SGP	with	slope shift
	HKG-SGP, HKG-TWN, KOR-TWN, SGP-TWN	without	level shift
Case 10	HKG-KOR, HKG-TWN	with	slope shift
	HKG-SGP, KOR-SGP, KOR-TWN, SGP-TWN	without	level shift

<sup>a</sup> HKG, KOR, TWN, and SGP denote Hong Kong, Korea, Taiwan, and Singapore, respectively.

TABLE 3: THE RESULTS IN THE CASE OF SHIFTS IN THE LEVEL OR SHIFTS IN THE SLOPE

Case No. in Table 2 <sup>a</sup>	DGP Model	MW test		<i>Fisher_B</i> test			
		(No Break)		One Break	Two Breaks		
1	(5)	23.539	**	19.394	*	23.836	**
2		19.964	*	20.362	*	23.707	**
3		20.060	*	20.060	*	24.733	**
4		18.773	*	19.550	*	15.971	
5		17.957		21.028	*	24.604	**
6		-		23.859	**	16.479	
7		-		27.084	***	17.395	
8		-		27.168	***	16.945	
9		-		20.166	*	14.450	
10		-		30.393	***	17.860	
1	(6) <sup>b</sup>	18.318		14.276		15.633	
2		13.788		13.256		14.673	
3		16.182		13.539		15.718	
4		12.287		12.358		8.453	
5		11.328		12.346		14.321	
6		-		18.638		10.829	
7		-		20.314	*	10.098	
8		-		20.320	*	9.536	
9		-		13.687		6.865	
10		-		22.264	*	8.976	

\*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

<sup>a</sup> See the cases of the series and the regression models in Table 3.

<sup>b</sup> In the case of cross-sectionally dependent errors in the DGP, the critical values of the MW test and the *Fisher\_B* test are tabulated in Table 1A in Appendix.

TABLE 1A: THE CRITICAL VALUES OF THE TESTS IN THE CASE OF CROSS-SECTIONALLY DEPENDENT

ERRORS				
Test	Regression Model	10%	5%	1%
MW	Case A	19.459	22.081	28.225
	Case B	19.687	22.511	28.768
<i>Fisher_B</i> One Break	Case A	19.398	22.131	27.931
	Case B	19.428	22.067	28.110
	Case 1	19.303	22.071	27.891
	Case 2	19.321	22.150	28.042
	Case 3	19.276	21.949	27.993
	Case 4	19.507	22.371	28.003
	Case 5	19.269	22.317	28.479
	Case 6	19.296	22.187	28.162
	Case 7	19.177	21.846	28.033
	Case 8	18.984	22.177	27.919
<i>Fisher_B</i> Two Breaks	Case 9	19.213	22.175	27.753
	Case 10	19.130	22.320	27.683
	Case A	19.639	22.477	28.468
	Case B	19.137	21.799	28.625
	Case 1	19.603	22.183	27.941
	Case 2	19.231	21.839	27.844
	Case 3	19.436	22.305	27.447
	Case 4	19.336	22.062	28.523
	Case 5	19.264	22.131	27.187
	Case 6	19.237	21.770	27.419
Case 7	19.104	21.958	27.773	
Case 8	19.121	21.732	27.368	
Case 9	19.053	21.615	27.424	
Case 10	18.925	21.801	27.442	

TABLE 3A: THE ESTIMATION RESULTS FOR EACH SERIES IN THE CASE OF TWO-TIME BREAKS

Type of Break	Seires	$\alpha_i$	$\beta_i$	$\varphi_i$	$\delta_{1i}$	$\delta_{2i}$	$Min t$	$l_i$	Break Date	
									1st	2nd
Level	HKG - KOR	0.368		-0.372	-0.072	-0.095	-5.109	1	1987	1993
	HKG - SGP	0.045		-0.655	0.081	-0.114	-5.712	4	1983	1994
	HKG - TWN	0.320		-0.405	-0.046	-0.104	-4.443	4	1982	1994
	KOR - SGP	-0.591		-0.652	0.204	0.080	-5.271	5	1985	2000
	KOR - TWN	-0.099		-0.513	-0.028	0.055	-5.083	1	1979	1987
	SGP - TWN	0.302		-0.421	-0.104	-0.039	-5.088	1	1983	1996
	HKG - KOR	0.715	-0.015	-0.614	0.163	-0.058	-6.274	6	1979	1987
	HKG - SGP	0.064	-0.002	-0.644	0.106	-0.096	-5.669	4	1983	1994
	HKG - TWN	0.797	-0.006	-0.938	-0.098	-0.116	-7.464	4	1994	1997
	KOR - SGP	-0.573	0.004	-0.581	-0.061	0.149	-5.520	1	1979	1984
	KOR - TWN	-0.091	-0.0004	-0.544	-0.024	0.053	-4.873	1	1969	1987
	SGP - TWN	0.774	-0.008	-1.000	0.050	-0.119	-5.742	3	1973	1985
Slope	HKG - KOR	0.949	-0.001	-0.945	-0.026	0.009	-5.813	4	1985	1999
	HKG - SGP	0.054	-0.0003	-0.699	0.031	-0.043	-5.155	4	1983	1987
	HKG - TWN	0.861	-0.006	-1.017	-0.040	0.040	-6.497	4	1993	1999
	KOR - SGP	-1.174	0.0016	-1.259	0.064	-0.057	-5.918	3	1984	1989
	KOR - TWN	-0.094	-0.002	-0.585	0.020	-0.019	-4.739	1	1986	1990
	SGP - TWN	1.681	-0.010	-2.231	-0.090	0.080	-5.500	8	1984	1987

TABLE 2A: THE ESTIMATION RESULTS FOR EACH SERIES IN THE CASE OF ONE-TIME BREAK

Type of Break	Seires	$\alpha_i$	$\beta_i$	$\varphi_i$	$\delta_i$	Min $t$	$l_i$	Break Date
Level	HKG - KOR	0.236		-0.248	-0.107	-3.429	1	1993
	HKG - SGP	0.032		-0.268	-0.036	-4.293	1	1994
	HKG - TWN	0.145		-0.195	-0.085	-2.564	0	1994
	KOR - SGP	-0.352		-0.384	0.139	-4.349	4	1984
	KOR - TWN	-0.092		-0.441	0.031	-4.474	1	1989
	SGP - TWN	0.253		-0.355	-0.100	-4.602	1	1983
	HKG - KOR	0.662	-0.016	-0.555	0.158	-4.919	6	1979
	HKG - SGP	0.014	0.001	-0.334	-0.070	-4.288	1	1994
	HKG - TWN	0.270	-0.002	-0.314	-0.077	-3.932	0	1994
	KOR - SGP	-0.469	0.002	-0.484	0.118	-4.763	1	1984
	KOR - TWN	-0.090	-0.001	-0.509	0.061	-4.680	1	1987
	SGP - TWN	0.429	-0.003	-0.546	-0.085	-4.937	1	1984
Slope	HKG - KOR	0.943	-0.001	-0.939	-0.024	-5.723	4	1985
	HKG - SGP	0.014	0.001	-0.318	-0.008	-4.058	1	1993
	HKG - TWN	0.784	-0.004	-0.942	-0.021	-5.795	4	1990
	KOR - SGP	-0.355	-0.0003	-0.383	0.007	-3.348	1	1974
	KOR - TWN	-0.079	-0.001	-0.438	0.003	-3.858	1	1983
	SGP - TWN	0.501	-0.072	-0.450	0.067	-3.994	1	1963

### End Notes

<sup>1</sup>Asymptotically, to be technically more correct, the fraction of the  $h$  th break is defined as  $\tau_{hi} = TB_{hi}/T$  ( $h = 1, 2$ ) for all  $T$ , in which  $0 < \tau_{1i} < \tau_{2i} < 1$ . Then,  $DU_{hit} = 1$  for  $t > \tau_{hi}T$  or zero otherwise, and  $DT_{hit} = t - \tau_{hi}T$  for  $t > \tau_{hi}T$  or zero otherwise.

<sup>2</sup>Starting in  $\bar{l}_i = 8$ , as Smyth and Inder (2004), the (whole number) value of  $\bar{l}_i$  is reduced one by one until  $\hat{a}_{i\bar{l}_i}$  is estimated to be different from zero at the 10% level of significance. For the details of the procedure, see Matsuki and Usami (2007).

<sup>3</sup>The details are described in Matsuki and Usami (2007).

<sup>4</sup>About the merits and demerits of these common tests, see Maddala and Wu (1999).

<sup>5</sup>Formally, Alan Heston, Robert Summers and Bettina Aten, Penn World Table Version 6.2, Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania, September 2006.



<sup>6</sup> According to the PWT 6.2, the total trade, exports plus imports, as a percentage of GDP in 2003 is 325.4, 85.8, 419.1, and 106.6 for Hong Kong, Korea, Singapore, and Taiwan, respectively, and 70.6, 208.0, 116.0, and 126.0 for Indonesia, Malaysia, Philippine, and Thailand, respectively, while its world average is 92.7. The latter four countries plus Singapore are called the ASEAN-5.

<sup>7</sup> Their estimates are not shown here, but available on request.

<sup>8</sup> The MW statistic is the Fisher statistic considering no structural break in the series. Notice that the MW static is irrelevant to either type of break in Cases given subsequently.

# About the Controversies on the Equilibrium Unemployment Rate in recent Japanese Economy with the Relation to U/V Analysis

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## Abstract

In the recent recession in Japan, U/V analysis was used as a method of the measurement of structural unemployment. Controversies on a validity of the analysis have begun. Does U/V analysis hold effective for the measurement of structural unemployment? The validity chiefly depends on structural factors in the estimated equation of time-series data. The presentation is mainly the estimation of structural factors and indicates some characters of U/V analysis.

## Introduction

### Economical Environment

The labor market in Japan has mainly consisted of the three systems, the “lifetime employment (Shusin-koyo)” system, the “seniority ranking wage and promotion (Nenko-joyoetsu-chingin)” system and the “spring labor offensive (Shunto)” system. Employees are guaranteed employment until retirement age, their wages each year and promotions are determined by their age or the length of service to the company. Many industry-based labor unions coordinate demands for wage increases and benefits in the spring. The systems played important roles at the time of Japan’s high economic growth periods. But, as Japan after 90s went through economic depression and restructuring, these systems have changed gradually. Companies are putting more emphasis on contingent work, fixed wage and merit-based promotion system. The deep and long economic depression after the middle of 90s brought forth lots of unemployment through closures and bankruptcies of companies. And the unemployment rate suddenly increased from about 2% to 5% over. By a correspondence with the situation, the government wrote in the “White Papers”<sup>1)</sup> that the structural unemployment rate was about 4% (3/4 of the actual rate), and the under-demand unemployment rate was about 1% (1/4). Most of economists felt some difference with the results by the analysis and the actual unemployment phenomenon. The reconstruction of u/v model and the controversies of the structural unemployment were derived from the circumstances.

### Controversies and Previous Studies

The results of White Papers derived from the simple model that unemployment rate is a function of only vacancy rate without any shift variable. Therefore, the structural unemployment rate (involved the frictional unemployment rate) was too high. Main points of controversies after then were three. The first is the limitation of structural factors. The factors that have influence on the structural unemployment is very difficult to select. The results derived from the selected factors are very different each other. And then, the selected factors have each cyclical pattern, only the part that influenced on the structural unemployment can’t separate from the whole. The sets of unemployment rate and vacancy one have a clock-wise cyclical pattern on u/v curve. The phenomenon mainly depends on the specialties of the preceding movement of vacancy and the delayed movement of unemployment on the labor adjustments. The second is the ways that divides the clock-wise movement from trade cycle and the shifts of u/v curve. The third is about the effects of the deflation. The adjustments mechanism of labor market was distorted by deflation, the set of u/v rates in deflation keeps still on the upper-left side in the figure. Some ways that induce plainly the price factors in the u/v model were an object of controversies. As most of previous studies of the u/v analysis in the recent Japan wrote in Japanese, it writes down main two papers here. The same objects of this paper are analyzed in Kitaura and et al.(1). By using the quarter-year data, they explain the lower rate of structural unemployment, and the stable conditions of u/v curve without clock-wise patterns. The other is the paper of Otake and Ota (3), this is characteristic of the using of plural structural factors in u/v analysis.

### Contrivances and Aims

The following u/v analysis adopts a simple time-series model used by annual data, and it counts the structural unemployment rate and the changed one. There assumes in the following that the actual unemployment equals the under-demand unemployment plus the structural one. It is on the assumption that the frictional unemployment involves in the structural one (or its rate is zero). The structural unemployment rate in u/v analysis trend to higher, but main object as an estimation of the above structural unemployment rate finds out some important reason of the shift of u/v curve. This is the same with the recognition of the determination on u/v theory. The contrivances of this paper consist on three parts, (1) the actual data adjustments of vacancy rate, (2) the estimation of the structural unemployment rate and the limitation of the shift variables of u/v curve, (3) the estimation of the structural unemployment rate in the market equilibrium; 4) Determinants of Unemployment

**Unemployment Rate**

The data of unemployment are used one of “Labor Force Survey”<sup>2)</sup> of the Ministry of Internal Affairs and Communication. The statistics presents the number of persons who was unemployed but sought employment during the survey term, and the statistics is unemployment or unemployment rate of workers basis. The unemployment rate in the following takes use of employee’s basis in common with the vacancy rate. And, by the same reason, unemployment rates are annual data in June every year. The structural unemployment rate estimates by employees basis, and after then, the rate translates into the original workers basis. The employment adjustments of Japanese companies, in general, are imperfect or partial to the regulation of the optimal size in each period. This fact mainly derives the rigidity of unemployment rate and a clock-wise pattern.

**Main Determinants**

The unemployment rate function of u/v analysis explains determinants of it. The determinants of the rate may divide three. The first is the shape factors of u/v curve. Those include vacancy rate and unemployment rate with time lag. The unemployment rate with time lag of one period is very effective in the model with remarkable clock-wise pattern on u/v curve. The data of vacancy or its rate use annual one of “Employment Tendency Survey”<sup>3)</sup> of the Ministry of Health, Labor and Welfare. The statistics covers the vacancy of offices and factories with 5 employees or more. So the vacancy with 4 employees or less has to estimate. The estimated data (1) are as follows.

TABLE 1: ESTIMATED DATA

	multiplicand	multiplier
1975-1983	E	vacancy rate of simple work in manufacturing
1984-1991	E	vacancy rate of 29-5 employees
1992-2005	E	vacancy rate of services industry
1975-2005	E	vacancy rate of 29-5 employees

Multiplicand E: aggregated employees of 4 or less the estimated data (2) are, the estimation data are the “Survey” numbers plus the above vacancy numbers. The estimation (1) is a statistics that involves in the changes of industrial or workers structure. The estimation (2) is a statistics that extends the vacancy rate of small workshops and shops. The both vacancy rate is in the following. And then, two figures of u/v curves that used by both estimations are also in the following.

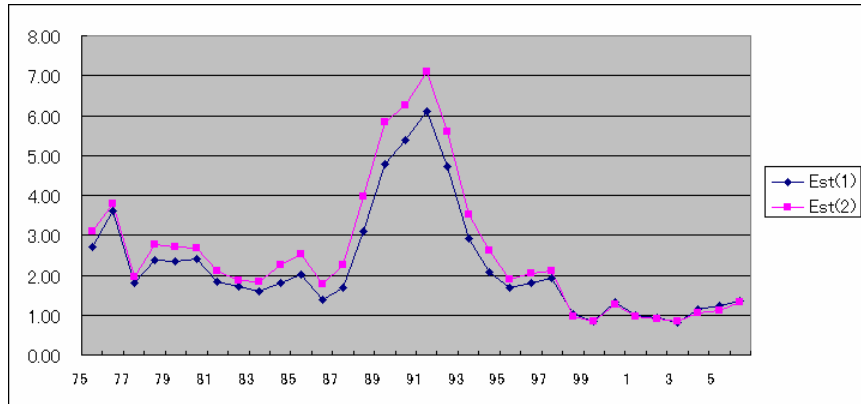


FIG. 1: UV ESTIMATE

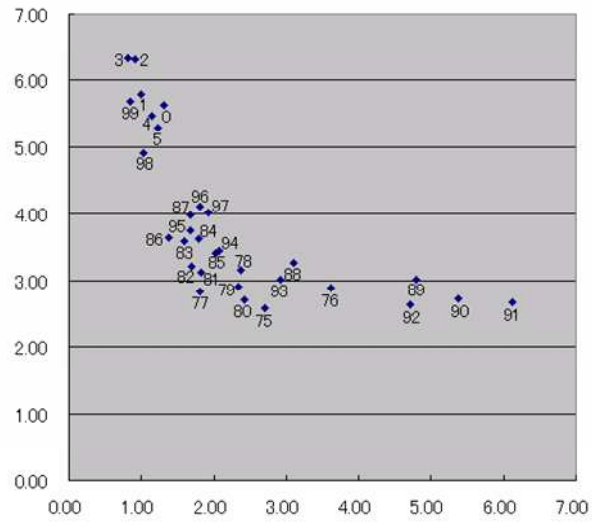


FIG. 2: UV ESTIMATE

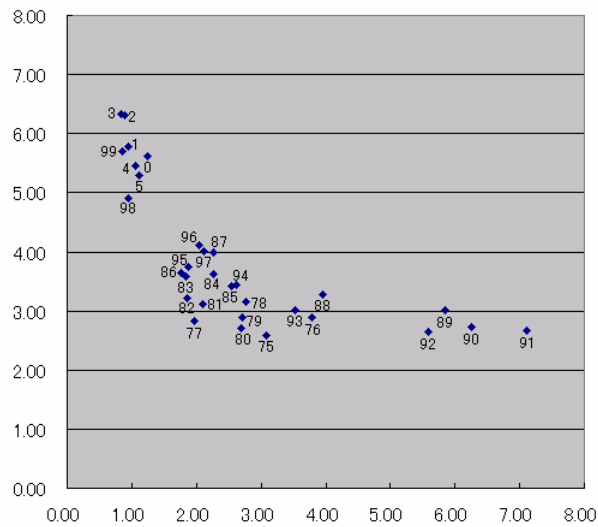


FIG.3: UV ESTIMATE

### Wage Determinants

The second is wage factors that have a potent influence in unemployment rate. It's possible to surmise some wage factors, example real wage per labor hour, unit labor costs, and social contribution rate of employer or wage distribution ratio and so on. The wage distribution ratio was the best in the following analysis. The three indices of the wage distribution rate are prepared on the analysis. These are the ratios of wage costs/total costs of companies, wage and welfare costs/total costs of companies and total personnel expenses/national income. The former two are used by the correlation of the unemployment rate in the following.

### Structural Determinants

The third is some structural factors that cause a shift of u/v curve. It counts up a lot of factors, mismatching index of labor, quits ratio, workers ratio of service or tertiary industry, recipient's rate of employment insurance, participation rate of female and so on. But two factors of the workers rate of service industry and the workers rate of older ages were significant in the analysis. The actual combination of unemployment rate and vacancy rate have a clock-wise movement, it has to involve the structural factors in the model. But the time-series data of above factors take in the affections of trade cycle. The increase of quits ratio or recipients rate of employment insurance may have the trade cycle affections rather than the affections of labor supply. The validity of these factors depends on the characters of labor market or the difference of market adjustment processes.

## Model and Estimated Equations

### Model Expressions

The unemployment rate of the public statistics is written by workers basis, and the vacancy rate does by employee's basis. Therefore, it's necessary for the former to be transferred to employee's basis. By a consideration of the cyclical movements on u/v curve, the unemployment rate (u) is a function of vacancy rate (v), unemployment rate with one time lag (u<sub>-1</sub>), wage distribution ratio(Ws) and structural factors(St). Now the available function is,

$$\ln(u) = \alpha + \beta \ln(v) + \gamma \ln(u_{-1}) + \delta * Ws + \epsilon * St \quad (1)$$

The structural unemployment rate (u<sub>s</sub>) of employees basis is calculated by a intersection point of the above and the straight line of 45 degrees (ln(u)=ln(v)=ln(u<sub>-1</sub>)). The expression is,

$$\ln(u_s) = (\delta * Ws + \epsilon * St) / (1 - \alpha - \beta - \gamma) \quad (2)$$

The estimated equations in the following table are obtained from the above expression.

TABLE 2: ESTIMATED EQUATIONS

		$\alpha$	$\beta$	$\gamma$	$\delta$	$\varepsilon$		adjR2			
					Ws(1)	Ws(2)	St(1)	St(2)	St(3)		
V(1)	V	-1.076	-0.123	0.521	0.025			0.030		0.9660	
		-2.119	-2.988	5.901	2.846			4.002			
		-1.067	-0.134	0.510	0.022		0.016			0.9629	
		-2.010	-3.060	5.162	2.432		3.529				
		-1.705	-0.131	0.715	0.022					0.023	0.9561
		-2.513	-2.739	9.767	2.198					2.549	
		-0.911	-0.134	0.526		0.019	0.012				0.9652
	-2.243	-3.370	5.469		2.838	2.706					
	V <sub>-1</sub>	-1.773	-0.132	0.380	0.038				0.042		0.9652
		-4.924	-2.839	2.932	6.078				4.542		
		-1.896	-0.140	0.363	0.037			0.023			0.9603
		-4.902	-2.648	2.373	5.441			3.853			
		-1.391	-0.148	0.382		0.030			0.031		0.9652
		-4.622	-3.241	2.941		6.081			3.354		
-1.564		-0.158	0.345		0.030	0.018				0.9644	
V(2)	V	-5.182	3.230	2.388		6.003	3.233				
		-1.372	-0.157	0.322		0.027	0.019				0.9658
		-4.325	-3.457	2.265		5.242	3.382				
	V <sub>-1</sub>	-1.434	-0.159	0.280	0.033				0.047		0.9688
		-3.731	-3.461	2.059	5.063				5.089		
		-1.669	-0.137	0.354	0.033		0.022				0.9602
		-3.879	-2.634	2.256	4.466		3.832				
		-1.372	-0.157	0.322		0.027	0.019			0.9658	
		-4.325	-3.457	2.265		5.242	3.382				

Upper: the constants lower: t ratio

Ws: wage distribution ratio

St(1): workers rate of services industry, St(2): workers rate of old ages

St(3): participation rate of female

From the estimated equations, the data of vacancy rate (1) is more effectual than the data (2). And the vacancy rate with time lag of one period is also significant. The fact is caused by the reasons why Japanese companies in depression trend to persist their employees by a activation of the internal labor market, or a period when derives unemployment is different in some situations of trade cycle and some rates of economic growth.

#### Some Results

The two data are selected as a significant one of the structural factors. Those were the workers ratio of services industry and the older age's workers ratio in all workers. The other factors were not significant. The vacancy rate with time lag was derived more stable results. The structural unemployment rates in 2003 that are calculated by the estimated ten equations were 3.29~ 3.70% and the average rate was 3.44%. The results may be no different from the previous studies. It provided that the actual unemployment rate consists of the structural unemployment rate and the under-demand one, those unemployment rates are like the following table.

TABLE 3: UNEMPLOYMENT RATES

	1987	1992	1997	2003
actual unemployment rate	2.80	2.20	3.40	5.30
structural unemployment rate	2.35	2.57	3.15	3.44
under-demand unemployment rate	0.45	-0.37	0.25	1.86

The change rate of the structural unemployment was about 1% from before and after 1990 to 2003, and one of the under-demand unemployment was about 1.8% in the same period.

### **An Amendment: Determinations of the UV Analysis**

In the u/v analysis, an equilibrium that is explained as an intersection point of u/v curve and the straight line of 45 degrees means the equation of inflow and outflow from the whole employment. The equilibrium concept is not equal to one of labor market. The emergence of unemployment at present will be a consequence of labor adjustments in past. And also, the emergence of a vacancy at present will be a consequence of company's production plan in future. The emergences of unemployment or vacancy are not the changes of labor demand or supply at present.

The difficulty of the application of u/v theory is caused by the fact that is hard to get the data of job offers. In some vacancies counted as data, there will be found some offers that the applicants can't accept the working conditions, or that can't arouse their interests. It is a possibility that the difference of data basis about unemployment and vacancy make feeble the validity of u/v analysis. The validity of the u/v theory exists in the confirmation of structural change in labor market, doesn't be in the confirmation of equilibrium in labor market.

### **Further Results**

The structural unemployment rate was calculated by u/v analysis trends to be high. The ratio is maximum one of it. The fact partly depends on the narrowness of equilibrium concept. The sets of unemployment rate and vacancy rate on the equilibrium of labor market are different with the sets of u/v analysis. Those sets on the market equilibrium are gotten by the other market analysis, like an excess-employees analysis. So the equilibrium rate of structural unemployment is calculated by an intersection point of the u/v curve and the straight line passed the equilibrium point in u/v figure. It was recognized the fact that the market equilibrium in recent Japan realized in 1992 from the other analysis. The straight line passed the equilibrium point is gentler slope than 45 degrees line. Therefore, the market equilibrium rate of structural unemployment is lower than the results of u/v analysis. The equilibrium rate in 2003 is about 2.8~ 3.1%, it explains in the following figure.

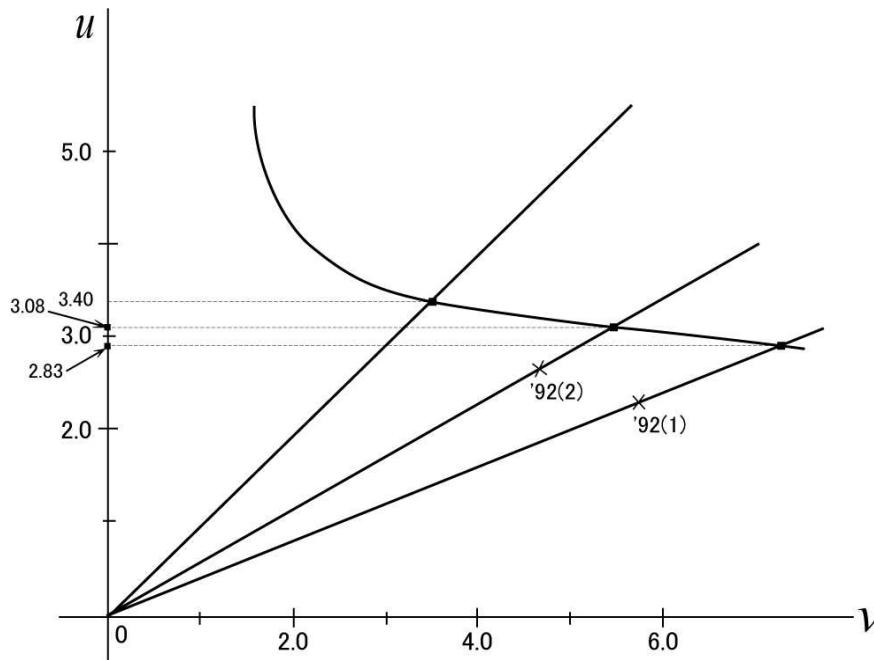


FIG. 4: EQUILIBRIUM RATE

## Summary

There are no doubts about the difficulties that obtain the vacancy rate data. The used data were statistics which were gotten by company's questionnaire; those had the movements in response to the actual economic changes. The adjusted vacancy rate has a higher correlation coefficient with the unemployment rate, and it effectuates roles as a main factor in the model. By response to idem (1) or idem (2) of the contrivances in the rate adjustments of the vacancy and the estimations of structural unemployment had relatively suitable results, and explained the limitation of structure changing factors. The structural unemployment rate of market equilibrium is an estimation of the actual rate, it is an amendment of  $u/v$  theory. The estimation was in idem (3) of the contrivances.

## References

Contact author for the list of references

## End Notes

- 1) The White Papers in Japan is an annual report of the administrative organs to the Cabinet. This Papers is the "White Papers of Labor Economy", (5) 2002, and the same expressions were written in (5) 2003 or 2004.
- 2) The Survey elucidates the current states of employment and unemployment by questionnaires, and the actual enumeration takes place every month on a sample basis. The statistics records the working states of person who resided in about 40,000 households selected from about 2900 districts.
- 3) The Survey elucidates the mobility of labor forces and the current information on entering or leaving labor forces. The statistics records the labor mobility among workers in the about 14,000 establishments (with 5 employees or more) by random selection in principal industries.



## Shift of Comparative Advantages: China and India Case Studies

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### Abstract

This paper aims to scrutinize shifts in comparative advantages of China's and India's exported products which are defined in 3-digit level of the Standard International Trade Classification (SITC) Revision 2, for 1988-2003. This paper applies Revealed Symmetric Comparative Advantages (RSCA) index, Trade Balance index, econometric model and correlation analysis. Some conclusions are withdrawn. *First*, China's biggest changes in comparative advantages and export-specialization were in 1988-1993, meanwhile India's ones were in 1998-2003. *Second*, during periods of observation China and India performed despecialization process. China's changes in comparative advantages were more dynamic than India's ones. *Third*, India is the follower (if it is not being said 'competitor') of China in term of the pattern of comparative advantages. It is predicted that the time lag of the pattern is about ten years. However, it seems that the time lag is becoming shorter.

### Introduction

Both China and India applied a tight controlled system of trade until the late 1970s. India more specifically implemented this control system with very strict licensing. China had more a longer story about controlled system. Starting in the beginning 1950s, the Chinese government controlled the trade flow through a centralized planning system under the Ministry of Foreign Trade (MFT). Very limited number of Foreign Trade Corporations (FTCs) under MFT managed along product lines (such as Iron and steel; Textiles and clothing). For 1956-1977, China only recorded foreign trade not more than 4 percent of national income (Hsu, 1989). In the 1980s, China and India had different ways of liberalization. China took the form of 'decentralization' of trade which gave expansion of entities with independent right to export and import. In 1979, India established a system which classified products not domestically produced into three categories, i.e. Open General Licensing (OGL), Banned and Restriction items. Products which are not in the OGL list were placed into Banned or Restriction items. China and India performed greater liberalization during the 1990s and beyond. India has conducted massive deregulation, especially related with international trade, since mid-1991, under the leadership of Minister of Finance Manmohan Singh (Hsu, 1989). India eliminated import licensing on inputs and capital goods in 1991 though retaining it on consumer goods imports. India cut the highest tariff rate from 355 percent in 1990-91 to 85 percent in 1993-94 and to 50 percent in 1995-96. In 2001, India also abolished licensing on consumer goods imports. In short, India is virtually licensing free and relatively liberal in industrial products. With some exception, the highest industrial tariff in India has now come decreased to 12.5 percent, which is not far from the average tariff of 9 percent in China. Panagariya (2006) argues that overall the trade regime was more open in China than in India during the 1980s. India's default regime for any product was licensing, meanwhile China took the form of 'decentralization' of trade which gave expansion of entities, especially FTCs, with independent right to export and import. However, India is steadily catching up especially after launching the massive deregulations.

China and India have performed significant roles in international trade and integrated with the world economy. An indicator measuring the integration level of a specific country is the share of exports and import of goods and services in Gross Domestic Product (GDP). China's and India's shares of exports and imports of goods and services in GDP had been roundly doubled for 1994-2004. China's share of exports of goods and services in GDP increased from 18% in 1994 to 34% in 2004, meanwhile, the India's share increased from 7% in 1983 to 19% in 2004. China's share of imports of goods and services in GDP increased from 16% in 1994 to 31% in 2004, and the India's share increased from 9% in 1994 to 23% in 2004 (World Bank, 2006). China and India are geographically large and neighboring emerging-market economies (EMEs), which are increasingly being distinguished as two-up-and-coming economic powers (Das, 2006). World Trade Organization (2005) notes that

China's share in world merchandise exports and import increased dramatically from 1.2% and 1.1% in 1983 to 6.7% and 6.1% in 2003, respectively. Meanwhile, India's share in world merchandise exports and import increased modestly from 0.5% and 0.7% in 1983 to 0.8% and 1.1% in 2003, respectively. China's integration with the world economy has increased much further than the India's integration, even allowing the fact that China stated the process of integration at least a decade earlier (Srinivasan, 2006).

Parallel with the integration process of China and India in the world market, a critical issue about the countries-specific specialization and dynamic shifts in comparative advantage pattern is raising. Wörz (2005) mentions four possible relationships between trade specialization and trade-pattern convergence i.e. more-specialized together with diverging trade patterns; less-specialized together with diverging trade patterns; more-specialized together with converging trade patterns; and less-specialized together with diverging trade pattern. This paper is addressed to answer some questions. *First*, what sorts of exported products do China and India have comparative advantages in? *Second*, how have comparative advantages of China and India dynamically shifted? In other words, do they become less specialized or more specialized? *Third*, does India's pattern of comparative advantages follow a sequence change in similar to that of China? This paper is organized as follows. In the next part, a brief discussion about methodology including data, Revealed Symmetric Comparative Advantage and Trade Balance indexes, econometric model and correlation. The following part exhibits result and analysis. Finally, some conclusions are presented in the last part.

## Methodology

### Data

This paper uses data on trade published by the United Nations (UN), namely International Trade Statistics Yearbook (ITSY) and United Nations Commodity Trade Statistics Database (UN-COMTRADE). Internationally traded products are classified according to Standard International Trade Classification (SITC). This paper uses 3-digit SITC Revision 2. For comparison purposes, this paper focuses on 231 groups of products 3-digit SITCs which are all covered in International Trade Statistics Yearbook (ITSY) 2003 (see Appendix for the list of SITCs). There are still nine groups of products (SITC) which are not covered in ITSY 2003 due to poor reports and insufficient explanation of estimates (UN, 2004). The nine excluded groups of products consist of Jute, raw or semi-processed (SITC 264); Ores and concentrates of uranium and thorium (SITC 286); Electric current (SITC 351); Hoops and strip, of iron or steel, hot-rolled or cold rolled (SITC 675); Uranium depleted in U235 and thorium (including waste) and their alloys and articles thereof (SITC 688); Postal packages not classified according to kind (SITC 911); Postal packages not classified according to kind (SITC 961); Coins (other than gold coin), not being legal tender (SITC 961); and Gold, non-monetary excluding gold ores and concentrates (SITC 971). Data on total world exports and imports is obtained from ITSY 1988, 1993, 1998 and 2003. Meanwhile, data on China's and India's exports and imports is taken from UN-COMTRADE.

### Comparative Advantage and Trade Balance Indexes: Products Mapping

In order to examine pattern of comparative advantages, a measure of Revealed of Comparative Advantage (RCA) is used. The RCA index calculates the relative representation of a country's export in one industry compared to the average representation of that industry in total world trade (Balassa, 1965). The index is formulated as follows:

$$RCA_j^i = \frac{\left( \frac{x_j^i}{x_n^i} \right)}{\left( \frac{x_j^r}{x_n^r} \right)} \quad (1)$$

Where  $RCA_j^i$  denotes revealed comparative of country  $i$  for product (SITC)  $j$ .  $x_j^i$  symbolizes total exports of country  $i$  in product (SITC)  $j$ . Subscript  $r$  denotes all countries without country  $i$ , and subscript  $n$  refers all products (SITC) except product  $j$ . The index represents a comparison of national export structure (the numerator) with the world export structure (the denominator). By excluding the country and commodity under consideration, double counting is avoided and the nature of trade, which is always a bilateral exchange of goods between two countries, is

nicely represented (Wörz, 2005; Vollrath, 1991). The values of the index range from 0 to infinity ( $0 \leq RCA_j^i \leq \infty$ ).  $RCA_j^i$  greater than 1 implies that country  $i$  has comparative advantage in good  $j$ . In contrast,  $RCA_j^i$  less than 1 means that country  $i$  has comparative disadvantage in product  $j$ . Since the  $RCA_j^i$  turns out to produce values which can not be compared on both sides of 1, the index is made to be a symmetric index. The new index is called Revealed Symmetric Comparative Advantaged (RSCA) which is formulated as (Laursen, 1998):

$$RSCA_j^i = \frac{RCA_j^i - 1}{RCA_j^i + 1} \quad (2)$$

The  $RSCA_j^i$  index ranges from -1 to 1 (or  $-1 \leq RSCA_j^i \leq 1$ ). The interpretation of RSCA is similar with that of RCA.  $RSCA_j^i$  greater than 0 implies that country  $i$  has comparative advantage in good  $j$ . In contrast,  $RSCA_j^i$  less than 0 implies that country  $i$  has comparative disadvantage in product  $j$ .

It might be possible that a country not only exports but also imports simultaneously the same product (SITC). Trade Balance Index (TBI) is applied to analyze whether a country has specialization in export (as net-exporter) or import (as net-importer) for a specific product (SITC). TBI is formulated as follows:

$$TBI_j^i = \frac{x_j^i - m_j^i}{x_j^i + m_j^i}$$

(3)

Where  $TBI_j^i$  denotes trade balance index of country  $i$  for good (SITC)  $j$ ;  $x_j^i$  and  $m_j^i$  represents exports and imports of good  $j$  by country  $i$ , respectively. This index ranges from -1 to 1. Extremely, TBI equals to -1 if a country only imports, in contrast, TBI equals to 1 if a country only exports. Indeed, the index is not defined when a country neither exports nor imports. In this case, we give index with 0 since it shows potentially to be exported or imported. Any values within -1 and 1 implies that the country exports and imports good  $j$  simultaneously, “net-importer” (if TBI negative) or “net-exporter” (if TBI positive). TBI index can also reflect the originality or local-contains of a product (SITC). If a country has TBI equal to 1 for specific product; it implies that the product is originally from the country. In contrast, if a country has TBI equal to -1 for specific product; it implies that the product is only imported by the country.

Symmetric Advantage Index	$RSCA > 0$	<b>Group B:</b> Have Comparative Advantage No Export-Specialization (net-importer) (RSCA > 0 and TBI < 0)	<b>Group A:</b> Have Comparative Advantage Have Export-Specialization (net-exporter) (RSCA > 0 and TBI > 0)
	$RSCA < 0$	<b>Group D:</b> No Comparative Advantage No Export-Specialization (net-importer) (RSCA < 0 and TBI < 0)	<b>Group C:</b> No Comparative Advantage Have Export-Specialization (net-exporter) (RSCA < 0 and TBI > 0)
Revealed Comparative Advantage (RSCA)		TBI < 0	TBI > 0
		Trade Balance Index (TBI)	

FIG.1: PRODUCT CLASSIFICATIONS

This paper combines RSCA and TBI to examine the comparative advantages and export specialization for China’s and India’s products (SITC). What kinds of products (SITC) China and India have comparative advantage and specialize in? Products (SITC) can be categorized into four groups A, B, C and D as described in FIG. 1. Group A consists of products which have both comparative advantage and export-specialization; Group B consists of products which have comparative advantage but no export-specialization; Group C consists of products which have

export-specialization but no comparative advantage; and Group D consists of products which have neither comparative advantages nor export-specialization.

**Econometric Model: Specialization or Despecialization?**

RSCA index can be used to detect the existence of dynamic change in comparative advantage when it is compared over time or across countries. The following simple regression model

$$RSCA_{j,T}^i = \alpha + \beta RSCA_{j,0}^i + \varepsilon_j^i \quad (4)$$

is estimated separately for China and India. The coefficient  $\beta$  indicates whether existing comparative advantage or specialization patterns have been reinforced or not during the observation.

For illustration, FIG.2 represents RSCAs for SITC 001 and SITC 002 for 1988 on horizontal axis and for 2003 on vertical axis. If  $\beta$  is not significantly different from one ( $\beta=1$ ), there is no change in the overall degree of specialization. The difference between  $RSCA_{001,1988}$  and  $RSCA_{002,1988}$  (AB) equals to difference between  $RSCA_{001,2003}$  and  $RSCA_{002,2003}$  (DE).  $\beta > 1$  indicates increased specialization of the respective country. The difference between  $RSCA_{001,1988}$  and  $RSCA_{002,1988}$  (AB) is smaller than difference between  $RSCA_{001,2003}$  and  $RSCA_{002,2003}$  (EF). Finally,  $0 < \beta < 1$  indicates despecialization – that is, a country has gained comparative advantage in industries where it did not specialize and has lost competitiveness in those industries where it was initially heavily specialized. However, this is a necessary but not sufficient condition for despecialization and corresponds to the concept of ‘ $\beta$ -convergence’ in the growth literature. In order for despecialization in the sense of less intensive specialization to be present, a reduction in variance must take place. This is the case if the correlation coefficient ( $r$ ) between the comparative advantage in the two years ( $RSCA_{j,T}$  and  $RSCA_{j,0}$ ) exceeds  $\beta$ , that is, if  $\beta \leq r < 1$  (Laursen 1998; Wörz, 2005). In the event of  $\beta \leq 0$ , no reliable conclusion can be drawn on purely statistical grounds; the specialization pattern is either random, or it has been reversed.

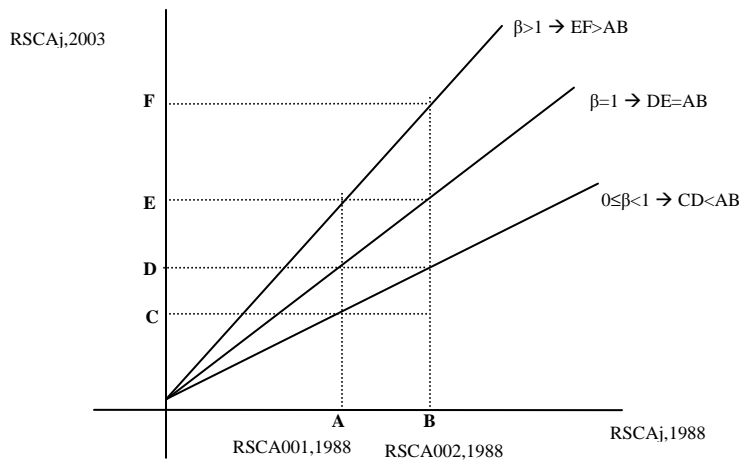


FIG.2: DYNAMIC CHANGES OF COMPARATIVE ADVANTAGES

**Correlation: Convergent or Divergent?**

If it is believed that India’s pattern of comparative advantages follows that of China, how many years is the time lag? This paper applies statistical hypothesis test procedure of correlation on Revealed Symmetric Comparative Advantage (RSCA) in scrutinizing the time lag of pattern of comparative advantage. The degree of association between two series of RSCA can be compared by the Spearman’s Rank Correlation Coefficient which is given as follows (Gujarati, 1995:372):

$$\rho_{s,Ct_a,It_b} = 1 - 6 \left[ \frac{\sum_{j=1}^n d_{R_{jt}}^2}{n(n^2 - 1)} \right] \quad (5)$$

Where:

$\rho_{s,Ct_a,It_b}$  = the Spearman's Rank Correlation Coefficient between China's RSCA at time  $t_a$  (symbol:  $Ct_a$ ) and India's RSCA at time  $t_b$  (symbol:  $It_b$ );

$$d_{R_{jt}}^2 = (R_{RSCA_{jC,t_a}} - R_{RSCA_{jI,t_b}})^2$$

$(R_{RSCA_{jC,t_a}})$  = the squared difference between the rank of China's RSCA of product  $j$  at time  $t_a$ ;

$(R_{RSCA_{jI,t_b}})$  = the rank of India's RSCA of product  $j$  at time  $t_b$ ;

$t_a$  and  $t_b$  is time (1988, 1993, 1998 or 2003).

The values of Spearman's rank correlation coefficients range from  $-1$  (a perfect negative relationship) and  $+1$  (a perfect positive relationship). A value of  $0$  indicates no linear relationship. Higher Spearman's correlation coefficient indicates stronger competition between two countries in the export market. High Spearman's rank correlation coefficient also represents that the follower catches up quickly resulting in faster shift in comparative advantage. More negative Spearman's rank coefficient implies stronger complementary of these two countries in supplying products to the export market. We make a hypothesis that India's comparative advantages follow China's ones. In other words, India is the follower of China's pattern of comparative advantages.

## Results and Analysis

### Products Mapping

As previously described, exported products (SITCs) of China and India are classified into four groups i.e. A (have both comparative advantage and export-specialization); B (have comparative advantage but no export-specialization); C (have export-specialization but no comparative advantage) and D (neither have comparative advantage nor export-specialization). Table 1 represents the percentages of number of products (out of 231 SITCs) lying in each group for China's and India's export for 1988, 1993, 1998 and 2003 (see Appendix for detail results of classification). In 1988, China had 29.9 percent (out of 231 SITC) in Group A, 3.5 percent in Group B, 17.3 percent in Group C, and 49.4 percent in Group D. This composition became 36.4 percent; 2.6 percent; 16.9 percent and 44.2 percent in each Group A, B, C and D in 2003, respectively. Meanwhile, in 1988 China had 20.8 percent in Group A, 2.6 percent in Group B, 23.4 percent in Group C, and 53.2 percent in Group D, in 1988. It became 36.4 percent; 2.6 percent; 16.9 percent and 44.2 percent in each Group A, B, C and D in 2003, respectively.

Since export-specialization (which is shown by positive value of TBI) can also reflect the originality level of product, our finding shows that higher revealed comparative advantage in international market has been more significantly supported by the 'originality' level of products. Higher level of originality, higher level of comparative advantage will most probably be. In the simple worlds, China and India have comparative advantage on the products which are 'more originally' from China and India. It is shown by the higher percentage of products in Group A than in Group B. In contrast lower level of originality, lower comparative advantage will be. The higher percentage of products in Group D is greater than in Group C. This finding strongly supports to the theory of comparative advantage saying that a country will have export specialization on products with higher comparative advantages.

TABLE 1: PERCENTAGE OF NUMBER OF SITCs IN GROUPS, 1988-2003

Country	1988		1993		1998		2003	
China	B:	A:	B:	A:	B:	A:	B:	A:
	3.5%	29.9%	3.9%	36.4%	3.0%	36.8%	2.6%	36.4%
China	D:	C:	D:	C:	D:	C:	D:	C:
	49.4%	17.3%	45.5%	14.3%	40.7%	19.5%	44.2%	16.9%
India	B:	A:	B:	A:	B:	A:	B:	A:
	2.6%	20.8%	0.9%	25.1%	3.5%	23.4%	6.5%	29.9%
India	D:	C:	D:	C:	D:	C:	D:	C:
	53.2%	23.4%	48.5%	25.5%	54.5%	18.6%	39.8%	23.8%

Source: International Trade Statistics Yearbook and UN-COMTRADE, *Author's calculation.*

In the case of China, the number of products in Group A increased significantly from 29.9 percent in 1988 to 36.4 percent in 2003. In contrast, the number of products in Groups A, B and C decreased for the same periods. Biggest structural changing in comparative advantages and export specialization happened for 1988-1993. A dramatic change in the number of products in Group A happened from 1988 (29.9 percent) to 1993 (36.4 percent). However, it remained relatively constant afterwards. Products which moved to Group A for period 1988-1993 were Fish, dried, salted or in brine, smoked fish (SITC 035 from D to A); Crustaceans and molluscs, prepared or preserved (SITC 037, from C to A); Sugar and honey (SITC 061, from Group D to A); Tobacco, unmanufactured, tobacco refuse (SITC 121, from D to A); Tobacco, manufactured (SITC 122, from D to A); Fuel wood and wood charcoal (SITC 245, from D to A); Pulpwood (including ships and wood waste) (SITC 246, from D to A), Ores & concentrates of precious metal, waste, scrap (SITC 289, from C to A); Other inorganic chemicals, compounds of precious metals (SITC 523, from B to A); Other artificial resins and plastic materials (SITC 585, from C to A); Cotton fabrics, woven (not including narrow or special fabrics) (SITC 652, from B to A); Lime, cement and fabricated construction materials (SITC 661, from D to A); Iron steel casting, forging and stamping, in rough state, nes (SITC 679, from C to A); Lead (SITC 685, from C to A); Zinc (SITC 686, from D to A); Wire products (excluding insulated electrical wire), fencing grills (SITC 693, from D to A); Manufactures of base metal, nes (SITC 699, from C to A); Office machine (SITC 751, from D to A); Household type equipment (SITC 775, from D to A); Cycle, scooter, motorized or not, invalid carriages (SITC 785, from C to A); Trailer, and other vehicles, not motorized, nes (SITC 786, from C to A); Sanitary, plumbing, heating, lighting fixtures and fitting, nes (SITC 812, from C to A); Furniture and part thereof (SITC 821, from C to A); Photographic apparatus and equipment, nes (SITC 881, from D to A); Articles, nes of plastic materials (SITC 893, from D to A); Gold, silver ware, jewelry and articles of precious materials, nes (SITC 897, from C to A); and Animal, live, nes (including zoo animals, pets, insects, etc)(SITC 941, from B to A). The changes had been dominated by SITC 6,7 and 8. It is very interesting to compare the structure between periods 1988-1993 and 1998-2003. What happened during period 1998-2003 contradicts with what happened during period 1988-1993. Increased number of products in Group A (followed by decreased number of products in Group B, C and D) happened during 1988-1993; in contrast, increased number of products in Group D (followed by decreased number of products in Groups A, B and C) happened during period 1998-2003.

In the case of India, rapid structural changes in comparative advantage and export-specialization happened in 1998-2003. The number of product in Group D decreased from 54.5 percent in 1998 to 39.8 percent. It was lower than that of China during the same period. In contrast, significant increases in the number of product were in Group A, B and C. Products which moved to Group A for 1998-2003 were Wheat and meslin, unmilled (SITC 041, from D to A); Meal and flour of wheat and flour of meslin (SITC 046, from D to A); Other cereal meals and flour (SITC 047, from D to A); Sugar and honey (SITC 061, from D to A); Natural rubber, latex, rubber and gums

(SITC 232, from D to A); Vegetable textile fibers, excluding cotton, jute, and waste (SITC 265, from D to A); Synthetic fibers suitable for spinning, and waste (SITC 266, from D to A); Petroleum products, refined (SITC 334, from D to A); Articles of rubber, nes (SITC 628, from B to A); Ingot and other primary forms, of iron or steel (SITC 672, from D to A); Iron and steel bars, rods, shaped and sections (SITC 673, from C to A); Universals, plates, and sheets, of iron or steel (SITC 674, from D to A); Tube, pipes and fittings, of iron or steel (SITC 678; from D to A); Copper (SITC 682, from D to A); Nails, screws, nuts, bolts, rivets, etc, of iron, steel or copper (SITC 694, from C to A); Tools for use in the hand or in machines (SITC 695, from D to A); Steam boilers and auxiliary plant, and parts thereof, nes (SITC 711, from D to A); Office and stationary supplies, nes (SITC 895, from C to A). It is clear that products which moved to Group A in 2003 are mainly from products in Group D in 1998. They were dominated by SITC 6. Significant increase in Group B is interesting phenomenon. It implies that the number of 're-exported' products with high comparative advantages. Products which moved to Group A for 1998-2003 were Vegetables, fresh or simply preserve, roots and tubers, nes (SITC 054, from D to B), Cotton (SITC 263, from D to B); Other crude mineral (SITC 278, from D to B); Ores and concentrate of base metal, nes (SITC 287, from D to B); Residual petroleum products, nes and related minerals (SITC 335, from D to B); Hydrocarbons, nes and derivatives (SITC 512, from D to B); Carboxylic acids and their derivatives (SITC 513, from D to B); Other inorganic chemicals, compounds of precious metals (SITC 523, from D to B); Metalworking machinery (other than machine-tools), and parts, nes (SITC 737, from D to B); Electro-medical and radiological equipment, nes (SITC 774, from D to B).

#### Dynamic Change in Comparative Advantage

As emerging countries, it is intuitively guessed that China and India will try to raise their comparative advantages and to specialize on products with higher comparative advantages. There is a crucial question related with the increasing integration and liberalization process which virtually encourages international trade flows: do China and India become more specialized or de-specialized in trade? If China and India become more specialized, the comparative advantage of products in which China and India specializes will increase relatively larger than that of other products. Table 2 represents the estimation result of equation (4) for period 1988-1993, 1993-1998, 1998-2003 and 1988-2003. The test results using equation (4) confirm that export patterns have generally become less specialized over the period 1988-2003, since estimated coefficient  $\beta$  lies within 0 and 1 ( $0 < \beta < 1$ ). The second last row of Appendix also supports this despecialization process that is shown by decreased standard deviation of RSCA in both China and India.

TABLE 2: ESTIMATION RESULT

RSCA	China				India			
	Coefficient ( $\beta$ )	Correlation (r)	( $\beta/r$ )	Conclusion	Coefficient ( $\beta$ )	Correlation (r)	( $\beta/r$ )	Conclusion
1993 against 1988	0.742*	0.776	0.956	despecialization	0.894*	0.893	1.001	Despecialization
1998 against 1993	0.845*	0.858	0.985	despecialization	0.938**	0.933	1.005	Despecialization
2003 against 1998	0.875*	0.886	0.987	despecialization	0.828*	0.871	0.951	Despecialization
2003 against 1988	0.485*	0.522	0.930	despecialization	0.704*	0.736	0.957	Despecialization

Notes: Wald Test<sup>2</sup> is conducted to test null hypothesis  $H_0: \beta=1$ ; and alternative hypothesis  $H_1: \beta \neq 1$ . By using 1% (\*) and 5% (\*\*) level of significance, we reject hypothesis  $H_0$ .

Source: International Trade Statistics Yearbook and UN-COMTRADE. *Author's calculation.*

For period 1988-2003, China has smaller estimated coefficient  $\beta=0.485$  than that of India (0.704). It implies that changing of China's comparative advantages was more dynamic than that of India. In other words, China's despecialization process was faster than India's one. In the case of China, the most dynamic change in

comparative advantage; which is shown by lowest estimated coefficient,  $\beta$ ; happened in 1993-1988. In the case of India, it was in 1998-2003. In this period, India's despecialization process little bit more dynamic than China's one which is shown by estimated coefficient  $\beta$ , 0.828 and 0.875 in the case of India and China, respectively.

#### Catching Up

China and India started their liberalization in the almost the same period in the beginning 1980s. Different approaches of liberalization have been implemented in both countries China and India. In the beginning of liberalization, China was more progressive than India. Therefore, some researchers believe that India's comparative advantages have been left behind compared to China's comparative advantages. The third last row of the Appendix shows averages of RSCA of India and China. It is clearly shown that China has higher averages of RSCA than India's ones for 1988-2003. This sub-part answer the question about how many years the time lag between India's pattern of comparative advantage and China's one. Table 3 represent the Spearman rank correlation coefficient between China's comparative advantages and India's comparative advantages over 1988-2003. Higher the coefficient means higher association of China's and India's comparative advantages. Positive coefficient implies that India is the follower (if it is not being said competitor) of China.

To determine the time-lag, we can follow the arrow sign. *First*, comparing the coefficient within the same column, we can find that China's comparative advantages in 1988 had the highest coefficient (the arrow sign 1). It indicates that China's comparative advantages in 1988 had most probable similarities with India's comparative advantages. *Second*, across 1988, 1993, 1998 and 2003; India's comparative advantages in 1998 had the highest coefficient with China's comparative advantages (the arrow sign 2). Therefore, we can obviously say that the time-lag between India's and China's comparative advantages is 10 years (1998-1988=10 years). Interestingly, if it is the case then the China's comparative advantage in 1993 should have highest coefficient with India's comparative advantages in 2003. However it is not the case, the China's comparative advantages in 1993 have highest coefficient with India's comparative advantages in 1988 (the arrow sign 3). The time-lag becomes smaller from 10 years to 5 years. It is very consistent with previous explanation that the shift of China's comparative advantages was quick for 1988-1993 but it was slow for 1993-2003. In contrast, the shift of India's comparative advantages was slow during 1988-1998 and quick during 1998-2003. Therefore, it might be roughly estimated that the pattern of comparative advantages of both China and India could be the same in near future, *ceteris paribus*.

TABLE 3: SPEARMAN CORRELATION: CHINA'S AND INDIA'S COMPARATIVE ADVANTAGES

		India's Comparative Advantages			
		1988	1993	1998	2003
China's Comparative Advantages	1988	.426*	.407*	.437*	.360*
	1993	.346*	.345*	.309*	.320*
	1998	.308*	.308*	.358*	.284*
	2003	.316*	.278*	.311*	.221*

Notes: \* Correlation is significant at the 0.01 level (2-tailed).

Source: International Trade Statistics Yearbook and UN-COMTRADE. *Author's calculation.*

## Conclusions

Some conclusions are withdrawn. *First*, the products-mapping analysis which is based of Revealed Symmetric Comparative Advantage and Trade Balance Indexes shows that the China's biggest change in comparative advantage and trade-specialization happened in 1988-1993, meanwhile the India's one happened in 1998-2003. China's change in comparative advantages was dominated by SITC 6,7,8 and India's one was dominated by SITC 6. The analysis on China and India also strongly supports the comparative advantage theory saying that a country will have export specialization on products which the country has comparative advantage. *Second*, for 1988-2003, econometric analysis finds that China and India performed despecialization process. China's change in comparative



advantages was more dynamic than India's one. The China's biggest change in comparative advantage happened during 1988-1993, meanwhile that of India happened in 1998-2003. *Third*, India is the follower (if it is not being said 'competitor') of China in term of the pattern of comparative advantages. The time-lag between India's and China's pattern of comparative advantage patterns was about 10 year. However, it is predicted that the lag might become smaller in recent years.

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## End Notes

<sup>1</sup>Pearson correlation test on RSCA and TBI is also conducted. The result shows that there are significant and positive linear relationships between RSCA and TBI. China has RSCA-TBI Pearson correlation coefficients 0.789, 0.807, 0.785 and 0.737 for 1988, 1993, 1998 and 2003, respectively. Meanwhile, India has RSCA-TBI Pearson correlation coefficients 0.586, 0.608, 0.625 and 634 for 1988, 1993, 1998 and 2003, respectively.

<sup>2</sup> See Gujarati (2000) for detail explanation about Wald coefficient restrictions test. Basically, the Wald test calculates the test statistic by estimating the unrestricted regression and the restricted regression- without and with imposing the coefficient restrictions specified by the null hypothesis,  $H_0$ . The Wald statistic measures how close the unrestricted estimates come to satisfying the restriction under the null hypothesis. If the restrictions are in fact true, then the unrestricted estimates should come close to satisfying the restrictions.

# An Evolutionary Interpretation of Ethnic Networks: the Chinese Example

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## Abstract

Ethnic networks are made of interpersonal ties run by a separate set of rules that allow - among other things - to overcome formal and informal barriers and help create inner markets for more competitive exports. After reviewing recent literature, this paper considers the possible evolution of ethnic networks in different stages, which, eventually, include international production. Focusing on Chinese networks, the paper investigates their evolution, by considering the role of Embeddedness and the creation of Social capital as start-up devices. Later on, the necessity to qualify Embeddedness in accordance with global markets requirements and to govern the appropriation of Social capital, expose ethnic networks to different alternative paths, which may eventually link back to the motherland to create further synergies. To help the networks evolve towards stronger competitive advantages - rather than let them revolve into mere defensive strategies - some policies are envisaged in the conclusions.

## Introduction

In this paper we shall analyze ethnic networks, in particular those created by overseas Chinese, to better understand the nature and the dynamics of their competitive advantages. Ethnic networks will be discussed by using two main core concepts, namely *Embeddedness* and *Social capital*. These two strands of analysis provide a logical framework to underline the role of ethnic networks both for competitiveness and growth. We argue that Embeddedness provides a form of allocation efficiency that is neither supplied by the Market, through arm's length transactions, nor by the Plan of a larger organization. We also argue that the *Social capital* that ethnic networks are able to generate is a strategic evolutionary condition, both for preventing *Embeddedness* from slowing down competition, and for creating new competitive advantages. The discussion allows us to conclude with a few policy considerations, aimed at promoting the development of various synergies created by the opening up of the networks.

The paper is divided in seven sections. The first section provides a general framework of analysis, in terms of the two core concepts of *Embeddedness* and *Social capital*, according to the main results of the most recent studies on networks in general, and local networks in particular. The following sessions discuss how competitive advantages are first created and then developed when *Embeddedness* and *Social capital* interact - in ethnic networks - along an evolutionary path that gradually turns from 'close' to 'open'. In particular, by focusing on immigration issues, section two considers *Embeddedness* as a fundamental incubator of labour and skill formation, as it helps to overcome the start-up costs that often represent a barrier to entry in the labour markets. Section three considers how *Embeddedness* is also able to prompt the development of new forms of micro-entrepreneurship. In this phase, it is the reduction of the sunk costs associated with a new micro-enterprise, together with external economies created by the ethnic network that allows for a temporary low level of 'normal' profits in brand new activities. Section four discusses how new incremental value is generated, beyond the start-up phases, by better relationships based on kinship and trust. *Social capital* adds here to 'private capital' by facilitating the exploitation of more conventional economies, such as economies of scale and scope, better finance, technology and market information. Taken together, more trust and more efficiency enhance competitive advantages by reducing the risk associated with internal (intra-network) transactions, throwing a dynamic safety net towards the next phase of market enlargement. Section five considers the interaction between all the economies created in the previous phase and the risk posed by openness, namely the possibility of opportunistic behaviour, as some information may be privately appropriated by internal incumbents or external competitors. Some policies are here envisaged to help avoid these risks and better qualify the network to compete globally. Section six briefly discusses *Embeddedness* and *Social capital* as a pool of

intangible resources that may be critical for the creation of ‘redundancy’, a feature that many consider conducive to higher prospects of growth. Finally, section seven offers some conclusions.

## **Embeddedness and Social Capital**

Ethnic networks may be considered as clusters of interpersonal linkages, acting as bridges that help to overcome formal and informal economic barriers, by means of kinship, friendship and same-origin ties. Despite a long tradition of ethnic connections in almost all experiences of secular migration, especially to the Americas, their role has gained new attention, in globalisation times, as a source of links that help overcoming many barriers in entering new economic environments. Initially, they seem to favour migration processes *per se*, by supplying first aid in new settlements and essential mentorship for entering new jobs. Later on, they also represent an essential resource of product diversification. In fact ethnic workers not only create additional supply of goods and services in the country of destination; they also create additional demand for products sourced in the country of origin. As such, they soon become a valuable incubator of intelligence for market penetration of the motherland. Finally, in a more advanced phase, ethnic networks can become a valuable interface for information gathering between distant markets in general, which might indeed extend beyond the initial countries of origin and destination.

### **Embeddedness**

*Embeddedness* defines a situation in which the behaviour of individuals of a social group is characterised by a high degree of cohesiveness. Whilst applying in general to different situations, *Embeddedness* is a common tool of analysis both for the study of industrial districts, where it assumes a territorial dimension, and for the study of ethnic networks, where it assumes a cultural dimension. Ethnic groups are in fact mostly made of individuals who voluntarily endorse unwritten rules and conform to behavioural codes that are widely accepted by that community as a distinctive feature, in comparison with rules and behaviours that are otherwise established. Every economic decision, although taken, in principle, in conformity with a set of individual preferences, is eventually socially determined. It is also socially monitored and - in case of infringement - socially punished, by ostracism or even the expulsion from the community: a deterrent that might be superior to strict economic penalties. As a result, as with the studies of industrial districts, one can hardly refer to the simple atomized actors of textbook economics, or entirely rely on individual motivations based on independent utility functions or profit maximisation.

Originally, *Embeddedness* was considered a ‘particular solution’ aimed at overcoming *market failures*, which notoriously appear when the Market is unable to deliver an efficient allocation of resources for a series of imperfections and/or the existence of particular goods (for example when information is not symmetric and/or freely available to all agents). Later on, *Embeddedness* was also proposed in relation to other ‘complications’. It is in fact conceivable that individuals not only ‘do not’ take decisions independently from one another, when some assets are not available for free, but that they also respond differently to different contexts. Indeed many ‘contexts’ may emerge in this regard (Rullani, 1993; Tiberi Vipraio and Hodgkinson, 2000). But probably *Embeddedness* based on *history* and *geography* ranks among the most important organisational differences between certain ethnic networks, and the other two main forms of organisations: namely the Market, which allocates resources by the price system, and the Firm, which allocates resources through managerial planning.

To be sure, the concept of *Embeddedness* helped to overcome these difficulties, by gradually integrating individual choices with socially co-determined results: a sort of compromise between individualism in its classical form (the pursuit of pure egoism, which miraculously delivers what is needed by all) and a higher form of egoism, which feeds on other people’s fortune, dependence, gratitude, admiration or trust (what is sometimes called ‘altruism’ and/or ‘irrational’ behaviour, depending on the circumstances and/or the ideologies of the interpreters).

Expressing these concepts in a more conventional way, ethnic networks may help to prevent or, at least to reduce, some transaction costs, information asymmetry and organisational failures that derive from cultural differences in institutional settings. Yet, by endorsing *Embeddedness* as a mere remedy for market failures, we don’t go very far. As fundamentally static, *Embeddedness* does not deal with a better allocation of resources in the long run, especially in cases of fast growth<sup>1</sup>. In what follows we shall sustain that *Embeddedness* is very useful for interpreting the advantages of ethnic networks in some initial stage of development, when there are barriers to entry

in some markets, or where there is scope for widening the area of potential opportunities of a 'society' in an holistic sense, something that represents more than the sum of a number of individuals. Yet, by limiting the analysis to this feature only, we seem to be missing the most important aspects of contemporary competitiveness: the dynamics of socio-economic systems. To help overcome this difficulty we propose to add the concept of *Social capital to Embeddedness*.

### **Social Capital**

*Social capital* has been mainly discussed in studying the transfer of other factors of production (i.e. capital property, new technologies). In what follows we argue that it also constitutes the dynamic facet of resources coming from ethnic networks, to the extent that it is made available for individuals in order to better pursue their own goals within a distinct community. Social capital is thus interpreted as an additional intangible asset generated by the individual involvement in ethnic networks. This new factor of production creates the opportunity to benefit, without additional costs<sup>2</sup>, from the abundance and the reproduction capacities of resources generated by two main phenomena: namely Networking and Knowledge Sharing.

### **Social Capital from Networking**

Generally focusing on capital, rather than labour mobility, the discussion on Networking revolves around the idea that today producers can be better integrated with users in deciding what to produce and how to do it, thanks to the widespread availability of information and communication technologies (ICT). In particular, the dynamics of a better match between supply and demand (primarily in qualitative terms) tend to shift the usual cost cutting and value-adding efforts from producers to users and sub-suppliers. Not only can producers deliver cheaper and more sought after products. Thanks to ICT, new use-values emerge from *contaminations, dialogs, and experiences*. So, not only it is possible to reduce production costs and enhance value for users. It is also feasible to cut transaction costs, according to conventional transaction cost theory, by reducing uncertainty, idiosyncrasy (sunk costs) and those inefficiencies that are derived from small numbers transactions, as essential information may be available close to zero cost (Williamson, 1975; 1983).

In other words, transactions become more efficient, thanks to networking, not only because they are *cheaper* and *faster*, but also because they *widen* economic space. The initial virtues of Marshallian districts can be extended beyond local boundaries and substitute 'short' local networks with 'long' global networks based on ICT. In either case the relations can be defined as *powerful* and *meaningful*. As Evans and Wurster (1999) put it, ICT favours transactions with a high content of complexity because they enhance both the *richness* and the *reachness* of relational circuits. Neither local districts, with their *economies of proximity*, nor vertically integrated firms, with their *economies of planning*, monopolise complexity any longer<sup>3</sup>.

This view bears important consequences, as networking can turn the need to *own* something, into a much simpler *access condition* (Rifkin, 2000). In terms of transaction cost theory, one can of course avoid, this way, the specificity of the initial investment (both for consumption and production). But specificity counts here not because transactions are too few to justify the correspondent immobilisation of resources (which would lead to a simple market transaction) but rather because a more difficult match between supply and demand (created by higher complexity) would need a very strong point of reference. This might be difficult to organise under the former rules of exchange based on ownership and exclusion to others. So, when access conditions win over exclusive ownership, a radical change in the relation between demand and supply takes place.

Except for luxury goods and those goods that are physically used up by an act of consumption, access conditions do not need to be associated with anything that is functionally destroyed or privately appropriated. The former *economy of needs* can be gradually substituted, at least to some extent, by a new *economy of wishes*, whose benefits are enhanced if shared with others in a *certain* community. The definitions of new rules (institutions) soon became strategic for avoiding opportunism and the return of exclusive appropriations. Industrial districts have been studied extensively as *loci* for such developments. In what follows we shall try to develop an extension of that debate to the case of ethnic networks.

Summing up, Networking Economies arise from a flexible, decentralised, and coordinated system of production that can satisfy a sophisticated demand with a reasonable variance of goods and services. Suppliers are able to produce cheaper products and services, thanks to a vast array of economies of scale and economies of scope that cut across institutional barriers and create sub-systems of rules, which are partially protected from external

threats, operating by Markets (through prices) and by Hierarchies (through quantities and qualities). In addition, they can also use available information for multiple applications, thus deepening *and* widening their own market opportunities. So, a new Networking Economy is able to *enrich* (in varieties and variability) a large class of consumers at very low prices for the *service*. All we need is a reasonable coupling of technical possibilities of variance with a sensible spanning of human wishes. A new factor of production has emerged. We suggest calling this factor *Social capital from networking*.

#### **Social Capital from Knowledge Sharing**

Networking is also able to change the regime of production of knowledge and its use. Being replicable at very low costs, knowledge is in itself a re-productive resource. If a piece of knowledge is utilised many times, its *use-value* can be very high. A new value-multiplier can be considered as the result of all the possible *utilisations* of a certain idea. So, in the end, the faster and the larger the diffusion of knowledge, the greater the *use-value* generated for a society (or a community). If agents can extract, at least in part, some exchange value from every piece of knowledge that they produce; they can benefit from the process themselves. But if they want to extract the entire use-value of knowledge, they may find it difficult, as the ways knowledge can be used are often in the users' mind.

In fact, it is well known that knowledge producing firms are usually caught between two perils: they cannot avoid sharing their information, for this is how the *use-value* of information is enhanced and the *exchange-value* of information could be maximised. At the same time, they do not want to diffuse their knowledge too rapidly, risking to loose control over it. This is why the Market is not generally efficient for the exchange of knowledge: under competitive conditions, its equilibrium price would tend to its marginal cost of re-production, i.e. it would be closed to zero (Arrow, 1962). The well-known market failures for knowledge will make it better privatised when the market is characterised by a low degree of competitions among suppliers. Vertical integration, plus secrecy, has long been an efficient mean to reach this goal by the fordist paradigm. But when investment rigidities in R&D turned into higher sunk costs (or when economies of scale *alone* were not enough to maintain a competitive edge on competitors) evidence suggests that systems evolve by retreating into a segment of competence, and by enlarging the circuits of shared knowledge beyond the border of vertically integrated firms.

Summing up, knowledge economies emerge when the use-value of a piece of information is enhanced by its utilisation by different agents, who are able to apply and adapt free knowledge to a very large number of problems. As a result, solutions will be found according to the different forms under which knowledge is acquired and multiplied. Individual firms, being interested in the private appropriation of the results, will tend to invest more in R&D, especially in sophisticated technologies, i.e. in knowledge more feasible to be protected with patents or secrecy. Consumers will probably invest more in skills, education and culture, to be able to get the most out of their access to goods and services. But networks will need to struggle, if they want to survive; they will need to find an acceptable compromise between use-values, available to all members of that particular network (taking care of the reproduction conditions of the network), and exchange-values, privately appropriable for individual needs (taking care of efficiency, under conditions of scarcity). Again, as in the former case, a new factor of production has emerged, when use-values are introduced. We suggest calling this factor *Social capital from knowledge sharing*.

In what follows we shall apply these concepts to ethnic networks. In doing so, we shall try to envisage a possible evolutionary path of competitive advantages that goes through five main stages. The first two stages relay on *Embeddedness* as start-up conditions for labour deployment and entrepreneurship incubators. The following three stages depend on how *Social capital* is managed for the growth of the networks and its extension towards external competitive markets.

### **Embeddedness as an Incubator of Labour (stage 1)**

Ethnic networks and their strict relationship with migratory flows have been considered quite extensively since the end of nineteenth century. Ravenstein (1888) for example, stressed their significance by formulating a wide range of 'migration laws' geared at sustaining the development of chain migrations towards trade and industrial centres. The study of ethnic networks was also a point of reference in explaining the processes of factor accumulation of national groups and their specialization in some industries, usually characterised by lower financial, normative and

technological barriers, such as catering, construction sub-suppliers, or by a certain degree of 'weakness', such as small businesses in general. In all these studies, ethnic networks are said to represent fundamental bridges to support migratory processes. Through them, people can easily find all the information necessary to choose a suitable destination, obtain visas, raise seed money for the journey, activate the first contacts to find a job, and enjoy a certain degree of protection in the new environment.

Ethnic networks also allow for a better allocation of the world labour in general. Ethnic links are in fact very efficient in creating a net of information that is *wide* and that is based on *knowledge and trust*. Being *wide* allows for the best available match between demand and supply of labour, with the right skills. Being based on *knowledge and trust* is instead vital for the relationship between employer and employee at its initial stage, when neither knows each other, and therefore they must rely upon the available institutions. Yet, neither the Market nor the Hierarchy can always supply such institutions (generally accepted rules) free of charge. Finally, ethnic networks are also helpful in overcoming the problem of information asymmetries in an agency relationship (Ambrosini, 2006) by supplying single members of the network with easily accessible information that suddenly become a public good.

## **Embeddedness as an Incubator of New Enterprises (stage 2)**

Being of the same origin and sharing a common language is of course of great importance to prompt the generation of inner labour markets. This may happen both in positive and in negative terms. We have discussed the positive side in the previous section. The negative side is that, being less able to speak the local language, it is in general more difficult to find a job in the country of destination. So lower wages are generally accepted to avoid unemployment. This situation generates an incentive for ethnic firms to hire ethnic workers; it also creates favourable barriers to exit, which strengthen business opportunities.

This kind of phenomenon is very frequent in the Chinese experience. Chinese networks are often considered very little affected by external conditions. The separation of the Chinese networks from the institutions of the destination country is enhanced by its own linguistic mixture. The difference between Mandarin and Cantonese, and the vast arrays of local languages and dialects spoken in inner China, create a broad range of sub-communities, with an even greater feeling of separation from the host country. This internal fragmentation of languages and cultures is thus able to produce new sub-hierarchies, but also new horizontal connections. Such internal stratification is nevertheless able to resume at a higher level of efficiency and/or opportunities. Whilst feeding on sub-ethnic segmentations for cost-cutting activities, managers and middle person are in fact strongly related, at similar levels of responsibilities, by class ties that cut across sub-ethnic differences. It is thus possible to enrich connections, and therefore enlarge the pool of knowledge, by way of specialisation and a *mutual* exchange of information: a framework that may resemble a sort of *barter* economy.

Witness of such developments is a large piece of scholarship. Gould (1994) and Rauch and Casella (1998) for example, argue that this kind of networks promote the development of bilateral trade, by supplying market information and an easy way to compare the quality of services, in order to find the most suitable distributors. By endorsing evidence from the analysis of dispersed ethnic groups, Kotkin (1992) confirms that the wide geographical dissemination of Chinese entrepreneurs represents a core element in the process of building mutual business opportunities. Weidenbaum and Hughes (1996) suggest that 'The members of the bamboo network operate in the interstices of the trading world. They make components, manufacture for others, and perform subassembly work. The leading businessmen know each other personally and do deals together, with information spreading through an informal network rather than through more conventional channels'.

*Embeddedness* seems also be functioning as a formidable economic environment to translate an initial abundance of cheap labour into new entrepreneurship. For labourers, it acts as an incentive to work in difficult conditions, in the presence of exit barriers to the external labour markets. For firms, it acts by reducing or eliminating the sunk costs associated with the search of suitable skills. For both workers and firms external economies are created and subsequently internalised and/or put at the disposal of the community for further utilisation. It is even possible that, in this kind of environment, profits are temporarily kept below normal levels, for

new enterprises, in the prospects of future growth. This is certainly a strong incentive that lowers entry barriers in existing markets for new enterprises.

All such factors also help create strong ties between employers and employees, particularly in terms of career paths. Particularly so when employers provide employees with several advantages and fringe benefits, mostly in terms of services that span from lodging to hiring relatives and providing for them. To be sure, these links also represent the main roots for obtaining more flexibility in the labour market and thus compete on more favourable terms. So whilst on the one hand a higher value added is often created, compared with what feasible under strict market conditions, on the other hand more flexible labour relations can conduct to *excesses* in the use of the labour force, to the point of un-acceptable exploitation. An institutional compromise is therefore necessary, at this point, to distinguish between ‘ties that bind’ and ‘and ties that blind’ (Grabher, 1993).

To put it somewhat differently, the gradual intensification of trust relationships within an ethnic network may strengthen its insulation and build up barriers of entry that may become detrimental for further competing with the outside world. This represents a danger for growth. To be able to survive and possibly extend its scope, a community needs in fact to re-distribute its benefits to itself, at least to some extent. In other words, *Social capital* must be made available, so that ethnic networks will finally start to *deliver* for the future.

As an application of this way of reasoning, recent studies of the district of Prato, in Italy, although confirming the importance of such elements for growth, also underline the difficulties of this critical passage. A large immigration of Chinese people into the district took place, indeed, all along the 1990’s. This proved vital both for the district itself (where ‘networking with trust and reciprocity’ was of course governed by the *local*, rather than the *ethnic* community): the district was in fact experiencing a new wave of cost competition and a certain shortage of lower-skill labour. But it was important for the new Chinese community as well, which was made of first generation immigrants. Initially, by employing these immigrants, local firms from Prato took advantage of ethnicity as a form of labour incubator, which provided supporting activities such as knowledge and inclusion (Mistri, 2001; Ambrosini, 2003). Later on, some workers acquired enough competence to set up external activities and work as sub-suppliers, transferring local technologies and organisation structures into the Chinese community and metabolising them with Chinese norms (Ceccagno, 2003). The new entrepreneurship was indeed facilitated by the clan structures and the family ties of the Chinese community (Ungaro, 1993). But in any case, a solid collaboration with the local community has been developed.

Yet, many elements of separation remain, as ethnic firms still hire Chinese workers only, and prefer to deal with Chinese firms as sub-suppliers. This is why some refer to this situation as a ‘parallel district’ inside Prato (Rastrelli, 2003), which reproduces the initial district conditions but needs to evolve from ‘embeddedness only’ into ‘connectedness for growth’ by enhancing social capital and perhaps finding a terrain for sharing social norms. A thorough analysis of such dynamics has been recently proposed (Mistri, 2006) but a stage model encompassing all the possible phases of this particular configuration/stratification is still under way.

### **Social Capital and Economies of Growth (stage 3)**

Let’s now consider how new incremental value is generated, beyond the start-up phases, by better relationships based on networking, plus trust. It is well known that, in general, networks do facilitate access to more conventional economies, such as economies of scale and scope, better finance, new technology and market information. All such economies are indeed provided from growing connections and therefore the ‘size’ of the network. In principle, although a certain element of trust should be associated with the working of networks, there is no reason to believe that transactions could not be organised by (Market) prices and/or (Hierarchy) planning, at least to some extent. But if we add trust as a new asset that complement prices and planning signals to the point of changing the final results, further competitive advantages can be created, in ethnic networks, by reducing the risk associated with intra-network transactions. This is the equivalent, in other words, of throwing a sort of (dynamic) safety net inside segmented markets.

The state of affairs described in the previous section may also turn business opportunities into another form of *Social capital* that builds upon internal segmentations, but also feeds on cultural varieties and different use-

value, provided some horizontal connections can be created on the base of reciprocity and trust. The result is that, by enlarging the overall pool of information available for firms, new opportunities are generated for business oriented people, as a result of new applications, or new developments, of existing economic ideas (in terms of products, processes, services, product characteristics, applications, and so forth) (Pine and Gilmore, 1999). Drawing from what discussed above, in sub-section 1.2, instead of relaying on the passage from the *economies of needs* to the *economies of wishes*, we are now able to consider possible *economies of variety*: an articulation of the idea that many different applications and variations of existing economic ideas can be envisaged, provided that a certain degree of cultural diversity is preserved, and knowledge can be shared for enhancing its reproductive capacity, rather than being privately appropriated with the exclusion of others.

Finally, the existence of trust *with* reciprocity for accessing information not only allows for the formation of a first pool of *Social capital* (emerging both from networking and knowledge). It also helps to enlarge the spheres where to reach more conventional networking economies (scale, scope etc.) and to enrich the complexity of the architecture of the network (Lorenzoni, 1990). So in the end, the structure of ties (networking), and its institutional settings (based on prices, plans and trust), may provide, in ethnic networks, sufficient momentum for the expansion of economic activities beyond ethnic ties.

## **Opening the Networks to External Markets (stage 4)**

### **Opportunities and Risks**

Even if ethnic networks keep a strict relationship with a particular economic and socio-cultural background, we should not minimize the importance of the degree of its openness. On the one hand, a closed network is deemed to progressive weakness, if it is not contaminated with innovations and ideas coming from outside (Tiberi Vipraio, 1997; Maggioni and Bramante, 1995). On the other hand, an open network represents a fundamental resource for a wider and deeper exchange of information with external markets, in terms of technologies, product innovations, organisation, business connections and the like. In other words, the members of an open network can better exploit all the relationships considered in the previous phases, and generate new economies of scale and scope both in direct production and financing.

As in the above mentioned Agency case, by increasing its contractual weight, the network can create additional advantages that cannot be easily achieved by single members of it. In particular, to the extent that these advantages are not privately appropriated, they can be conferred to the network in forms that enhance - this time - the *reachness* of the network itself, by easier penetration in near markets, extensions towards more distant markets and finally, return to the motherland (see next section). In order to do so, networks need of course directions. Recent evidence suggests that network extensions are generally organised in various patterns. In Italy some underlined the importance of firms which act as Meta-organisers s, i.e. firm that are able to interface the local excellence with external markets and complementary competitive advantages (Grandinetti and Tiberi Vipraio, 2001).

There are of course drawbacks of such evolutionary patterns. The most obvious is that some external agents (and even some 'internal' agents, for that matter) can build privileged relationships with the network during its opening process, but also allow for a certain degree of Market rules to enter the network organisation. In principle, every member of the network is able to benefit from the information and knowledge created by the ethnic community, and trades it in the external markets. However, social monitoring and the community ostracism often represented a good enough deterrent against rule infringements. Greif (1989) argues, for example, that ethnic networks can provide a very efficient set of sanctions against opportunistic behaviours. This is also confirmed by Weidenbaum and Hughes (1996) as for the Chinese networks: when an agreement is not honoured, the entire Chinese community would not do any business with the rule breaker.

Such attitude applies much less if agents are either 'external' to the network or let themselves be gradually inspired by external rules, which are normally more prone to market prices than to membership, affinity of kinship. This is to say that, with the gradual openness of the network, some information may be privately appropriated by external competitors and/or be dissipated through market rules. The pool of information generated by the network gradually turns from *Social capital* into a more conventional form of *Private capital* and eventually benefits the final consumers, if market rules apply strictly. So, whilst lowering some previous entry barriers, at the same time



'opening' may create a conflict of rules that may end up with the collapse, or at least some instability, of the previous ones. The quality of the network openness, i.e. the degree of sharing vs./appropriability of knowledge, is therefore crucial for its success, and eventually for its survival.

A second problem arises from considering competition in itself. Whilst one would expect competition to rise in general after 'opening', as new partners are added to the network and new markets are now accessible, in practice we are not sure whether competition is enhanced or reduced. In fact, a network is not opened to the market in general, but specifically to certain 'selected partners' (i.e. regions, sub-ethnic communities, etc). So one must first address the issue of how much value is added during information sharing, and how much of it is shared in the form of *Social capital* or rather privately appropriated by the 'selected' partners.

This suggests that an ethnic network must solve two subsequent problems, during this phase. Firstly it must consider how much competition is left after the interaction of all the economies of scale and scope described in the previous phases. As by opening firms tend to grow, and as economies of scale and scope are more likely to present complementarity's rather than substitution effects, we are inclined to think that lower, rather than higher, competition will be initially associated with opening. Secondly, the ethnic network should also consider how many advantages (and which ones) can be kept in the network and how many (and which ones) will be left to market forces (or private appropriation). This is of course a matter that is dependent on many parameters, mostly emerging from the industrial characteristics of the network, its architecture, its relationship thread.

Unfortunately, the discussion of such issues is beyond the scope of this paper. Yet one is tempted to conclude that, to the extent that a certain degree of information redundancy is maintained, in the network, a certain pool of *Social capital* can be preserved, not only as a stock available to all, but particularly as a source of inspiration for the formation of new *Social capital*, derived from all the possible application and multiplication that are in users' minds.

#### **Policies**

Finally, moving from the positive to the normative, and following Rullani (2001), we would suggest that at least four specific functions (agents) could be identified (and promoted) to assist the survival of the ethnic network in this phase, all aimed at preserving a certain degree of mutual trust, and therefore *Social capital*, with a certain degree of market contamination and openness:

1. System managers, who help overcome internal segmentations, and allow for a better exchange of knowledge and information;
2. Interpreters, who help create cognitive bridges between different actors, building trust relationships and a certain sharing of knowledge;
3. Connectors, who supply the entire network with instruments, systems and services able to support the connective foundations of the network (communication, logistic, warranty);
4. Meta-organizers, who rule the behaviour of the members of the ethnic network by defining and controlling the general function conditions of the network.

By allowing ethnic networks to be part of the global economy without losing their ethnic identity, such functions create a sort of flexible integration between global and local circuits of knowledge (Becattini and Rullani, 1993) and a fundamental resource for the network, by matching network knowledge and global competitive advantages (Grandinetti, 1999).

Yet, besides promoting functions (agents), we also need Policies addressing bottlenecks, or obstacles, when networks tend to close up and revolve into building up defensive barriers, rather than evolve towards global advantages. Here are some suggestions:

1. Supporting education policies. Human resources represent of course a fundamental asset for competitive advantage. As for ethnic networks and their degree of openness, the implications are widespread. The educational system within the network suffers from a high degree of rigidity, due to its ethnic connotations. Whilst a source of advantages in the first two stages, this feature leads to a gradual lack of human resources in stage three and four, when the network needs to face external competition and manage the risk of possible opportunistic behaviours. In order to solve these problems, ethnic enterprises should bear the costs of a wider educational system. Yet these costs can be extremely high for small firms. So the network needs to build up a meta-educational system to survive. On the one hand, it must help create brand new competencies and professional features to up-grade its ethnic labour

market. On the other hand, it must also respond to the educational aspirations of entrepreneurs, managers and all the human resources that are already hatched in the ethnic enterprises. Trying to help the demand and supply of skills to meet is already a hard task. Even harder is to provide for the right mix of skills that is necessary to compete under a various combination of norms and institutions, emerging from internal and external contexts. But the network will eventually up-grade to the next stage only if it will be able to create a wider range of human resources, i.e. men that able to cope both with ethnic remains and with the new opportunities and threats offered by the external markets.

2. Supporting selected entrepreneurial projects. As we stated above, one of the main problems concerning the openness of an ethnic network is related to the small contractual power of most ethnic enterprises, in comparison with the external environment. As an opening process means that the advantages of the networks can be easily appropriated by private agents, because social capital is exposed to opportunism and/or easily turned into a private factor, networks should try to support business projects that are less exposed to this risk. There are at least two main ways to do so: 1) providing for financial resources aimed at overcoming the diseconomies of small scale of ethnic firms, and 2) using them in collective projects, whose main objective is to support the evolutionary competitiveness of ethnic business in general, rather than that of single enterprises. This means that some competence must be created and actions organised above firms' level, to select and develop only those activities that present a higher probability of collective success. It also means that new rules must be added to the previous ones, as this new level of competence must bear responsibility and accountability, to avoid new forms of opportunism and/or conflicts of interests.

3. Interfacing ethnic with global networks. Other risks of opportunism, for ethnic networks, don't emerge from small-scale weakness but rather from the creation of a new large-scale opportunities that the process of opening up is able to deliver. If that is the case, ethnic community should try to enter and garrison the wider value chain thus activated; in particular they should create, develop and/or manage at least some information knots (interfaces) between local competence and global markets opportunities. The possibility that additional advantages might be appropriated by others could thus be reduced, and financial resources better employed in the development of the new advantages for the penetration of external markets.

4. Incubator for knowledge and information dissemination. As we said above, the advantages of ethnic networks are strictly connected with the amount of knowledge and information that they are able to create and disseminate. The availability of these resources depends on the number of relationships and connections that are created within the network. As a result, a low level of connectedness means that a waste of useful resources is taking place. In this case there is a wide scope for policies, aimed at creating a wider informative system, both for the member of the network that need simple up-dates in technologies and organisation, and for those interested in new products and processes, or simply in doing external business. Furthermore, an incubator for knowledge and information allows for a periodic monitoring of the competitive position of firms and for an evaluation of the degree of success in the strategies used in entering global markets.

## **Opportunities with the Motherland (stage 5)**

In this section we suggest that *redundancy* - i.e. an overabundant pool of information from where to derive a large variety of original solutions and applications to economic problems - should be considered an evolutionary resource in itself. A high volume of knowledge produces, in fact, not only a general availability of abundant information, but also the possibility to operate a sort of *natural selection* that allows for a large process of trial and error. Whilst recording a number of failures, the process is indeed able to perform successfully, precisely for its dimension: no matter how many will fail, a long lasting repetition of different applications of abundant knowledge is sufficient to produce, eventually, some positive results. This is indeed how evolution operates in biology. In particular, let's consider how this process opens up a wide range of economic opportunities for ethnic network in relation with the motherland. The Chinese example is probably the most striking case in point.

There are approximately 60 million *overseas Chinese*, mostly living in Southeast Asia where they make up a majority of the population of Singapore and a significant minority in Malaysia, Thailand, the Philippines, Indonesia and Vietnam. As many others ethnic groups living outside their country of origin, *overseas Chinese* have

developed several associations, both formal and informal, traditionally based on kinship, linguistic ties and same-origin bounds. Originally, they were born for helping and assisting the community, in particular the neo-immigrants. Later on, these networks gradually evolved into basic information and knowledge centres.

In the last decades, thanks to the *Guanxi*<sup>4</sup> medium, the Chinese network has developed in a more formalized way. This has somehow eased up the possibility - for some of its members - to return to their motherland, in connection with the gradual opening up of China to the market economy. Yet the country has a world-wide reputation of having a weak legal system and a narrow circulation of market information through official channels. This represents a barrier for non-Chinese Foreign Direct Investments (FDI's). Even if the Chinese legal system had progressively strengthened its foundations, especially since the recent admission of PRC to the World Trade Organization and the consequent openness to international business, property rights and contract laws still remain insufficient for many foreign investors. So, in our theoretical framework, we could say that there are a number of market failures, in the case of China, that would suggest the feasibility of a pattern of FDI's that drives through the Chinese networks overseas. The argument runs as follows.

On the one hand, with its informal channels and connections and with its huge amount of information and knowledge, the Chinese networks are able to operate both on the market proper (by supplying competitive products and by using and transferring efficient technologies) and in the interstices of the market (by supplying 'ethnic' and 'sub-ethnic' products). On the other hand, coming from different countries, and therefore being contaminated by different uses and applications of existing products and technologies, they are also able to offer a variety of solutions and applications of knowledge, having historically adapted them to the local environment in a variety of ways.

Although further evidence is needed to support this general view, this pattern seems to be confirmed by the high shares of FDI's towards China that come from countries with a larger Chinese community. Gao (2000) considers, for example, how ethnic Chinese networks influence realized FDI inflows into the People's Republic of China (PRC) by looking at the total FDI inflows from 68 countries during the period 1985-1997. Using a standard OLS regression, with the logged value of FDI stock as dependent variable, he finds that the ethnic Chinese population share in the source country has a statistically significant positive relationship to FDI's in the PRC. His results suggest that a one percentage point increase in the ethnic Chinese population share leads to an increase of at least 3.7 percent in cumulative FDI in PRC. Although Gao believes that the FDI stock better represents the activity of foreign firms in China than FDI flows, he also regresses annual FDI inflows for 1994 to 1997 against his measure of Chinese networks. This leads to a significant positive relationship of the level of a 4.0 percent (1995) to 7.4 percent (1996) increase in FDI inflows for a one percent increase in the Chinese population share in the source country.

## Conclusions

In reviewing current literature on ethnic network, with particular attention to the Chinese networks, we have suggested that they tend to grow along an evolutionary path that first relies upon *Embeddedness* to overcome start up cost for labour and new entrepreneurship, and later on builds upon a particular form of *Social capital*: a new resource available to ethnic participants of the network for different uses and application. Economies of scale and economies of scope are thus created at negligible transaction costs. Both exchange-values and use-values are also generated by a multiple use of redundant information. In a subsequent stage, ethnic networks tend to open up to external market and connect with the rest of the world. Critical seem to be, at this point, the degree of appropriability of the available information and the degree of competition that networks tend to deliver, at the end of the day, as a result of different local and competitive conditions, industry structures, institutions and sets of behaviours. At this stage networks run the risk of disappearing, bending to market forces; but they can also strengthen up, if the right mix of competition and cooperation can be singled out and adequate policies envisaged - an attempt made in this paper - to help networks to survive and prosper. This process will require a continuous generation of new *Social capital*, but at the same time, it will create the possibility, for some agents, to use up some piece of information and/or put it under private utilisation. Eventually, if some market failures still persist in the motherland, the competitive advantages, thus created and implemented, are able to easily turn into backward investments and further

articulate the competitive advantage of both the network and the initial country of origin. Further policies to help the process deliver growth, rather than collapse or surrender to external forces, can be easily derived by a thorough analysis of the critical parameters that allow the network to better compete in each phase.

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Contact the authors for the full list of references.

## End Notes

As in the case of Chinese ethnic networks.

<sup>2</sup> This approach departs to a certain extent from conventional neo-classical economics, when it mainly focuses on the allocative efficiency of scarce resources, and rather connects to the classical views of system dynamics, reproduction capacities, and the role of culture and territory to determine competitive (absolute) advantages. It is therefore drawing from that part of the marshallian tradition that has been recently re-considered as one the most

modern piece of economics we can rely upon for interpreting current problems in industrial economics. See Tiberi Vipraio 1999, among others.

<sup>3</sup> See Tiberi Vipraio, 1997 for a discussion.

<sup>4</sup> *Guanxi* (Traditional Chinese: 關係; Simplified Chinese: 关系; Pinyin: gūanxi ), describes the basic dynamic in personalized networks of influence. The Pinyin Romanization of this Chinese word is becoming more widely used instead of the two common translations - 'connections' and 'relationships'- as neither of those terms sufficiently reflect the wide cultural implications that *guanxi* describes. Closely related to *ganqing*, a measure which reflects the depth of feeling within an interpersonal relationship, *renqing*, the moral obligation to maintain the relationship, and the idea of 'face', meaning social status, propriety and prestige, *guanxi* is more realistically a combination of all three. *Guanxi* is a central concept in Chinese society and describes, in part, a personal connection between two people in which one is able to prevail upon another to perform a favour or service, or be prevailed upon. The two people need not be of equal social status. It could also be a network of contacts, which an individual can call upon when something needs to be done, and through which he or she can exert influence on behalf of another. It can also describe a state of general understanding between two people. This means that *guanxi* obligations can sometimes be described in terms of an extended family and the relationships formed by *guanxi* are personal and not transferable. Sociologists have linked *guanxi* with the concept of social capital and it has been exhaustively described in studies of Chinese economic and political behaviour. When a *guanxi* network violates bureaucratic norms, it can lead to corruption, and *guanxi* can also form the basis of patron-client relations.

## Value Creation Effect of Technology Alliance: Cases of Japanese-U.S. Firms

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### Abstract

**Do international strategic alliances create or destroy firm value? Past research has suggested that such alliances can be a two-edged sword. On one hand, alliances can contribute to bigger, stronger, and more flexible companies. On the other hand, alliances may also serve to weaken, dilute, and fragment companies' strategic position and organizational capability. This issue is particularly ripe for rigorous empirical explanation in the context of partnerships between the two largest economies in the world, the United States and Japan. In this study, we examined stock market reactions to announcements of interfirm cooperation between U.S. and Japanese firms in 228 alliances formed in high-tech industries during the period of 1995-2000. The results showed that U.S. firms did not lose firm value following announcement of alliances with Japanese partners, contradictory to prior work warning of potential erosion of competitiveness through alliances with Japanese firms. We also found that absorptive capacity significantly influenced firm valuation effects of Japanese firms, while technological overlap with partners generated positive returns for U.S. firms.**

### Value Creation Effect of Technology Alliance: Cases of Japanese-U.S. Firms

International technology alliances have proliferated (Hitt et al., 2000) and been touted as a new source of competitive advantage and extensively used as a means to gain access to information, resources, markets, and technologies and to gain advantages of learning and economies of scale and scope. They also have enabled firms to achieve strategic objectives such as sharing risks and outsourcing value-chain activities and organizational functions (Contractor and Lorange, 1988). Along with the substantial increase of Japanese presence in various industries such as autos, electronics, and semiconductors, U.S.-Japanese strategic alliances have heightened interests among academicians and managers (Hennart, Roehl, and Zietlow, 1999; Reich and Mankin, 1986; Swan and Ettl, 1997). As cooperative activities between U.S. and Japanese firms have expanded, some authors (Reich and Mankin, 1986) have expressed a concern that Japanese firms may behave in ways that are not aligned with their partners' interests. Researchers have argued that Japanese firms are good at learning from their U.S. partners and tend to exploit cooperative relationships for their own gain, while U.S. firms fail to achieve their intended goals or lose their long-term competitiveness (Hamel, 1991). In contrast, Hennart et al. (1999) suggested that Japanese firms in joint ventures with U.S. firms do not take actions against their U.S. partners to pursue only their economic gains.

Despite these inconclusive arguments advanced by prior works, no extensive empirical study has been conducted to directly test whether strategic alliances with Japanese firms are detrimental to the competitiveness of U.S. firms. Therefore, our study examines the untested negative effects of U.S.-Japanese strategic alliances by measuring and comparing changes in U.S. and Japanese firms' market value using event study methodology. Contrary to the previous research that lacks explicit theoretical foundation, we take the organizational learning perspective in order to identify factors influencing firm value creation and destruction through interfirm cooperation.

In this study, the term "international technology alliance" is used to refer to a cooperative agreement formed by a U.S. firm and its Japanese partner firm with a strategic purpose of knowledge development and transfer. This cooperative agreement does not involve the creation of an independent business entity, as in joint ventures, but it allocates resources, operational responsibilities, and financial risks and rewards to each partnering firm. The technology alliances encompass interfirm cooperative agreements that aim at mutual knowledge transfer and new knowledge creation. Therefore, alliances that do not involve activities of knowledge development and exchange are not considered in this study.

As in several previous studies on firm valuation effects of interfirm cooperation, this study also employs the event study methodology. Given the fact that alliances require combining resources of two or more firms to achieve common objectives under the joint involvement of the parents firms, it is almost impossible to disentangle the value creation effects attributable to a particular alliance from those generated by the firms' other operations. The event study methodology overcomes this problem in that it captures only the value created from an alliance formation on its announcement day, relying on the efficiency of stock market mechanisms. In addition to its methodological uniqueness, this study advances strategy research by being the first empirical research that captures dyadic properties of interfirm cooperation in the international context.

## Theory and Hypotheses

### Firm Value Creation through Strategic Alliances

In industries where technologies rapidly change and product life cycles shrink, very few firms would be able to, or willing to independently carry the risks of accelerating research and development costs (Hagedoorn and Schakenraad, 1990). Therefore, a firm may consider developing a nexus of cooperative relationships with other firms in order to keep up with many emerging technologies, while concentrating internally on its specialty area. Powell (1990: p.315) noted that "firms pursue cooperative agreements in order to gain fast access to new technologies or new markets, to benefit from economies of scale in joint research and/or production, to tap into resources of know-how located outside the boundaries of the firms, and to share the risks for activities that are beyond the scope of the capabilities of a single organization." Madhok and Tallman (1998) also posited that firms enter into collaborative relationships because firms expect to yield superior value through the relationships relative to other forms of organizational economic activities and that collaborative relationships *per se* tend to offer potential opportunities for synergistic combinations of complementary resources and capabilities and could be considered to be productive resources for value creation and realization.

An extensive body of empirical studies using event study methodology has been conducted to examine stock market reaction to the formation of strategic alliances. The extant research based on theories from finance, economics, international business, and strategic management, provides researchers with a solid understanding of the sources of firm value creation. When firms announce formation of an alliance, previous studies found either a positive return (e.g., Koh and Venkatraman, 1991) or a negative return (e.g., Chung, Koford and Lee, 1993), or in some cases, an insignificant return (e.g., Das, Sen and Sengupta, 1998). Despite the inconsistent findings of the extant studies, it is proposed that firms entering strategic technology alliances are expected to experience substantially positive firm value gains by integrating complementary knowledge and know-how (i.e., the synergy effect).

*Hypothesis 1A: The formation of international technology alliances will create positive firm value for both U.S. and Japanese partnering firms.*

In cooperative relationships between U.S. and Japanese firms, however, it is alleged that these expected benefits from forming strategic alliances may be true for only Japanese firms. For instance, Reich and Mankin (1986) argued that:

The current situation has severe drawbacks for U.S. companies over the next five years. Over the long term, U.S. companies that enter joint ventures with Japan cannot maintain high profitability by providing services, such as assembly and distribution, which add very little value to the product being sold. The resulting interplay, while superficially promising, could really be just an extended dance of death (1986: 85).

Based on the above argument that a large number of U.S. firms involved in strategic alliances are likely to be characterized with insufficient financial resources and lack of managerial capabilities, they are exposed to a high risk of giving away to their Japanese partners their competencies in research and new product development. Loss of U.S. firms' core competencies will undermine the foundation of their long-term competitiveness (Reich and Mankin,

1986). The stock markets will also consider these potential dangers of U.S. firms' losing competencies and firm value when strategic alliances between U.S. and Japanese firms in high tech industries are announced. Accordingly, we expect that the Japanese firms create more firm value than U.S. firms by announcing cross-border technology alliances.

*Hypothesis 1B: The stock markets will react more favorably to Japanese firms than to U.S. firms when they announce technology alliances.*

#### **Past Alliance Experience**

According to the organizational learning theory, a firm's experience of engaging in particular activities and practices assists in detecting and correcting errors (Argyris and Schön, 1978) and helps to improve future actions through better knowledge and understanding (Fiol and Lyles, 1985). A large body of literature in the alliance field similarly addresses the importance of learning to successfully manage various interorganizational collaborative arrangements. One stream of research argued that past alliance experiences generate trust and commitment through the process of building reputation (Park and Russo, 1996; Gulati, 1995). In a similar vein, another stream of research reported that firms with more alliance experiences benefited more from subsequent alliances than firms with fewer experiences (Barkema et al., 1997; Powell et al., 1996). Lyles (1988) documented well how joint venturing experiences have increased the competitive edge of the parenting firms. Kale and Singh (1999) suggested that firms with more alliance experiences exhibit greater alliance success. Anand and Khanna's (2000) study on alliance capabilities was the only and first attempt that measured the effect of accumulated cooperative experiences on the value of the firms involved in alliances. However, their study was limited in that it merely aimed to demonstrate the positive relationship between experience and learning effects in the multiple forms of alliances, not taking into account firm- and partnership-specific characteristics. In this more limited context, they found empirical support for the view that past alliance experience increases firm value.

*Hypothesis 2: Firm value created by U.S.-Japanese strategic alliances will be positively related to the level of the firm's past alliance experience.*

#### **Absorptive Capacity**

Cohen and Levinthal (1990) suggested the importance of an existing competence base, termed "absorptive capacity", with which firms are capable of detecting, assimilating, and utilizing external knowledge. The key component of this notion is R&D expenditures. They suggested that a firm's R&D investments contribute to not only the generation of new knowledge but to the firm's absorptive capacity. When a firm uses an alliance to internalize new technology-based capabilities from a partner, the demands of the technology absorption process are such that the technology-acquiring firm must have considerable in-house technical expertise that complements the technology development activities of the alliance. Hence, the accumulation of R&D resources within a firm enhances the firm's ability to acquire external technology and combine it with existing internal development activities for the commercialization of the learning object, technology.

The relationship between R&D expenditures and firm innovativeness has been extensively researched in the strategy literature (e.g., Mowery, Oxley and Silverman, 1996). The level of a firm's R&D investments tends to determine the ability of the firm to assimilate new technological capabilities of other partner firms in alliances. Knowledge absorption depends on the firm's ability to add new knowledge to existing knowledge. The accumulated R&D investments may be an indicator of the firm's willingness and readiness to absorb new knowledge through alliances.

*Hypothesis 3: Firm value created by U.S.-Japanese strategic alliances will be positively related to the level of the partnering firm's R&D investment.*

#### **Technological Overlap**

Motives for establishing alliances differ among firms, and these different motives may affect both the choice of partner firms and the effect of partner choice on the capabilities of participating firms. Firms jointly pursuing collaborative development of a technology or product within an alliance are likely to require some level of technological overlap to facilitate knowledge exchange and development. Cantwell and Barrera (1996) argued that



“firms with dissimilar profiles of technological effort will be likely to have less incentive to exchange knowledge,” (p.2). Hence, firms participating in a technology alliance should possess ex ante technology-based capabilities that are similar in scale and scope at the time the alliance is formed.

Mowery et al. (1996) proposed that firms with high technological overlap tend to combine their complementary knowledge resources more effectively than firms with low technological overlap, and found that the extent of a firm’s absorption of technological capabilities from its alliance partner is positively related to its pre-alliance level of technological overlap with partner firms. As a result, firms establishing technology alliances with partners that have similar technological bases will benefit more from the alliances than firms of which partners in technology alliances have dissimilar technology bases.

*Hypothesis 4: Firm value created by U.S.-Japanese technology alliances will be positively related to the level of pre-alliance technological overlap between the partnering firms.*

## Methods

### Sample

The primary source for the data on international technology alliances is the Securities Data Company (SDC) database of Joint Ventures and Alliances. The SDC database contains information on various types of alliances and is compiled from publicly available sources, including SEC filings, trade publications and international counterparts, and news and wire sources. The database is among the most comprehensive sources of information on alliances and is one of the only sources available for large-scale empirical studies on alliance activity.

The data in this study consist of technology alliances formed between one U.S. and one Japanese firm during the period of January 1995 - November 2000. The sample period was set to include the most recent alliances for which data were available. Considering the nature of technology alliances, alliance samples consist of interfirm collaborations involving R&D, manufacturing and licensing activities. Alliances involving cooperation in the marketing area are not included. To effectively manifest the strategic roles of technology alliances, this study includes alliance activities of firms in high technology industries. The definition of high technology industries has been equivocal. In this study, we followed the study of Hadluc, Hecker and Gannon (1991), which reported 31 high tech industries based on an industry’s percentage of R&D employment. In this study, we focused on non-equity alliances in which partnering firms neither share equity control as in a minority equity investment nor create a new organizational entity as in a joint venture, but simply agree to pool resources. Following these criteria, the final sample data is composed of 228 alliance cases in the 31 high technology industries during the sample period of 1995-2000.

### Analytical Methodology

We employed the event study method to measure the impact of technology alliance formation on a partnering firm’s market value. McWilliams and Siegel (1997) discussed theoretical and empirical issues associated with the use of the event study method in the management field, and listed the appropriate procedures for an event study. The standard approach in event studies is based on estimating a market model for each firm and then calculating abnormal returns.

$$R_{it} = \alpha_i + \beta_i * R_{mt} + \varepsilon_{it}$$

where

$R_{it}$  = the rate of return on the share price of firm i on day t,

$R_{mt}$  = the rate of return on a market portfolio of stocks on day t,

$\alpha_i$  = the intercept term,

$\beta_i$  = the systematic risk of stock i,

$\varepsilon_{it}$  = the error term for stock i on day t  $\sim N(0, \sigma_{\varepsilon_i}^2)$

The deviation of the actual return from the expectation (abnormal return, AR) is computed for firm *i* on the day *t* as

$$AR_{it} = R_{it} - (a_i + b_i R_{mt})$$

where  $a_i$  and  $b_i$  are the firm-specific ordinary least squares (OLS) parameter estimates obtained from the regression of  $R_{it}$  on  $R_{mt}$  over a certain estimation period preceding an event, the announcement of an alliance. The estimation periods for the equation in previous studies that examined the impact of alliance announcement on stock prices ranged from as short as 45 days (Madhavan and Prescott, 1995) to as long as 250 days (Park and Kim, 1997). Based on the methodological tradeoff and previous alliance research, the estimation period in this study is 150 days from  $t = -170$  to  $t = -21$ , where  $t = 0$  corresponds to the date of an alliance announcement. We also set up 20 trading days before and after an alliance announcement date. During these pre- and post-alliance periods, the abnormal return of each day is measured. The abnormal return represents changes in the stock price of firms whose participation in alliances is publicly announced and the changes signify the stock market expectations about the firms' value generation through the alliances.

Since the stock market reactions to an announcement can span multiple days, due to the timing of information disclosure, the firm valuation effect is measured by summing the abnormal returns between two days  $t = t1$  and  $t = t2$  within the event window.

$$CAR_i = \sum_{t=t1}^{t2} AR_{it}$$

Alliance event studies have accumulated abnormal returns for intervals up to six days in length (e.g., Das et al., 1998). However, for regression analyses it is suggested that CARs over a short interval are preferable in order to reduce the amount of noise in the dependent variable. Since this study considers stock markets in both U.S. and Japan and different time zones, it is impossible to measure the reactions of different securities markets in the two countries to public announcement of an alliance formation on the same day. Hence, the impact of the announcement on the stock price is captured with cumulative abnormal returns of the two-day trading period consisting of  $t = 0$  and  $t = +1$ . The two-day event window meets the methodological suggestions that an event window should be short enough to control for confounding effects as well as that the  $\alpha$  and  $\beta$  terms should remain constant during the event window (McWilliams and Siegel, 1997).

Special attention is given to the accuracy of the date on which alliance formations were announced because identifying the exact date on which the alliances were consummated is extremely crucial for assessing value creation effects in event studies. In this study, the accuracy of SDC data on the dates of the alliance announcements was verified by tracking every mention of the alliances in the Dow Jones Interactive which covers various sources of news and wire reports, newspapers, magazines, and trade publications. The date on which the initial news describing an alliance formation appeared on news wires is numbered event day  $t = 0$ . If the identified announcement date is not a trading date due to weekend or holiday, the next available trading date is chosen as  $t=0$ .

The last analysis conducted in this study was to account for the variation in the abnormal returns identified by the above procedures. After identifying the statistical significance of the cumulative abnormal returns (CARs), we explained the cross-sectional variation in the returns across the firms in the alliances sample. This process requires the ordinary least square (OLS) regression of the abnormal returns on the three different types of the attributes developed in the theoretical model. Using OLS regression may cause a problem because the abnormal returns used as the dependent variable in the OLS regression are essentially residuals that may be heteroscedastic and be correlated with the independent variables. However, Karafiath (1994) suggested that the OLS estimation generates no substantial methodological problem, in comparison to more complex estimation procedures (McWilliams and Siegel, 1997). The regression tests the statistical significance of the attributes derived from the underlying theory.

## **Variable Operationalization and Data Sources**

### *Dependent Variable*

The dependent variable of this study is captured by the standard event study method that measures the abnormal returns of partnering firms on the day of alliance announcement. For the U.S. partnering firms, daily stock prices during the data collection period were drawn from the CRSP database. The stock prices of the foreign partners were obtained from the Datastream database.

### *Independent Variables*

#### 1. Prior Alliance Experience

Previous alliance experience of the firms was measured with strategic alliance data drawn from the database of Securities Data Company (SDC) and the Dow Jones Interactive. For each alliance, we counted the number of alliances each partnering firm had formed for the last 10-year period prior to an alliance announcement date.

#### 2. Absorptive Capacity

A firm's absorptive capacity is operationalized as accumulated R&D expenditures, adjusted by the sales of each firm. It is not clear from prior research on how many years of R&D expenditures should be included. Pakes and Griliches (1984) suggested that R&D lags of order 6 and higher have a significant effect on patenting. Because R&D data for Japanese firms were available from the data sources since 1991, however, we constructed a 3-year depreciated R&D investment with a 15 percent annual depreciation rate, which is recommended by Griliches and Mairesse (1984). The measure is as follows:

$$R \& D(Investments)_{it} = \sum_{n=t-1}^{t-4} (1 - 0.15)^{t-n-1} (R \& D)_{in}$$

where  $R\&D_{in}$  is firm  $i$ 's sales-adjusted R&D expenditures in year  $n$ .

The data for R&D expenditures were collected from COMPUSTAT and Bloomberg.

#### 3. Technological Overlap

Technological overlap is measured by the patent cross-citation rate between two partnering firms. The measure was developed by Mowery et al. (1996). The cross-citation rate for firm  $i$  and firm  $j$  is defined as follows:

$$\text{Cross-Citation Rate}(\text{firm}_i, \text{firm}_j) = \text{CitationRate}(\text{firm}_i, \text{firm}_j) + \text{CitationRate}(\text{firm}_j, \text{firm}_i)$$

$$\text{where Citation Rate}(\text{firm}_i, \text{firm}_j) = \frac{\text{Citations to firm}_j \text{ patents in firm}_i \text{'s patents}}{\text{Total citations in firm}_i \text{'s patents}}$$

All U.S. patent citation data were gathered from the U.S. Patent and Trademark Office database, which contains all information recorded on the front page of every patent granted in the United States since 1975. To measure a level of technological overlap, we calculated the cross-citation rate of two partnering firms for the one-year period prior to an alliance announcement date.

#### Firm Size

##### *Control Variable*

##### Firm size

Firm size variable is included to control the effect of the relative size hypothesis that suggests that value creation for large firms will be lower than that created for small firms (Chan, et al., 1997; Das et al., 1998). Firm size is operationalized as the natural logarithm of a firm's sales. A logarithmic scale is required to reduce the variance in firms' sales.

## Results

Descriptive statistics and correlation matrix for the study variables are provided in Table 1. The average change in firm value for two trading days on and after alliance announcement day was 1.3 %, which implies that, on average, firms gained 1.3 % of their firm value for two trading days by entering an international technology alliance in the high technology industries. The sampled firms had, on average, about 144 cases of alliance formation experiences during the last 10-year period prior to forming a new alliance. The mean value of 28.6% of 3-year R&D investments was consistent with high R&D intensity in high tech industries. The average degree of technology overlap between partners was 2.2%. The correlation coefficient between alliance experience and the natural logarithm of size is 0.614. This high correlation may create a multicollinearity problem. To prevent a potential collinearity problem, a centering procedure was performed, subtracting the mean from each of the two variables (Aiken and West, 1991). This procedure did not significantly change the values of the regression coefficients. The mean centered variables were used for the rest of the statistical analyses. Except for the correlation between experience and size variable, overall, the correlation values were relatively low.

TABLE 1: CORRELATIONS, MEANS AND STANDARD DEVIATIONS

	Mean	St. Dev.	1	2	3	4	5
1. CAR (0,+1)	0.013	0.062	-				
2. Experience	143.989	157.301	-0.158 ***	-			
3. Absorptive Capacity	0.286	1.630	0.185 ***	0.105 *	-		
4. Technology Overlap	0.022	0.034	0.135 **	0.107 *	0.121 **	-	
5. LN(Size)	9.561	1.113	-0.320 ***	0.614 ***	-0.361 ***	-0.166 ***	-

Note. N=456 abnormal returns drawn from 228 U.S.-Japanese technology alliances  
Event day 0 indicates alliance announcement day.

Z-statistic: † p<.10, \* p<.05, \*\* p<.01, \*\*\* p<.001 (2-tailed)

Hypothesis 1A proposed that the formation of international technology alliances would create positive firm value for both U.S. and Japanese firms. To test this hypothesis, we first calculated the abnormal returns on individual event days to examine firm valuation effects of international technology alliances. Table 2 reports 456 average abnormal returns generated from 228 international technology alliances from day -20 to day +20. The average daily abnormal return on the alliance announcement day was +0.7% and statistically significant ( $p < 0.001$ ), supporting Hypothesis 1A. Even one day after alliance announcements, firm value was increased by 0.5% ( $p < 0.001$ ). This significant positive abnormal return realized one day after announcement can be possibly attributed to the fact that when the news of an alliance formation between U.S. and non-U.S. firms is released to the public through worldwide financial wireless services (e.g., Bloomberg) on a day ( $t = 0$ ), the day is corresponding to  $t = +1$  in Japan because of the time difference between the two countries. That means that when an alliance is announced to the U.S. on  $t = 0$ , the Japanese stock markets receive the information one day after and thus start to react to it on  $t = +1$ .

Table 2 also shows average cumulative abnormal returns over different event periods. All the cumulative returns over various time periods are positive and statistically significant. Because the shortest event period is preferred in the event study method in order to minimize any potential confounding effects (McWilliams and Siegel, 1997), we selected the average cumulative abnormal returns over two trading days of  $t = 0$  and  $t = +1$  as the dependent variable. The results suggested that firms in the sample, on average, realized 1.3% of the excess returns relative to the market for the two-day period.

TABLE 2: ABNORMAL RETURNS ON VARIOUS EVENT DAYS AND CUMULATIVE ABNORMAL RETURNS FOR VARIOUS PERIODS

Event Day	Avg. AR (%)	t-statistic	Selected Event Period	Avg. CAR (%)	t-statistic
-20	0.001	0.816	(-2,2)	0.016	*** 3.978
-19	0.000	-0.204	(-2,0)	0.010	** 3.081
-18	0.000	-0.266	(0,2)	0.013	*** 4.215
-17	0.003	1.541	(-1,1)	0.015	*** 4.525
-16	-0.003	* -1.992	(-1,0)	0.010	*** 3.665
-15	0.000	-0.109	(0,1)	0.013	*** 4.324
-14	-0.002	-1.260			
-13	0.001	0.492			
-12	-0.003	-1.219			
-11	0.003	† 1.703			
-10	0.003	† 1.731			
-9	-0.001	-0.199			
-8	0.001	0.383			
-7	-0.001	-0.622			
-6	-0.001	-0.405			
-5	0.000	-0.151			
-4	0.001	0.430			
-3	0.001	0.769			
-2	0.000	0.284			
-1	0.002	1.330			
0	0.007	*** 3.610			
1	0.005	*** 2.644			
2	0.001	0.538			
3	0.001	0.316			
4	-0.002	-1.511			
5	-0.003	† -1.843			
6	0.000	0.166			
7	0.000	0.159			
8	0.000	-0.013			
9	-0.002	-1.190			
10	0.002	1.147			
11	0.000	-0.071			
12	-0.002	-0.694			
13	-0.001	-0.836			
14	0.000	-0.187			
15	-0.001	-0.866			
16	-0.001	-1.030			
17	-0.003	-1.248			
18	-0.001	-0.589			

19	-0.001	-0.356
20	0.002	1.130

Note. N=456 abnormal returns drawn from 228 U.S.-Japanese technology alliances  
Event day 0 indicates alliance announcement day.  
Z-statistic: † p<.10, \* p<.05, \*\* p<.01, \*\*\* p<.001 (2-tailed)

In order to test Hypothesis 1B, we calculated 2-day cumulative abnormal returns for Japanese and U.S. firms, respectively, and then tested whether there is a significant difference between the means of 2-day cumulative returns of firms in both countries. The mean of 2-day cumulative abnormal returns for Japanese firms was 0.2%, while the mean for U.S. firms was 2.3%. The U.S. firms realized significantly higher abnormal returns ( $p<0.001$ ), which could be a contradictory finding to the concern raised by Reich and Mankin (1986). Hence, Hypothesis 1B was not supported. As shown in Table 3, the size of U.S. firms is much smaller than that of Japanese firms and U.S. firms have much intensively engaged in R&D activities than their Japanese partner. However, there was not found a significant difference in the level of alliance experience between U.S. and Japanese firms.

TABLE 3: COMPARISON OF MEANS OF U.S. AND JAPANESE FIRMS IN SIZE, ALLIANCE EXPERIENCE, R&D INVESTMENT AND CUMULATIVE ABNORMAL RETURNS

	Mean of Japanese Firms (N=228)	Mean of U.S. Firms (N=228)	Difference of the Means	t-statistic
LN(Size)	9.974	9.149	0.825	8.992***
Alliance Experience	139.7	148.3	-8.6	-0.593
R&D Investment	0.083	0.489	-0.406	-2.2669**
Cumulative Returns	0.002	0.023	-0.21	-3.527**

Note. Z-statistic: † p<.10, \* p<.05, \*\* p<.01, \*\*\* p<.001 (2-tailed)

As a further analysis, we grouped the cumulative returns by country and their signs. The results are presented in Table 4. Interesting is that Japanese firms failed to create their firm value in more than 50% of the alliances (117/228). In contrast, U.S. firms significantly increased their firm value in 60% of their alliance formations (135/228).

TABLE 4: BREAKDOWN OF 228 2-DAY CUMULATIVE ABNORMAL RETURNS BY COUNTRY

	U.S. Firms			Total
		Positive	Negative	
<i>Japanese Firms</i>	Positive	Average abnormal return=0.082*** N = 65	Average abnormal return=0.001 N = 46	111
	Negative	Average abnormal return=0.044*** N = 70	Average abnormal return=-0.057*** N = 47	117
<i>Total</i>		135	93	228

Note: Z-statistic: † p<.10, \* p<.05, \*\* p<.01, \*\*\* p<.001 (2-tailed)

Since about 60% of the U.S. firms in the sample alliances did generate positive firm value by entering alliances, whereas about 50% of the Japanese firms failed to create firm value, we need to examine what factors possibly account for this difference in the potential economic benefits of international technology alliances. For this

purpose, a multiple regression analysis was conducted. Table 5 presents the regression results to test Hypotheses 2-4. One control variable, size, was entered first and then a group of explanatory variables were entered. Model 6 was specified as the full testing model. Model 6 displays a satisfactory fit ( $p < 0.000$ ) and explains about 12% of the variance of two-day cumulative abnormal returns.

As the first step of the multiple regression, Model 1 presented in Table 5 tested whether any of the control variables significantly influenced firm valuation effects of Japanese firms in international technology alliances. The firm size variable was not statistically significant. Next, we tested whether the organization learning-related variables - previous alliance experience, absorptive capacity and technological overlap - are related to firm value creation. According to Model 2 in Table 5, only the relationship between absorptive capacity and firm value was found to be marginally significant ( $p < 0.10$ ), although the relationship was opposite to the hypothesized positive relationship. Hence, none of the hypotheses was supported with the Japanese firm samples. We ran the same multiple regression model for the U.S. firms as well. As in Model 4 in Table 5, firm size was found to be significant, indicating that the smaller firms gained higher abnormal returns. As proposed in Hypothesis 3, the level of technological overlap between the partnering firms was positively related to firm value creation for the U.S. firms. As a final analysis, the regression model was executed again with the whole sample firms. Similar to the results of the U.S. firm cases, firm size and technological overlap were found to be significant in creating firm value. The results imply that smaller firms benefited more from the cross-border alliances and alliances with firms with similar technological base yielded higher returns for the sample firms. Supported was only Hypothesis 4 that proposed a positive relationship between the similarity of technological bases of the partnering firms and firm value creation through international technology alliances. Table 6 presents summarized results of the multiple regressions.

TABLE 5: MULTIPLE REGRESSION MODELS

	Japanese Firms (N=228)		U.S. Firms (N=228)		Whole Sample (N=456)	
	<u>Model 1</u>	<u>Model 2</u>	<u>Model 3</u>	<u>Model 4</u>	<u>Model 5</u>	<u>Model 6</u>
Constant	0.063 (0.040)	0.065 (0.056)	0.201 *** (0.034)	0.175 *** (0.048)	0.184 *** (0.024)	0.174 (0.031)
LN (Size)	-0.006 (0.004)	-0.006 (0.006)	-0.019 *** (0.004)	-0.018 ** (0.005)	-0.018 *** (0.002)	-0.018 *** (0.003)
Alliance Experience		-0.001 (0.000)		0.001 (0.000)		0.001 (0.000)
Absorptive Capacity		-0.021 † (0.012)		0.002 (0.002)		0.003 (0.002)
Technology Overlap		-0.020 (0.078)		0.308 * (0.143)		0.146 † (0.082)
R-Square	0.010	0.030	0.108	0.134	0.103	0.116
Adjusted R-Square	0.006	0.013	0.104	0.118	0.101	0.108
Change in R-Square		0.020		0.026		0.013
F-Value	2.331	1.742	27.316 ***	8.612 ***	51.923 ***	14.774 ***



Note: Z-statistic: † p<.10, \* p<.05, \*\* p<.01, \*\*\* p<.001 (2-tailed); Numbers in parentheses are standard deviations.

TABLE 6: SUMMARY OF EMPIRICAL RESULTS

HYPOTHESIS				<i>Conclusion</i>
H1A	Formation of International Technology alliance	→ +	Shareholder Value for the Partnering Firm	Support
H1B	U.S. FIRMS COLLABORATING WITH JAPANESE FIRMS	→ -	Shareholder Value for the Partnering Firm	No Support (Significant, but positive relationship)
H2	Past Alliance Experience	→ +	Shareholder Value for the Partnering Firm	No Support
H3	Absorptive Capacity (Accumulated R&D Investments)	→ +	Shareholder Value for the Partnering Firm	No Support
H4	Technology Overlap between Partnering Firms	→ +	Shareholder Value for the Partnering Firm	Support

#### *Robustness of Tests*

There was a possibility that unobservable heterogeneity in firm-specific capabilities affected the firm value creation effects of international technology alliances. Hence, we ran a multiple regression with firm fixed effects and found that there were no differences in organizational capabilities across firms. We also ran similar multiple regressions with fixed effects of year, alliance mode and industry to test whether the firm valuation effects varied across years, three different alliance modes and high tech industries, respectively. No significant differences in stock market reactions to alliance announcements were found. The statistical results are available from the authors upon request.

#### **Discussion**

This paper sought to assess firm value changes of both U.S. and Japanese firms engaged in strategic alliances in the high tech industries. Past studies addressed potential dangers associated with forming partnerships with Japanese firms (e.g., Reich and Mankin, 1986). The potential, but untested concern for the Japanese firms' exploitive behavior in international alliances was echoed by one of U.S. managers involved in alliances with Japanese firms:

We established them [alliances] in their core business. They learned the business from us, mastered our process technology, enjoyed terrific margins at home, where we did not compete in parallel, and today challenge us outside of Japan (Hamel, 1991: 86).

As the first large-scale empirical study, this paper extends and challenges previous research in that it explicitly demonstrates substantial increases in market value of U.S. firms as opposed to the minor increases in Japanese firms' value. Also, this result conveys similar implications to those of the Hennart et al.'s (1999) study that examined changes in ownership structures of 58 U.S.-Japanese manufacturing alliances and reported no evidence of Japanese firms' exploitive behavior against the interests of their U.S. partners. Hennart et al's

conclusion is based on an assumption that Japanese firms tend to buy out their U.S. partner to cultivate new skills learned in their alliances. However, a direct linkage between Japanese firms' superior ability to capture the contribution of their partner and their decisions on alliance ownership status should be elicited cautiously, as the authors suggested. One possible explanation on this intriguing empirical result contrasting to past research (Hamel, 1991; Reich and Mankin, 1986) might lie in the difference in the alliance modes considered in past research and this study. Previous research focused solely on joint ventures, whereas this study considered non-equity interfirm cooperation. As Inkpen (2000) suggested, the explanatory power of any theory of alliances will be limited unless the theory explicitly considers various alliance forms (p. 778). It is obvious that the outcomes of equity joint ventures are quite different from those of non-equity contract-based alliances.

For further analyses to identify factors affecting firm value changes, this paper drew on the organizational learning perspective as the perspective emphasizes strategic value of an organization's learning capability and potential contribution to firm's long-term competitiveness. Inconsistent with learning effects suggested in previous studies (Anand and Khanna, 2000), alliance experiences did not contribute to significant increases in firm value through strategic alliances. However, the learning capability should be developed continuously and transformed into a strategic asset when firms need to institutionalize alliance experiences into organizational capabilities and leverage them for future alliances.

The negative relationship between individual firm's R&D investment and firm value creation for Japanese firms may be attributable to the nature of the alliances formed by U.S. and Japanese firms. Table 3 indicates that U.S. firms in the sample are smaller sized, R&D intensive firms relative to their Japanese partner. It is inferred that a primary motive for the Japanese firms resides in the absorption of new knowledge from their U.S. partner. Considering their relatively large firm size, they may already possess a minimally required absorptive capacity, and thus the stock markets may not view favorably the alliances where R&D intensive Japanese firms enter international technology alliances with U.S. firms because research intensive firms do not have reasons to establish cross-border interfirm collaboration, and in many cases, internal development process may be cheaper and easily protective of their proprietary knowledge. In addition, the present empirical analysis reveals that U.S. firms can be better off by assimilating their technology base with that of their Japanese counterpart. Investors tend to perceive that alliances involving two firms with similar knowledge backgrounds will generate the greater returns from the alliances.

## **Conclusion, Limitations and Future Research Directions**

This study has direct and practical relevance for U.S. firms planning for collaborative technology ventures with Japanese partners. First, firms must carefully weigh the soundness of their rationale for forming international technology alliances. Though firms that formed cross-border technology alliances, on average, were found to have increased their firm value, this does not imply that all firms equally benefit from alliances. Particularly, managers in relatively large size firms should be careful not to ride on a "bandwagon" of participating in technology alliances, seduced by the potential economic benefits presumably to be expected from interfirm cooperation. Many other factors may also affect the differentials of firm value creation through technology alliances in direct or indirect ways.

U.S. managers should recognize the contribution to firm value creation of their firm's technological overlap with their partner, because the similarity of technology base was favorably viewed by the stock markets. Managers should strive for continuous endeavors to assimilate their knowledge acquisition base with that of their partner when they attempt to increase their firm value by forming international technology alliances.

The first limitation of this study is that empirical findings about the value-creating role of international technology alliances are limited by a narrow view of value creation- the increase in shareholder wealth. Such increases reflect economic value only for the firms' shareholders, and need not be valuable to other organizational stakeholders. Indeed, the notion of firm value creation in this study is confined to the stock markets' (investors') expectations about the performance of international technology alliances. These expectations do not represent actual or realized economic performance outcomes for each participating firm. They are *ex ante* point estimates of the alliance performance when firms announce their alliance formations. Coupled with the fact that investors have a

limited information processing capacity in a short-time period (Madhavan and Prescott, 1995), the expected performance measure may have compounded the challenge of examining its relationship with the relevant explanatory variables proposed in this study.

The second limitation results from the problems of data collection for the variables used in this study. This study used archival sources of data to measure the firm valuation effects of international technology alliances. Due to the data availability of the dependent and independent variables, the sample firms were confined to public firms and large enough to be included in multiple databases. This problem was exacerbated by collecting data for Japanese firms because Japanese firms are not required to disclose accounting information and report major changes in their strategic activity as comprehensively as U.S. firms.

Lastly, the operationalization of some explanatory variables warrants further analyses. For instance, previous alliance experience on firm value creation was assumed to be linearly related to firm value creation. However, as inferred from the learning theory, there may be a minimum number of alliance experience at which alliance experience starts to take effective. On the other hand, there may be an upper limit on the number of effective alliance experience, beyond which additional alliance experience has an insignificant marginal effect.

Notwithstanding these limitations, this study is one of the first attempts that examined the possible detrimental effect of U.S firms' alliance activities with Japanese firms. This study helps to extend our perspective on how to maximize alliance payoff without losing long-term competitiveness. Arguments of past research relying on anecdotal evidence may not be as comprehensive and rigorous as those in this empirical study. In the future, continuous improvements in data availability for Japanese firms will produce more meaningful empirical results and facilitate a deeper understanding of the underlying dynamics in cross-border alliance management. Further developments of fine-grained measures of alliance performance and its contribution to parent firms will enhance the explanatory power of the model in this study. The relationship between firm value creation and international technology alliance formations will be delineated better with those new performance measures beyond the use of stock market reactions as a performance indicator. Considering the dynamic nature of strategic alliances, however, further investigations including field study or survey are warranted.

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# **Japanese Multinationals and Theoretical Approaches to the Transfer of Organisational Practices**

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## **Abstract**

The theoretical assumption has been made that, in comparison to firms in global industries, the overseas subsidiaries of firms in multidomestic industries will be more inclined to adapt their organisational practices to fit with host country environments. Based upon detailed case study research conducted at multinational retail firms in Japan and their subsidiaries in China, this paper suggests that the distinction between global industries and multidomestic industries is a poor predictor with respect to the transfer of organizational practices. Instead, key factors that have an impact upon transfer include the relative economic development of firms' parent country and the host country; the location of firms in the international division of labour; firm level perceptions of their source of competitive advantage; and the nature of local labour markets.

## **Introduction**

Extensive research has been undertaken on the transfer of organisational practices by multinational firms. An overt or implicit theoretical assumption in much of this literature is that the distinction between global industries and multidomestic sector industries has important consequences for the transfer of organisational practices (Rosenzweig and Nohria, 1994; Taylor et al., 1996; Ferner, 1997; Ghoshal and Bartlett, 1998; Edwards et al., 1999; Whitley, 2001). The usual expectation is that compared to firms in global industries the overseas subsidiaries of firms in multidomestic industries will be more inclined to adapt their organisational practices to fit with host country environments.

Few studies have sought explicitly to elucidate the extent to which industry sector is, indeed, a key variable. Some research does suggest that the overseas subsidiaries of firms in multidomestic industries do tend to adapt their organisational practices to fit with host country environments (Aaker, 1990; Beechler and Yang, 1994). However, this work is limited in extent and has also focussed solely on Western contexts. Through detailed study of multinationals in the under-studied retail sector, a major multidomestic industry, this paper assesses the importance of industry sector for the transfer of organizational practices.

The paper is organised in the following way. A literature review highlights contrasts that have been drawn between global industries and multidomestic industries. Attention then turns to the factors that might influence the transfer of organisational practices by Japanese retail sector multinationals. The empirical data is preceded by an explanation of the methodology. Case studies on the transfer of firms' organizational practices focus upon key elements of their HRM practices and their approach to customer service. The ensuing discussion and conclusion assess the theoretical implications of the case studies.

## **Literature review**

In the extensive transfer literature the theoretical assumption is made, either overtly or implicitly, that the distinction between global industries and multidomestic industries has important consequences for the transfer of organisational practices. This distinction, popularised by Porter (1990), has frequently been referred to in the general literature on multinational business and in the transfer literature in particular. Porter (1990) contrasts global industries, in which 'a firm's competitive position in one nation significantly affects (and is affected by) its position in other nations' (p.53), with multidomestic industries, in which 'competition takes place on a country-by-country basis' (p.53). Porter observes that multidomestic industries are usually owned locally and that foreign ownership, where it does

occur, 'will tend to be largely passive and involve only modest control from central headquarters' (p.54). Multinationals involved in such industries will 'have largely autonomous subsidiaries in each nation and manage them like a portfolio' (p.55). Examples of global industries are stated to include automobiles, television sets and semiconductors while multidomestic industries include life insurance and many types of retailing and consumer food products.

Ghoshal and Bartlett (1998, p.23-27) draw a similar distinction between multinational industries, in which responsiveness to local conditions is key, and global industries where scale economies are paramount and little account is taken of national differences. Similarly, Edwards et al. (1999) suggest that multinational firms are more likely to diffuse their HRM practices when there is a high degree of production integration across countries. In such instances, the headquarters will seek greater control over employment practices in subsidiaries, not least since stoppages in one place can affect others. Conversely, it is argued that firms which operate in the service sector are more likely to adapt to local HRM. In addition, Edwards et al. observe that, 'Significant differences in consumer tastes between countries limit the extent to which MNCs can integrate their activities internationally, and enhance the autonomy of national subsidiaries' (p.294-5).

There are good reasons to expect that the differences between global industries and multidomestic industries will have a significant upon their subsidiary firms' organizational practices. Service sector multinationals differ from their manufacturing counterparts in significant ways. First, their motivation to invest overseas is not impelled by a search for low-cost labour. Second, they are not located in an international division of labour, but operate as businesses that parallel those in the home country. In this sense, the overseas business and its workforce are not peripheral. Third, they deal directly with host country customers on a daily basis. Transferring parent country business practices in retail firms may, then, be more problematic than in the manufacturing sector since they must deal not only with local employees, but also the differing expectations and cultural values of customers. While staff are selectable, can be trained and subject to sanctions, customers are essentially 'unmanageable' (Gabriel and Lang, 2006). Whereas in global industries, subsidiary firms must meet the expectations of local employees, in multidomestic industries firms must also meet the normative expectations of and seek legitimacy among local customers. It could be anticipated that, as a consequence, isomorphic pressures on multinationals' subsidiaries to adhere to host country organizational practices will be substantially greater in this sector. It is also particularly important in such firms that the 'voice' of the customer is conveyed speedily and accurately to businesses' managers, so that they can react promptly to market trends and fluctuations. This might imply a greater reliance upon local employees rather than expatriates.

The importance of the distinction between global industries and multidomestic industries with respect to the transfer of organisational practices by multinational firms often appears to have acquired a taken-for-granted status. Few studies have sought explicitly to elucidate the extent to which industry sector is, indeed, a key variable that affects the nature and extent of transfer. Research that has been conducted has produced rather mixed results. In one of the few studies to contrast directly global and multidomestic firms, Beechler and Yang (1994) compare five Japanese manufacturing plants located in Tennessee with five Japanese service companies in New York City. They focus on the management practices that these firms transferred or adopted for use with an American workforce. In the manufacturing firms, a favourable local environment in terms of a loose labour market and supportive local government policies provided opportunities for the plants to develop Japanese-style HRM practices. In the service firms, by contrast, local labour market characteristics, industry features and economic conditions discouraged firms from transferring Japanese-style HRM. Consequently, in spite of wishing to do so, the firms were unable to implement their parent company practices overseas and forced to adapt to an American-style HRM system.

Beechler and Yang are careful to emphasise that a complex range of internal and external contingencies shape the HRM practices transferred to Japanese subsidiaries in the US. However, they feel confident to suggest that firms in global industries are more likely to implement Japanese style HRM practices in their subsidiaries than those in multidomestic industries. On the basis of a study of Japanese retail service affiliates in the US, Aaker (1990) reaches a similar conclusion: the application of Japanese methods is more difficult in the service sector than the manufacturing sector.

Where Aaker and Beechler and Yang both find significant differences between adaptation to local practice on the part of multidomestic industries compared to global industries, Rosenzweig and Nohria (1994) reach a

different conclusion. On the basis of a survey of HRM practices in 249 US affiliates of foreign based multinational firms, they conclude that the distinction between global or multidomestic industries revealed no obvious impact on affiliates' HRM practices. Instead, among firms in all industries, they report an 'overwhelming tendency of affiliate HRM practices to resemble local practices' (Rosenzweig and Nohria, 1994, p.244). However, they also report that whereas HRM practices and, to a lesser extent, marketing and manufacturing practices were strongly influenced by local isomorphism, other functions such as financial control adhered more closely to parent practices.

Studies focussed on Japanese manufacturing transplants indicate a mixed picture. In a study on Japanese automotive plants in the US, Florida and Kenney (1991) report that 'the automotive transplants have not tried to significantly alter or modify the core elements of Japanese work and production organisation to fit the US environment' (p.193). However, while these elements were transferred successfully, dimensions such as wage policies, personnel practices and union relations were most subject to modification. In two studies on Japanese manufacturing plants in China, Taylor (1999, 2001) reports considerable Japanese control over production issues but a localization of personnel management. He concludes that 'personnel management practices were generally not transferred from Japan to the plants in China' (2001, p.601).

Japanese retail firms operations in China are likely to face competing isomorphic pressures. As labour intensive multidomestic businesses oriented to local consumer markets, retail firms have an imperative to embed themselves in host countries and to meet the demands and expectations of both local workers and customers. The expectation might be that this would incline them to pursue host country organizational practices. The specific historical context in China might also encourage Japanese firms to adopt a low profile by adapting to local practices. Set against this, Japan is a major advanced economy and, typically, its firms are strongly embedded in their parent country. Additionally, in their overseas subsidiaries Japanese firms have been noted for their degree of central control and heavy reliance upon expatriates (Legewie, 2002). These are all factors likely to encourage Japanese multinationals to transfer their parent country organizational practices. The literature does, though, also indicate divergence in the extent to which different management functions are transferred as well as differences between specific elements of individual functions (Rosenzweig and Nohria, 1994). Within HRM, for instance, issues such as pay rates and industrial relations have been found to be under more pressure to match local norms than policies on management development or pay systems (Ferner et al., 2004).

## **Methodology**

The paper adopts a case study approach, primarily with qualitative data. This allowed exploration of a range of questions such as: To what extent do Japanese retailers attempt to transfer their home country practices to China? Which elements are most and least likely to be transferred? What factors facilitate or inhibit this transfer? This paper examines three matched pairs of Japanese multinationals retail firms in both Japan and China. By holding sector and firm constant, these aspects can largely be discounted in the analysis, thereby exposing not only cross-national but also intra-country and intra-sectoral divergences. A qualitative case study approach that includes three firms from the same industrial sector allows account to be taken of the agency of both firms and individuals within them. While national features are significant each firm has its own 'administrative heritage' (Ghoshal and Bartlett, 1998), a dimension Beechler and Yang (1994) found significant in their study.

In 2001, 2002 and 2003, research in Japan included study visits to stores owned by the three multinationals and interviews at their head offices. In China, during 2002, 2003, 2004, 2005 and 2006 research was undertaken at a total of six eight stores (JapCo1 – 4, JapCo2 – 1, JapCo3 – 3) in six different cities. A total of 146 semi-structured interviews were conducted in China with a cross section of local employees (120) and expatriate managers (26). In China, interviews with local employees were conducted on a one-to-one basis in Chinese. Reference is also made to a questionnaire based survey conducted at JapCo1 and JapCo2 stores in China and Japan, a JapCo3 store in China and a comparable state owned store.

## **Firms' China operations**

The MNC retailers all stated that their intention was to replicate their parent country operation, including store layout and procedures, employment relations and customer service. This approach was facilitated by operating on 'greenfield' sites with no established workforce and by the Japanese side of joint ventures having full operational control. The following aspects are characteristic or significant for the firms concerned and are explored in the Chinese context: expatriates' role, patriarchal management, selection and recruitment, lifetime employment and internal labour markets, pay systems and customer service.

### **Expatriates' Role**

The firms made greater use of expatriates than comparable European and American firms. They also relied upon a personalistic form of integration and coordination; communication with head offices in Japan, by phone, fax, e-mails and visits was intensive. Both these features are indicative of the influence of the national business system. Senior positions were held by Japanese staff including all store manager roles. At JapCo1, 10 to 15 Japanese employees were posted to manage the first China store, this compared with two at a UK-invested retail firm (Gamble, 2003b). Expatriate numbers have reduced gradually; the fourth and fifth stores each had just one expatriate, as store manager. Postings to China averaged three years, although some staff remained for up to seven years. Unlike JapCo3, where posting to China was treated as comparable to domestic job rotation, JapCo1 sought volunteers for transfer. JapCo2 adopted a rather different approach to expatriation; there were fewer senior expatriates, instead five young Japanese trainees were assigned to the store.

### **Patriarchal Management**

A dimension not replicated in China was the firms' male dominated nature in Japan. In China, for instance, over 50 percent of JapCo1's supervisors were female compared to just 5 percent in Japan. The firm's China operations president recalled that initially men had been selected mainly for this post, but that female staff had 'done the job better'. Similarly, while most of JapCo2's managers in Japan were male, in China over half were female. In Japan, the norm is for women to leave full time employment once they marry or have their first child, a practice supported by the tax system. In China, full-time employment for women has been promoted since the early days of the People's Republic and is supported by widespread provision of nurseries.

### **Selection and Recruitment**

JapCo3 attempted to replicate its parent country graduate recruitment scheme. When one store opened in 1993, a cadre of university graduates was recruited as middle managers with the intention to groom them to become senior managers. By 2002, however, they had all left the firm. Similarly, in 1999, the firm scoured local universities for potential recruits and selected sixteen recruits. Each recruit received twelve days' initial training, before spending one month on each of the store's five floors, with one week in each section of each dept. By 2003, just two of these recruits remained. A personal manager at JapCo1 recounted a similar situation at her store: 'in the past we've selected some good people with a university background, but they've gone to Wal-Mart.' An expatriate at JapCo3 described job-hopping as 'the biggest difference between China and Japan'.

### **Lifetime Employment and Internal Labour Markets**

A concomitant of China's economic transition has been a rise of job insecurity and many workers interviewed in this study cited security of employment as a motive to seek employment at their firms. Although none transferred lifetime employment as such, the MNCs stressed that they offered secure employment and wished to retain staff on a long-term basis. In the survey, workers were asked to what extent they agreed with the statement, 'I feel secure in my job at this company', with responses on a five point scale from 'not secure at all', to 'very secure'. The results indicate that workers felt greater employment security at the Japanese firms than at both a comparable state owned enterprise and parent company stores. Promotion at the Japanese subsidiaries was slower than in a comparable UK-invested retail firm in China (Gamble, 2003b), but faster than in Japan itself. The multinationals' stress upon internal labour markets parallels their parent country practice, but appears to contrast with emerging patterns in China (Ding and Akhtar, 2001).



### **Pay Systems**

In China, the firms stressed monetary incentives and sanctions more than they did in Japan. At JapCo2 in Japan, for instance, cashiers' salary was fixed, but in China extra payments were made for number of customers served and accuracy, with employees expected to personally make good any shortfall. In China, JapCo3 paid a bonus dependent on sales; it did not pay such a bonus in Japan. These differentials accord with emergent practice in China. Pay systems in China have shifted from previous egalitarian norms, with a trend to introduce performance related pay. This tendency also mirrors trends in Japan, although its more widespread use in China might be linked to the comparative weakness of trade unions. This may be an instance where firms introduced policies in China they might wish to implement more extensively in Japan, but were constrained from doing. In a particularly interesting measure JapCo2 introduced seniority pay in China, just as the firm curtailed such payments in Japan itself. In theory, a customer assistant, who began on 1,000 yuan pcm, could overtake a deputy supervisor's starting pay (1,900 yuan), while a deputy supervisor could overtake a supervisor's pay (2,800 yuan). The intention was to limit labour turnover and help retain staff. By contrast JapCo1, which retains seniority pay in Japan, paid Chinese employees only a negligible amount for each additional year of employment.

### **Customer Service**

The multinationals all sought to implement their parent country style customer service in their Chinese subsidiaries; they considered this a key source of differentiation from competitors. JapCo1's chief executive in China described 'politeness to customers' (*daike de limao*) as essential to attract and retain customers. Despite high customer volumes, employees were expected to bow and welcome each one. According to a JapCo1 checkout assistant, previously employed at a state owned store 'at the state store we didn't emphasise customer service, here it's what we stress most. Here customer service is number one. People there were lazy, we often ignored customers'.

The multinationals' approach to customer service interactions was prescriptive and detailed and formed a central element in training (see also Gamble, 2006a, 2006b). The firms all introduced Japanese style greeting and farewell ceremonies for the day's first and last customers. Customers' initial reactions had been similar at the different locations. At JapCo3 a floor manager recalled that initially customers considered this aspect of customer service 'strange', with some so embarrassed that they took the lift directly to the sixth floor to avoid it. A sales manager added, 'we were the first store in [...] to bow and say "*huanying guanglin*" (welcome to the store). Then, the customers were a bit afraid.' This form of customer service was provided even though customers were, initially, rather startled by it and despite the fact that its performance could provoke latent anti-Japanese sentiment.

Strict discipline and careful training were integral features that enabled the transfer of Japanese style customer service. The firms codified and stipulated the behaviour required in detailed training manuals and employee handbooks, with fines imposed for transgressions. This is a significant departure in China where, before the reform era, discipline in state owned enterprises was often lax and 'written organisational rules were rarely part of the work environment' (Guthrie, 1999, p.45). JapCo1's employee handbook contained approximately three times more rules than that used in Japan. JapCo3's deputy GM explained:

'We give workers a manual, the same as at MacDonald's. Without a manual it would be a big mess. New employees can see the manual and know what to do. So in China work 'know-how' is in the manual. In Japan, work 'know-how' is in people, not the manual.' The attempt, then, was to disembodify and codify knowledge that was largely tacit in Japan and to re-materialise it in the Chinese context. This transfer was especially problematic since it involved not only business practices, but also ways of being and behaving; the intention was to inculcate a 'Japanese' approach to work among/in Chinese employees.

Despite its unpromising early reception, the imported approach to customer service rapidly achieved legitimacy in China's retail market. The JapCo3 sales manager quoted above who remarked on customers being 'a bit afraid', observed that 'now they expect this customer service and enjoy it.' JapCo3's employees knew that surrounding stores were now attempting to copy their form of customer service and proud they could not match them. Employees' performance of this imported form of customer service appeared to go beyond 'ceremonial adoption' (Kostova and Roth, 2002). Employees' displayed pride in providing high quality service, even if the activity itself could be a source of exhaustion and, on occasion, provoke abuse.

## Discussion

Even though the Japanese subsidiaries analysed in this paper operate in a multidomestic industry, contrary to expectations, in significant respects they do not follow host country practice. Conversely, while the research indicates some country of origin effects, there is also evidence of adaptation in these new contexts. The multinationals' practices comprised a collage of strategic, tactical and reactive elements. Some features matched current trends in the host country, such as the introduction of performance related pay. Although the same trend was evident in Japan itself, the absence of a constraining union voice probably permitted its more rapid and thoroughgoing adoption in the Chinese subsidiaries. In some cases firms faced coercive isomorphic pressures, such as statutory limits on the working hours of part time staff. Occasionally the transfer process was analogous to the photocopying of a copy. This was evident in the way firms transferred a diluted commitment to long-term employment. In China, this feature meshed with recent historical practice, but is contrary to emergent norms. Firms also engaged in practices that were relatively novel for them, such as the extensive promotion of female employees to management positions. This was not a conscious strategy on firms' part but, rather, followed local labour market and social norms. Although reactive, it was also an approach that some of the firms, at least, considered desirable in Japan.

Some transferred practices were innovative in the Chinese context, such as the Japanese style approach to customer service. There were rather unsuccessful attempts to replicate Japan's internal labour markets based upon the recruitment of graduates for lifetime employment. In one instance, a firm reverted to previous practice in Japan, with the introduction of seniority pay. It has sometimes been regarded as evidence of the difficulties involved in transferring HRM practices that Japanese firms rarely transfer their seniority pay systems to overseas subsidiaries (Gill and Wong, 1998). This overlooks the fact that within Japan itself many enterprises consider seniority pay outmoded. JapCo2's introduction of seniority pay in China, despite forestalling the practice in Japan, needs to be understood in the context of the specific regional labour market. It indicates the extent to which 'Japanese' HRM practices do not stem simply from traditional social values, but were rational responses to labour market conditions at a certain stage of Japan's capitalist development and as such are amenable to transfer given analogous contexts elsewhere (Florida and Kenney, 1991). Additionally, this adoption indicates the way in which, in their overseas operations, firms can select from a repertoire of employment policies and practices that have proved themselves in the parent country.

The findings demonstrate the necessity to take account of actors' agency (Lane, 2001; Morgan, 2001). Setting up in a new location can offer firms and individuals within them space to experiment with innovative modes of operating. Posting to China presented Japanese managers with greater latitude than in their home country roles, where hierarchies were dense and multi-layered. Some expatriates relished this increased responsibility and autonomy. At JapCo3, for instance, one store manager grasped the opportunity provided by this greater creative space to design and implement a series of monthly 'campaigns' to improve customer service. The company's introduction of red and yellow cards was another instance of such agency.

The findings indicate that whereas it is possible to transfer culturally innovative practices any that run counter to institutional features, such as the nature of local labour markets, are much harder to implement. Thus firms were able to transfer a culturally influenced practice such as Japanese style customer service; even though bowing in particular was antithetical to local norms and its performance could arouse latent resentment against Japan. It was also a practice staff found stressful and exhausting. By contrast, an uncontroversial practice, JapCo3's hiring of graduates to train as a new management cadre, flourished on China's different institutional soil.

When seeking to assess the importance of any one variable in the transfer of organizational practices, a major difficulty is that, inevitably, a range of variables is involved. These can also interact in differing ways in each context, with each dimension of organizational practice likely to be differentially affected (Rosenzweig and Nohria, 1994). The specific concatenation of variables in any given environment will differ and produce diverse outcomes, organisational forms that neither replicate those in the parent country nor mimic those in the host. This underscores the necessity to trace and analyse each practice separately, rather than as a discrete whole (Lu and Björkman, 1997).

Accordingly, the remainder of this discussion focuses upon and traces the factors that underlay two specific dimensions: the role of expatriates and the transfer of Japanese style customer service.

The findings in this paper contrast, sometimes in unexpected ways, with those in recent studies on Japanese manufacturing firms in China. Taylor (1999) concludes that Japanese manufacturing plants in China did not rely upon expatriates to ensure the transfer of Japanese management style. By contrast, the retail multinationals depended on expatriates to facilitate the transfer of specific ownership advantages abroad, although as in Taylor's study, HR departments were headed by local employees. The retailers also appeared at least as committed to transfer their parent country practices as the manufacturing firms. Indeed, with respect to HRM, the retailers' commitment appeared notably stronger. In many respects, both sets of findings contradict and are the inverse of what might be anticipated given predictions made about global and multidomestic industries.

Generally, Japanese firms have been noted for their degree of central control and reliance upon expatriates. The persistence of this feature at the retailers suggests that the national business system norm outweighs the predicted pattern for the multidomestic industry sector. The apparent divergence from this pattern in Taylor's (2001) study might be due to the different investment motives of the firms concerned. He makes it clear that the manufacturers' primary objective for setting up operations in China was to take advantage of lower labour costs, whereas the retailers' motive was domestic marketing seeking. Thus while the Chinese location was incidental for the manufacturers, it was critical and of central importance to the retailers. An international division of labour perspective, which conceives of HRM practices as likely to be influenced by firms' relative position in this division (Wilkinson et al., 2001), is helpful to explicate these findings. From this approach, the manufacturing plants can be construed as peripheral, while the retail subsidiaries are core interests that parallel parent company investments and in which, accordingly, attention to and investment in human potential are more important.

Extensive expatriate use is consistent with the nature of the Japanese business system. In the case of these retail multinationals, this parent country effect influences the pace and scale of expansion. A long term perspective is consistent with the business model of 'patient capital' in Japan. The aim to inculcate in Chinese staff a 'Japanese' approach is equally redolent of long termism. There was, though, evidence of differences based upon firms' particular administrative heritage. JapCo2's rather different approach to expatriate use might stem from the firm's parent country organisational history. Where JapCo1 and JapCo3 both developed through gradual endogenous growth, JapCo2 has grown rapidly through acquisitions. This divergence underscores the necessity to delineate and trace actual firms' experience and administrative heritage in their home country. It also illustrates the way in which specific patterns of rivalry at home have an impact on the prospects for international success (Porter 1990, p.107). Such firm level differences cut across both the formulations of national business systems as well as the multidomestic-global business dichotomy.

The three MNCs introduced Japanese style customer service even though aspects involved, frequent bowing in particular, were contrary to local norms. This introduction needs to be assessed both from the perspective of firms' motivation and its reception in the host country. Two main interrelated factors account for the motivation to transfer this approach. Firstly, it formed part of the multinationals' stock of knowledge, their 'administrative heritage'; it was a tried and trusted recipe for conducting business and a taken-for-granted 'default' mode of operating. Secondly, the firms considered that provision of this customer service would constitute a source of competitive advantage in the Chinese marketplace. This is analogous to the Japanese manufacturing firms in the US described by Beechler and Yang, where top management displayed a strong commitment to product quality and zero defects and considered their transfer 'both possible and advantageous in reaching organizational objectives' (1994, p.475).

The successful transfer of Japanese style customer service to overseas subsidiaries outlined in this paper contrasts markedly with the situation described by Aaker (1990) and Beechler and Yang (1994) at Japanese service sector affiliates in America. Given that industry sector does not appear to play a major role in inhibiting the transfer of organizational practices to China, it is necessary to determine the salient differences between the US and Chinese contexts. It can be argued that two aspects are particularly relevant: the relative economic status and institutional structures of the countries involved and the nature of local labour markets.

In the Chinese context, the imported style of customer service was relatively novel. It was perceived as superior to prevailing domestic practices and thus to possess competitive advantage. Workers' adoption of this new

approach was facilitated by their perception that it constituted a level of customer service superior to that of competitors. Again, this parallels Japanese automotive transplants effective implantation of Japanese production organization in the US. A key factor which facilitated this is the fact that 'the 'Japanese model' has emerged as an international best-practice standard for manufacturing work and production organization' (Florida and Kenney, 1991, p.193). The imported practice also meshed with broader changes in China's retail economy that have transformed it from a sellers' market characterised by lack of choice and shortages, to a buyers' market with oversupply of many products and fierce competition between retailers.

The findings lend some support to Whitley's (1999, 2001) argument that the relative nature and degree of organisation in parent and host environments will affect the extent of transfer of firms' parent country practices. On this basis, host country influence on Japanese firms in the less developed and cohesive Chinese context is likely to be relatively weak. This insight is helpful to explain why Japanese service sector firms' affiliates in the US adapted their HRM orientation to host country norms, while those in China made fewer adaptations. National institutional differences appear to outweigh industry sector differences in the context of multinationals' investments in developing economies.

While valuable, this approach diverts attention from the crucial importance of labour markets. In both the US studies and this study, local labour markets played a critical role in shaping firms' ability to transfer practices. As in other contexts (e.g. Florida and Kenney 1991), a key factor which enabled the Japanese firms to transplant successfully their approach to customer service was the ability to carefully select workers amenable to Japanese practice. Although Beechler and Yang's (1994) study contrasts manufacturing and service sector firms, the contrast is also one between subsidiaries in very different parts of America whose labour markets differed substantially. As they observe, host country local labour market conditions can constrain the degree to which a multinational can transfer its HRM practices. In Japan, labour markets are relatively underdeveloped, but in major metropolitan areas of America labour is highly mobile. By contrast, turnover rates in Tennessee were low, making it feasible for the Japanese manufacturing companies to develop Japanese-style HRM practices such as careful selection and on-the-job training. In many Chinese locations, as in the firms in New York, high levels of employee turnover could preclude the transfer of Japanese-style HRM to subsidiaries.

The successful dissemination of Japanese style customer service outlined in this paper was underpinned by a range of HRM practices including selection and recruitment of those with customer-orientated values, training and socialisation, disciplinary measures, surveillance and incentive strategies. A critical enabling feature that underpinned these dimensions was the availability of an abundant labour supply. As with Japanese manufacturing plants in America (Florida and Kenney, 1991; Beechler and Yang, 1994), the potential to effectively implant Japanese methods relied heavily upon the ability to carefully select workers. Labour costs are an additional dimension. Aaker (1990, p.59) points out that Japan's service sector is highly labour intensive, with high levels of service obtained in part by using more people. This factor militates against the transfer of Japanese style customer service to the US with its high labour costs. In China, by contrast, labour costs are low and this allowed the firms to maintain relatively high staffing levels.

Finally, Rosenzweig and Nohria (1994) suggest that affiliates might increasingly come to resemble the local environment. The findings in this paper demonstrate that the local environment might also come to resemble the affiliate. This was evident with respect to customer service, as local firms sought to mimic the practices that appeared to lay behind Japanese firms' success in the marketplace. Kostova and Roth (2002) remark that foreign multinationals subsidiaries are not necessarily expected to be completely isomorphic with other local organisations. Indeed, in the Chinese context, this would defeat the state's objectives; foreign investment has been encouraged, in part at least, to introduce role models for local firms and to encourage them to upgrade. At subsidiary stores in second tier cities in particular, the firms linked themselves closely with China's modernisation project. A JapCo3 store manager described the local city as a one of the firm's stakeholders and the intention for his store to be 'a role model of a modern retailer'.

As with Japanese manufacturing firms' overseas transplants (Munday et al., 1995), the presence of foreign retailers provided 'demonstration effects' and spurred local stores to upgrade. This process is facilitated by the fact that as working environments, unlike most factories, retailers are peculiarly open to scrutiny by both customers and competitors and their practices and procedures readily observed and copied. As outlined above, evidence of mimetic

isomorphism was particularly obvious as local firms sought to model their approach to customers on the practices that appeared central to the Japanese retailers' success. Competitor firms regularly despatched employees to monitor their procedures and retail offer and also absorbed skills developed in the multinationals through recruitment of their employees. Both local employees and expatriate managers remarked upon domestic competitors' improved customer service. At JapCo1, a senior expatriate recalled that when his firm's first store opened in 1997 it easily provided the best customer service in the city, but now had to struggle to retain this status. Indeed, the context has changed so rapidly that, in 2006, interviewees at JapCo3's latest store, opened in a second tier city the previous year, described how some local firms had so successfully upgraded their customer service that they faced a challenge to catch up with these competitors.

## **Conclusion**

In marked contrast to theoretical predictions that multidomestic firms are more likely to adopt host country practices while global firms pursue a standardised global approach, this study has indicated a more complex pattern. The Japanese multidomestic retail firms in China appeared at least as inclined as their manufacturing counterparts to transfer their parent country management approach. . The argument has been made that this reflects differences in the firms' relative place in an international division of labour. In addition, business sector does seem important but in a different sense to the predictions made. For manufacturing firms, and especially those that are considered peripheral, the central focus is upon cost control. For service sector firms meanwhile, employees' interactions with customers are crucial to their business and their successful handling likely to be perceived as a core competence to be nurtured and developed, with according attention to and investment in HRM.

## **Acknowledgment**

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## **Communication Externalities on the Knowledge-based Firms in Metropolitan Areas: Case Study of China and Korea\***

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### **Abstract**

This paper provides some evidence on communication style that serves as the contact tool and its related external economies to knowledge-intensive production and innovation within the emerging high-technology based industrial clusters in metropolitan areas of China and Korea. Our unique data-set from questionnaire survey enables us to examine the firms' behavior of communication regarding the choice of communication mode, how often, with whom, and for what purpose. Such analysis provides insights about actual relationships among business partners of industry-academia-government in each cluster of Zhongguancun Area (Beijing), Seoul Digital Complex and Daedeok Valley (Daejeon). Our studies demonstrate that 1) with suppliers firms contact with high frequency but with less face-to-face meeting opportunities, 2) with customers and banks/investors but more with face-to-face contact, as common characteristic, 3) and that firms' long-term experience in the market is helpful to construct such meaningful communication network in Seoul Digital Complex.

### **Introduction**

This paper tries to provide some evidence on communication style that serves as the contact tool and its related external economies to knowledge-intensive production and innovation within the emerging high-tech industrial clusters in metropolitan areas in Korea and China. After decades-long extraordinary export-led growth, Korea has found its place as an exporter of technology intensive goods in the world comparative advantage ladder. At the same time, it became one of major policy goals in the post- 1997 economic crisis structural reform to foster non-conglomerate, high-technology, small and medium business, which are more agile, flexible, and entrepreneurial. China, in turn, has shown remarkable economic development taking full advantage of labor intensive manufacturing exports driven by foreign direct investment. As long-term strategy, however, the need for strengthening "own technology" based progress is recognized.

Observing the location pattern of such new business, it is notable that firms are being created in large metropolitan areas. If we recall that assembling factories had sprawled out toward the countryside searching for cheaper labor, this is a new trend. The locational advantages of urban centers can be considered as the following: the existence of larger market for new technology products both for selling own products and purchasing inputs; availability of highly educated workforce; and access to the scientific knowledge created in best universities. Of course, such advantages of market, talent, and knowledge are, in principle, accessible from other areas, by paying more transport cost. Suppose, however, there is "bonus" information attached to these transactions, including some hints about the products of the next generation, introduction to friends of friends, and rumors about unpublished research results. They are naturally very important in an industry where technology standard change with rapidly. Then, assume the quality of such information tend to decay quite badly distance, number of intermediary people, and time. Given such conditions, it is natural for firms to want to be located in metropolitan centers which enable face-to-face communication with key persons. For example, some businessmen of the telecommunication equipment sector in Beijing replied to our interview: "It's only in Beijing that we can meet informally with high-rank officials and university scientists. All the technological standard of the next generation is decided here. We try to take any information which might help us to determine our firm's strategy." Then, a certain type of tacit knowledge like this information would lead many firms to gather in a specific region like Beijing. This is exactly like "bonus" from

information.

Following the recent studies such as Charlot and Duanton (2004, 2005) and Arita, Fujita and Kameyama (2005), our analysis uses the unique data-set obtained from questionnaire survey. Our data-set was collected in Zhongguancun Area (Beijing), Seoul Digital Complex and Daedeok Valley (Daejeon) about firms' behavior of communication: how often, with whom, and for what purpose. It intends to identify what kind of communication externalities can explain the formation of the successful IT clusters in China and Korea. This data-set allows us to examine the existence of actual interaction at firm level and to study the actual effects of communication externalities. In the survey, we put special focus on information technology related firms. Part of this is attributable to the modern telecommunication technology, the Internet in particular, which reduced substantially the necessity of face-to-face communication in knowledge-creating activities. The emergence of IT industry clusters in developing countries such as Zhongguancun, Bangalore (India), Penang (Malaysia), and Singapore have grown on the basis of vertical integration (subcontracting and outsourcing) with the US firms, especially of Silicon Valley. The cost-advantage-seeking objective of the spread of IT industry is rather straightforward. Still, it is interesting to note that the spread has occurred only to a few limited numbers of places in the world where local agglomeration economies are in motion. Like the US IT clusters, in Zhongguancun and Bangalore local government, universities and research institutes played a pivotal role in providing technological environment to create information about technology and human resource network. Thus, while direct access to the most advanced innovation center was essential to explain the spread of IT industry toward developing countries, the intensity of local communication should have high explanatory power to answer the question where such industry have landed.

## **Theoretical Background**

It is widely accepted by economists that firms benefit from knowledge spillover which gives rise to aggregate increasing returns to scale due to non-excludability and non-rivalry of knowledge. Provided that the benefit of knowledge spillover is sensitive to distance, especially when the knowledge is tacit in nature, it can be seen as a source of agglomeration economies. Yet, the stylized models of new economic geography (Fujita, Krugman and Venables, 1999) have deliberately avoided incorporation of knowledge spillover because knowledge flows "are invisible; they leave no paper trail by which they may be measured and tracked, and there is nothing to prevent the theorist from assuming anything about them that she likes (Krugman, 1991, p.53)." It is recognized as a challenge for anybody seeking any relevant spatial economic model of knowledge spillover to be able to address: "not only that knowledge spills over but also why those spillovers decay as they move across geographic space (Audretsch and Feldman, 2004)."

In this regard, a pioneer study by Jaffe, Trajtenberg and Henderson (1993) considered patent citations as a visible paper trail of knowledge flows and found that patent citation is 5 to 10 times more likely to occur within the same city suggesting the effect of distance. Recently, the literature such as Audretsch and Feldman (1996) and Varga (1998) investigated the geography of innovation focusing on the role of university and R&D institutions. Audretsch and Feldman (1996) found evidence that even after controlling the degree of geographical concentration of production, knowledge created by university research results in greater innovation in firms. The results of their estimation also suggest that the propensity of innovative activities to cluster is more attributable to knowledge spillovers than mere locational advantage in production. Varga (1998) identified that channels of the university knowledge transfer are: R&D cooperation between academia and industry; university seminars; scholarly journal publications; faculty consulting; industrial associates programs; industrial parks; spin-offs (faculty and students); technology licensing; the local labor market of scientists and engineers; and local professional associations of scientists.

However, as Fujita and Thisse (2001) correctly observed, existing knowledge spillover model has the weakness of leaving vague the sources of external economies, and the underlying mechanism of the local interaction is not clearly defined. Those previous studies have not considered explicitly what kind of interaction of firms and people can generate the externalities of communication and technological exchange. They usually assume that the increase in the number of locally participating agents may increase interaction, keeping the actual interaction in the

black box. Although there are excellent descriptive works such as Saxenian (1994), considerable work of theoretical nature remains to be done incorporating geographical proximity and innovation. One promising direction was shown by Aydogan and Lyon (2004). Their paper argues that technological complementarities will increase the benefit of cooperation in R&D. Exchange of ideas can be done conveniently at a central place meeting such as academic congress but the fear of being cheated, by someone who just attend the meeting without contributing with his own idea, makes bilateral traveling preferable. In such a case, agglomeration of technologically complementary firms will be beneficial in order to save on traveling cost.

The empirical studies in this vein should face the difficulty of lack of data and ambiguous concepts of measurement of “innovation”, “knowledge”, and “proximity”. As done by Jaffe, Trajtenberg and Henderson (1993), it is common to consider that output of innovation is represented by patent, which is also convenient because patent data is relatively easily accessible. Yet patent may not be perfectly good proxy of innovation, because all innovative output are not necessarily patented, and all patent will not lead to innovation. Alternatively, Charlot and Duranton (2004) prefer to measure the effect of communication externalities by earned wage, while Anselin, Varga, and Acs (2000) use the U.S. small Business Administration Innovation Database (BAID), which measures innovation by the number of new product announcements in trade and technical journals. In turn, knowledge is treated as a sort of firm capital stock to produce innovation. Its measurement is also a subject of debate in constructing a meaningful index synthesizing R&D investment, employment of knowledgeable talent and evaluation of stock reflecting a depreciation of the past accumulation. Regarding the proximity, we should take into account the concept of distance, traveling time, and the use of telecommunication (because face-to-face communication and telecommunication is sometimes complementary with each other, rather than substitute).

Since almost all of the previous studies use census data to investigate the evidence of external economies without taking actual relationships among firms and/or industries, we can hardly expect that any usable data-set is readily available. In general, when we measure the effects of spillovers or externalities from industrial agglomeration we assume implicitly existence of spillovers or externalities even if an actual interaction exists or it doesn't exist. For this reason, it is unavoidable to conduct questionnaire sample survey to investigate actual relationships about firms' behavior of communication: how often, with whom, and for what purpose. In fact, recent studies such as Charlot and Duanton (2004, 2005) and Arita, Fujita and Kameyama (2006) have examined the effects of communication externalities using questionnaire survey after specifying the existence of actual interaction.

### **The Development of Industrial Clusters in Metropolitan Areas; Beijing, Seoul and Daejeon Zhongguancun Science Park (ZSP)**

The city of Beijing has increased its layers of urban area as the outer loop turnpikes were constructed further from the city center for rapidly increasing through traffic. While the 3<sup>rd</sup> Ring Road completed in 1994 has 48 km total length, the newest 6<sup>th</sup> Ring Road finished ten years later has 130 km. The core area of ZSP, the “Silicon Valley of China”, occupies the layers between 3<sup>rd</sup> and 5<sup>th</sup> Ring in the city's northwest corner Haidian-qu (district). This area was largely agricultural until early 1980s but already included most prestigious Chinese universities such as Tsinghua University and Peking University as well as the Chinese Academy of Science (CAS), which actually is a conglomerate of 99 research institutes across China, among which 37 are located in Beijing (see Figure 1).



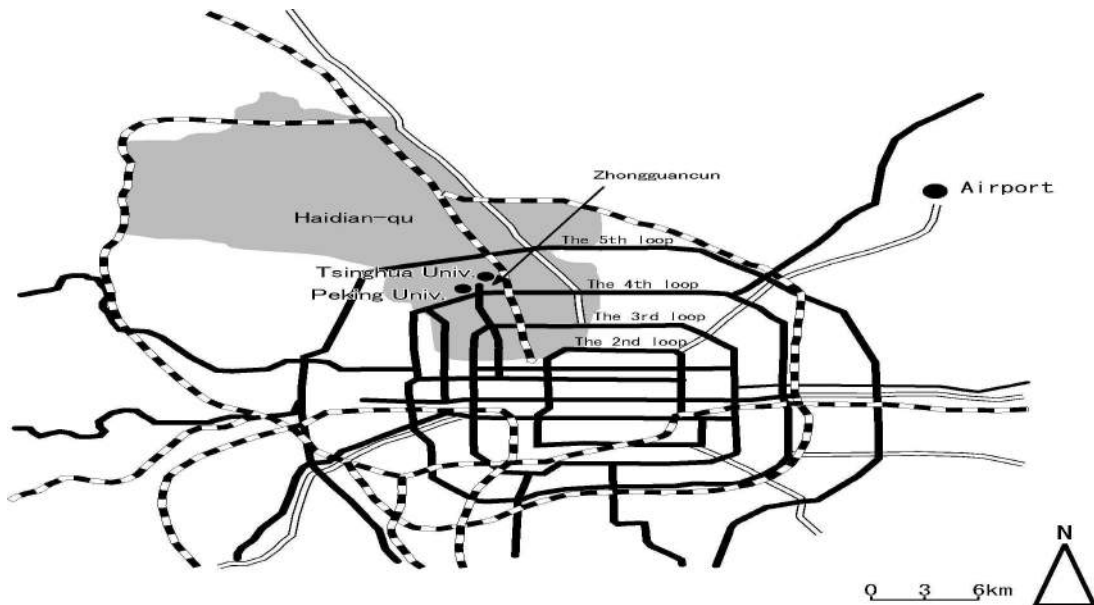


FIG 1: MAP OF BEIJING

In the 1980s, Zhongguancun came to be known as an “electronics street” appreciated by shoppers who seek cheap clone computers and parts. Various authors reported that about 40 companies were already established by 1984. Many of them were spin-offs of engineers from academic institutions in the area. Some of these early startups later grew into big business groups such as Lenovo (established in 1984) and Stone (established in 1984) from the CAS, Founder (established in 1986) from Peking University, Tsinghua Unisplendour (established in 1988) from Tsinghua University. The first systematic survey of ZSP conducted in 1987 identified 400 high-tech firms. Since late 1980s when the first experimental science park was setup, thousands of firms mushroomed through application of scientific outcomes originating in these academic institutions into business. Encouraged by strong potential of growth, Beijing Municipal Government established Beijing Experimental Zone for New Technology Industries in the Haidian district and issued Beijing Municipal Government Temporal Rule. Among other benefits are: (1) Income tax reduction to 10-15%, depending on the company’s export performance; (2) preferential tariff rate on imported materials and machineries; (3) finance from the city’s Technology Innovation Fund; (4) university professors and research institute scientists were allowed to have part time job; (5) eligible workers were granted the resident card of Beijing. National government also joined force by constructing the first incubator system, Shangdi Information Industry Base, to the north of the Haidian district in 1991, followed by science parks in Fengtai and Changpin in 1992, the Oversea Students Pioneer Park in 1997. These industrial parks were integrated into a single entity Zhongguancun Science Park in 1999.

Today, ZSP has expanded to other districts such as Fengtai, Changping, the Electronic City Zone and Yizhuang (a part of the Beijing Economic and Technological Development Zone), Desheng, and Jianxiang. The planned area amounts to almost 400 square kilometers which covers about 2% of the gross area of Beijing. Those 58 universities in the area educate 36% of the graduate students of the entire nation. The number of employees doubled in each three consecutive years of 1991-93 (<http://www.ZSP.gov.cn>). There was a period of relatively slow growth until 1998; the growth accelerated afterwards. Recall that ZSP geographically expanded during 1991-93 by the construction of several science and technology industrial parks, especially by the creation of Shangdi Information Industry Base in which the incubator system was inaugurated. Oversea Students Pioneer Park was created in 1997 which helped spurring of returning students’ opening of businesses. Multinational enterprises started to establish their R&D in ZSP by 1997-98 which also partly explains the later high growth of ZSP. Although the total number of firms in ZSP is not reported since 2000, it is largely believed that it has already reached to 7000. ZSP became highly

specialized in electronics and information technology. According to accessible data (C-Press, 2002), 915 out of 1582 surveyed Chinese-owned firms and 250 out of 392 foreign firms in ZSP are related to IT. The industry related to this technological field in China was a sellers' market, because of the large population and the market protection with quite limited number of suppliers. Beijing offered ideal locational advantage. There was a huge demand for informatization in the government sector. Because Beijing is the center of all kinds of political decision, information regarding the next generation technological standard is always in the air. The accessibility to the central government was crucial in the rapidly progressing industry. Yan (2004) explains that the early success of ZSP enterprises owed little to either their managing capability or technological strength but it was largely due to early comer's benefit which allowed nearly monopolizing the market. Zhou and Xin (2003) echoes that the success of Legend (i.e. Lenovo) can be credited to its market strategies of massive distribution and service networks across China. In fact, Zhou and Xin (2003) illustrated that the largest proportion of firms in ZSP is engaged in software and system integration. Manufacturing is also quite active in computer, IC chips, and telecommunication equipment. ZSP firms are predominantly small in size. More than 60 percent of firms have less than 20 employees. Firms with employment greater than 500 represent less than 1% of total but they are quite big with 1659 employment on average. Average size of software firms is relatively small.

In the Chinese context, it is peculiar that universities remain as the large shareholder of spin-off enterprises. This is because universities' objective is to utilize the profit to finance the operation cost. The annual turnover of the Founder group of the Beijing University, the largest of the university-owned enterprises in China, amounted to 22 billion yuan (US\$ 2.8 billion) in 2003 and covered more than 10% of the university annual budget (Waseda Business School Review, 2005). Tsinghua University established Tsinghua Holdings in 2003 which controls 39 enterprises and has minority stakes in several others. The annual turnover of the group amounts to 15 billion yuan (US\$ 1.8 billion). The presence of multinational enterprises is increasing in ZSP. It is no mystery why many multinational firms are also attracted to ZSP to establish R&D facilities. Such firms include IBM, Sun, Nokia, Matsushita, Fujitsu, Microsoft, P&G, Novo Nordisk, Lucent, Nortel, Motorola, Intel, HP, GE, Oracle, and Symantec. The multinational research-intensive R&D units tend to locate in Beijing mainly because of the academic infrastructure and quicker access to information from standard-setting and decision-shaping government bodies (von Zedtwitz, 2004).

#### **Seoul Digital Industrial Complex**

It is worth remembering that Korean IT related venture companies first mushroomed in southeastern part of Seoul, especially in the area around Teheran Street of Gangnam-gu (district) which came to be known as Teheran Valley as a symbol of the new industrialization in Seoul (Shin and Byeon, 2001). It is said that the Teheran Valley was a self-organized organic creature gathering skilled workers who lost their jobs in conglomerate business groups (chaebols) during the financial crisis of 1997. This even led to the phenomena of KOSDAQ market IT venture capital boom. The area also started to offer wide varieties of restaurants and shopping amenities. Such unorganized growth, however, provoked congestions and office rental price hike in recent years.

Seoul Digital Industrial Complex and Daedeok Valley emerged as alternative for companies seeking lower cost location and for new startups seeking government support program. The Seoul Digital Industrial Complex is located at the southwestern part of Seoul Metropolitan City, Guro-gu (district). It was planned as the revitalization of the Guro Industrial Complex which, since the 1960s, had been regarded as the national symbol of Korea's export industry specializing in traditional manufacturing such as textile and apparel. Having lost its competitiveness to countries with cheaper-labor cost, the area was reformed into high rise buildings by a government body Korea Industrial Complex Corporation (KICOX) to accommodate high technology based venture companies and was renamed in 2000. As of December 2003, the Seoul Digital Industrial Complex is a home to 2,206 firms, among which 1,834 are already in operational phase, generating employment for 41,580 workers (see Figure 2).

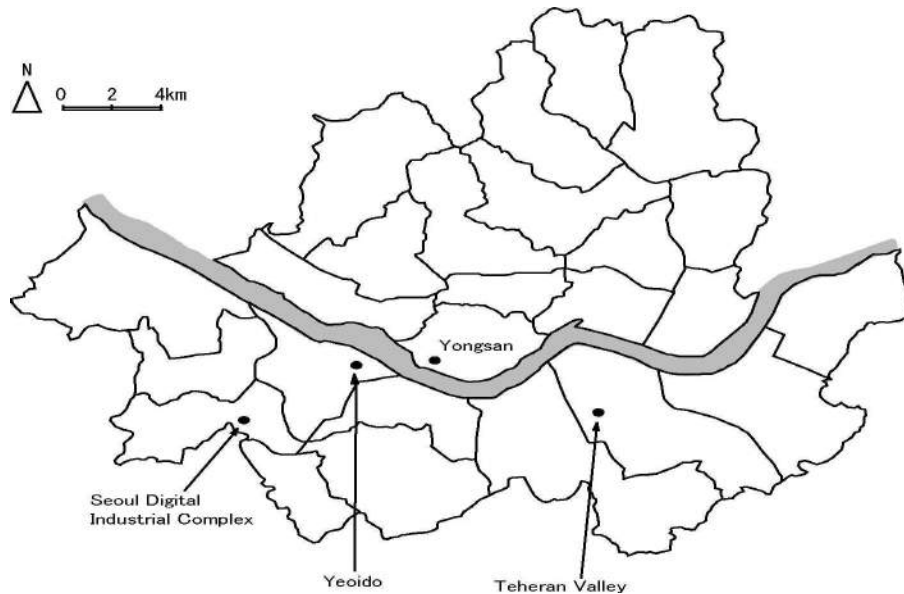


FIG. 2: SEOUL: ESTABLISHMENT OF INDUSTRY LOCATIONS

#### Daedeok Valley

Daedeok Valley is in Yusong-gu (district), Daejeon Metropolitan City. The core of Daedeok Valley is Daedeok Science Park (DSP). DSP was established in 1973 modeled after Japan's Tsukuba Science Town. Daejeon was chosen for DSP because of availability of ample cheap land and its convenient location at the geographic center, which is geographical gravity point and have the role of hub point of transportation system reachable from Seoul in about one hour and from Busan and Kwangju in about two hours using Korean high speed express train (KTX: Korea Train Express). Currently, there are 15,899 researchers in DSP: including 6,473 in 18 government-sponsored institutions; 3,297 in 27 private corporate R&D laboratories; 2,452 in public enterprise R&D laboratories; 2,319 in 4 higher education institution; 899 in 44 venture companies; 422 in 9 public institutions; and 37 in 4 supporting institutions. Among them 4,455 hold Ph.D. degree (see Figure 3).

DSP can count on two most prestigious government-owned scientific institutions: Electronics and Telecommunication Research Institute (ETRI) and Korean Advanced Institute of Science and Technology (KAIST). ETRI's most notable scientific harvest includes CDMA mobile telecommunication technology that was adapted into Korean cellular phone manufacturing to make international success. On the other hand, KAIST's major function is the higher education. There is 394 faculty staff, 2,978 students in the Bachelor of Science program, 1,971 students in Master of Science program, and 2,357 students in the Ph.D. program. According to the record of the 2004 graduates, more than a half of the undergraduate degree earners chose to study in the internal graduate program. In case of the MS degree earners, about one-third of them continue advancing to the Ph.D. Program (mostly internally), and another one-third chose to work in companies or research units affiliated to chaebols. Regarding the Ph.D. program graduates, about one-third is employed by chaebol groups and another one-third usually choose to work for government-sponsored research institutes or educational institutions. We can observe strong orientation of the graduate students to seek job in big companies and government-sponsored research institutions. Yet, it is notable that more than 10% of the Ph.D. students work in venture companies.

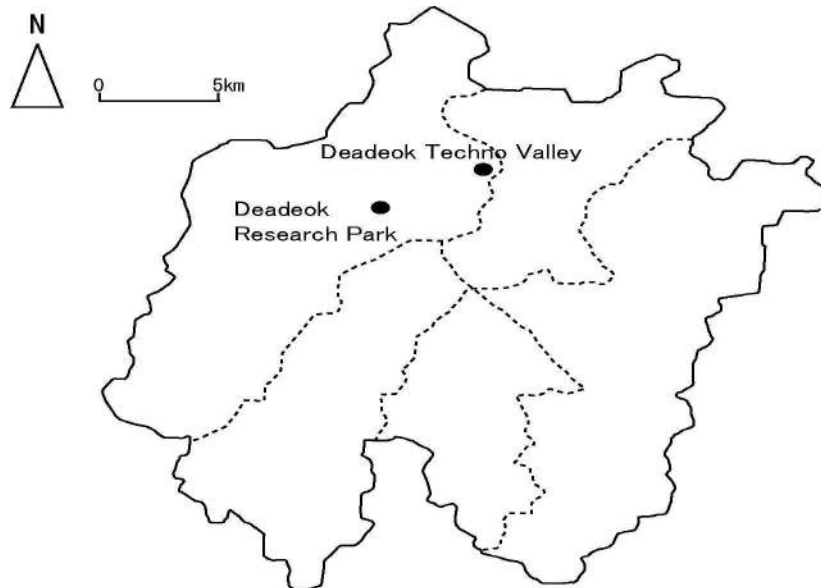


FIG. 3: MAP OF DAEDEOK VALLEY

In the initial phase of construction of DSP, the government transferred government sponsored research institutes and higher education from Seoul. Any productive activities were not allowed to locate in the science park because it was expected that the pollution-free and quite atmosphere would attract knowledgeable people. However, private research institutes affiliated with conglomerate business groups (chaebols) were reluctant to move to DSP because the location was considered as countryside where decent educational, cultural, or commercial infrastructure was not yet available (Shin, 2001). It took a while such obstacles were mitigated, owing partly to the Daejeon Science Expo in 1993. It is expected that DSP research resource should be utilized more in business. The government announced the plan to transform the area surrounding DSP to a high-tech venture cluster named as Daedeok Valley. The plan is being carried out as a part the post-1997 crisis structural reform to reduce the dominance by the conglomerates through the promotion of small and medium enterprises, and at the same time enhancing the consolidation of Korea's comparative advantage structure based on scientific knowledge intensive activities.

## Data Description

### Data Collection

Our data-set is constructed from Survey *Questionnaires* on International Comparison of Industrial Clusters in East Asia, conducted in March-April 2005 as a part of the research project on *the Urban and Industrial Agglomeration in East Asia*, organized by The International Centre for the Study of East Asian Development (ICSEAD). For the purpose of comparison, we restricted the respondents to firms related to information technology and asked them the same questions in Zhongguancun Science Park in China; Seoul Digital Complex and Daedeok Valley in Korea; Kitakyushu, Sendai and Nagano in Japan. The questionnaire was designed to figure out in what form, on what purpose, and how often firms make contact with business partners such as suppliers, customers, research institutes and universities, local supporting agencies, and financial institutions (investors and banks), and how geographical distance affects such interactions. With regard to Zhongguancun in China, we selected firms registered by Zhongguancun Science Park and asked the questions either by telephone or on direct visits (Note 3). The number of effective replies is 207. In Korea, the questionnaire survey was conducted for the firms registered in the Korea Industrial Complex Corporation (KICOX) and Daedeok Valley Venture Association (DDVA). The number of

effective replies is 50 in Seoul Digital Complex and 50 in Daedeok Valley. Thus, the total number of samples in Korea is 100.

#### Description of the Data

According to our data, the main industries of Zhongguancun are “electronic parts and devices” as manufacturing, and “package software” and “information processing” as services, and those of Seoul Digital Complex and Daedeok Valley are machinery & equipment as manufacturing and “information processing” and “producer services” as services. Among the latter, firms in Seoul Digital Complex specialize relatively in service industry and those in Daedeok Valley specialize relatively in manufacturing. The summary statistics are shown in Table 1 about “year of establishment”, “sales value”, “R&D share relative to sales”, “number of patent” and so on.

TABLE 1: SUMMARY STATISTICS FOR AVERAGE FIRM

						Obs.=199
	Measure	Mean	STDDV	C.V.	Maximum	Minimum
Firm Age1	Year	5.62	6.55	1.17	49.00	0.00
Firm Age2 (located in this cluster)	Year	5.13	6.27	1.22	49.00	0.00
Sales Amount, 1998	10,000 \$	35.51	154.48	4.35	1449.28	0.00
Sales Amount, 2001	10,000 \$	75.32	223.98	2.97	1811.59	0.00
Sales Amount, 2004	10,000 \$	184.17	479.44	2.60	3623.19	0.00
Expenditure of R&D, 1998	10,000 \$	6.07	29.52	4.86	284.78	0.00
Expenditure of R&D, 2001	10,000 \$	16.62	56.68	3.41	438.41	0.00
Expenditure of R&D, 2004	10,000 \$	45.78	141.16	3.08	1043.48	0.00
R&D share in Sales Amount, 1998	%	6.81	17.93	2.63	100.00	0.00
R&D share in Sales Amount, 2001	%	13.34	22.02	1.65	80.00	0.00
R&D share in Sales Amount, 2004	%	26.33	28.48	1.08	160.00	0.00
Average Growth Rate (Sales Amount, 2001-04)	%	1.94	2.36	1.22	12.42	-3.89
Average Growth Rate (Expenditure of R&D, 2001-04)	%	0.55	1.81	3.26	7.98	-2.76
# of Employment	Person	57.86	102.82	1.78	850.00	2.00
# of Resaerchers	Person	19.22	36.02	1.87	260.00	0.00
Resaerchers share in Employment	%	0.39	0.32	0.82	1.00	0.00
# of Patent		3.23	5.70	1.76	50.00	0.00
# of Production Item		10.49	71.72	6.84	1000.00	0.00
						Obs.=50
	Measure	Mean	STDDV	C.V.	Maximum	Minimum
Firm Age1	Year	6.80	5.58	0.82	32.00	1.00
Firm Age2 (located in this cluster)	Year	3.58	4.91	1.37	32.00	1.00
Sales Amount, 1998	10,000 \$	-	-	-	-	-
Sales Amount, 2001	10,000 \$	525.17	1476.45	2.81	8534.30	0.00
Sales Amount, 2004	10,000 \$	502.61	907.45	1.81	4284.19	17.49
Expenditure of R&D, 1998	10,000 \$	-	-	-	-	-
Expenditure of R&D, 2001	10,000 \$	7556.42	38413.18	5.08	195892.48	0.00
Expenditure of R&D, 2004	10,000 \$	48.38	67.38	1.39	393.45	0.00
R&D share in Sales Amount, 1998	%	-	-	-	-	-
R&D share in Sales Amount, 2001	%	114.09	455.59	3.99	2295.35	0.00
R&D share in Sales Amount, 2004	%	19.77	19.31	0.98	80.00	0.00
Average Growth Rate (Sales Amount, 2001-04)	%	2.31	5.88	2.55	10.72	-21.36
Average Growth Rate (Expenditure of R&D, 2001-04)	%	-1.28	11.96	-9.35	6.33	-59.08
# of Employment	Person	22.98	29.42	1.28	180.00	2.00
# of Resaerchers	Person	6.60	6.08	0.92	24.00	0.00
Resaerchers share in Employment	%	0.38	0.29	0.76	1.00	0.00
# of Patent		8.48	10.97	1.29	44.00	1.00
# of Production Item		22.73	104.99	4.62	700.00	0.00

						Obs.=50
	Measure	Mean	STDDV	C.V.	Maximum	Minimum
Firm Age1	Year	6.72	3.02	0.45	15.00	0.00
Firm Age2 (located in this cluster)	Year	6.02	3.13	0.52	15.00	0.00
Sales Amount, 1998	10,000 \$	-	-	-	-	-
Sales Amount, 2001	10,000 \$	136.57	168.04	1.23	635.17	0.00
Sales Amount, 2004	10,000 \$	318.60	491.90	1.54	3156.31	0.00
Expenditure of R&D, 1998	10,000 \$	-	-	-	-	-
Expenditure of R&D, 2001	10,000 \$	22.87	24.55	1.07	114.33	0.00
Expenditure of R&D, 2004	10,000 \$	49.17	60.90	1.24	331.94	0.00
R&D share in Sales Amount, 1998	%	-	-	-	-	-
R&D share in Sales Amount, 2001	%	76.32	316.91	4.15	2000.00	0.00
R&D share in Sales Amount, 2004	%	22.78	17.97	0.79	80.00	0.00
Average Growth Rate (Sales Amount, 2001-04)	%	2.83	3.82	1.35	12.82	-6.87
Average Growth Rate (Expenditure of R&D, 2001-04)	%	0.97	2.32	2.39	5.92	-3.97
# of Employment	Person	30.36	27.21	0.90	126.00	2.00
# of Resaerchers	Person	10.18	8.15	0.80	35.00	0.00
Resaerchers share in Employment	%	0.42	0.25	0.59	1.00	0.00
# of Patent		11.10	11.14	1.00	60.00	0.00
# of Production Item		11.21	41.33	3.69	290.00	0.00

The average age of firms in three industrial clusters is almost the same, a little more than six years. It reflects a boom of venture enterprises in China and Korea in the late 1990s and the early 2000. It is also common to all three clusters that firm sales revenue grew 2 to 3 percent on annual average during 2001-2004. These are still small enterprises in terms of the average employment, with a size of about 58 in Zhongguancun, 23 in Seoul Digital Complex, and 30 in Daedeok Valley. The firm size in Zhongguancun is the largest among the three clusters. They appeared to be highly R&D oriented as shown by 40% of the total employee being the research staff engaged in R&D. The lower proportion of R&D expenditure against the total sales revenue in Zhongguancun (13 percent in 2001 and 26 percent in 2004) may indicate the labor-intensiveness of R&D in China compared to those figures in Seoul Digital Complex and Daedeok Valley. The number of patent right is 4 in Zhongguancun, 8 in Seoul Digital Complex and 11 in Daedeok Valley. The number of product items, serving as a proxy for the level of product differentiation and responsiveness to the market, is 12 in Zhongguancun, 23 in Seoul Digital Complex and 11 in Daedeok Valley. Larger product variety per firm in Seoul Digital Complex compared to Daedeok Valley is an indication of its closeness to the market. Daedeok Valley is characterized by the proximity to fundamental research.

#### **The Nature of Alliance in Each Metropolitan Area**

Table 2 shows the overview of alliance with major business partners on R&D stage in Zhongguancun, Seoul Digital Complex and Daedeok Valley. Not surprisingly, it is commonly observed for three clusters that most firms contact with their suppliers and customers with a frequency of more than once per month and even more than once per week, especially in Seoul Digital Complex. Similarly, contact with banks (and other kind of financial institutions) is frequent in three clusters. With regard to the contact with research institutes, firms in Zhongguancun maintain more frequent contact than the Korean counterparts, although more Daedeok Valley firms confirmed more than once per month contact with research institutions than those of the Seoul Digital Complex. This shows that firms in Seoul Digital Complex are relatively more market-oriented and those in Daedeok Valley are more research based. Contacts with the source of human capital (which refers to job search assistance offices of educational institutions) and local supporting agencies are relatively scarce in Korea and more frequent in Zhongguancun.

TABLE 2: THE FREQUENCY (%) OF CONTACT WITH BUSINESS PARTNER

	Supplier	Customer	Research Institute	Source of Human Capital	Industrial Support Agency	Bank or Investor
Several times a year	13.86	7.77	16.41	39.80	27.71	36.71
1-3 times a month	46.53	49.51	46.09	37.76	51.81	34.18
Once a week or more	39.60	42.72	37.50	22.45	20.48	29.11
	Supplier	Customer	Research Institute	Source of Human Capital	Industrial Support Agency	Bank or Investor
Several times a year	12.20	6.52	48.00	80.00	55.17	34.21
1-3 times a month	36.59	34.78	44.00	20.00	37.93	26.32
Once a week or more	51.22	58.70	8.00	0.00	6.90	39.47
	Supplier	Customer	Research Institute	Source of Human Capital	Industrial Support Agency	Bank or Investor
Several times a year	10.64	6.12	30.95	84.21	68.18	40.00
1-3 times a month	48.94	38.78	57.14	15.79	31.82	37.78
Once a week or more	40.43	55.10	11.90	0.00	0.00	22.22

In Table 3, we can observe the preferred mode of communication with business partners in each cluster. In general, we consider that by preferring the use of face-to-face communication, firms are exchanging more tacit, intangible, and complicated information with their partners. In three clusters, such relationship is more relevant in their contact with industrial support agencies and financial institutions. This should be because their talks should involve subsidies and credit. Taking the information that firms in Zhongguancun have a relatively higher incidence of contact with supporting agencies suggests a strong influence of incentives offered by public policies in the region. Firms in the Korean clusters value face-to-face contact in relation with customers as well. It is also notable that Daedeok Valley firms engage in more face-to-face contact with research institutions. Although we saw in Table 6 that firms in three regions maintain frequent contact with customers and suppliers equally, Table 7 shows that the relation with suppliers relies less on face-to-face communication than in the case with customers. This may suggest that the relationship with suppliers is market-based, guided mainly by price, but human relationship is more important in sales.

TABLE 3: THE WAY OF COMMUNICATION (%) WITH BUSINESS PARTNER

	Supplier	Customer	Research Institute	Source of Human Capital	Industrial Support Agency	Bank or Investor
Face to face communication	27.84	37.00	34.17	37.36	57.14	57.53
Telecommunication	72.16	63.00	65.83	62.64	42.86	42.47
	Supplier	Customer	Research Institute	Source of Human Capital	Industrial Support Agency	Bank or Investor
Face to face communication	36.59	48.89	24.00	20.00	60.71	92.31
Telecommunication	63.41	51.11	76.00	80.00	39.29	7.69
	Supplier	Customer	Research Institute	Source of Human Capital	Industrial Support Agency	Bank or Investor
Face to face communication	29.79	51.02	54.76	27.03	52.38	77.27
Telecommunication	70.21	48.98	45.24	72.97	47.62	22.73

In table 4, we can observe what mode of transportation is used for visiting business partners in each industrial cluster. We regard “walk”, “drive”, and “subway” as intra-regional trip, and “long-distance train” and “air” as inter-regional transportation system. The intra-regional trip, especially driving a car, is the most frequently used option in each region. For firms in Zhongguancun “research institute”, “source of human capital”, “supporting

agencies”, and “banks/investors” are more likely found within the same region while there is greater chance to travel to other regions for contacting with customers and suppliers. For firms in Seoul Digital Complex and in Daedeok Valley almost anything can be settled within the same region, either by driving a car or by foot (in relation with financial institutions in Seoul Digital Complex), although some firms responded that their main suppliers or customers are outside the region.

TABLE 4: THE USE OF TRANSPORTATION (%) TO MEET BUSINESS PARTNER

	Supplier	Customer	Research Institute	Source of Human Capital	Industrial Support Agency	Bank or Investor
Walk	0	0	1	0	2	18
Drive	32	36	24	11	23	20
Subway	1	1	0	1	0	0
Long-distance train	1	3	0	0	1	0
Air	5	4	0	0	0	0

	Supplier	Customer	Research Institute	Source of Human Capital	Industrial Support Agency	Bank or Investor
Walk	1	0	2	1	1	3
Drive	41	40	39	28	40	41
Subway	2	1	1	1	0	0
Long-distance train	3	5	0	0	1	1
Air	0	3	0	0	0	0

	Supplier	Customer	Research Institute	Source of Human Capital	Industrial Support Agency	Bank or Investor
Walk	2	5	12	7	4	8
Drive	50	51	80	63	49	45
Subway	7	8	9	10	5	6
Long-distance train	16	14	8	10	11	6
Air	20	20	11	5	10	10

To sum up, characteristics of information technology related firms in the three clusters according to their use of communication can be illustrated as follows. In terms of the frequency of contacts, we found relatively high intensity with customers, suppliers, and banks in all three regions. Contact with research institutes is the most frequently done in Zhongguancun, followed by Daedeok Valley. Zhongguancun firms contact supporting industries more frequently. Contact with suppliers does not generally involve face-to-face meeting, but to meet face-to-face is considered more effective for communication with customers in Korean two clusters. With local supporting institutions and financial institutions, face-to-face communication is more valued in all three clusters. Communication with local research institutions is mostly held by face-to-face meeting in Daedeok Valley, but Zhongguancun firms use more telecommunication because of the higher frequency. When direct contact is necessary, it is done mostly within the same region, but Zhongguancun firms are more likely to find their suppliers and customers outside the cluster.

## Communication Externalities on the Knowledge-based Firms

### Methodology

Jaffe (1989) provides one of first attempts to model the effect of university research spillover on firms’ innovation. His so-called knowledge production function is an analogue of ordinary Cobb-Douglas production function. It stipulates that firm’s innovative output is a function of inputs like firm’s own R&D investment, university research adjusted by proximity, generally represented as  $INN_{ijt} = g(\bullet) + \mu_{ijt}$ , where  $INN_{ijt}$  is innovative output of an



industry  $i$  in region  $j$  at time  $t$ ,  $g(\bullet)$  is a function of innovative input with the disturbance term  $\mu_t$ . Subsequent studies, like Jaffe, Trajtenberg and Henderson (1993), Feldman and Florida (1994), Audretsch and Feldman (1996b) and Fischer and Varga (2003) proposed other knowledge production inputs such as presence of related industry and specialized producer services and the population size in the same region. In contrast to these studies, which worked with the industry level data, we can take advantage of the availability of the firm level data. In this paper, we modify Jaffe's model for the firm level data and use the number of patents as an innovative output. The basic model form is:

$$\ln \frac{Patent_i}{Emp_i} = \alpha_0 + \alpha_1 \ln \frac{R \& D_i}{Emp_i} + \mu_i \quad (1)$$

Where  $Patent_i$  the number of patents is created by firm  $i$ ,  $R \& D_i$  represents the firm's R&D expenditure, and  $\mu_i$  is the disturbance. To control the firm size effect on patent, we divide the both side by the firm employment size  $Emp_i$ . Notice that, since our data includes only one time period and the analysis with respect to each region is done separately, the subscripts  $j$  and  $t$  are omitted from Jaffe's original model. Because the aim of the present study is to investigate the importance of communication externalities and geographical proximity on the knowledge creation, we shall include the dummy variable  $DM_i$  to which we assign 1 when the respondent answered that his firm attaches more importance on face-to-face communication than telecommunication in contacting with business partners, and 0 otherwise. We also consider the effect of the firm age  $Age$  (experience in the market) on innovation. Next, we divide the communication dummy variable for the case of contact with suppliers ( $DM_1$ ), customers ( $DM_2$ ), universities ( $DM_3$ ), and banks ( $DM_4$ ). We also add cross-terms multiplying the communication dummies and the firm age to pick up the effect of inclination to face-to-face communication boosted by longer experience in the market. The cross-terms allow us to investigate the hypothesis of firm's experience enhancing local communication network. Finally, we obtain the following model.

$$\begin{aligned} \ln \frac{Patent_i}{EMP_i} = & \alpha_0 + \alpha_1 \ln \frac{R \& D_i}{EMP_i} + \alpha_2 Age_i + \alpha_3 DM_{1i} + \alpha_4 DM_{2i} + \alpha_5 DM_{3i} + \alpha_6 DM_{4i} \\ & + \alpha_7 Age_i * DM_{1i} + \alpha_8 Age_i * DM_{2i} + \alpha_9 Age_i * DM_{3i} + \alpha_{10} Age_i * DM_{4i} + \mu_i \end{aligned} \quad (2)$$

We estimate this specification using OLS regression. We expect positive signs for all  $\alpha_1$  through  $\alpha_{10}$ . We run the regression with respect to answers for Question 3 of the questionnaire, shown in Appendix A. In this question, respondents are asked to answer the same query for the three business stages respectively: basic research and development; product development; and marketing/commercialization. For this paper we use only one part of our data-set regarding the basic research and development stage.

#### The Estimation Results

We estimate the equation (3) by using the data on the interaction during the research and development stage from our data-set. This stage should be considered as the phase in which basic idea of the product are created before making concrete design of the product to enter the market. Table 8 shows the estimation results. Based on the value of R-square, we can see that the model has reasonable explanatory power for Seoul Digital Complex while it fits poorly for Zhongguancun. In the left panel of the table we used the years since establishment of the firm,  $Age1$ , as the firm age variable, and the years operating in the present location,  $Age2$ , as the firm age variable in the side panel. The distinction of the two firm age variables may be of interest for the case of Seoul Digital Complex to which many firms relocated from other place. For Zhongguancun and Daedeok Valley, this distinction may have little meaning because firms in these regions are mostly new startups.

First, we observe the estimation results for Zhongguancun in Table 5. It shows that only firms' own R&D expenditure has statistically significant effect on innovation. Sign for dummy variables is negative, contrary to our expectation, except for the one related to banks. It is puzzling that face-to-face contact during the research and development stage does not show any effect on patent creation. Whether or not the result indicates that Zhongguancun firms poorly take advantage of agglomeration economies of innovation should be further investigated. Second, we observe the estimation results for Seoul Digital Complex in Table 5. Surprisingly, firms'

interaction with suppliers utilizing face-to-face communication revealed negative effect on innovation. However, the cross term of the face-to-face dummy with suppliers and firm age since establishment shows positive significant sign, in contrast to the statistically insignificant result for the cross term of face-to-face dummy with suppliers and firms' operating age in the present location as shown in the right side panel. This suggests that firms relocated to newly established Seoul Digital Complex have not established meaningful relationship with suppliers within the complex but firms with longer experiences before coming to the complex were able to establish beneficial face-to-face relationship with suppliers. Finally, we observe the estimation results for Daedeok Valley in Table 5. As was in the case of Zhongguancun, except the effects of R&D expenditure for each firm, there are hardly any significant effects of using the face-to-face communication and having long relation.

TABLE 5: REGRESSION RESULTS ABOUT COMMUNICATION EXTERNALITIES AND LONG RELATION

	Coef.	t-value		Coef.	t-value
R&D	<b>0.185</b>	<b>(1.920)*</b>	R&D	<b>0.176</b>	<b>(1.800)*</b>
Age1	-0.040	(0.430)	Age2	0.000	(0.000)
DM-Supplier	-0.475	(0.870)	DM-Supplier	-0.254	(0.570)
DM-Customer	-0.508	(0.670)	DM-Customer	-0.368	(0.600)
DM-University	-0.267	(0.640)	DM-University	-0.207	(0.650)
DM-Bank	0.555	(1.030)	DM-Bank	0.378	(0.940)
cross(Age1*DM-Supp)	0.259	(0.910)	cross(Age2*DM-Supp)	0.167	(0.620)
cross(Age1*DM-Cust)	0.351	(0.840)	cross(Age2*DM-Cust)	0.323	(0.830)
cross(Age1*DM-Univ)	0.080	(0.390)	cross(Age2*DM-Univ)	0.050	(0.290)
cross(Age1*DM-Bank)	-0.297	(1.080)	cross(Age2*DM-Bank)	-0.241	(1.010)
Const.	0.336	(1.400)	Const.	0.279	(1.330)
Adj. R2	0.031		Adj. R2	0.032	
Prob. > F	0.681		Prob. > F	0.693	
* significant at 10% level, ** significant at 5% level					
	Coef.	t-value		Coef.	t-value
R&D	<b>0.585</b>	<b>(5.930)**</b>	R&D	<b>0.452</b>	<b>(4.170)**</b>
Age1	-0.262	(0.500)	Age2	0.031	(0.070)
DM-Supplier	<b>-3.059</b>	<b>(4.100)**</b>	DM-Supplier	<b>-1.288</b>	<b>(2.580)**</b>
DM-Customer	-0.296	(0.360)	DM-Customer	0.076	(0.130)
DM-University	2.426	(0.290)	DM-University	0.392	(0.680)
DM-Bank	-0.270	(0.250)	DM-Bank	0.633	(1.020)
cross(Age1*DM-Supp)	<b>1.095</b>	<b>(3.180)**</b>	cross(Age2*DM-Supp)	0.251	(0.790)
cross(Age1*DM-Cust)	0.092	(0.250)	cross(Age2*DM-Cust)	0.157	(0.420)
cross(Age1*DM-Univ)	-1.313	(0.310)	cross(Age2*DM-Univ)	-0.708	(0.940)
cross(Age1*DM-Bank)	0.569	(0.910)	cross(Age2*DM-Bank)	0.039	(0.070)
Const.	-0.639	(0.810)	Const.	-0.749	(1.380)
Adj. R2	0.717		Adj. R2	0.713	
Prob. > F	0.002		Prob. > F	0.038	
* significant at 10% level, ** significant at 5% level					
	Coef.	t-value		Coef.	t-value
R&D	<b>0.333</b>	<b>(3.310)**</b>	R&D	<b>0.332</b>	<b>(3.320)**</b>
Age1	-0.090	(0.170)	Age2	-0.081	(0.230)
DM-Supplier	0.726	(0.280)	DM-Supplier	0.478	(0.250)
DM-Customer	1.432	(0.550)	DM-Customer	1.209	(0.630)
DM-University	0.040	(0.020)	DM-University	0.400	(0.170)
DM-Bank	-1.901	(1.330)	DM-Bank	-1.530	(1.410)
cross(Age1*DM-Supp)	-0.498	(0.410)	cross(Age2*DM-Supp)	-0.409	(0.430)
cross(Age1*DM-Cust)	-0.575	(0.500)	cross(Age2*DM-Cust)	-0.498	(0.550)
cross(Age1*DM-Univ)	0.170	(0.160)	cross(Age2*DM-Univ)	-0.019	(0.010)
cross(Age1*DM-Bank)	0.970	(1.370)	cross(Age2*DM-Bank)	0.853	(1.480)
Const.	0.049	(0.050)	Const.	0.011	(0.020)
R2	0.241		R2	0.239	
Prob. > F	0.075		Prob. > F	0.077	
* significant at 10% level, ** significant at 5% level					

These results indicate that face-to-face communications cannot be considered as a source of innovation in the three regions of this study. However, according to our estimation result for the Seoul Digital Complex, the long-term matured relationship with partners may certainly enhance the effects of face-to-face communication and eventually contribute for innovation. This suggests that it may be myopic for policy planners to think that creating a cluster through tax incentives and credit facilities will provide a condition for creative production to take place. It

may take long time until such chemistry takes holds.

We could not obtain strong evidence of industry-university-government cooperation in each cluster, especially expected for the case of Zhongguancun and Daedeok Valley. It is likely that they have not arrived at the stage when the effects of industry-university-government cooperation can be clearly seen. As mentioned by Saxenian (1994) for the case of Silicon Valley, in order to foster sustainable development of industrial clusters, local, horizontal and flexible inter-personal communication and exchange of ideas are generally more important than institutional arrangements. This statement suggests the need for investigation into interaction among technologically talented people in creation of new knowledge, and not into the relation among firms and universities.

## Concluding Remarks

In this paper, we use a unique Chinese and Korean data-set obtained from questionnaire survey, including qualitative data on contents and channels of regional cooperation, and some quantitative data gathered in 2005. We examined the importance of communication externalities and geographical proximity on the knowledge-based production as formation factors of such industrial clusters as Zhongguancun, Seoul Digital Complex and Daedeok Valley. We focus on how frequency and the method (face-to-face communication or telecommunication) of contact affect the firm's knowledge-based production.

Some common characteristics were seen for the three clusters. With suppliers firms, contact was with high frequency but with less face-to-face meeting opportunities. Contact with customers and banks/investors is done through more face-to-face meeting. Zhongguancun's firms have unique characteristics of frequent direct meeting with local supporting agencies, and their contact with research institutions are the most frequent among the three. However they rely on telecommunication. This is consistent with the finding of Charlot and Duranton (2005) that industrial cluster fosters communication network and the use of telecommunication, suggesting that the direct meeting and the use of telecommunication is self-reinforcing. Firms in the scientific park environment of Daedeok Valley contact rather less with researchers, but they use face-to-face communication more.

We could identify partial evidence that firms' long-term experience in the market is helpful for construction of such meaningful communication network. This result has a policy implication that the making of innovation-enhancing clusters requires long-term support to facilitate the internal mutual exchanges. Interaction can be enhanced by various opportunities outside of corporate activities, such as: social/cultural amenities; joint activities in basic research, exchanges with different business areas, and with other clusters including of foreign countries. This leads to the discussion of how to induce the inflow or return of knowledgeable workers in developing countries that have been exporters of the precious talent.

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# Internationalization of Asian Firms: Entry Mode Strategies and Research Propositions

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## Abstract

The contribution of this article is both theoretical and practical. It has been suggested that some international trade concepts may need some adaptation when used to formulate strategies for marketing products in developing countries (Ekeledo and Firoz 2007). This study shades light on the issue of applying theories and concepts developed for firms from developed countries to firms from developing countries. Our study identifies variables critical to successful international market entry for firms from emerging economies of Asia. It provides a framework that firms from emerging markets could use to analyze and formulate entry strategies in today's protein business environment. As Alderson (1957) notes, adequate theory should facilitate the accumulation and integration of a body of knowledge and allow what is learned in coping with one set of problems to be brought to bear on other problems. Because inappropriate entry mode can lead to costly failure in a foreign market, the insight provided by this study will help managers avoid repeating costly mistakes made by some companies in the past. Managers charged with formulating and implementing international market entry strategies and plans will learn how to leverage firm-specific resources in a new foreign market to ensure a sustainable market presence. Although the information presented in this article is qualitative and descriptive, suggestions are made regarding future empirical testing of propositions presented in this report.

## Introduction

Any firm contemplating foreign market entry must deal with the issue of selecting appropriate entry mode. An entry mode is an institutional arrangement, such as exporting, licensing, franchising, management contract, joint venture, or wholly owned venture, that a firm may use to produce and sell its product (good or service) in a foreign market. Inappropriate entry mode can block opportunities in a market and substantially limit the range of strategic options available to management (Alderson 1957; Ekeledo and Sivakumar 2004). Indeed, an inappropriate entry mode can result in substantial financial loss and force the firm to prematurely exit the foreign market (Mathe and Perras 1994). Each entry mode is associated with a certain level of resource commitment, market involvement and control of the foreign enterprise. Also each entry mode comes with a certain amount of business risk. Therefore, it is important that managers of Asian firms, just like their non-Asian counterparts, be aware of the advantages and disadvantages of each entry mode, understand theories and practices that underlie selection of appropriate entry mode for their product, and be able to use this understanding to choose appropriate entry mode.

Much of our understanding of foreign market entry strategies is based on the experiences and practices of firms from developed nations, such as Japan, the United States, Canada, and countries of Western Europe. An important research and managerial question is the extent to which theories and practices of entry mode strategies developed for companies from developed economies apply to firms from emerging economies of Asia. Because manufacturing firms and service firms do not always approach foreign market entry the same way (Ekeledo and Sivakumar 2004), this article also highlights differences in the ways manufacturing firms and service firms from Asia approach selection of appropriate entry mode.

## Theories of Entry Mode Choice

Often, a firm's survival in the marketplace depends on its adoption of efficient marketing practices. Efficient marketing practices, on the other hand, are rooted in sound theoretical foundations (Anderson and Gatignon 1986; Dunning 1977). We begin with a brief discussion of the theories that underlie the conceptual framework and

propositions that are presented in this paper. Some of the theories of international market entry employed in previous research studies include the *internalization* theory (transaction costs analysis), *eclectic theory*, and *resource-based theory* (e.g., Agarwal and Ramaswami 1992; Ekeledo and Sivakumar 2004; Erramilli and Rao 1993; Hill, Hwang, and Kim 1990).

The *Internalization theory* posits that a firm would adopt a mode of operation that minimizes production and transaction costs (Williamson 1985) because transaction costs increase international market inefficiencies and the possibility of opportunistic behavior on both buyer and seller. To minimize cross-border transaction costs and reduce the impact of market inefficiencies, a profit maximizing firm will undertake those activities it finds cheaper to administer within the firm (Klein, Crawford and Alchian 1978). The internalization theory views low level modes of entry, such as licensing, turnkey project, supply agreement or management contract, as the default entry form; that is, a low level entry form is preferable (Anderson and Gatignon 1986). Like other industrial organization-based theories of the firm, the internalization theory “assumes perfect competition, homogeneous firms and mobility of resources among firms, including perfect transferability of know-how between a parent company and its foreign subsidiary” (Ekeledo and Sivakumar 2004, p. 71).

However, the internalization theory does not adequately explain entry mode choice in today’s business environment. The theory is concerned with conditions that lead to market failure, which in turn lead to foreign direct investment (Hennart 1989). Barriers to free flow of products between countries reduce the profitability of exporting, while obstacles to the sale of know-how enhance the attractiveness of foreign direct investment (FDI). Although internalization theory provides some rationale for choosing FDI as an entry form, it does not explain the impacts of firm-specific resources and location advantages of a target country on entry mode choice. Besides, the internalization theory is not concerned with exporting as an entry option.

The *eclectic theory* combines a number of theories that help to explain entry mode choice. Dunning’s (1977, 1980, and 1988) eclectic framework is well known and has been widely used in international business research. (e.g., Agarwal and Ramaswami 1992). Dunning’s model identifies ownership and internalization advantages of a firm together with location advantages of the target foreign market as key determinants of entry mode choice. Ownership advantages of a firm refer to competitive or monopolistic advantages of a firm that allows the firm to compete with other firms in a foreign location. These advantages include those that come from large firm size, international business experience, and a differentiated product. Location advantages include market potential and low investment risks that make it profitable to do business in a particular country. Internalization advantages, as noted previously, refer to contractual risks that make FDI more beneficial than licensing as an entry form.

However, extant eclectic models do not provide a unified perspective in the explanation and prediction of entry mode choice (Tallman 1991). The model fails to explain why firms in the same line of business and with similar ownership, internalization, and location advantages adopt different entry modes. A dynamic interpretation of internalization advantages covers ownership advantages (Buckley 1988). Furthermore, it is difficult to empirically separate ownership advantages as they relate to intangible assets (Denekamp 1995).

The *resource-based theory* views the firm as the source of competitive advantage (Capron and Hullah 1999). Resources are tangible and intangible possessions that underlie a firm’s choice and implementation of business strategies. Resources provide a basis for a firm’s competitive advantage (Barney 1991; Peteraf 1993; Teece, Pisano, and Shuen 1997). The theory assumes that resources are both heterogeneous across firms and imperfectly mobile (Barney 1991; Hunt and Morgan 1995). Heterogeneity of resources across firms implies that firms of all sizes and shapes can co-exist in the same industry. The resource-based theory explains not only the differences in entry mode choice observed across firms in an industry, but also why all firms in the industry do not and cannot pursue strategies that offer maximum returns on investment. Instead, each firm adopts entry strategies that its resources can support, which means that the differential endowment of resources among firms affects each firm’s strategic choices. (Grant 1991).

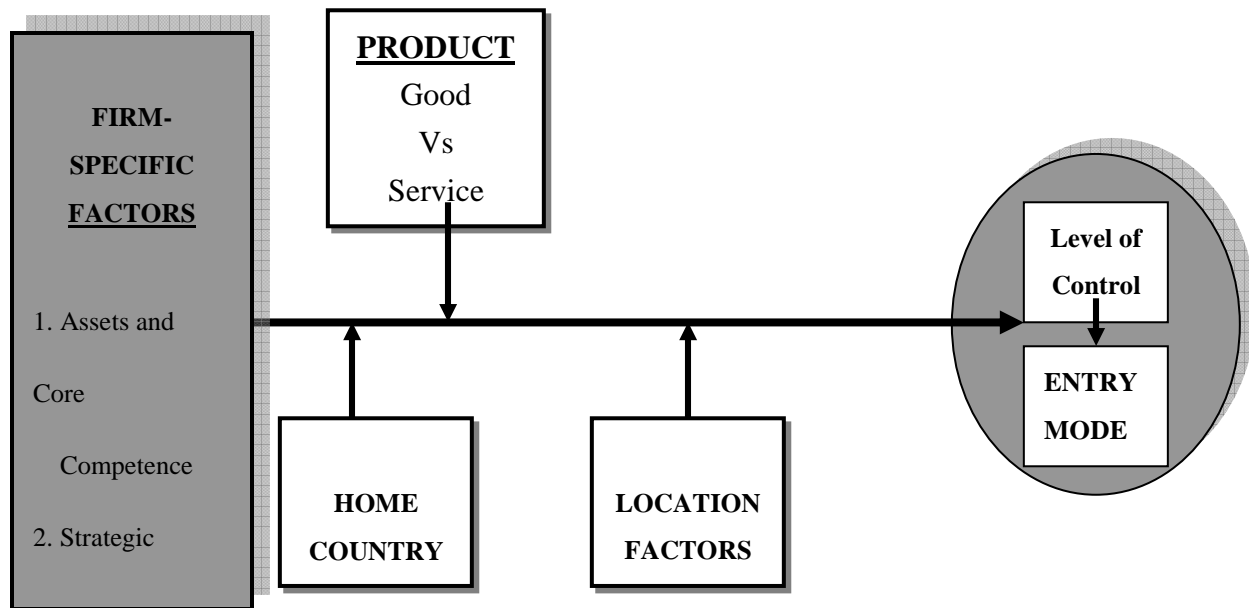


FIG. 1: ELEMENTS OF INTERNATIONAL MARKET ENTRY

The resource-based approach views wholly owned operation as the default entry mode; it is the ideal entry form. This fundamental assumption of the resource-based theory is in sharp contrast with that of the internalization approach. Even then, the resource-based theory needs to be complemented with moderating factors, such as home country factors, host country factors (location advantages) and the nature of the product (a good versus a service). The conceptual model, Figure 1, incorporates these key moderating factors. The model highlights the interrelationships among the various factors that influence choice of entry mode. The model also recognizes the impact of a firm's home country on the firm's international market entry strategies. Because there is a link between an entry mode and the amount of control over an affiliate the entry mode confers on a firm, we present a brief discussion of control and how it might affect choice of entry mode.

### Level of Control and Entry Mode Choice

Control is the amount of authority a firm has over the activities of its foreign affiliate. In general, there is a direct relationship between a firm's equity share in the foreign enterprise and the amount of control the firm can exercise over the enterprise (Anderson and Gatignon 1986). The entity with the largest equity in a venture often has the most



power to control the day-to-day activities of the affiliate. Therefore it goes without saying that the partner with the most equity also assumes most of the affiliate's business risks. As a result, the greater the equity the firm has in the business venture, the greater the firm's involvement in the day-to-day operations of the affiliate.

In addition, each entry mode is associated with a certain amount of control (Douglas and Craig 1995). Low control is generally associated with a mode of entry that involves small commitment of resources, while full control is associated with a mode that requires large commitment of resource. Thus, there is a mapping from entry mode to the level of control the entry mode affords the firm (Anderson and Gatignon 1986). Entry modes can be divided into two broad categories—equity entry modes versus non-equity entry modes. Table 1 lists common entry modes and their characteristics. These characteristics include control, start-up investment capital requirement, dissemination risks (dangers of exposing critical company know-how to a potential future competitor),

TABLE 1: CHARACTERISTICS OF ENTRY MODES

Entry Mode	Control	Investment	Dissemination	Equity/non-equity
		Capital	Risks	
Licensing	Low	Low	High	Non-equity
Franchising	Moderate	Low	High	Non-equity
Management Contract	Low	Low	Low	Non-equity
Contract Manufacturing	Low	Low	High	Non-equity
Turnkey Project	Low	Low	Low	Non-equity
Export: direct to distributor	Low	Low	Low	Non-equity
Export: indirect	Low	Low	Low	Non-equity
Export: direct to own organization	High	Moderate	Low	Equity
Joint Venture	Moderate	Moderate	High	Equity
Wholly Owned Subsidiary	High	High	Low	Equity

and equity/non-equity classification of the entry mode. Licensing is a contractual agreement in which the owner of a protected asset (the licensor) grants another entity (the licensee), for royalty or some other form of consideration, the right to use the asset in producing or distributing a good or service (Root 1994). The licensed asset may be tangible or intangible, such as a trademark, patent, trade secret, or production process. Franchising is a form of licensing. It is a mode of operation in which a company that owns a protected trademark (the franchisor) grants another company (the franchisee) the right to do business under the trademark in exchange for a consideration, such as royalties, fees, or profit sharing. In other words, the franchisee rents the franchisor's brand name. In a management contract a company manages the day-to-day operations of another company in a foreign country for a fee. This mode of operation is common in service businesses such as hotels, civil aviation, retailing, or real estate management (Palmer and Cole 1995). Contract manufacturing involves sourcing a product from an independent manufacturer in a foreign country. This arrangement is a cross between licensing and FDI (Root 1994). A turnkey project is like a standard

construction contract. The contractor brings the foreign project to the point of operation and turns it over to the owner. Construction of railroads, dams, power stations, and manufacturing plants in developing countries by Chinese firms are examples of turnkey projects. Exporting involves supplying the product to the foreign market from a domestic base or from a base located outside the target foreign market. Exporting can be direct to the foreign market through a foreign distributor or the exporter's own sales organization in the foreign market. Exporting can also be indirect. Indirect exporting uses a middleman, such as a trading company, the sales office of a foreign organization located in the firm's domestic market, or a domestic export agent to make the product available in a foreign market. A joint venture involves shared ownership of the foreign affiliate. Two or more independent organizations provide financial and other resources to support the foreign operation. The amount of control each partner exercises in the venture often depends on partner's equity share in the enterprise. Wholly owned subsidiary refers to sole proprietorship. A wholly owned subsidiary can be through acquiring an existing company or building a new company from scratch—greenfield operation.

#### **Firm-specific Factors**

Firm-specific resources (assets and core competencies) are the basis of a firm's competitive advantage (Wernerfelt 1984). A firm's assets and core competence drive its foreign market entry strategies. Assets are tangible or intangible things the firm owns that contribute to its competitive position in the marketplace. They include patents, trademarks, copyrights, plants and equipment, trade secrets, financial capital, databases, and so on. Core competence refers to the firm's ability to combine its assets and deploy them to perform a task advantageously (Day 1994; Grant 1991). To be a competitive advantage, a core competence has to be one that the firm's competitors cannot match or imitate. A core competence could reside in any of a firm's value creation activities, including a functional area such as finance, human resources, operations management, marketing, or research and development. Battat and Aykut (2005) have identified a number of assets and competencies of firms from China, India, and Malaysia that serve these firms well in other emerging markets, including markets in neighboring countries. These competencies include products and production processes designed for developing economies, ability to deal with regulatory and infrastructure environments in emerging markets, familiarity with cultures and markets in neighboring countries, and low cost production facilities. As explained later, these resources influence entry mode choices of these firms in each emerging market. To protect a competitive advantage (core competence), a firm will adopt a mode of operation, such as wholly owned operation or exporting, that gives it full control of the foreign affiliate. For example, if a firm's core competence is based on control of its proprietary technological know-how, the firm should not adopt licensing or joint venture (Hill 2007).

As noted earlier, a firm's resources limit the strategic options open to the firm. Therefore, strategic considerations may be the main reason that a firm adopts a mode other than the default (full control) mode; for

example, a firm may adopt a joint venture or another collaborative mode to gain access to technology (Huber 1991). Among strategic reasons for foreign market entry for firms from China and India are access to resources, access to markets, and technology transfer (Battat and Aykut 2005). Firms from these two countries use a mode of entry that will help them achieve their specific business objective given the constraints in the target market.

*Proposition 1:* *A firm from a developing Asian country that wants control over its proprietary technological know-how will favor a wholly owned subsidiary or exporting.*

#### **Nature of the Product**

The type of product—good or service—may determine the range of entry mode options available to a company. Products have both macro and micro characteristics. At the micro level, services differ from goods in terms of perishability, tangibility, separability, and heterogeneity (Zeithaml, Parasuraman, and Berry 1985). At the macro level, composition, weight/value ratio, packaging, brand name or image, and technology are some attributes that separate goods or services from one another. Both macro and micro characteristics of a product influence choice of appropriate entry mode (Ekeledo and Sivakumar 1998).

Services can be further divided into two groups: those that require production and consumption to take place at the same time and those that allow separation of production and consumption. Exporting is not an entry option for services that require simultaneity of production and consumption. For example, lodging services require proximity between the service platform and the consumer while consumption takes place; therefore, the production platform for this type of service has to be located in the foreign market close to potential customers. Similarly, the production platform for some manufactured goods must be located close to customers because of high weight/value ratio. For example, high transportation costs make export of beverages in bottles or can expensive, which in turn raises the price of the product in the destination country. As a result, bottling plants are often located in the target market close to customers. This is an example of the impact of micro attributes of a product on entry mode choice. Another factor that may influence entry mode choice for a service is investment capital requirement for a new production platform. The costs of opening a new insurance office may be limited to rental fees and cost of office furniture, whereas the costs of a new manufacturing plant would require a much larger financial outlay. Thus the cost of a new manufacturing facility could be the main reason for a firm to adopt a collaborative mode of entry such as joint venture.

Services that do not require proximity between the consumer and the service provider during consumption of the service may be able to use exporting. Advances in information technology (IT) have created more of this type of service; that is, a service that can be delivered from a distance. Hence exporting is a common entry mode for IT related services. Trade in computer software and IT-enabled services are the fastest growing areas of international business today. Asian firms, especially those with home in India, are key international players in IT services. Prior

to 2003, Indian firms favored exporting, but increasing government relaxation of restrictions on cash outflow from the country now allows more use of acquisitions or greenfield operations by Indian firms (Gopinath 2007). Because technologies that drive a service firm's competitive advantage tend to reside in the firm's trade secrets (Grosse 1991), service firms tend to favor a full control mode such as sole proprietorship or exporting. Service firms from Asia are no exceptions in this regard. However, service firms from Asia may be favoring exporting because of low production costs at home. When the motive for entering a market in a developed country is access to the market, Indian firms appear to use an export subsidiary. For example, pharmaceutical firms from India with USFDA approved facilities use acquisition to enter the U.S. market, but the bulk of manufacturing activities is still in India in order to take advantage of low manufacturing costs. In other developing countries where there are very few firms to acquire, Asian firms appear to favor exporting exclusively.

*Proposition 2: Firms from emerging economies of Asia favor exporting combined with acquisition in developed countries, but favor just exporting in less developed economies.*

#### **Home Country Factors**

The broad foundation of a firm's competitive advantage is the firm's home country. According to Porter (1990), factor endowments, demand conditions, related and supporting industries, and firm strategy, structure and rivalry influence industrial development and the ability of individual firms to establish competitive advantage. Firms from countries with large, demanding and sophisticated markets tend to be both innovative and competitive. Firms often begin international competition in industries where their domestic market experience provides a unique competitive advantage (Porter 1990). For example, the size, resources, and infrastructure of the Japanese market, together with the policies of the Japanese government regarding its domestic economy, have bestowed special competitive advantages on firms from Japan. Hence home country factors may explain why Japan is the home of world leaders in consumer electronics and automobiles. Clearly, a firm's country of origin has a significant impact on both the firm's competitive advantage in the international marketplace and the firm's choice of competitive strategy (Collis 1991; Fahy 1996). Therefore, it should not come as a surprise that firms from Japan and South Korea favor greenfield FDI in order to protect their brand name advantage.

However, Porter's determinants of national advantage do not completely explain the competitive advantages of firms from emerging economies of Asia; For example, firms from India have managed to establish competitive advantage in the world marketplace without the benefits of a demanding and sophisticated domestic consumers. Instead these companies have relied on the demands of consumers in their target developed countries to drive the quality of their products. Until 2003, as discussed earlier, firms from India had to deal with home government restrictions on cash outflows from the country. As a result, many of the pre-2003 foreign market entries were through exporting (Gopinath 2007). The reduction of cash outflow restrictions after 2003 has enabled firms

from India to take advantage of acquisition or greenfield as entry modes. Currently, Indian firms appear to use a combination of exporting and acquisition in developed economies, and exporting or greenfield operations in emerging economies.

Acquisition of strategic assets appears to drive current international expansion of firms from China. Compared to other Asian firms, firms from China appear to make more effort to acquire companies with well-known brand names (Battat and Aykut 2005). Lenovo and TCL of China have acquired Tompson, RCA, and IBM brands to take advantage of the distribution channels for these brands. In contrast, firms from Japan and South Korea went abroad with their own brand names in the early days of their international market entries. An objective such as technology transfer influences choice of entry too. Indian and Chinese firms have entered developed countries for reasons of technology transfer through R&D investments. These investments often take the form of acquisition or joint venture. Major investments of firms from China and India, particularly in developing countries, have been in extractive and infrastructure projects (Battat and Aykut 2007). Such resource seeking and infrastructure building projects often involve joint ventures.

*Proposition 3: A firm's home country restrictions on outward FDI will lead a firm to use exports or a collaborative arrangement as mode entry.*

#### **Host Country Factors**

Likewise a host country can significantly influence choice of entry mode. Host country factors that affect choice of entry mode include market characteristics, political and sociocultural factors, and economic infrastructure. As determinant of entry mode strategy, host country factors may strengthen or weaken the main effect of firm-specific resources on entry mode choice. Market characteristics include demand potential and market structure for the product. In general, a market with low demand potential or uncertainty attracts little FDI (Agarwal 1994). Uncertainty about future demand will make a foreign firm less willing to invest substantial managerial and financial resources in a target market, and make exporting through a foreign distributor, licensing, or management contract (for a service) the preferred entry mode. Perhaps Asian firms favor exporting in less developed countries for this reason.

Market structure affects choice of entry mode too. The structure for a market could be competitive with many non-dominant firms, oligopolistic or monopolistic. A foreign firm is likely to favor exporting or licensing in a very competitive market (Kim and Hwang 1992). According to Root (1994), to compete with the dominant firms in an oligopolistic market, the new entrant will have to use a wholly owned mode of operation (greenfield or acquisition). We expect firms from Asia to employ similar logic in selecting entry mode in similar circumstances.

*Proposition 4: Firms from emerging economies of Asia adopt exporting in less developed economies or markets with very competitive structure, and adopt wholly owned operation in oligopolistic markets.*

In general, firms are reluctant to commit significant managerial and financial resources to a country with a high level of political instability. Political instability leads to frequent change of government, military coups, riots, insurrections, or worker strikes against the central government (Green and Cunningham 1975). A firm will avoid a mode that requires a substantial investment in plants and equipment in a country with high political instability (Douglas and Craig 1995). Political instability and social unrest are likely to encourage low involvement modes such as exporting (through a foreign distributor) and licensing.

Cultural distance between a firm's home country and the host country may influence entry mode choice. It has been suggested that dissimilarities increase the probability that a firm will use joint venture in a foreign market (Kogut and Sing 1988). Firms from Asia tend to enter neighboring countries that share economic, or ethnic and cultural ties with their home country. This observation may explain the large presence of East Asian firms in South Korea, Australia and other Asian neighbors. Often mergers and acquisitions (M&A) are the preferred modes by these firms. Haier, a Chinese white goods manufacturer, has manufacturing plants in both India and Thailand. Taiwan, Thailand and the Philippines are the main recipients of FDI from Indian manufacturing firms and IT firms (Subramanian and Sunderaraman 2005). To break into the Chinese IT market, Tata Consultancy Services (TCS) of India has just concluded a joint venture arrangement with three Chinese partners (Aiyar 2007). This joint venture will allow TCS to participate in lucrative business with state-owned enterprises; joint ventures with Chinese partners are encouraged by the Chinese government. TCS' existing wholly owned subsidiary in China will become part of this joint venture arrangement. This example illustrates how a host country's preferences can influence a firm's choice of mode of operation in a target market.

*Proposition 5a: Political stability in a country and ethnic and cultural links between a firm's home country and the foreign market encourage FDI entry modes such as wholly owned subsidiary or joint venture.*

*Proposition 5b: The investment preferences of a host country may make a firm choose a collaborative arrangement such as joint venture as entry mode.*

## **Empirical Validation of Proposition**

The aim of this section is to provide some guidelines for future empirical testing of the propositions presented in the article. The unit of analysis is the foreign market entry mode choices of individual firms from Asia. The challenge in this undertaking is gathering data from a diverse group of companies not only from the same country, but also from the different countries covered by this study in order to enhance the generalizability of findings. Another problem is being able to have adequate cell sizes for each entry mode classification to ensure the power of statistical tests. Besides, cross-border business research requires a great amount of time, patience, effort and financial resources.

Survey method will be appropriate for data collection and has been used in previous research on entry mode strategies (e.g., Erramilli and Rao 1993; Ekeledo and Sivakumar 2004). Information regarding the nature of the product will be gathered from questionnaire responses as was done in similar studies in the past. Data on home country factors and host country factors can be collected from both secondary data and respondents. Following the approach in Ekeledo and Sivakumar (2004), the effect of firm-specific factors and strategic considerations will be ascertained first, followed by determination of the impacts of moderating factors, such as nature of the product, home country factors, and host country factors, as they interact with the main effect and with one another. Because this is a conceptual and descriptive paper, we have deliberately left out the specific variables that make up home country factors and host country factors. These variables will have to be supplied in the empirical testing, using variables validated in previous studies. For example, the variables for location (host country) construct are likely to include demand potential, government restrictions, cultural distance, level of economic development, and so on. The use of these variables to operationalize the broader constructs will require development of additional hypotheses and associated supporting discussion.

## **Managerial Implication**

Although yet to be tested empirically, the conceptual framework we have proposed offers some guidance to international business managers. The model highlights important factors to consider while selecting appropriate entry mode. Managers must consider the nature of the product candidate for entry and not assume that what applies to, say, a manufactured good automatically applies to a service. Managers need to carefully evaluate the strengths and weaknesses of their firm, and employ strategies that leverage the strength of their firm and minimize the exposure of their firm's weaknesses. Using this framework to guide the formulation of entry mode strategy will ensure that all important variables that have impact on appropriate entry mode choice are considered.

Our conceptual framework is broad enough to accommodate different products (goods and services). Indeed, the model could be adapted to fit a specific manufacturing or service industry. For example, computer software firms could apply this framework to their special international expansion decisions with some minor adjustments to reflect the nature of their products. Because it takes about three to five years to completely enter a foreign market (Root 1994), managers must remember that the initial entry mode may be optimal in the short term. The initial entry arrangement may be a merger and later become an acquisition. Therefore, the initial entry mode should be one that is flexible enough to allow smooth transition to another mode as future market conditions and corporate goals require.

The perspective of our research is that of a firm entering a single product into a foreign market. This is a realistic approach in that managers must plan the entry of each individual product in a foreign market even if the company has more than one product candidate for a particular foreign market. It is not unusual for a company to produce one product in a market and export another to the same market. It is also important for managers to know that successful entry of a product may not replicate in other foreign markets for the reasons that our conceptual model have highlighted.

## **Conclusion**

As stated in the early paragraphs of this article, the purpose of this study is to shade light on the internationalization of Asian firms. Although the information revealed by this research study focuses on emerging economies of Asia, firms from other emerging economies can draw some lessons from the study. Levels of industrialization among Asian countries differ: some countries, such as Japan, are highly industrialized, some are in the ranks of newly industrializing countries (NICs), and some are less developed countries (LDCs). Level of industrialization of the country of origin of a firm is likely to influence the firm's entry mode strategies. This study reveals how a country's level of economic development might influence the entry strategies of firms from that country. For example, weak home demand condition is supposed to have negative effect on domestic firms developing national advantage in a particular industry. This observation appears not to be true about the Asian firms cited in this article. Indian IT firms are key players in IT related industries in the global marketplace, but did not have sophisticated and demanding consumers at home when they made their mark in the international market scene. Firms from other emerging economies should not let inadequate home market structure deter them from venturing outside their national borders in search of customers. Current reductions in barriers to international trade and advances in information technology have created opportunities for companies all over the world, especially companies from emerging economies. Companies from developing countries should take advantage of these new opportunities, especially in other less developed economies where their experience in managing operations in less developed economies can be leveraged.

## **References**

Contact author for the list of references.



# **Strategies for Internationalization of Thai and Vietnamese Enterprises: A Comperative Study**

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## **Abstract**

Integrating into the international market, the enterprises are not only getting opportunities but also facing new environmental challenges and particularly new competitive pressures. This paper presents a conceptual framework that has been developed to investigate the level of success of entering foreign markets with the help of internationalization competencies and the internationalization strategies of the enterprises in high-tech and low-tech industries in Vietnam and in Thailand. Some initial findings of business profiles, competencies, market entry modes, etc., which are resulted from a survey of 112 enterprises in both high-tech and low-tech industries in Vietnam, and 58 enterprises in Thailand are also presented in this paper. **Keywords:** Internationalization, strategy for internationalization, internationalization competencies, internationalization performance, high-tech and low-tech industries, Vietnam, Thailand

## **Introduction**

Internationalization creates the opportunities and as well as the challenges for any country and its economic actors, the enterprises. Positively, the economic miracles of India and China in 1990s are good examples of country's economic achievements of the globalization. As new global economic actors, the impressive appearances of Chinese Lenovo Group or Indian Mittal Steel Company show how good the opportunities for enterprises on the way entering into international market. In contrast, the risks and challenges are also waiting in the global economy. The East Asia crisis in 1997, the collapse of Argentina's economy and the stable minus growth rate of many African economies are strong warning signals for globalization's challenges.

Located in the South East Asia region, Thailand and Vietnam have different situations of participating in the internationalization process. Thailand was early joined in global economic integration through joining international economic organizations, for example Thailand was one of the founders of the World Trade Organization (WTO) in 1995. It was later than Thailand, but Vietnam is emergently integrating in the world

economy with the goal becoming an industrialized country in 2020. So far, the country holds the official membership of international Monetary Fund (IMF) and World Bank (WB) (since 1992), ASEAN (1995), APEC (1998) and it signed a Bilateral Trade Agreement with the United States of America in 2000. Vietnam officially to be a member of the WTO on 11 January 2007.

Accessing to the international market through bilateral and multilateral trade agreements or participating in globalization creates competitive pressures for enterprises in Vietnam and Thailand, especially for the export companies. In order to be successful in high competitive markets, it is required these enterprises have to have their own competitive advantages and strategies to survive and prosper in the market.

Thailand and Vietnam have export advantages for agricultural and resource-based products such as rice, fishery, garment, footwear or low-tech products. High tech products such as electronics, computer parts are decreasing. For example, in 2002 the growth export rate of Vietnamese agricultural and fishery products increased 13.2%, garment and textile increased 33.8%. The growth rate of electronics and computer parts was negative of 17.3%. However, in Thailand, export volume grew of electronics at 13% and about at 17.9% in 2002. These was a negative growth in export volume of agricultural and fishery products (-1.1% in 2002). The export of high tech products is fallen and reached a negative growth rate of 7.1% in 2004. Is internationalization becomes the main cause of this problem? Why has the export growth rate of high tech products fallen or negative? Do the low-tech enterprises have a strategy to enter the international market?

Being successful in the international market is very difficult. It is requires every enterprise to develop a strategy through identifying its competitive advantages, and having clear ideas about the market entry options. The companies need to analyze the business environment, the foreign countries, the customer groups and the potential products or services. In the international market, every enterprise has to follow the common market law. How to survive and develop in the international market? How to avoid to be merged or to be bankrupt? What kind of internationalization strategies should be applied? These questions should be asked by the enterprises themselves.

## **Objectives**

The main purpose of this research is to describe and explain the internationalization of high tech companies and low-tech companies in Thailand and in Vietnam. Therefore the following objectives are given:

To investigate the level of internationalization of the enterprises in high tech and low tech industries in Vietnam and in Thailand by using firms' competencies and of firms' internationalization strategies as independent variables;

The influence of the country and the industry's environment on the international success is investigated indirectly;

To make conclusion at the level of companies as well as at the level of governments.

## **Literature Review and Research Model**

### **Competencies Related to Internationalization**

Firm's competencies can be divided into different competencies such as core competencies and distinctive competencies (Wheelen & Hunger, 2002). According to Swierczek (2004), the firm's competencies related internationalization was gauged by using three measures: global knowledge management competencies, strategic or entrepreneurial competencies, and managerial or management competencies source.

Prahalad and Hamel (1990) defined core competencies as the collective learning in the organization, especially how to coordinate diverse production skills and integrate multiple streams of technology, or a competence that provides potential access to a wide variety of markets, makes a significant contribution to the perceived customer benefits of the end product and difficult to imitate.

Strategic competencies are considered as a special type of core competencies. Strategic competencies were defined by Croteau, Taymond (2004) in their research on performance outcomes of strategic and IT competencies alignment. They found strategic competencies as a shared vision, cooperation, empowerment and innovation. Strategic competencies are part of the business strategy and help organization to gain competitive advantages. These competitive advantages refer to knowledge, know-how, skills that translate into distinctive capabilities for organization, help or in responding quickly to changes in the business environment.

Another special type of core competencies is managerial competencies. According to Henderson (2005), organizations have always been concerned about the competence of their managers. He identified managerial competencies as the 'micro-skills' of managers, and as a part of the capabilities or assets of the firm. It is these skills which allow the organization to transform its range of various other assets into organizational competence and then improve performance.

A second type of competencies is distinctive competencies. Leonard-Barton (1992) defined distinctive competencies as sets of differentiated skills and routines that provide the bases for sustainable competitive advantage.

Global knowledge competencies are considered as a special type of distinctive competencies. In recent research on the role of global market knowledge competencies, Yenyurt et al. (2005) concluded that the globalization forces engender companies to develop a new set of competencies that would enable the generation of better returns in the global marketplace. Related to this, knowledge management competencies consist of global customer, competitor and supplier knowledge management, inter-functional coordination and value chain coordination.

### **Internationalization Strategies**

Internationalization strategy is defined as plan to enter different foreign markets (Benjamin Levi, 2006). In this research, the internationalization strategic term is adopted from Swierczek (2004) and is considered as strategies companies use to go international. Exporting is the first step towards increased international sales, assets, employees and operations that leads to more outward globalization.

### **Internationalization Performance**

Traditionally, the performance of a firm was measured by comparing with previous measures from the same organization at the different time. According to the Benchmarking method, there are four types to measure the performance such as internal (comparing within a firm), competitive (comparing performance or processes with competitors), functional (comparing similar processes within an industry) and generic (comparing with unrelated industries). Generally, the term performance is considered as any recognized accomplishment. According to the marketing perspective, performance of a firm can be defined when the firm achieves its goals (valuebasedmanagement.net).

In this research, a firm's performance is defined as the accomplishments of firm's objectives in the business activities. These accomplishments can be revenue, sales, profitability, return on assets, return on equity, return on investment and so on.

### **Levels of Technology**

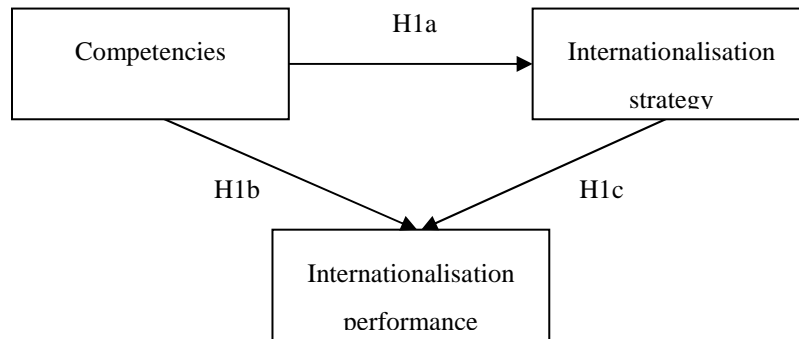
In this research, a high tech enterprise refers to an enterprise that operates in electronics and computer parts industry (E&C industry) and a low tech enterprise refers to an enterprise that operates in garment and textiles industry (G&T industry).

### **Research Model and Hypothesis**

There are several empirical researches focusing on the relationship between internationalization and firm's performance (Hawawini et al., 2004; Fillis, 2001), between firm's competencies and firm's performance (Regan et al., 2004; King et al., 2001), between firm's strategy and firm's performance (Parnell et al., 2005; Ibeh, 2003). However, there are some gaps in research and limited emphasis on the competencies, strategies and performance of the firm going to international. This study develops a conceptual framework for analyzing the impacts of the firm's environment (country and industry's scale), the firms' competencies, and the firm's strategy on the firm's performance in the context of internationalization.

Based on the objectives of this study, this research is conducted in an advanced research model with integration of the basic and the enlarged research model. The basic research framework is focused on the

relationships between firms' competencies, firms' internationalization strategies and internationalization performance. The first framework is illustrated in FIG 1.



Note: → Dependence

FIG 1: A BASIC RESEARCH MODEL

In order to express more detail the relationship between firms' competencies, firms' internationalization strategies and firms' internationalization performance in the country and in the industry contexts, the basic research model was enlarged. This enlargement is based on the descriptive models seen in Schamlensee (1985), Rumelt (1991), McGahan and Porter (1997), Hawawini et al. (2004). The firm performance is affected by the characteristics of an industry and a country environment. Therefore, the second model focuses on the comparison between two countries of Vietnam and Thailand, and between two types of industries: garment/textiles (high tech) and electronics/computer parts (low tech) industry (see FIG 2).

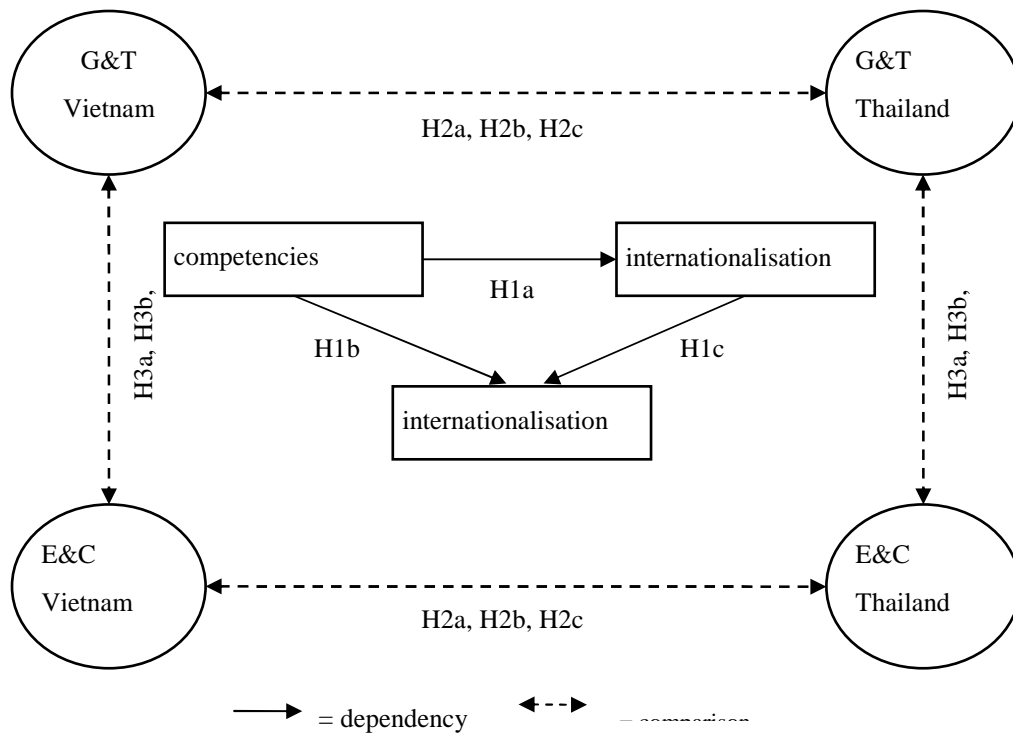


FIG 2: A RESEARCH MODEL FOR COMPARATIVE STUDY

The relationship between competencies and strategies in the context of internationalization has attracted many researchers. Hill and Jones (2001) has conducted case studies on some big companies in US such as Walt Disney, 3M, Honda, Xerron, etc.. They found the competencies and internationalization strategies have a positive link together. The same result is also confirmed by Fleury et al. (2003) in their research in SMEs and large companies in all industry in Brazil. The positive relationship between competencies on internationalization strategy and internationalization performance of the small and medium sized firms in the manufacturing sector in UK is confirmed by Regan, O. N. and Ghobadian A. (2004). No research on competencies and internationalization strategy was done in the South East Asian country. Therefore the following hypothesis is given

Hypothesis 1a: There is a positive relationship between firms' competencies with firms' internationalization strategies

The successful development of competencies on a global customer knowledge management process has a positive impact on the performance of the company (Kohli & Jaworski, 1990; Narver & Slater, 1990). The development of competencies in firms has been shown to have a positive effect upon various facets of performance

(Lyles & Salk, 1996). Although empirical research on different resources and capabilities has not yet reached maturity, there are many studies showing a positive relation between core competencies (knowledge and expertise in different functional competencies) and international growth (Cavusgil & Zou, 1994; Kogut & Zander, 1993). Recently, the positive relationship between competencies and strategies in the context of internationalization was tested in US, in UK, Canada and Finland by Cavusgil et al. (2004), Regan et al. (2004), Nummela et al. (2004) and Yenyurt et al. (2005) respectively. The above literature review shows that there is a lack research on this relationship in the South East Asia. Therefore, the next hypothesis is given:

Hypothesis 1b: The firms' competencies has a positive relation with the firms' internationalization performance

Most of empirical studies focused on the relationships between firm's degree of internationalization and its performance (Barney, 1991; Chandler and Hanks, 1994; and Wernerfelt, 1984; Grant, 1997). While most recent findings indicated that the link between internationalization strategy and performance may exhibit a non-linear form, some researchers disagree on the exact shape of the statistical curve (Ruigrok, Wagner, 2003). Some of researchers proposed that internationalization and performance have been mixed, both monotonic and curvilinear relationships (Hsu, Boggs, 2003). According to the literature review, the relationship between internationalization strategy and performance is mostly done in US, Canada, Germany, Sweden and Switzerland. Therefore, the following hypothesis is proposed to be tested in the context of Thailand and Vietnam:

Hypothesis 1c: The firms' internationalization strategies is significantly and positively related to the firms' internationalization performance

The influence of the country on the firm's capabilities or competencies is also studied by many researchers. The resource-based view argued that the internal environment is a key driver for firm's competitive advantages. Moreover the competencies and resources controlled by the parent firm in the home country can influence how firms attempt to enter and compete in foreign markets (Thomas et al., 1999). In the research on international and performance of 84 German manufacturing companies, Ruigrok et al. (2003) has confirmed the positive influence of country on the managerial competencies. Through using a secondary data, Toni et al. (2003) and Yenyurt et al. (2005) also confirmed the significant influence of county on internationalization competencies. However, there are a major gap in literature on the relationship between competencies required for a successful international strategy implementation and the outcomes associated with such competencies in the South East Asia. This study assumes that there are differences in environment, competencies, internationalization strategies, internationalization performance between two countries Thailand and Vietnam. Based on these discussions and the literature review, a set of three hypotheses are stated.

Hypothesis 2a: There are significant differences in competencies between Thai and Vietnamese companies

Hill, Hwang and Kim (1990) suggested that the foreign entry mode options are a trade off between preferences for control and resource commitments, based on environment variables. The important influence of country business environment on internationalization strategic decision is also confirmed by Koch (2001) and Beamish et al. (2001) in their study of 164 Japanese SMEs going international. No comparative study on the internationalization strategies of the firm going to international in Thailand and in Vietnam. Therefore, the following hypothesis is stated

Hypothesis 2b: There are significant differences in internationalization strategies between Thai and Vietnamese companies

Many researches on the impact of country factors to the firm performance in the context of internationalization have been done such as Dhanaja et al. (2003), Hawawini et al. (2004), Kuivalainen et al. (2004) and Rasheed (2005). The results of their study shown the positive effects of country to the firm's performance. However, these researches have been done in US, Canada and Europe only. There is no research on this issue that has been done in Thailand and Vietnam. Therefore the next hypothesis is given

Hypothesis 2c: There are significant differences in the internationalization performance between Thai and Vietnamese companies

Firms are more successful if firm achieves a "fit" or balance between the firm's internal environment and its external operating environment (Volberda, 1996; Ruigrok W., Wagner H., 2003). Textile companies and electronic and computer parts companies are operating in different industry environment in terms of technology level, labor skills, and management styles. These differences can create variety in competencies, internationalization strategy and internationalization performance.

The influence of industry on the firm's competencies is confirmed by King et al. (2001) through their research of 17 organizations from textiles and hospitals in US. The positive impact of industry on competencies is also indicated in the conceptualization research of Yenyurt et al. (2005). There is a major gap in the research on the influence of industry on firm's competencies in the context of internationalization between textiles/garment and electronics/computer parts in Thailand and in Vietnam. As a result, the following hypothesis is stated

Hypothesis 3a: There are significant differences in competencies between textile and electronic and computer parts companies

The influence of the firm's industry environment and internationalization strategy has been studied by some famous researchers such as Kogut (1988), Fillis (2001), Koch (2001), Ali (2004) and Rasheed (2005) in US, UK, Australia and US respectively. There is no research on this impact that has been done in Asia, especially in Thailand and in Vietnam. Therefore, the following hypothesis is given out to make a comparison between textile and electronic and computer parts companies



Hypothesis 3b: There are significant differences in internationalization strategies between textile and electronic and computer parts companies

The influence of industry on the performance of the firm going to international is confirmed by Gruenig et al. (2006) through their case studies in Switzerland. There is a gap for doing the comparative study on internationalization between the companies between textiles/garment and electronics/computer parts industry. Therefore the next hypothesis is stated

Hypothesis 3c: There are significant differences in the internationalization performance between textile and electronic and computer parts companies

## **Primary Findings**

In order to assess the current situation of two industries in Vietnam and in Thailand as well as to test the given hypotheses, the questionnaires have been sent to 450 companies in related industries in Vietnam and 1150 companies in Thailand. The companies are selected randomly from the list of Directory of Vietnamese Ministry of Industry, Vietnam Chamber of Commerce and Industry and from the Manager Company in Thailand and Thai Government manufacturers association. The valid respondents are only 112 in Vietnam and 58 in Thailand (see TABLE 1).

TABLE 1: RESPONDENTS PROFILE

Characteristics		Vietnam		Thailand	
		G&T (%)	E&C (%)	G&T (%)	E&C (%)
<b>1. Business activities</b>	Manufacturing	82.5	8.1	75.7	47.6
	Trading	7	64.5	21.6	28.6
	Services	3.5	12.9	2.7	23.8
	Others	7	14.5	0	0
<b>2. Legal forms</b>	State-owned company	33.9	9.7	8.1	0
	Private company	30.4	74.2	73	42.9
	100% foreign- owned company	10.7	3.2	8.1	38.1
	Joint venture company	25	12.9	8.1	14.3
	Others	0	0	2.7	4.8
<b>3. Size of firm (total of legal capital)</b>	SME	26.9	56.5	43.2	38.1
	Large	73.1	43.5	56.8	61.9
<b>4. Experience in doing international business</b>	<1 year	8.6	43.5	10.8	19
	1-5 years	27.6	29	8.1	28.6
	>5 years	63.8	27.5	81.1	52.4

*Note:* G&T = Garment and Textile; E&C= Electronic and Computer parts

Manufacturing is the main business activity of the firms, except for E&C group in Vietnam involved in trading activities. Private sector owned most the firms, except the G&T group in Vietnam. Most of firms are in large size, except the Vietnamese E&C group, that included 56,5 % SME. E&C companies are much less experienced in international operations than the others.

**International Competencies**

In this research, competencies related to internationalization are measured by three dimensions: global knowledge management competencies, strategic competencies and managerial competencies. These measures were self-reported scores of the firms on a seven-point Likert scale from very limited to outstanding.

The difference of competencies between firms in two industries in Vietnam and in Thailand is shown in the FIG 3.

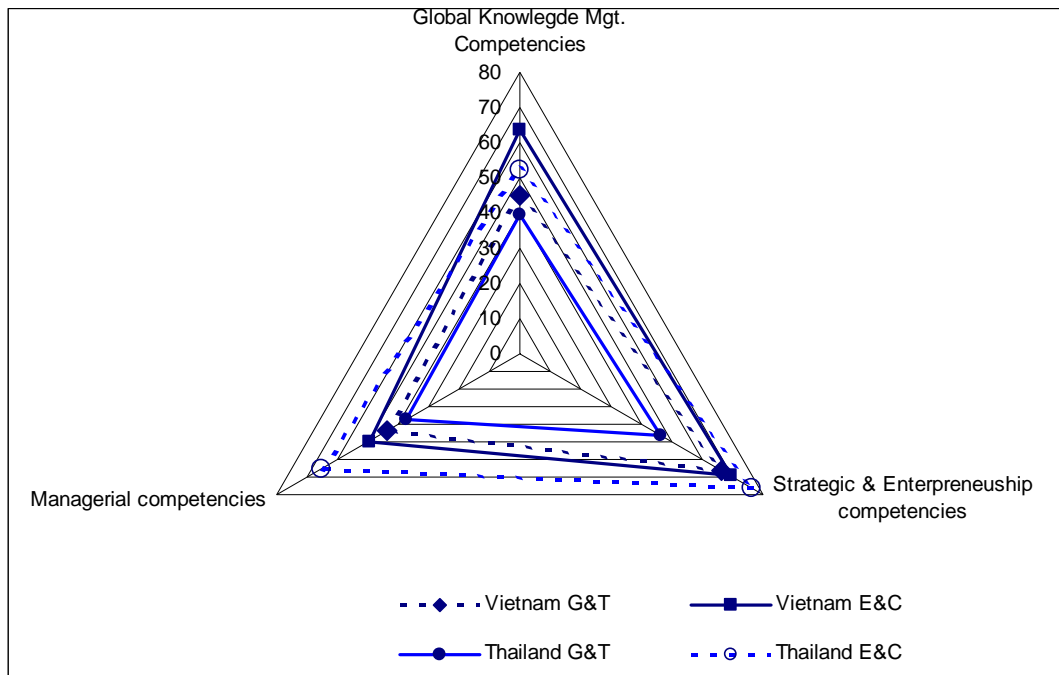


FIG 3: COMPARING COMPETENCIES OF FIRMS IN TWO INDUSTRIES IN VIETNAM AND IN THAILAND

The data shows that E&C firms have better global knowledge competencies than the others. E&C firms in Thailand have better core competencies and strategic competencies than the other firms. FIG 4 and FIG 5 present the different level of competencies in G&T and E&C firms in Thailand and in Vietnam respectively. The results show that G&T firms in Vietnam have better competencies as compared with Thai companies overall.

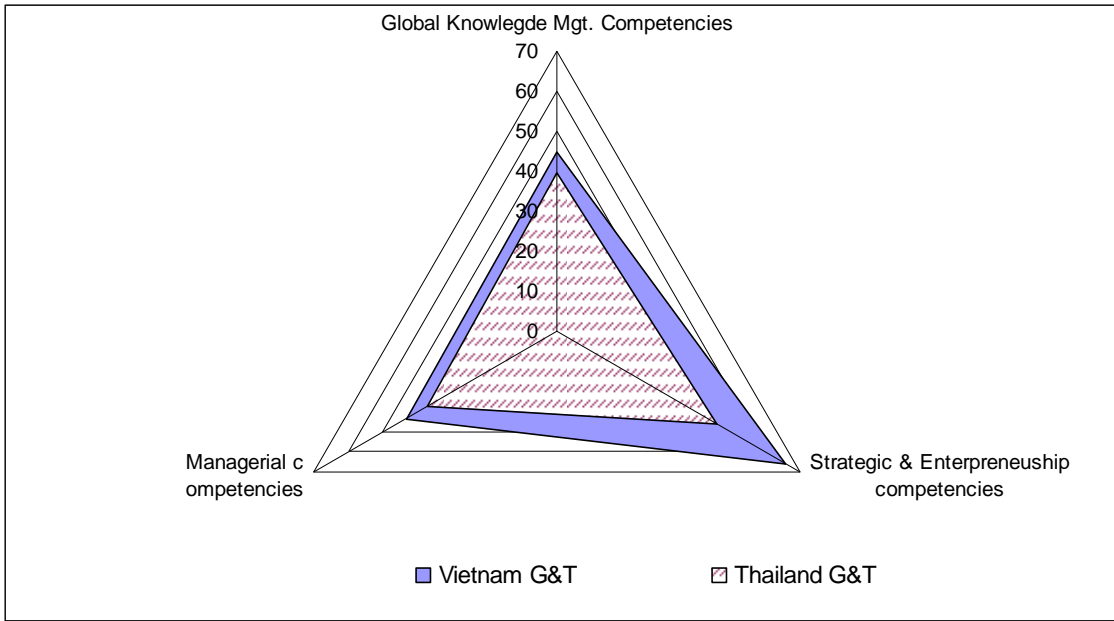


FIG 4: COMPARING FIRM'S COMPETENCIES IN G&T INDUSTRIES IN VIETNAM AND IN THAILAND

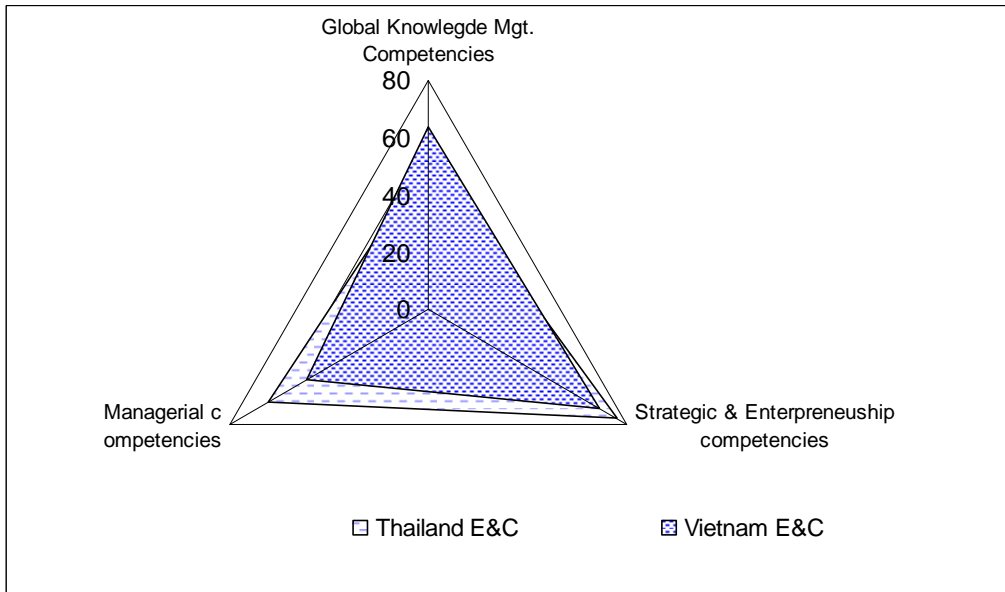


FIG 5: COMPARING FIRM'S COMPETENCIES IN E&C INDUSTRIES IN VIETNAM AND IN THAILAND

By contrast, E&C firms in Thailand have better competencies than E&C ones in Vietnam in terms of strategic and management competencies.

#### Foreign Entry Mode or Internationalization Strategy Comparison

Almost of firms selected the exporting as the entry mode to enter the foreign markets (>70% of all respondents). However, there are various forms of combination between these foreign modes (see TABLE 2). The joint ventures and export combination is the most popular for Vietnamese firms in both industries, while Thai firms used various combinations.

TABLE 2: FOREIGN ENTRY MODE SELECTED

Foreign entry mode	Vietnam		Thailand	
	G&T	E&C	G&T	E&C
Export & Licensing	1	0	4	2
Franchising & Export	1	0	1	0
Franchising & Export & Licensing	1	0	1	5
JV & Export	11	12	4	2
Franchising & Export	0	0	1	0
JV, exporting and Licensing	2	7	0	1
JV-Licensing	2	1	0	0
JV-Franchising	0	5	0	0

*Note:* G&T = Garment and Textile; E&C= Electronic and Computer parts

#### Internationalization Performance

Performance of internationalizing firms is gauged by the level of achievement its objectives in last three years. In this research, firm internationalization performance and success was evaluated by using four measures: internationalization growth rate, internationalization intensity, comparative market share and generic subject indicator. These measures were self-reported scores of the firms on a seven-point Likert scale from very much less to very much bigger.

Most of firms achieved their objectives less or much less compared with its plan, significantly the E&C companies in Thailand. More than 60% of the total E&C companies achieved the performance very much less than their plan. However, more than 50% of G&T companies in Vietnam achieved the bigger performance as compared to given objective (see FIG 6). These results show the big difference between the performance of high-tech and low-tech companies in Thailand and in Vietnam.

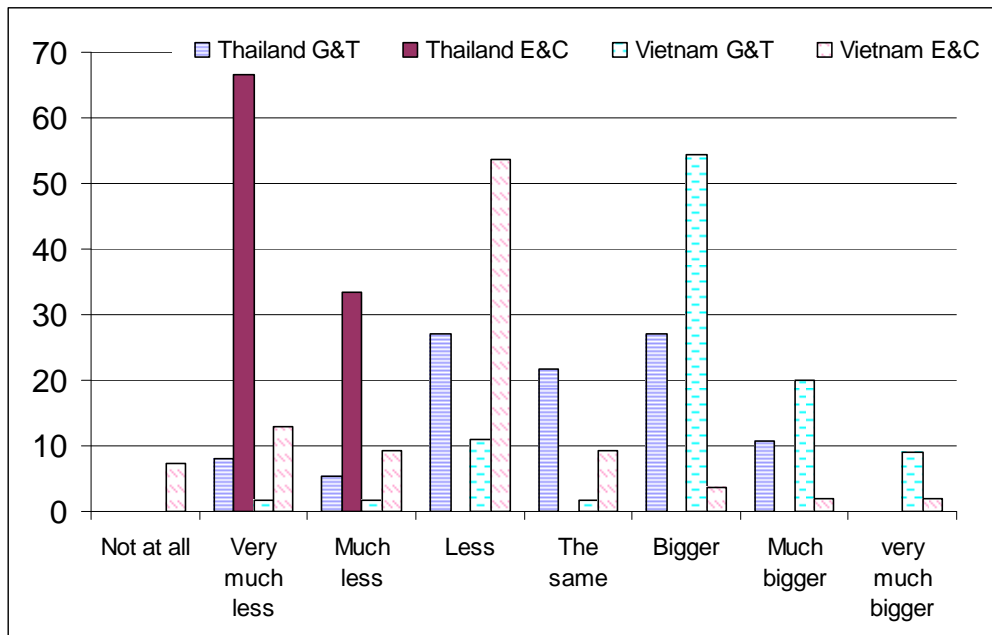


FIG 6: COMPARING COMPETENCIES OF FIRMS IN G&T INDUSTRIES IN VIETNAM AND IN THAILAND

## Discussion

As discussed at the beginning, the internationalization is unavoidable for every economy around the world. In market economies, the internationalization is done mainly by the companies. The popularities of the WINDOWS operation system or IBM computers are presenting the success of internationalization of Microsoft and IBM. There are many reasons of the world reunion Swiss banking services, or the reduction of Russian aircraft in the world sky. Many experts believe that the competencies and internationalization strategies are the biggest reasons. This study focuses mainly on investigating the success of entering foreign markets with the help of firm's competencies and to identify the internationalization strategies of the companies that operated in Vietnam and in Thailand, using different examples in different industries.

The primary findings of this research indicated that there are differences on the internationalization competencies between the enterprises in high-tech (E&C) and in low tech (G&T) industry. E&C companies possess better global knowledge competencies while G&T companies have better competencies in terms of strategic and management ones. The internationalization strategy that firms used to going international are also various between two types of selected industry. There are also differences on the competencies, internationalization strategy and

performance between the enterprises in two selected industries in Vietnam and in Thailand. These primary results will be a good base for further empirical tests of the given hypotheses through using the ANOVA and regression techniques to confirm relationship between competencies, strategy and performance and the influence of industry and country factors on these elements.

As the homeland of the author, the selection of Vietnam as the first country in the research is simple to understand. The selection of Thailand as the second country in this research has several reasons. The most important reason is the similarities between Thailand and Vietnam in terms of geographical, social and cultural conditions. The membership of Association of Southeast Asian Nations provides these two countries the same regional economic business environment. The difference between levels of economic development between two countries is a base for learning by Vietnamese companies.

According to many studies, the technological factor has been a significant variable indicating the internationalization of a firm. Technology is an important factor in a firm's product mobility across national boundaries. In this study, the companies are categorized in term of production technology in order to see the technological impacts and success on internationalization process. Representing the low-tech industries, the garment and textile companies are selected, while the electronics and computer parts sector is chosen as the representative of high-tech industries. Both selected industries exist with a sufficient number of companies in Thailand and Vietnam.

## **Conclusion**

There are differences between the competencies, strategies and performance of internationalizing firms in two selected industries in Vietnam and in Thailand. These differences should be tested step by step based on the proposal framework through ANOVA. The proposal hypotheses will be tested by using a REGRESSION method. This article presents only preliminarily characteristics of respondents and the basic difference on competencies, foreign entry modes and performance of internationalizing firms in G&T and E&C industry in Vietnam and in Thailand. Further findings of this study will be presented in the next publications.

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# **Internationalization of Japanese Eyeglass Industry**

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## **Abstract**

**One of the present tasks in individual industries is “internationalization,” which includes establishment of overseas bases for low-cost production to maintain superior competitiveness, and cultivation of overseas markets.**

**In this report, we put a focus on the eyeglass industry, in which more active movements of internationalization have been observed in recent years compared to other Japanese industries, to examine its actual businesses and future direction of internationalization, taking into consideration the relation of interdependence among the world big three production sites of eyeglasses, Japan, Italy and China. In this report, in accordance with the definition of P. Dicken, we discuss the actual internationalization of the eyeglass industry from a viewpoint of extensive expansion of economic activity to prospect the future direction of the industry.**

## **Introduction**

The internationalizing of local regional industry is a topic demanding serious attention. Spurred by the need to maintain competitiveness, internationalization is the moving of manufacturing centers overseas in order to lower costs and the entering of foreign markets to open new sales channels.

This paper looks at the internationalization of recent years of industries based in Fukui Prefecture by looking at one particular industry, namely the eyewear industry, which has shown remarkable movement in this direction. Along with ascertaining and accessing the current state of internationalization in the Fukui eyewear industry, we also want to investigate the future course of internationalization with an emphasis on the mutual interdependence that exists between the eyewear industries of Japan, Italy, and China - considered the world's three major eyewear manufacturing countries. According to Peter Dicken<sup>1</sup> (2004), however, the use of the term “globalization” has become established as a term similar in meaning to “internationalization” but with the following distinction. Put succinctly, “internationalization” is defined as a process in which “the simple act of expansion pushes economic activity across national boundaries. As such, it is essentially a quantitative process, one that causes economic activity to expand in a geographical pattern.” In contrast, “globalization” is a process “qualitatively

distinct from internationalization in that economic activity does not simply extend across national borders by geographic expansion but more crucially is a function integration of various economic activities going on all over the world.” Here, we will adopt Dicken’s definitions and conduct our study of the eyewear industry from the perspective of *internationalization* in its sense of economic activity expanding across national borders.

Moreover, economic internationalization has been posited as, first, the trade of goods along with the trade of services and, second, the international movement of production factors. Production factors are land, capital, and labor. Land lacks mobility and, in the case of Japan, the international movement of capital is much more common than that of labor. Therefore, when observing the internationalization phenomenon, the international movement of capital is vital<sup>2</sup>. Consequently, rather than internationalization in the broad sense of “the international flow of the various elements that make up a society, such as people, things, money, and information,”<sup>3</sup> we will take up internationalization in the narrow sense of those economic activities carried out by enterprises, with special attention paid to the overseas investment activities (direct foreign investment)<sup>4</sup> that accompany capital movement, and will not address the increasing internationalization in recent years of factors such as finance, information, culture, and human interaction.

Based on these criteria, we begin with an analysis of trade trends that represent what we will call a “prologue to internationalization” of the eyewear industry. This is followed by an assessment of the current state of eyewear industry internationalization, making reference to its characteristics and of the factors that brought them about. We also include an assessment of the course of eyewear industry internationalization with this analysis. Finally, we conclude with a few additional remarks about the eyewear industry and the internationalization it has fostered-what shape will internationalization assume in the future? And how should we approach issues bound up with it in order to achieve further development? And so on.

## **The Trade History of Sabae Eyewear Industry**

### **The start of export trade for the Sabae Eyewear Industry**

The history of the Sabae region eyewear industry export trade goes back to 1907. In that year, regional industrial giant Masunaga Kojo began exporting via Osaka wholesaler’s eyeglass frames to Russia as a general store item. By the 1910s, exporting had expanded to mainland China and in the 1930s Yumatsu Murai began doing direct trade with India<sup>5</sup>. But exporting of regional output did not begin in earnest until the 1960s with the sharp increase in exports to North America. According to the Fukui Branch of the Export Inspection Association (est. 1964) 1965 export inspection statistics, total eyewear exports for Fukui Prefecture including the Sabae region in unit base terms

grew from an initial 37,000 dozen to 240,000 dozen, a more than six fold increase. In monetary terms, the region exported 4.3 billion yen in frames and 8.279 billion yen in sunglasses, reading glasses, and other eyewear. Moreover, export destinations were worldwide, including Taiwan, Hong Kong, Vietnam, Cambodia, North America, Africa, and Oceania. What needs to be noted about this data, however, and as the monetary breakdown by item shows, is that unlike today sunglasses – a technologically uncomplicated product and therefore easy to export to overseas markets - were the primary export item. But as the quality of local output increased the focus gradually shifted from sunglasses to frames<sup>6</sup>, and this development, coupled with aggressive PR promoting regional industry, went on to foster robust export revenue growth.

#### **Recent Trading Trends: Overview of the Fukui Prefecture (Sabae) Eyewear Trade**

A look at Fukui region manufactured eyewear frames shows combined 2004 frame and eyewear<sup>7</sup> exports of 28.3 billion yen and imports of 30.7 billion yen. Moreover, with the rise in the yen following the 1985 Plaza Accord, exports peaked in 1992 at 50.6 billion yen followed by a sharp decline. This is attributed to the rising yen from 1993 along with an increase in direct trade as local manufacturing shifted to China and the subsequent side effects this generated, such as exports from China based manufacturers to Japan. While this resulted in imports greatly exceeding exports on a monetary base, a 2002 decrease in the import total showed a reversing of this broader import-export trend.

The aforementioned import data covers all of Japan so it is necessary to calculate export data for the Fukui manufacturing region alone. According to our own basic calculations, in 1996 the ratio of exports in monetary terms for the primary production item of frames (including parts) was 37.2% of 28.459 billion yen and in 2004 34.4% of 19.426 billion yen. While, as mentioned above, the trend for both export totals and the ratio has been downward in recent years, this is attributed to the shift of manufacturing to China and the subsequent growth of direct imports from overseas, China especially.

On the other hand, imports, which exceeded exports in monetary base terms, held steady since 1996 and from 1995 through 1996 increased more than 30% compared to the previous year. The peaking of reverse imports due to the increase in regional enterprises shifting manufacturing overseas in the 1990s is attributed as the main cause for this trend. The subsequent three straight years of decline starting in 1997 is attributed to uncertain demand due to poor economic conditions in Japan during that period and the subsequent reduced need for local enterprises to manufacture overseas, which in turn reduced reverse imports. The renewed rise in imports from 2000 is considered more the result of an increase in Chinese enterprises entering the Japanese market than of Japanese enterprises shifting manufacturing to China and reverse importing.

#### **Trading Trends by Destination and Item**

A look at trading trends by destination and item for eyewear goods show the following characteristics. Turning first

to export destination, in 1998 52.0% of exports were bound for North America, 29.8% to Europe, and 17.1% to Asia. After 1998, the percentage of exports to North America slowly declined down to 43.9% by 2004. Over the same period, exports to Europe slightly increased from 29.8% to 31.8% and exports to Asia increased robustly from 17.1% to 23.2%. In 1998, 70-80% of Japan's exports were bound for North America and Europe but the picture is somewhat different for more recent years. The export share of the United States, the main recipient of North America bound exports, declined sharply from 49.8% in 1998 to 35.4% in 2004. In contrast, the export of eyewear parts to East Asia, China especially, has increased robustly spurred by the growth in the domestic manufacture of eyewear frames in this region, a trend that we will look at below in terms of the change in trade volume (increasing exports and imports) with China.

Turning to imports, shows that in 2004 51.8% of imports came from Asia, a slight decrease, and 42.5% from Europe, which, in contrast to Asia, is a slight increase and thus no significant change overall. Imported goods from China, however, have increased significantly and, when excluding Italy, have been the biggest source of imports since 1997. This is due to the development of the eyewear industry in China as a result of Fukui based enterprises moving to that country. Trends by item show in the 1990s the proportion of frames exported declined from the 80% level to the 70% level while eyewear such as reading glasses and sunglasses somewhat increased. The breakdown shows that more than 80% of frame exports were metal frames and around 10% were parts exports bound for manufacturing bases set up overseas. For eyewear that comprises the remaining 30%, less than 90% were sunglasses. On the other hand, for imports 60% overall were eyewear and 40% frames, with the bulk of imports consisting of metal frames and sunglasses, both of which comprised just under 80% for their respective categories.

#### **The Emergence of China as a Trade Partner**

The general picture for Fukui Prefecture eyewear trade provided by the above data shows that the shift of manufacturing to overseas in recent years is a significant factor in changing import-export trends. In particular, the ongoing impact on the industry in China by enterprises shifting production to that country cannot be overlooked. As a further reference, import-export data for China only shows that along with the sharp increase in metal frame and sunglasses imports of the last several years exports from Japan have been robust, especially of parts. Moreover, for imports overall, imports from China comprise 88.3% for plastic frames, 87.4% for metal frames, and 84.2% for sunglasses.

This phenomenon can be attributed to the supplying of parts to Fukui enterprises that have moved manufacturing to China and the subsequent increase in imports from those same enterprises, suggesting the exertion of an export stimulation effect and a reverse import effect on local industry. If this phenomenon progresses further, in the future the Fukui eyewear industry will see the emergence of an import substitution effect<sup>8</sup> with local industry producing less of the low- and mid-end product that is China's specialty and a subsequent contraction of local

industry.

## **Internationalization of the Eyewear Industry: Current Conditions and Future Direction**

### **The Continuing Internationalization of the Eyewear Industry**

The previous chapter summarizing trading trends for the Fukui Prefecture eyewear industry shows that the dramatic increase in recent years in the pace of internationalization of local industry (meaning the shifting of manufacturing overseas) has had a significant effect on both export and imports. So just how internationalized is the Fukui Prefecture eyewear industry? This chapter closely examines this question.

Internationalization of the Fukui Prefecture eyewear industry started in the 1980s and became particularly evident after the 1985 Plaza Accord. Internationalization can be separated into two broad periods – the 1980s and the 1990s – because the shifts overseas during these two periods had different underlying factors. The moves overseas in the 1980s were done to strengthen sales in foreign markets and thus focused on setting up sales centers by setting up fully owned subsidiaries in local markets. Therefore, movement was toward Europe and North America where the demand outlook was considered most favorable. According to the 2004 List of Internationalized Enterprises compiled by The Fukui Chamber of Commerce and Industry, of the six overseas regions with a Prefectural business presence at the time, three were in the US, and the remaining three were in Germany, Brazil, and China. Moreover, five of these were sales centers and the only example among them of an overseas manufacturing base was a business that had set up operations in China.

The second period that began in the 1990s saw the beginning in earnest of moving overseas with the aim of manufacturing locally. Specifically, companies had already established an overseas presence in the form of sales subsidiaries in 34 regions and had set up overseas manufacturing center in 15 of these regions. Of this total, 22 regions, or 64.7%, were in China. The factors stimulating overseas manufacturing on the part of the eyewear industry include the 1992 peak and subsequent decline of exports along with the sharp decline in the ability to compete by price in the international market as a result of a sharply rising yen. Moreover, it is indisputable that the fall off in domestic demand brought by the collapse of the financial bubble in Japan compelled local industry to seek new opportunities outside of Japan. At the same time, however, the aforementioned sales centers established since the 1980s in the US, Europe, and other sought after consumer markets created new demand, and a manufacturing infrastructure capable of delivering the price competitiveness and the mass production for meeting the massive demand of these markets was essential.

But if we were to point to the biggest factor for the internationalization of the eyewear industry, it would have to be the unique features of the industry in the Sabae region. That is, in contrast to the intra-company integrated

production systems found in European countries such as Italy and Germany, production in the Sabae region industry is organized around the division of labor. Namely, in addition to the manufacturer of the finished good, the manufacturing process includes a number of related businesses, including subcontractors that do intermediate processing, parts manufacturers, sellers of manufacturing materials, and wholesalers within the region. The system consists of a complicated division of labor distributed among numerous small, family owned businesses performing more than 200 processes. The region's extremely labor intensive division of labor manufacturing system and the need to further reduce production costs due to intensifying competition with overseas eyewear manufacturers made it essential to change how the manufacturing process was organized. And here was the primary benefit of moving overseas. Moreover, German eyewear manufacturers had already moved manufacturing overseas, and as their experience showed, compared to other industries the eyewear industry does not require an especially significant contribution of technology to the overseas site (meaning, the technology the manufacturing site needs to get up and running), and thus an eyewear manufacturing enterprise is relatively more able position to leave planning, development, and the other non-physical, brain oriented divisions of the company in the home country and focus on shifting only the manufacturing component overseas.

#### **Current Status of Eyewear Industry Internationalization**

The above examination of the circumstances underlying the shift of the eyewear industry overseas notes the large number of manufacturing centers established in China. This is attributed to the fact that China has been the country with the lowest labor costs, a requirement given the primacy of price in the international market. Another factor is the development of a favorable environment in China for foreign investment (the establishing of special economic zones, the opening of 14 coastal cities to foreign investment, and so on). Other contributing factors include the future potential of the China market and the benefits of close proximity to the markets of neighboring countries. Given the fact that all these factors make China an inviting investment target and have spurred the eyewear industry to move manufacturing to that country, what was the overall strategy governing the choice of location and the establishing of manufacturing centers for enterprises making the move? The following examines the specific strategies of enterprises that have moved to manufacturing to China.

When looking at how enterprises that have recently moved to Asia have allocated their division of labor for their manufacturing operations, besides moving the labor intensive uniform production lines characteristic of intermediate manufacturing processes, manufacturing is becoming increasingly differentiated by segmentation along the lines of design, quality, and price. As a market strategy, moving overseas has the primary benefit of reducing costs, and includes cases where the aim is to increase international competitiveness in a third-country market by exporting to those countries while also exporting to Japan as well as cases in which production is intended to grow along with local markets as Asian economies grow. When assessing the shift overseas of the eyewear industry within

this context, the shift can be categorized as one of three main types.

In the first type, the labor intensive portion is done in China while technologically demanding final finishing processes are done in Japan. This makes it possible to sell the finished product as a made in Japan brand. Being able to manufacture a high value-added product at low cost in this way has the benefit of delivering a cost competitive product to both domestic and overseas markets. For this reason, a comparatively high number of enterprises moving overseas adopt this manufacturing approach. Moreover, in this case, another factory in the same region may also use the already existing sales network in China to supply product bearing the company brand under an integrated production system (supplying everything from manufacturing molds to parts and final finishing) as part of a manufacturing to sale market strategy focusing on the vast China market. This company, which is based in Shanghai, boasts a very high market share for its product. (Table IV-2-4)

The second type is characterized by the region's largest manufacturer and seller of eyewear frames. Goods formerly produced in Japan for overseas markets are now produced in China. By dividing production between China and Japan in this way, the company has adopted a strategy wherein the China manufacturing center produces goods for the world market. Specifically, using the company's already established sales network for the international market as its base, the China factory's integrated production system produces mid-line product for overseas markets and then exports it directly from the factory. Moreover, the company segments along product lines: goods produced in China for foreign markets turn out different brands from those manufactured and sold in Japan, each with their own design, quality, price, and other characteristics geared for particular markets around the world. Currently, the company's China factory employs around 2000 people and produces several million eyewear frames annually, making it an operation substantially greater in scope than the company's primary factory in Japan. (Table IV-2-5)

Companies conforming to the third type, unlike the aforementioned manufacturers of finished goods, shift only a part of their manufacturing processes abroad in the form of parts and plating factories overseas. Currently, the few companies that have taken this approach do so to lower production costs and for other reasons such as diversifying their revenue sources beyond those companies in Japan by anticipating demand from enterprises overseas. Another factor that cannot be overlooked is that besides the appeal to overseas customers of a high-value product at a low price is the value added of the final product made possible by using the technology of Japanese firms in the final manufacturing phase.

In addition to these three types, some companies continue production in Japan and focus on getting into the world market by fully globalizing their network of sales centers. Such companies generally avoid engaging in price competition in favor of focusing on promoting a topflight brand with high-valued added.

#### **Other Internationalization Activities**

The above section described how the eyewear industry has internationalized mainly by specializing manufacturing

processes. But in addition to moving manufacturing overseas in recent years, leading local companies have formed partnerships with Italian and other foreign brand name manufacturers with the aim of increasing their sales strength in the international market by acquiring a topflight brand. This trend has especially picked up momentum since mid-1997, when local industry giant Charmant formed a partnership with the major Italian eyewear firm Luxottica and established a large-scale distribution center in Sabae to put in place a framework for more effectively utilizing Luxottica Lux brand strength. Likewise, Sunreeve, which manufactures and sells eyewear, merged with the major Italian eyewear company Zafiro, establishing a sales subsidiary in Tokyo and formulating guidelines for selling Zafiro licensed brands in Japan. In addition, companies from other industries have entered the market. In October 1998, for example, the Ono Group, whose major holding is textile machinery manufacturer and seller Nippon Meyer, formed a partnership with German optical equipment manufacturer Carl Zeiss. The two sides agreed to establish a jointly owned company to sell Carl Zeiss brand eyewear frames. The objective of these partnerships was to jointly use the technological expertise of Japanese manufacturers and the brand strength of Italian and German manufacturers to achieve dominating a sales share in the world market. These partnerships and mergers represent a kind of international partnership for maintaining a cooperative working relationship between enterprises and their emergence can be seen as efforts to combine and maximize the economic efficiencies<sup>9</sup> of the parties involved.

#### **The Future Course of Internationalization for the World's Three Major Producing Countries**

The above section organized the main features that characterize the internationalization of the eyewear industry. The section noted that the strategy involves setting up manufacturing centers in foreign countries, of which one type focuses on setting up centers specializing in a particular manufacturing process, another type establishes overseas manufacturing as a way to serve the world market, and yet another type shifts manufacturing overseas in order to assume some of the manufacturing processes of overseas enterprises. In addition to this strategy, in recent years companies have increasingly entered into business partnerships in order to share Japanese technical expertise and the brand power of companies based in Italy and elsewhere. This development means that companies are moving from their past strategy centered on maximizing the cost advantages stemming from economic efficiency to one that emphasizes management expertise based on a company's ability to develop a successful business strategy<sup>10</sup>, a development that shows that the internationalization of the eyewear industry has reached a very advanced stage.

When we talk about the world's eyewear producing regions, we are referring to the powerful name brand eyewear produced by Italy, to the mainly low cost, mass produced, and OEM supply product of China, and to Japan's Sabae region, which specializes in cutting-edge technology and a wide variety of product produced in low volume. These three regions needless to say continue to monopolize the world eyewear market. While the industry in China had once centered around state owned large-scale eyewear manufacturers based in Shanghai, Dalian, and other major cities, these poorly automated, inflexible state-owned giants were incapable of quickly adapting to



design trends, new materials, and other developments that were essential to successfully competing in the eyewear industry, and as China's market economy developed they surrendered their dominance to local eyewear manufacturers based in the six major cities of Wenzhou, Danyang, Xiamen Guanzhou, Shenzhen, and Shanghai. These newer entrants steadily improved their technology to the point of even being able to locally produce technologically challenging titanium frames. Thus having added rising technological standards to its low costs and abundant labor, in the future China will unquestionably pose a major challenge to eyewear manufacturers in Japan, Italy, and elsewhere. Indeed, these three primary regions are already engaged in fierce competition with one another. Seeking low cost production, Italy has begun to enter China, while China in turn seeks to preserve its OEM clients among Italian brands. Meanwhile, Italian brand name suppliers and Japanese enterprises dealing in technologically sophisticated goods have deepened their mutual dependence on one another. Moreover, Japanese enterprises enter China in search of low cost production while Chinese firms seek to acquire Japanese technology, a development that is inevitably linked to transfer of technology to China.

When looking at the future course of internationalization (meaning, moving overseas) of the Fukui Prefecture eyewear industry within the context of this triangular structure and the battle for survival of the three primary producing regions taking place within it, the following scenario is inevitable. If Italy and Japan enter China in pursuit of the economic efficiencies of low cost production, Italy, Japan, and China cannot all be expected to maintain their competitiveness. Consequently, those eyewear enterprises in China pursuing the most low cost business model will, in the near future, be compelled to revise the course of their strategy for foreign markets. That means enterprises shifting to a model for entering the China market or those aiming for low cost production have to turn to regions that offer the best opportunities for maintaining their competitiveness given the strategy they have chosen. Moreover, enterprises that already have an international sales network, and along with the formation of regional blocs in the world economy, in order to supply goods that meet the needs of markets in Europe, the US, and elsewhere, have to shift from a framework dependent on the network of already existing sales centers and embark on building manufacturing centers in regions close to the markets where goods are sold. Moreover, what form the trend for corporate partnerships (international partnerships) undertaken by Italian, French, and German enterprises on the one hand and Japanese enterprises on the other with the aim of sharing brand and technological expertise takes needs to be followed closely.

## **Conclusion**

We have discussed above the state of internationalization as a component of the broader trade trends of the eyewear industry, and should eyewear industry internationalization progress any further than it already has, it will

unquestionably have a wide range of affects on the industry in Fukui Prefecture. One of these factors is the aforementioned change in the volume of trade with China (meaning the increase in parts sent to China and the increase in the import of finished goods to Japan). This increase has negatively affected regional industries and if it continues will bring about export substitution effects, causing the industry to lose out in the area of the low- and mid-end product that are China's strength and ultimately bring about a hollowing out of local industry.

The transfer overseas of eyewear manufacturing technology is another major problem linked to this trend. Until recently, the typical pattern for local industry has been to move all production through the frame stage overseas and then bring the output back to Japan for final plating and finishing. In recent years, however, enterprises are increasingly setting up integrated production systems in or moving their plating and processing divisions to China to such an extent in fact that it is no longer an overstatement to say that all regional manufacturing processes have shifted to China. The implication of this trend is that the cutting-edge technology that drives the eyewear industry is being transferred to China with the result that eyewear manufacturers in China are learning how to use better technology.

The development accompanying these changes that needs special attention is the subtle changes occurring as a result of the aforementioned international partnerships. Since the 1980s, the strategy of adding value-added to their own product by paying expensive licensing fees to acquire famous brands and thereby enhance sales strength has been a standard business practice of regional enterprises. As noted above, over time this practice has assumed the form of partnerships between major local enterprises and overseas brand name manufacturers and brand holders. But, along with the ongoing realigning of the industry in recent years by the accelerating pace of mergers and acquisitions on the part of topflight European brands, more recently cracks in the brand oriented partnership framework between regional enterprises and overseas brand manufacturers and brand holders are starting to appear, such as parties declining to renew licensing agreements and the pulling out of sales subsidiaries formed through mergers with Fukui enterprises. This trend poses a grave threat for Fukui enterprises in that they can be expected to enter the overseas market for name brand manufacturer and brand holders eyewear in the future and yet could possibly lose control of well known brands. The implication of this development is that the era of eyewear manufacturers selecting the brands they want is giving way to an era in which overseas brand manufacturers and brand holders select the eyewear manufacturers they want, overseas enterprises included.

The hollowing out of regional industry and transfer of technology abroad engendered by internationalization along with the strains in brand oriented partnerships clearly pose major challenges for the future of the Sabae eyewear industry. The future shape of the industry as it moves forward within this context, for both major enterprises and medium and small manufacturers is considered to be moving in the direction as described below. Turning first to major regional enterprises, and including those that have already internationalized by moving

overseas, we see that these enterprises have been compelled to pursue the aforementioned low cost production as a way to address intensifying competition with Italy and China. In recent years, along with DC brands and developments relating to them thus far, the major enterprises are working to brand all sorts of functions and features by bringing the functionality of their product to the forefront, but for these mass producing major enterprises relying on this alone as a way to expand output is undoubtedly a difficult proposition. Going forward, if the major enterprises make every effort to seek out partnerships and develop strategy with rgw overseas brand manufacturers and brand holders that possess unique sales strengths in the international market it is essential that relative to them they pursue dominance in the area of cost by adding value through technology, design, planning, and other factors.

On the other hand, the medium and small manufacturers that are the driving force of local industry (small finished goods manufacturers, intermediate processors, parts manufacturers, and so on) must preserve the past risk avoidance strategy of maintaining a large number of accounts while also building an ordering system endowed with a sufficient degree of specialization for meeting the needs of their customers. That requires not only building factory delivery and lot systems but coordinating closely with the planning division in order to meet the material, quality, design, brand, and other requirements of their customers.

Moreover, all manufacturers regardless of size will have to consider developing the house brands that have become the focus of so much attention in recent years. So far, regional industry has concentrated on DC brand licensing as a way to cultivate company brand, and sales channels as well are mainly primary and secondary distributors by way of major eyewear mass retailers that stress price more than design. In contrast, a house brand is a unique company product planned and developed by the company that aims to simplify distribution by selling directly to concept shops and other small retailers or by adopting a direct sale framework, has a design with a keen fashion sense, and is appropriately priced. A house brand aims to develop niche markets and, if one had to say, such a strategy might be best suited to the sales strategies of small and medium sized manufacturers.

The final issue concerning the future of the industry we need to address concerns those related fields in which the eyewear industry has put its technology to use. This is because as medical technology advances eyewear frames may lose their crucial role as a medical instrument. Therefore, in the short- and medium-term the industry needs to pursue low cost, high-valued added and fashionable product development while pursuing in the long-term further enhancing the technological standards of the industry to ensure that eyewear technology remains an indispensable resource to other fields.

One of the core technologies of the Fukui eyewear industry is its technology for working with extremely difficult to process materials such as titanium and super-elastic NT metal alloys. The extraordinary potential of this technology is a well known fact. If this technology for processing difficult materials were to become an established high-precision technology used in conjunction with precision casting and super-plastic processing<sup>11</sup>, it would be

possible to develop titanium and shape memory alloy core applications for precision machinery, laser, medical, and other uses. Moreover, building on the advances of precision casting the possibility of developing high alloy metals, stainless steel, and other hard to process materials for use as machine parts - a market potentially worth trillions of yen – is not at all farfetched. Further developing the potential of the industry’s precision technology in this way will stimulate existing markets and related fields, present opportunities for entering different fields, and recast the industry into a new form.

The Fukui Prefecture eyewear industry has overcome numerous challenges to reach its status as the world’s premier eyewear industry region centered in the city of Sabae. But now the same materials, functionality, and planning and development prowess in the area of design of the region’s enterprises that have made this past success possible must now turn to the internationalization that has been the subject of this paper. At the same time, the hollowing out that underlies internationalization is on the verge of emerging as a full blown problem. In addition, the breaking down of brand oriented partnerships will certainly have a severe negative impact on the local eyewear industry in the future. Nonetheless, we must not forget the fortunate circumstance that finds Sabae eyewear manufacturers located in the world's second highest value-added consumer market, following that of the US. By quickly ascertaining the vast as well as the uniquely Japanese needs of this market, the Sabae eyewear industry will continue in its role as a region developing and supplying eyewear products.

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## End Notes

Peter Dicken, *Global Shift: Reshaping the Global Economic Map*, kokonshoin, October 2004.

<sup>2</sup> *Kokusaika to hokuriku* (Internationalization and Hokuriku), Hokuriku Electric Power Company Regional General Research Institute, August 1994.

<sup>3</sup> Here, overseas business activities refer to establishing manufacturing centers and sales center with the objective of expanding overseas.

<sup>4</sup> Here, overseas business activities refer to establishing manufacturing centers and sales center with the objective of expanding overseas.

<sup>5</sup> *megane to fukui* (Eyewear and Fukui), Fukui Shimbunsha, June 1984.

<sup>6</sup> Frame exports have exceeded sunglasses since 1981: in 1980, frame exports totaled 7.58 billion yen, sunglasses 8.26 billion yen; in 1981, frames totaled 8.97 billion yen, sunglasses 8.14 billion yen. Source: Fukui Prefecture Economic Data 1984.

<sup>7</sup> “Eyewear frames” here refers to metal frames, plastic frames, and parts. “Eyewear” is the total for sunglasses and reading glasses.

<sup>8</sup> METI 1998 *White Paper*, 1998, Ministry of Finance Printing Office, 254.

The effect of moving overseas on trade and manufacturing has produced the following three general outcomes: Stimulation of domestic output due to supplying capital and machine parts to overseas affiliates (export inducing effect); Increased imports to Japan due to importing output of overseas subsidiaries (reverse import effect); The substitution of Japanese exports and output by foreign output (import-export substitution effect). Moreover, METI formulates a table showing the relation between the export inducing and import substitution effects for output as part of its annual survey of Overseas Business Activities. In 1995, the table showed for the first time since its inception a net minus effect.

<sup>9</sup> Toyama Prefecture Bureau of Statistics, Economic indicators main points, Toyama Prefecture Statistics Association, December 1996, p.75.

In recent years the methodology of foreign direct investment has been international partnerships. Namely, in order to adapt to a diversifying international environment and maintain global competitiveness, enterprises around the world mutually enhance their operational resources by forming mutually cooperative frameworks.

<sup>10</sup> Nemoto Takashi, Moroka Shigeta, ed. *kokusai keiei no shinka* (the evolution of international management), gakubunsha, 1988, Chapter 1.

In addition to critiquing various past explanations of corporate competitive advantage, L. Doz and C.K. Prahalad state that rather than pursuing economic efficiencies, in the future the factor decisive to competitive advantage will be a company’s management attributes.

<sup>11</sup> Fukui Prefecture Ed. *tokutei no chuushoukigyoushuuseki no kasseika ni kansuru keikaku* (Plan for revitalizing specific small and medium business agglomerations), Fukui Prefecture Commerce, Industry, and Labor Division, Engineering and Technology Section, March 1996, p.82.

# Subsidiaries of Multinational Semiconductor Design Companies: The Case of India

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## Abstract

**In the semiconductor industry, there is constant pressure to make products faster, better and cheaper all the time. In such a highly competitive environment, many semiconductor foreign-owned MNCs have chosen to set up semiconductor design centers in India. Based on an exploratory study of fifteen subsidiaries in semiconductor design representing approximately sixty six percent of MNC presence in that industry space, the authors studied the rationale behind setting up semiconductor design centers in India and the contribution made by Indian subsidiaries in terms of value added services to the parent MNC, its other subsidiaries and the industry ecosystem. The aim was also to investigate the extent to which these subsidiaries function as centers of excellence within those MNCs.**

## Introduction

Network based MNC models are widely discussed in literature, the argument being that MNCs offer varied roles to their subsidiaries to foster adaptation, aggregation and arbitrage<sup>0</sup> or to promote competitive advantage through integration, local responsiveness and learning<sup>0</sup>**Error! Reference source not found.** MNCs are also conceptualized as networks of knowledge flow between the subsidiary and other parts of the corporation<sup>0</sup>. These discussions bring into focus an interesting element that it is not just financial measures that are relevant in measuring the success of subsidiaries but also the information and knowledge flow they contribute in strengthening the competitiveness of the MNCs. There is another way of looking at the contributions that subsidiaries make in the context of “business networks” consisting of actors, resources and activities involved in creating and delivering value<sup>0</sup>. Bringing these perspectives, together we could consider subsidiaries in terms of their contributions to the information and knowledge network within the MNC and in alignment with the overall strategy of the headquarters**Error! Reference source not found.** While on the other hand, we could consider subsidiaries as business entities in those specific countries where they are located, and that they are active participants in a business

network that includes other business actors such as suppliers and customers, conceptualized as external embeddedness<sup>0</sup>. In a study of 408 external relationships with customers and suppliers in 98 subsidiaries of Swedish MNCs Andersson and Forsgren found the more adapted the subsidiary was to its external counterparts the higher its importance was within the corporation, at least with respect to the technology function. Thus it was established that the role of the subsidiary in the network connecting other subsidiaries as well as headquarters evolves while interacting with customers and suppliers in product development work. What is more interesting is the role that subsidiaries can perform as linking pins between external and internal business network. They could also create value in terms of bringing together the activities and resources of external and corporate members of the network<sup>0</sup>. They would then be identified as center of excellence. It has been argued in the literature relating to MNC-subsidiary relationship that a comprehensive analysis of the determinants of centre of excellence must include the local business network to which the subsidiary belongs, in other words “external embeddedness”, and its relationship with the rest of the MNC which is also understood as corporate embeddedness<sup>00</sup> and the exchange of R&D (research and development) with other corporate units<sup>0</sup>.

The purpose of this paper is to study the subsidiaries of multinational semiconductor design companies<sup>1</sup> in India and the categorizations of the Indian subsidiaries based on the literature relating to the network based MNC. The aim is to understand the rationale behind setting up semiconductor design centers in India and the contribution made in terms of value added services by the Indian subsidiaries. Also data about subsidiaries in India was analyzed to investigate the extent to which subsidiaries of the semiconductor firms function as centers of excellence.

## **The Setting**

The study examined the Indian subsidiaries of foreign-owned semiconductor MNCs (henceforth referred to as just MNC). The reasons for selecting subsidiaries in India of MNCs in semiconductor design are highlighted by the following factors.

The semiconductor industry is a large (USD 228 billion in 2005<sup>Error! Bookmark not defined.</sup>) and complex ecosystem within an even larger and electronics industry (>USD 1 Trillion in 2005). The relationships and linkages within the semiconductor and between the semiconductor and electronics ecosystem are many-to-many making for very intricate and interesting relationships. The semiconductor industry is also a very R&D and capital intensive industry with nearly a third of the revenue being ploughed back (approximately 14% to R&D and 19% on capital expenditure items)<sup>2</sup>. A simplified view of semiconductor industry is shown in Fig. 1 below.

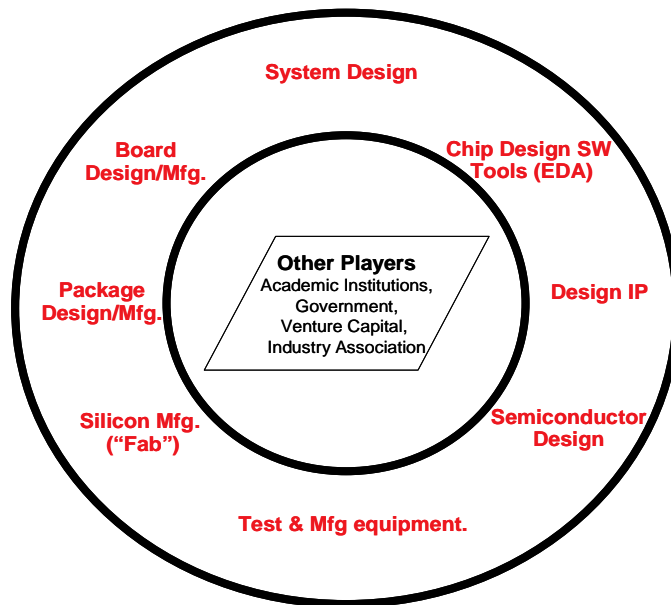


FIG. 1: SIMPLIFIED VIEW OF SEMICONDUCTOR ECOSYSTEM

The overall Indian semiconductor industry was estimated at US\$ 3.2 Billion in 2005 and expected to grow to US\$ 43 Billion by 2015 growing at a compounded annual growth rate of 29.8%[3], which is much higher compared to the global semiconductor industry growth rate of approx 9-10%. In terms of manpower, it is estimated that this industry employed 97,300 people in 2006<sup>3</sup>. The Indian subsidiaries are estimated to form approximately 60% of the overall Indian semiconductor industry today<sup>4</sup>.

Within the Indian semiconductor design companies, there are different types, such as, fully owned subsidiaries of MNCs, domestic/local companies, Indian MNC (Indian owned/based company with global subsidiaries). Almost all Indian subsidiaries of global MNCs are fully captive, working on design & development for products that will be sold globally by the MNC. Within the domestic companies, it may be further sub-divided into captive and non-captive companies. Captive domestic companies perform design related tasks associated with products created in India (such as electronics/consumer products, defense applications, etc). Non-captive companies are comprised of ‘design service’ companies (offering semiconductor design and/or related services to other companies), ‘IP’ companies (providing specific functionality complex semiconductor building blocks), etc. Based on the above breakdown, we have estimated that the headcount in Indian subsidiaries of semiconductor MNCs is 17% of the total 2006 Indian semiconductor industry workforce<sup>5</sup> Fig. 2 illustrates a generic view of the various



relationships between the Indian subsidiaries and other players. The dotted line signifies that there may or may not be a relationship while a solid line indicates an existing relationship.

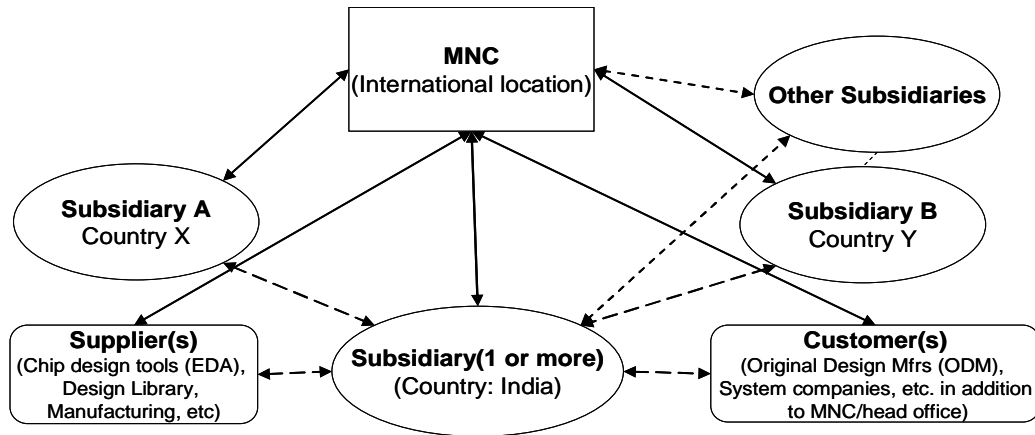


FIG. 2: SUBSIDIARY RELATIONSHIPS

## Method

### Data Collection

To control for industry effects, the study examined subsidiaries in the semiconductor design industry. Fifteen multinational subsidiaries were selected for a series of semi-structured interviews. These subsidiaries represented 66%<sup>3</sup> of the semiconductor design work of MNCs in India. Four of the Indian subsidiaries belonged to global semiconductor companies that were part of the top 10 fabless<sup>6</sup> companies in the world **Error! Reference source not found.** while 10 of them were featured in the top 25 semiconductor companies in the world **Error! Reference source not found.**

Separate interviews were conducted with senior managers of the subsidiaries in order to obtain various perspectives on the subsidiaries and their management role. The interviews were taped and subsequently transcribed. One of the authors also added insights from the interviews and the questionnaire responses that were not reflected or were not readily apparent from the transcription (he has spent 15 years of his working life in the semiconductor design industry). He was able to complement the structured questions with additional probing that helped to throw more light on the subsidiary related issues in the MNC context.

The questions for the structured part of the interview were gathered by examining the MNC headquarters-subsidary relationship literature<sup>00000</sup>. This study focused on the subsidiaries of global semiconductor MNCs and did not include semiconductor manufacturing companies as they are currently not present in India (although two

international consortiums have expressed their interest in setting up semiconductor manufacturing in India). Even though the MNCs did not have any semiconductor manufacturing facilities in India, many of the companies in the study did have manufacturing facilities elsewhere in the world.

#### **Analysis**

Eleven of the 15 companies had head offices in United States while the rest had head offices in Europe. Among the 15 foreign owned semiconductor design subsidiaries in India, 10 were Greenfield investments, where as 5 were acquisitions. Table 1 shows some other characteristics of the subsidiaries in India at the time of study.

TABLE 1: CHARACTERISTICS OF INDIAN SUBSIDIARIES OF SEMICONDUCTOR MNC

Characteristics (As of 2006)	Mean	Standard Deviation
Average Transfer Price or “revenue” <sup>7</sup> (USD, Millions)	\$39.56	\$28.71
Average number of employees in India	714	515
Average Engineers (as share of total employees in India)	85%	0.18
Average R & D staff (as share of total employees in India)	72%	0.26

The subsidiaries had relatively large number of engineers as a percentage of the total India subsidiary headcount (85%). The vast majority of the engineers in the subsidiaries were working directly related to R & D (72%). The authors found that engineers predominantly worked in the R & D function while some of them worked in non-R&D role such as customer support, application engineering (customizing or optimizing a product for a specific customer) and internal IT (information technology) organization. In this paper, the usage of the term “R&D” collectively refers to product development and/or design implementation (such as, design verification, design testing, etc.) and advanced research for future products as R&D. All the subsidiaries studied were captive design centers, implying that all of the work done in India constituted intra MNC exports (100% internal transfer).

#### **Rationale for Setting up Subsidiaries in India**

From the interviews, the authors gleaned the following factors as being the drivers for global MNCs to setup subsidiaries in India.

The top reason that emerged behind setting up the subsidiary in India was to take advantage of the technical competency supported by sizeable technical talent pool in India. The respondents also commented on the quality of the available talent to take on cutting-edge semiconductor design work to produce best-in-class products. Innovation as an attribute was also mentioned in the interview. In the context of semiconductor design, one respondent

described innovation as the ability to solve complex technical challenges related to demanding product design requirements. In many instances, the Indian subsidiary had complete product design ownership. The responses were as follows:

*“There is no product design effort duplication”. “It (presence of India subsidiary) is related to the technical competency about what can be achieved in the R&D center and this is not related to cost”. “A lot more innovation is happening in front-end of design process in India be they big or small. It enables us to work with them to understand their unique needs and expectations and to design and deliver solutions to their problems. This creates unique value for the [MNC] company from the India market perspective or globally”* (This comment was made by a subsidiary engaged in semiconductor chip design software). *“In terms of size, the India operation is the second biggest R&D operation outside of the US”*.

Some of the respondents also indicated that while talent availability was a big advantage, there were some challenges with respect to hiring engineering professionals given the strong competition for talent across the industry (MNC and non-MNC).

The second reason was the burgeoning Indian market. This drove the setting up of design center(s) to satisfy the objective of being in India and to service the fast growing domestic electronics market (compound annual growth rate of 30%0) and also be close to some of the fastest growing markets (Asia-Pacific semiconductor consumption was twice that of combined sales in US and Japan in 2005)<sup>8</sup>. Another interesting aspect raised in the interview was taking advantage of good command over English language to support both domestic customers as well as be part of a chain of subsidiaries providing global technical support for advanced semiconductor and electronic design tools. The respondents observed –

*“If you make a new concept and bring it to the design stage, you need to be closer to the market”. “It is important to have the ability to service the customers in the new geographies. A lot of our customers are technology intensive. They need a high level of technical engagement. To that extent our Indian operations is the largest outside of our headquarters”. “What we do is – in the English speaking regions, we support the customers (semiconductor and electronic designers) directly. For non English speaking areas, we become a second level of support. Likewise in Europe, in English speaking parts, we engage with customers directly”*.

The next key reason stated was about cost advantage of skilled engineering talent pool. While this was mentioned as a key reason, many of the respondents made it clear that cost advantage was not the only or the biggest driver behind setting up the R&D center. Following are some related quotes from interview: *“There is a cost advantage but contrary to the common belief, cost advantage is not a compelling driver”. “Cost is an advantage but it is not the primary driver”*.

The above factors mentioned in the study relate well with facts and figures related to the growth of the semiconductor industry in India – the electronics consumption in India was pegged at USD 28.2 Billion in 2005 with a projection for USD 126.7 Billion and USD 363 Billion in 2010 and 2015 respectively<sup>0</sup>. This is estimated to drive the India semiconductor revenue from USD 3.2 Billion in 2005 to USD 43.1 in 2015, growing at compound annual growth rate of approximately 30%<sup>0</sup>. As for talent supply, India has a large base of total engineering pool and talent specific to semiconductor space. In a recent study, India ranked second only to US with respect to the total number of engineers in semiconductor design area and stood third in overall engineering talent pool (after US and China)[5]. In a recent study conducted by India Semiconductor Association, cost advantage was listed 5<sup>th</sup> on a list of ten factors<sup>0</sup>.

### **Role of Indian Subsidiaries**

From the interviews, it was apparent that the primary role of Indian subsidiaries of global semiconductor MNCs was product development. All the responding companies stated that they were involved in some aspect of product development. The Indian subsidiaries reported that they were working on products targeted for the global market and the authors did not find any subsidiary that was developing products specifically targeted for India.

Within the realm of product development, the subsidiary's activity fell in roughly in one of these three categories -- implementing portion(s) of the product, engaged in certain type of design activity (such as verification, front-end design, back-end or physical design, embedded software, testing, etc.) and finally, implementing the entire product from specification to the finished design (referred to as "tapeout" or mask generation for semiconductor chip manufacturing). One of the interviewees observed the following: *"We have the capability to define, conceive and develop products"*.

In the case of partial product development or offering a set of design activities, the Indian subsidiary worked closely with the MNC headquarters and/or other global subsidiaries of the MNC. Some of the Indian subsidiaries were also involved in varying degrees of R&D for possible use in future products.

Other functions taken on by the Indian subsidiary ranged from Marketing, Sales, Customer Support to Applications Engineering. The primary focus of above activities was to tap the local market opportunity and help expand the sales foot print of the parent MNC. In one instance, the authors found that the Indian subsidiary was part of a network of global customer support centers providing 24x7 advanced technical product support to global customers.

### **Contribution of Indian Subsidiaries to Parent MNC**

The key contribution by the Indian subsidiaries appeared to relate to either partial or complete product development at a cost advantage delivering best in class products for the global markets. In addition, as stated above, some of the subsidiaries were involved in R&D for future products. In some cases the subsidiaries contributed to embedded software (software that works very closely with hardware to deliver certain system functionality) and complemented

the MNC in terms of type of design. One study respondent quoted the following statement made by CEO of his MNC: *“There is not a single product that the company is releasing now which is not touched by India”*.

In 2 out of the 15 respondent companies, the Indian subsidiaries were testing the ground for conceiving products that were specifically relevant to India or other similar emerging markets or geographies. The specificity was either with respect to use models (such as operate in harsh environment, community/multi-use, etc.) or products aimed at very attractive price point. It is important to note that for the respondent companies, there were no India specific products to date. On the other hand, all the subsidiaries studied were actively engaged in expanding the market potential in India through marketing and sales related activities.

Finally, a very important aspect of the Indian subsidiaries contribution was the development of Intellectual Property (IP) related to integrated circuit (IC) technology, with the key measure of IP being patents. The total semiconductor related patent applications and total patents granted (not just for MNCs) was 2145 and 621 respectively for 2001-2005 in India<sup>0</sup>. The authors assume that most of these patents were filed by Indian subsidiaries of global semiconductor MNCs due to the fact that they represent more than 60% of total semiconductor companies in India, as well as the fact that in the past, semiconductor MNCs have had a strong record of creating (and protecting) patent portfolio. While in terms of absolute numbers the number of overall patents filed may not be high as compared to other countries, this marks the beginning of establishing a strong foundation for creation of IP as an important deliverable by the subsidiary.

### **Classification of Semiconductor Design Subsidiaries**

Classification of subsidiaries can be done according to literature<sup>000</sup> based on two variables: export intensity and R&D intensity, giving us a simple two variable matrix. A high export intensity should reflect the fact that the subsidiary has some kind of international competitive advantage, while a high R&D intensity indicates that the subsidiary is undertaking its own product development. Together, these two measures express the extent to which the firm has some kind of self-created international strength and responsibility, and thus reflects the autonomy dimension. See Table 2 for classification of Indian subsidiaries of MNC semiconductor companies.

TABLE 2: CLASSIFICATION OF INDIAN SUBSIDIARIES OF MNC SEMICONDUCTOR COMPANIES WITH RESPECT TO R&D INTENSITY (BASED ON MATS FORSGREN AND TORBEN PEDERSEN FRAMEWORK, 1998)

		R&D (Research and Development)	
		Low	High
Export (Internal / External)	Low	<b>0</b>	<b>0</b>
	High	<b>5</b>	<b>10</b>

It is evident from Table 2 that a majority of the companies were in the “product mandate” quadrant (high export, high R&D) while the rest were in the “International supplier” quadrant (high export, low R&D). For the “Export” variable, both internal and external exports were considered. All the respondents were found to be “captive” design centers implying that the entire work done in the Indian subsidiary would be done for the MNC head office, thereby resulting in 100% export. For R&D, “high” meant that the subsidiary was performing cutting edge product implementation (e.g. products that would be built on latest semiconductor manufacturing process) or had assumed ownership of end-to-end development of product from specification to final design step (called “tapeout”) or had built a deep-level of expertise in specific areas of VLSI (Very Large Scale Integrated Circuits) and/or embedded software design which the rest of the companies leveraged.

A follow-up to the questionnaire was done to understand the scoring for low and high categories of R&D. The high scores were largely from subsidiaries that had been established in India for more than 5 years and exhibited the attributes listed above. Four out of the five companies that scored a low on R&D were relatively newer in terms of number of years of operation in India (less than 5 years) while the fifth company had been in India for longer than 5 years and had pockets of high R&D but the subsidiary as a whole did not conduct high level of R&D.

#### **Coordination and Exchange of R&D between Indian Subsidiary and MNC**

One of the first signs of centre of excellence emerging in a country location is degree of corporate embeddedness as reflected in the coordination and two way flow of knowledge between the subsidiary and other corporate units suggesting the emergence of a strategic role for the subsidiary in the over all scheme of the MNC. In order to measure the degree of corporate embeddedness with respect to R&D the Indian subsidiary managers were asked to indicate the level and importance of R&D coordination (with MNC head office and other global subsidiaries).

The frequency of the current level and importance attached to R&D coordination between the Indian subsidiary and MNC head office is shown in Table 3 and Table 4 respectively. The frequency of the extent and importance of relationship between Indian subsidiaries and other global subsidiaries of the same MNC is shown in Tables 5 and 6 respectively. Both the current level as well as the importance attached to the R&D coordination / relationship was considered from the perspective of the subsidiary.

TABLE 3: CURRENT LEVEL OF R&D COORDINATION BETWEEN INDIAN SUBSIDIARY AND MNC HEAD OFFICE

Value	Frequency	%
0 (Very loosely coupled)	0	0%
1	0	0%
2	1	7%
3	0	0%
4	5	33%
5 (Very tightly coupled)	9	60%

TABLE 4: IMPORTANCE OF R&D COORDINATION BETWEEN INDIAN SUBSIDIARY AND MNC HEAD OFFICE

Value	Frequency	%
0 (Not important at all)	0	0%
1	0	0%
2	0	0%
3	0	0%
4	4	27%
5 (Very important)	11	73%

The highly complex and challenging nature of work carried out by the subsidiary is reflected in the response on the importance of the relationship between the subsidiary and MNC head office being ranked very high (all of the responses were marked 4 or higher) in Table 4. There was also a very good correlation between the importance attached to the relationship and the actual extent of relationship between the subsidiary and the MNC head office as shown in Table 3 (all but one response were marked 4 or higher).

TABLE 5: CURRENT LEVEL OF RELATIONSHIP BETWEEN INDIAN SUBSIDIARY AND OTHER SUBSIDIARIES

Value	Frequency	%
0 (Very few engagements)	0	0%
1	2	13%
2	2	13%
3	2	13%
4	7	47%
5 (Very many engagements)	2	13%

TABLE 6: IMPORTANCE ATTACHED BY INDIAN SUBSIDIARY TO RELATIONSHIP WITH OTHER SUBSIDIARIES

Value	Frequency	%
0 (Not important at all)	0	0%
1	1	7%
2	1	7%
3	1	7%

4	4	27%
5 (Very important)	7	47%

There was good correlation between current level of relationship between the Indian subsidiary and other subsidiaries of the same MNC vs. the importance attached to this relationship – 60% and 74% of the response was marked 4 or higher for Table 5 and Table 6 respectively. However one respondent did not respond to Table 6 (frequency doesn't add up to total number of respondents). Going into the next level of detail, while 47% gave the highest rating (5) for importance attached to this relationship. Many semiconductor designs are done in a distributed fashion and require tight partnership across multiple design centers and/or geographies and involve extensive collaboration with other subsidiaries (in addition to MNC head office). The multi-site or cross-geography development for a given product is driven by the MNC desire to utilize the best teams and their domain expertise in solving specific design challenges while helping increase the cost efficiency of the overall product design. Having multiple teams also helps in accelerating time-to-market (TTM). This is best embodied in a quote from the study: *“It (cross-site/multi-site design of a product) is about lowering the cost of the development and/or increasing the speed of development”*. Only 13% attached the highest rating for the current level of this relationship although 60% rated high (4 or better). The key point that was reiterated by many respondents was that during the initial years of the Indian design center, most if not all interactions was with MNC head office with a relatively low level of engagements with other subsidiaries inside the MNC. As the India design center evolved and matured, working on one or more complex products or design aspects required interactions with other subsidiaries in addition to MNC head office. Also, while most of them acknowledged the challenges of interactions with sites across the globe (time zone differences, cultural differences, majority of interactions being non face-to-face, etc), nobody raised this as a limiter for future engagements.

**External Embeddedness**

External embeddedness coupled with corporate embeddedness contributes to the development of a centre of excellence. The senior managers of Indian subsidiaries were asked to indicate the importance and current level of relationship between the subsidiary and external customers and suppliers based on the assumption, as in theories about business networks, that such relationships were crucial for technology development<sup>00</sup>. These indicators were used as a rough estimation of the degree of external embeddedness of the degree of the external embeddedness of the subsidiaries. Table 7 and Table 8 indicate the current level and importance of relationship between the Indian subsidiary and external customers respectively. Table 9 and Table 10 show the response for current level and importance of relationship between the Indian subsidiary and external suppliers respectively.

TABLE 7: CURRENT LEVEL OF RELATIONSHIP BETWEEN INDIAN SUBSIDIARY AND EXTERNAL CUSTOMERS

Value	Frequency	%
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0 (Very few engagements)	2	13%
1	0	0%
2	3	20%
3	8	53%
4	1	7%
5 (Very heavy engagements)	1	7%

TABLE 8: IMPORTANCE ATTACHED (BY INDIAN SUBSIDIARY) TO RELATIONSHIP BETWEEN INDIAN SUBSIDIARY AND EXTERNAL CUSTOMERS

Value	Frequency	%
0 (Not important at all)	0	0%
1	0	0%
2	3	20%
3	3	20%
4	3	20%
5 (Very important)	6	40%

A majority of the responses attached high importance to the relationship between the subsidiary and external customers (60% marked 4 or higher). This was in line with one of the goals of setting up the subsidiary which was to expand the sales footprint of the MNC by identifying and tapping domestic market opportunities. However the actual extent to which this relationship occurred was much less than the importance attached to this type of relationship (only 14% marked 4 or higher). While both R&D work and expanding sales/market footprint were important objectives for the subsidiary, R&D focus had a relatively higher priority compared to domestic sales/market opportunity and/or domestic business development. This was also supported by the relatively high percentage (85%) of resources in the design center that belonged to the engineering function. It is possible that as the Indian semiconductor market matures (with the entry of semiconductor manufacturing/fab, assembly, test, packaging, etc.) and MNCs look for increased domestic market opportunity, it may reflect in higher ratings for level of engagements between the subsidiary and external customers in the future.

TABLE 9: CURRENT LEVEL OF RELATIONSHIP BETWEEN INDIAN SUBSIDIARY AND EXTERNAL SUPPLIERS

Value	Frequency	%
0 (Very few engagements)	1	7%
1	1	7%
2	5	33%
3	4	27%
4	4	27%

5 (Very heavy engagements)	0	0%
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TABLE 10: IMPORTANCE ATTACHED (BY INDIAN SUBSIDIARY) TO RELATIONSHIP BETWEEN INDIAN SUBSIDIARY AND EXTERNAL SUPPLIERS

Value	Frequency	%
0 (Not important at all)	0	0%
1	0	0%
2	4	27%
3	4	27%
4	4	27%
5 (Very important)	3	20%

The authors looked at some examples of external suppliers before analyzing the above data. Some examples of external suppliers were chip design automation software (also called Electronics Design Automation or EDA) vendors, semiconductor cell library vendors, Intellectual Property (IP) vendors (who create complex design entities that can be reused by one or more companies) etc. Table 9 shows the current level of the relationship between the subsidiary and external suppliers – 27% gave a score of 4 or higher with a majority (33%) of the respondents giving a score of 2 indicating a low level of current engagement with external suppliers. This may be explained by the fact that the Indian subsidiary, to a large extent, was typically not involved with external suppliers in terms of purchase. In the semiconductor design industry, these relationships were found to be extremely crucial from the perspective of creating competitive products with tight schedule and quality constraints. Therefore, in order to ensure consistency in design flow across multiple design centers as well as to take streamline vendor management and drive cost efficiencies, most of these relationships were cemented on a company wide or project wide basis at the MNC head office leaving somewhat of a lesser scope for subsidiaries to have vendor engagement. This was not to say that external vendor engagements did not occur at all. Examples of present external vendor engagements in the design centers most commonly were found in the areas of training (technical and non-technical), infrastructure related engagements, etc.

In Table 10, it is interesting to note that 47% of the respondents gave a score of 4 or higher on importance attached to the relationship between the subsidiary and external vendors. The fact that the current relationship (between subsidiary and external suppliers) was less than the importance attached seemed to suggest that there was a need or a desire for greater interaction. This may be due to potential increase in engagements with suppliers (such as with semiconductor IP companies, etc.) that may be driven by more complex or complete product(s) development at the subsidiary. Also, this may be a leading indicator of important engagements with other players in the Indian semiconductor ecosystem as it grows to include new capabilities such as Assembly Test and Manufacture (ATM), packaging, semiconductor manufacturing (“fabs”), etc. Fig.3 summarizes the internal and external embeddedness

ratings found in the study by plotting the frequency of scores 4 and higher for current level and importance attached to respective relationships.

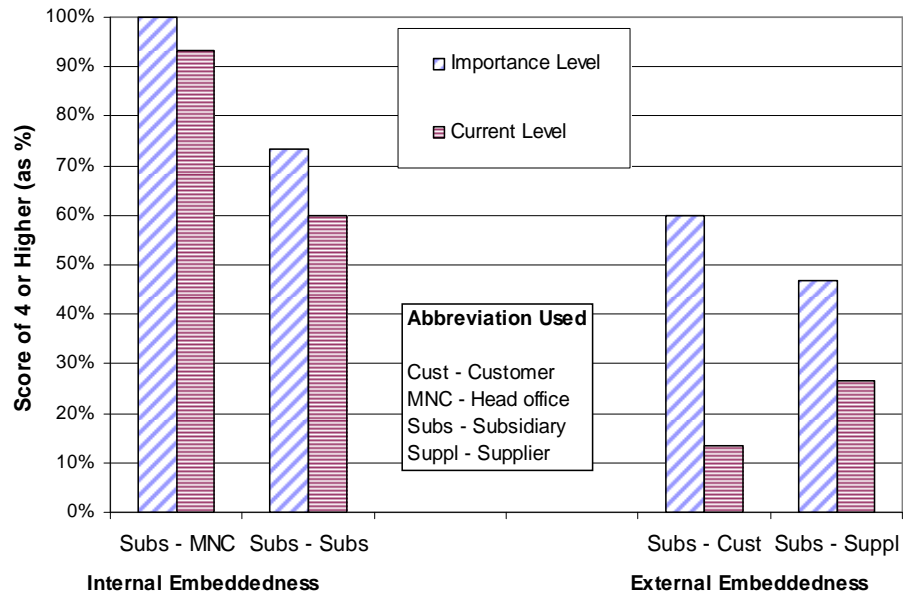


FIG. 3: PERCENTAGE OF HIGH SCORES (4 OR HIGHER) FOR INTERNAL AND EXTERNAL EMBEDDEDNESS

## Conclusion

An attempt has been made in this paper to understand as why these semiconductor MNCs established design subsidiaries in India, the contribution of the Indian subsidiaries with respect to value-added services and the characterization of the subsidiary and its relationship with MNC/head office, customers, external suppliers and other subsidiaries

The basic rationale driving semiconductor MNCs to setup subsidiaries in India was to access and utilize the technical competency and technical talent pool. The next important factor was the presence and rapid growth of the domestic electronics market and finally the cost advantage with respect to talent. In fact, the subsidiaries were setup to perform 100% internal export back to MNC and/or other global subsidiaries of the same MNC. The average number of years of operation of the subsidiaries in the study was 7 years, with 2/3<sup>rd</sup> of the respondent companies operating for more than 5 years. Two-thirds of the sample reported doing “high” R&D work (indicative of complete development work related to a given product, deep expertise on one of more critical areas of semiconductor design

or performing product development for challenging cutting-edge semiconductor process geometries (e.g. sub-100 nanometer design).

In terms of contribution of Indian subsidiaries of MNCs, it became clear that there were several examples of companies doing complete development of a given product in India while there are other companies that contribute to specific types or portions of semiconductor design activities. This indicated a strong emphasis for product mandate in the subsidiaries. In addition, the subsidiaries were also involved in creating intellectual property (IP) and contributing to the patent portfolio of MNCs. The authors did find a very small subset of the subsidiaries exploring conceiving and designing products for India or other emerging markets.

Based on the study, it is apparent that the subsidiaries attached a very high degree of importance to the relationship with MNC or head office and followed it up with strong working engagement with the head office. The Indian subsidiaries also gave high importance for relationship/interactions with other subsidiaries of the MNC and again there was good correlation between intent and actual practice.

With respect to external embeddedness, data collected indicates that the subsidiaries marked the highest value regarding the importance attached to relationship with external customers. In practice, the vast majority of the subsidiaries exhibited moderate to high engagements with external customers. This indicated that the subsidiaries are primarily engaged in the business of creating value for the MNC head office via product development as opposed to market creation/tapping of domestic opportunities. A similar trend was seen with respect to the relationship between the Indian subsidiary and external suppliers where the importance attached to this type of a relationship was fairly high but in actual practice the current engagements seemed to be weighted towards the lower end of the scale. Given that the semiconductor industry ecosystem will mature (in terms of entry and/or proliferation of semiconductor manufacturing, assembly and test, packaging, etc.) there is a strong possibility of these subsidiaries evolving as centers of excellence with a growing emphasis on external customer and supplier engagements in addition to R&D.

Some of the limitations of the study are that this was India subsidiary centric study with no corroboration on the closeness of the relationships from the MNC head office or other global subsidiaries. Similarly there was no corroboration from external suppliers and customers and their relationship with the Indian subsidiary.

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The authors would like to thank all the members of senior management of the subsidiaries for contributing their valuable time in providing insights on topics related to this research. We would also like to thank the India

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## End Notes

The Indian semiconductor design industry is broadly composed of VLSI design, board design and embedded software companies. This industry in India is broadly representative of the global semiconductor design industry in terms of handling design complexity (e.g. end to end design of Application Specific Standard Product (ASSP), System-on-Chip(SoC), System-in-Package (SiP), etc), types of designs (e.g. digital, analog, mixed-signal, etc.) and markets addressed (wireless, networking, consumer, etc)

<sup>2</sup> Industry Fact Sheet, Semiconductor Industry Association ([http://www.sia-online.org/pre\\_facts.cfm](http://www.sia-online.org/pre_facts.cfm))

<sup>3</sup> We have assumed a 30% growth of headcount in 2006 over 2005 as against the *projected* (not actual) growth of 36% in Reference [18]. This is more in line with some data points on *actual* increase in 2006 vs. 2005 headcount.

<sup>4</sup> Based on the count of Indian subsidiaries of foreign MNCs as a percentage of total membership of India Semiconductor Association (ISA)

<sup>5</sup> Following is the method for estimation of total headcount (regular employees, excluding contractors or outsourced staff) in Indian subsidiaries of MNC semiconductor companies in 2006. Note that all figures used are from Reference [18] except as noted. We start with the total 2006 headcount of 97,300 (see end note 3). This is split three ways as VLSI Design (15%), Hardware/Board design (4%) and Embedded Software (81%). Further, each of these portions is divided into captive and non-captive (e.g. design services companies, IP companies, etc). The captive portion of VLSI Design, Hardware/Board Design and Embedded Software are 62%, 29% and 29% respectively. The captive portion is comprised of Indian subsidiaries of MNCs and domestic/local captive companies and is about 33,000 based on above calculation. A conservative estimate of headcount in domestic/local captive companies taking into account a few large players is 17,000. We arrive at headcount of Indian subsidiaries of semiconductor MNCs by calculating the difference of overall captive portion of the Indian semiconductor market and the headcount of domestic/local captive companies.

<sup>6</sup> A Fabless semiconductor company is engaged in the design and sale of integrated circuits or “semiconductor chips” with the manufacturing outsourced to external semiconductor manufacturing companies commonly known as semiconductor foundry or “fab”.

<sup>7</sup> The arrangement under which the Indian subsidiary charges back the MNC/parent company is commonly known as “cost-plus” model. Essentially, the Indian subsidiary recognizes “revenue” for R&D work done by charging a margin on top of the cost. This “revenue” is also sometimes called “transfer price”. Note that the margin under the “cost plus” model need not be disclosed publicly and is therefore not available. We used the same method to arrive

at the subsidiary “revenue” as used by a widely used reference for the Indian semiconductor industry 0. In this method the “revenue” is arrived at by multiplying the number of engineering professionals in the subsidiary and the average headcount cost for the industry for a given year (in this case it is 2006).

<sup>8</sup> Semiconductor Industry Association (<https://www.sia-online.org/downloads/shares.pdf>)

# Foreign-Invested Enterprises and Chinese Trade Surplus

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## Abstract

Recently, there's always huge and persistent active trade balance in china. This paper first introduces the importance of FIEs in China's international trade, that is, the active trade balance of foreign-invested enterprises ( FIEs) counts for more than half of the total number. Through deep analysis of the FIEs' behavior, the conclusions can be drawn as follows: in china FIEs' performance on trade is closely related to their industry transfer strategy seeking for cost advantage.

## Introduction

As the fast development of the economy and rapid expansion of foreign trade in China, more and more people's attention is focusing on the ever-increasing trade surplus of China. The reasons are analyzed from different perspectives, like lack of domestic demands, cheap labor force, government policy encouraging exports and the limitation of high-tech products import in developed countries etc. (Chen Min, 2001; Zhang Pin 1997). In addition, the exchange rate change on China's trade surplus is concerned by many economists. Some people show evidence that a real exchange rate appreciation reduces China's trade balance (Dees, 2001; Yue and Hua, 2002); others find no significant impact on the trade surplus (Lau, Mo and Li, 2004).

In this paper, the role of FIEs in China's foreign trade is examined (including wholly foreign-owned companies, joint venture and Sino-foreign cooperative enterprises), the conclusions can be drawn as following: MNC's transfer strategy, which is seeking to lower the cost, is one of the important reasons of the huge trade surplus in China, and the export of FIEs is less sensitive to the change of real effective exchange rate than that of Chinese-invested enterprises.

The paper continues as follows. Part two shows the trends of FDI inflows to China. Part three examines the role of FIEs in China's foreign, such as the trade structure and the export destinations of FIEs. Part four empirically analyzes the impacts of the changes of real effective exchange rate of RMB on the export and import by FIEs, and part five is the conclusion..



## Trends of FDI Inflows to China

Since 80's of the last century, there're various policies been applied to attract foreign investments, which lead to more and more FIEs setting up in China and rapid growth of the actual use of foreign investments (Fig.1), except for a slightly dip under the influence of financial crisis in South-east Asia in 1999 and 2000.

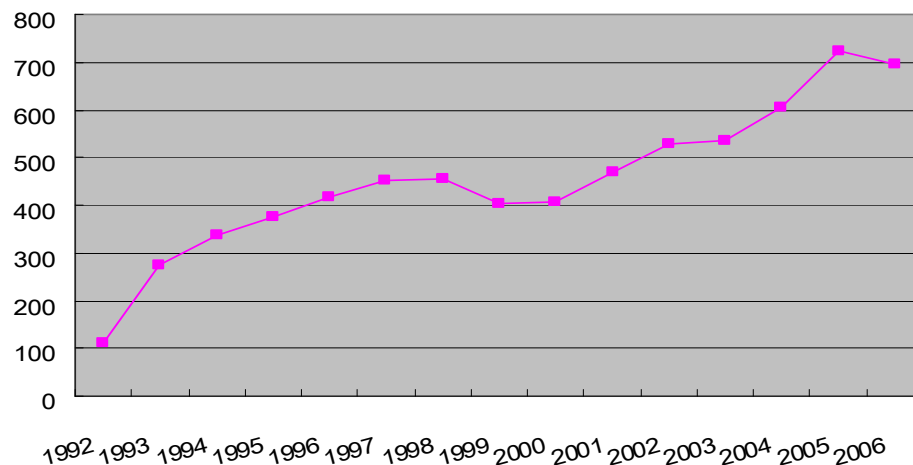


FIG.1: CHINA'S ACTUAL USE OF FOREIGN INVESTMENTS (UNIT: BILLION USD)<sup>1</sup>

At present, large part of the investment comes from Japan and other rising industrialized countries and zones. Fig.2 shows that by the end of 2005, the foreign capital coming from Hong Kong, Japan, Korea and Singapore accounts for 65.16% of the total foreign investments. While the economic takeoff of these countries, large productions of labor-intensive products are mainly exported to the developed countries, like US and European markets.

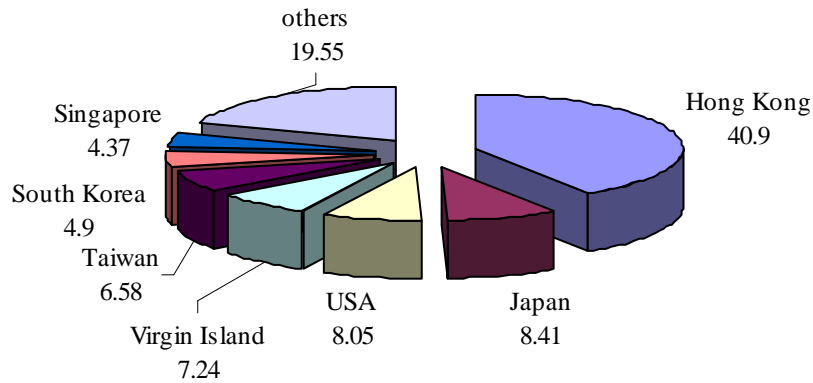


FIG.2: TOP 7 INVESTORS BY COUNTRIES/REGIONS BY 2005(SHARE IN THE TOTAL %)

According to the theories of foreign direct investment, the motive for a firm's entry into international operations may be that firms are seekers of resources, factor advantage, etc (Czinkota, Ronkainen, & Moffet, 2000). MNC usually allocates its resources globally according to the comparative advantage of different countries. As the development of local economy and increasing labor cost, developed country has begun to transfer labor-intensive industry to China, taking the advantage of Chinese cheap labor force to strength its competitive advantages in the global markets and also extent the product life cycle (Vernon, 1966, 1979). At present, manufacturing industry is a quite hot choice for FIEs. In 2005, there're 28928 projects occurred, account for 65.74% of the total projects, attracted 42.5 billion USD at the same time, which means that 70.37% of foreign capital is actually invested in this industry. By the end of 2005, there're 179,949 FIEs in this industry, and the total investments amount to 895.5 billion USD. Over the same period, the electronics and telecommunication industry has utilized the most of foreign investment, and the textile get the second rank (Fig. 3).

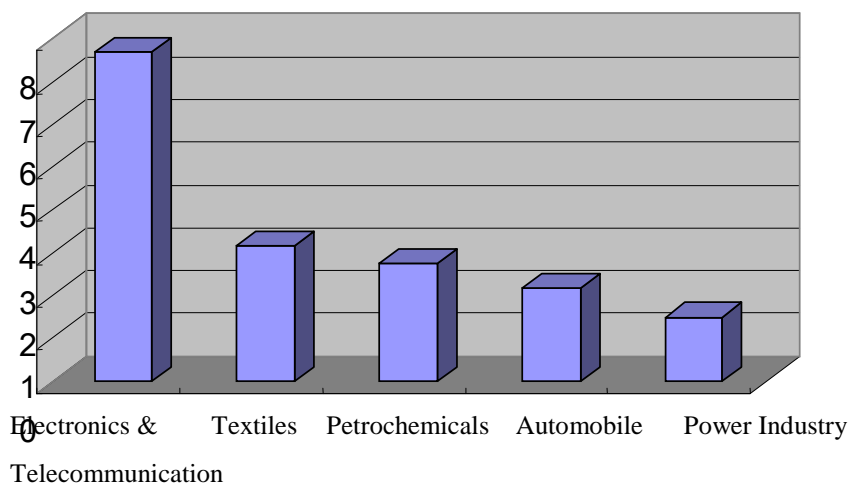


FIG.3: THE ACTUAL USE OF FDI BY SELECTED SECTORS, BY THE END OF 2005 (IN BILLIONS US\$)

## The Role of FIEs in China's Foreign Trade

### Trends and Patterns of Foreign Trade in China

Since the open policy was applied in 1978, the economic co operations between China and other countries are increasing rapidly. Chinese total trade volume expanded from 509.768 billion USD in 2001 to 17606.9 billion USD in 2005, at the same time, the trade surplus extended from 22.541 billion to 177.41 billion since China joined the WTO in 2001(Fig.4).

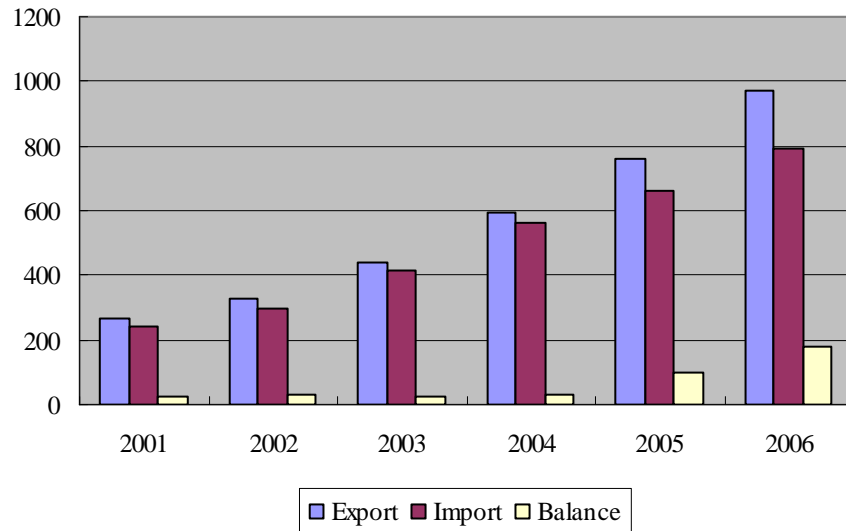


FIG.4: CHINESE EXPORT, IMPORT, AND TRADE BALANCE OF 2001-2006 (UNIT: BILLION USD)<sup>1</sup>

Since 90's of 20<sup>th</sup> century, processing trade is the primary means of foreign trade. The export of processing trade usually takes the proportion around 50%, 10% higher than the import, which means that the trade surplus mainly comes from the processing trade. In 2006, the trade surplus coming from processing trade is even bigger than the total trade surplus( Fig.5).

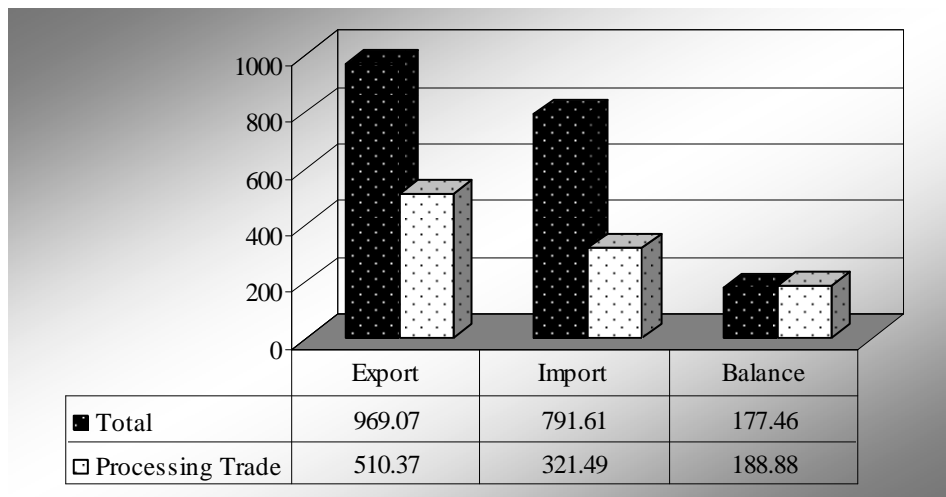


FIG.5: TOTAL TRADE VOLUME, PROCESSING TRADE VOLUME IN 2006 (UNIT: BILLION USD)

As the development of Chinese foreign trade, FIEs' position is changing at the same time. In 1980's state-owned trade companies still take more than 90% of the total trade, leaving 10% to FIEs. But after 1990, more and more FIEs enter into Chinese market, with the proportion of the export amount increased to 40%. By 2001, FIEs' export and import amount both take more than half of the total amount. At the same time, the proportion of trade surplus contributed by FIEs is also increasing to 50% plus since 2005 (Fig.6).



FIG.6: FIEs TRADE VOLUME BY THE TOTAL VOLUME (%)

As for the manners of trade, processing trade is the most important way for FIEs. In the last two years, FIEs' export value of processing trade is close to 70% in its total export value, with the proportion of import close to 80%. In china, processing trade is absolutely taking the lead. In 2006, these two numbers both increased to more than 85%, seen from Table 1.

TABLE 1: PROPORTION OF PROCESSING TRADE BOTH IN FIEs AND THE TOTAL

	Percentage of Total FIEs Trade Volume %		Percentage of Total Chinese Processing Trade Volume%	
	2005	2006	2005	2006
Export and Import of Processing Trade	69.48	68.07	83.69	84.91
Export of Processing Trade	78.03	76.47	83.23	84.48
Import of Processing Trade	59.67	58.06	84.39	85.59

It is believed that the performance of FIEs in China is closely related to its industry transfer strategy seeking for comparative cost advantages. FIEs' interests in processing trade is partly because of the encouraging policy applied by Chinese government, but more important is the cheap labor force. While FIEs is transferring the labor-intensive industry to China, it also transferred the active trade balance to China at the same time. The above point is discussed as below:

#### **Trade Structure of FIEs**

FIEs export products are mainly comprised of labor-intensive industrial manufactured products. Some are realized by processing trade. During the development of processing trade, electromechanical machine takes the largest part both in export and import. FIEs imported major parts from abroad, and exported them out after processing and packaging in the China. It can be seen from Table 2 and Table 3 that in 2005 eight kinds of major parts of electromechanical machines are on the top ten import list, and six kinds of electromechanical machines are on the top export list. In the same year, the amount of FIEs' import on electromechanical machines sums up to 266.63 billion USD, counts for 68.8%, the amount of import sums up to 317.185 billion USD, counts for 71.4%.

TABLE 2: TOP TEN IMPORTED PRODUCTS by FIEs IN 2005 (UNIT: BILLION USD)

Integrated Circuit & Microelectronic Package	72 . 126
Parts and Components for TV Sets, Radio Receivers	14.512
Parts for Automatic Data Processing Equipment	13.912
Steel	13.511
Plastics in Primary Forms	13.275
Automatic Data Processing Equipment and Components	13.229
On-Off System & Protective Circuit Equipment and Components	8.139
Diode and Similar Semiconductor Devices	6.745
Printed Circuits	6.026
Instruments and Apparatus of Measure , Inspection	5.796

TABLE 3: TOP TEN EXPORTED PRODUCTS BY FIEs IN 2005 (UNIT: BILLION USD )

Automatic Data Processing Equipment and Components	70.457
Parts for Automatic Data Processing Equipment	26.409
Cloths and Accessory	25.750
Wireless Telephone, Handset or Vehicle Mounted	19.691
Parts and Components for TV Sets, Radio Receivers	16.488
Textile Tarn and Products	13.722
Integrated Circuit & Microelectronic Package	13.562
Furniture and Components	8.285
Footwear	7.883
TV Sets	6.516

Besides that, clothes, shoes, hats, textiles, furniture and other labor-intensive products are also important for FIEs' exports, listed among the top ten of export products.

### The Import and Export Markets of FIEs

During the development of processing trade, FIEs usually import raw materials, intermediate products, manufacturing equipments and essential accessories from home countries, process them in China, and export final products to their home countries and other developed countries and regions. Such kind of vertical specialization leads to the highly concentrated import and export markets of FIEs.

As for the FIEs' import markets, more than 50% products are imported from Hong Kong, Taiwan, Japan, the EU and the US. Japan and Taiwan are the biggest importation origins. About 20% importation is from Japan and 15% from Taiwan ( Fig.7). FIEs import a great amount of electromechanical equipment accessories from these countries and regions in order to meet the needs of processing trade.

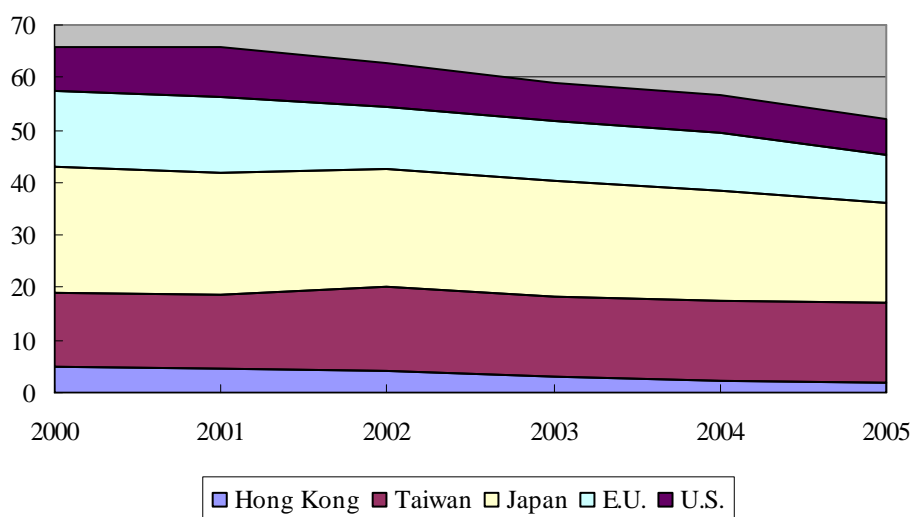


FIG 7: FIE IMPORTS BY COUNTRY/REGION 2000-2005 (SHARE IN THE TOTAL %)

The biggest five export markets of FIEs are the US, Hong Kong, the EU, Japan and Taiwan. These countries and regions absorb about 80% exportation of FIEs. The US is the most important export market and accounts for 24%. The scale of markets in the EU, Japan and Hong Kong is similar. They take 17%, 12% and 20% respectively ( Fig.8).

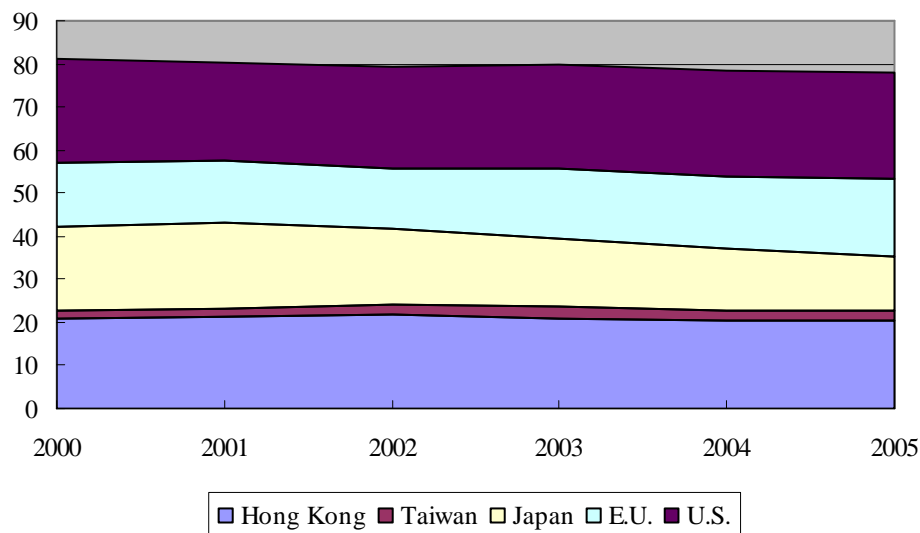


FIG.8: FIEs EXPORTS BY COUNTRY/REGION 2000-2005(SHARE IN THE TOTAL %)

Before the export processing FIEs transfer to China, they mainly export to the US, Japan and the EU. As such labor-intensive enterprises transfer to China, the huge trade surplus against the US partly transfers to the mainland of China. Take automatic data processing equipment (SITC 752) for example, in 1990s Japan, Singapore, Taiwan and Korea kept great trade surplus against the US. After the Asian financial crisis in 1998, more and more enterprises in such countries and regions transfer to the mainland of China. And their trade surplus against the US decreased correspondingly. Meanwhile China's trade surplus against the US increased to a large extent ( Fig.9).

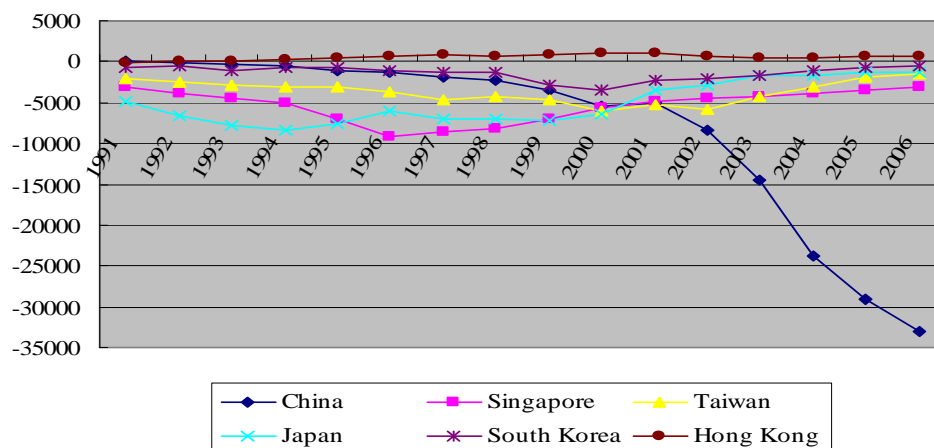


FIG.9: THE US BALANCE OF SITC 752 IN BILLION (USD)<sup>2</sup>



## The effect of change of exchange rate on the trade surplus of FIEs

From June 1995 until July 2005, China pegged the value of its currency at 8.27 yuan per U.S. dollar. On July 21, 2005, China adopted a new policy, and pegged the value of its currency to a currency basket. Actually, the real exchange rate of China's currency has been changing, no matter under the old policy or the new one.. In this section, we undertake regression analysis on China's export and import functions to test for the impacts of exchange rate changes on trade volume. We try to investigate whether the exchange rate on trade volume is weaker for the FIEs than for Chinese-invested enterprises.

We use monthly trade volume as a dependent variable. The sample period is from January 2005 to March 2007. Data on China's domestic demand which is substituted by the value-added of industry were obtained from China's Statistics Bureau<sup>3</sup>. Foreign demand is substituted by OECD's composite leading indicator (CLI), since the trade value with OECD countries makes up a large majority of China's total trade value, and the data on it were obtained from the website of OECD. Data on the real effective exchange rate were obtained from the website of International Settle Bank, and an increase in REER implies real appreciation of the RMB. Data on the import and export were from China's Commerce Ministry.

Both Equation 1 and 2 displays regression results of export function by FIEs and Chinese-invested enterprises.

$$\text{LOG}(EX_F) = -26.76526 - 1.313779\text{LOG}(\text{REER}_{-5}) + 8.309706\text{LOG}(Y_F) + [\text{AR}(1) = 0.160914, \text{AR}(2) = -0.488253] \quad (1)$$

$$(-5.989562) \quad (-2.036655) \quad (8.076503) \quad (0.731336) \quad (-2.236040)$$

$$\text{R-squared} = 0.739218 \quad \text{Adjusted R-squared} = 0.669676 \quad \text{D-W} = 2.096709$$

$$\text{LOG}(EX_H) = -30.16447 - 1.639539\text{LOG}(\text{REER}_{-3}) + 9.278914\text{LOG}(Y_F) + [\text{AR}(1) = -0.063687, \text{AR}(2) = -0.309832] \quad (2)$$

$$(-5.742503) \quad (-2.249054) \quad (8.390836) \quad (-0.240494) \quad (-1.124305)$$

$$\text{R-squared} = 0.698629 \quad \text{Adjusted R-square} = 0.627718 \quad \text{D-W} = 1.919979$$

Where  $EX_F$  is the export by FIEs and  $EX_H$  is the export by the Chinese-invested enterprises. REER is real effective exchange rate of RMB, and  $Y_F$  is foreign demand.

According to the regression results, the real depreciation of the RMB will leads to an increase in the export by both FIEs and Chinese-invested enterprises. However, the export of the FIEs has a two-month longer time lag than that of the Chinese-invested enterprises has a time lag of three months.

Both Equation 3 and 4 displays regression results of import function by FIEs and Chinese-invested enterprises.

$$\text{LOG(IM}_F\text{)}=-17.40423 +2.552881\text{LOG(REER}_{-9}\text{)}+8.309706\text{LOG(Y}_{H-12}\text{)}+[\text{AR}(1)=1.080707,\text{AR}(2)=-0.532521] \quad (3)$$

$$(-4.389059) \quad (-3.428198) \quad (6.730136) \quad (5.027018) \quad (-2.541370)$$

$$\text{R-squared}= 0.844483 \quad \text{Adjusted R-squared}=0.720069 \quad \text{D-W}=1.884922$$

$$\text{LOG(IM}_H\text{)}=-5.845314+1.819151\text{LOG(REER}_{-4}\text{)}+0.360540\text{LOG(Y}_H\text{)} \quad (4)$$

$$(-1.908962) \quad (-2.541427) \quad (2.380175)$$

$$\text{R-squared}= 0.516015 \quad \text{Adjusted R-square}=0.459070 \quad \text{D-W}=1.921489$$

Where  $\text{IM}_F$  is the import by FIEs and  $\text{EX}_H$  is the import by the Chinese-invested enterprises, and  $\text{Y}_H$  is domestic demand.

According to the regression results, the real depreciation of the RMB will leads to a decrease in the import by both FIEs and Chinese-invested enterprises. However, the import of the FIEs has a time lag of nine months, while the import of the Chinese-invested enterprises has a time lag of four months.

An interesting result from the above equations is that the trade of FIEs is less sensitive to the change of REER than that of Chinese-invested enterprises. The possible reason for this is that many FIEs has more stable export destinations.

## Conclusion

This paper examines the role of FIEs in China's foreign trade, and explores the impacts of real effective exchange rate of RMB on the export and import by FIEs. The conclusions are as follows:

Firstly, as the main participants in China's processing trade, FIEs take an important role in China's foreign trade and bring great trade surplus.

Secondly, China's trade surplus is a win-win result for China and developed countries.

On the one hand as labor-intensive industry is transferred to China, FIEs reduce producing cost and get more profit through using cheap labor in China, on the other hand it also helps the industrial upgrading in their home countries. Objectively it's also good for the employment and growth of production in China to some extent.

Thirdly, according to the empirical analysis, the trade surplus by FIEs might be reduced with appreciation of real effective exchange rate, but the analysis is not very significant.

Finally, in terms of policy implications the results shows that the policy of tax combination carried out by Chinese government could decrease its trade surplus to some degree and relieve the economic conflicts between China and its partners.

In order to promote export and attract more investments, Chinese government gives export-oriented foreign companies preferential treatment in tax, land-using and finance. For example, the income tax rate for domestic

companies in China is 33%, but that for FIEs is 15%. With the growth of export in labor-intensive products and increase in trade surplus, there are more and more trade conflicts between China and its partners. In order to ease the trade conflicts and make domestic companies compete with foreign companies fairly, Chinese government implements the tax combination policy and takes the income tax for all companies at the rate of 25%. It can be foreseen that such policy would increase the cost of foreign companies to a certain extent, and decrease the export of processing trade, which finally would result in a decrease of Chinese trade surplus.

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## End Notes

<sup>1</sup>Source: All data from <http://www.mofcom.gov.cn> except being specified

<sup>2</sup>Source: Tradestate Express, <http://tse.export.gov/>

<sup>3</sup><http://www.stats.gov.cn/>

# Strategy Typology and Performance: Korean Exporting Companies

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## Abstract

The study investigates the relationship between strategy typology and organizational performance in Korean leading exporters. We investigated which factor is a significant predictor of higher performance: higher level of product competitiveness, strong marketing strategy, high level of human resource, and different strategy typology. The result shows that the different strategy affects the organizational performance more than other factors such as product competitiveness, marketing strategy, and human resources.

## Introduction

The long controversy has arrived at the temporal stable status thanks to globalization of modern economy. Globalization of economy enforces organizations into two mutually exclusive directions. One way leads organizations being the same by adopting global standard in organizational management and production processes. The other way leads to be different pursuing organization specific competitive advantages. Researchers recognized the tension between the need for a firm to be different and the need for a firm to be the same almost in the same time and same market. Porac, Thomas, and Baden-Fuller (1989) suggested that strategists needed to balance on a competitive edge between simultaneous pressures to conform and to differentiate. Abrahamson and Hegeman (1994) observed that strategic conformity reduces both competitive risk and opportunities for competitive advantage. Chen and Hambrick (1995) noted that theory and research on competitive conformity – its cause and effects – should be a high priority for the field of strategy.

Korean companies have demonstrated phenomenal achievement in economic and technical performance for last two decades. Almost of all of well known Korean companies have less than 40 year experiences in the market. Most companies' strategies were export oriented partly because of the relatively small domestic market size. From the beginning of the industrialization, export oriented strategy was one of the main theme for market dominants in Korea. Export orientation strategy with lower cost structure was a dominant logic for most Korean managers.

However, the phenomenal growth of industrial organizations faced serious threat in late 1990s. Asian

financial crisis attacked and destabilized industrial backbone named as Chaebol, major conglomerates of Korea. For the relatively short period of time, Korean industries were forced to restructure and reshape by external forces such as International Monetary Fund. Considering the national specific situation, we need to evaluate the change of organizational strategy and structure both qualitatively and quantitatively. We will examine the implications that force organizations to react to the change of environment in different ways where past institutional power still exists to be the same. We adopt strategy typology as a reaction to the environment. Where stronger institutional forces exist, the difference in typology will not be related with the performance. In other words, the different strategy may not work for different performance. On the other hand, if the difference in typology is related with the performance difference, the heterogeneous strategy may be responsible to the performance gap.

### **Miles and Snow's strategy typology**

The Miles and Snow (1978) strategic typology – defenders, prospectors, analyzers, and reactors – has generated a comparatively large amount of interest, investigation and support (Hambrick, 1979; Meyer, 1982; McDaniel and Kolari, 1987). Although these studies have contributed significantly to the body of knowledge on strategic archetypes, there is nevertheless a need for further research. For instance, a review of strategy literature reveals an increasing level of in operationalization and measurement of strategy constructs (Bourgeois, 1981; Ginsberg, 1984).

A firm following a prospector strategy frequently adds to and changes its products and services, consistently attempting to be first in the market. Such a firm tends to stress innovation and flexibility in order to be able to respond quickly to changing market conditions.

An analyzer's strategy is to maintain a relatively stable base of products and services while selectively moving into new areas with demonstrated promise. An analyzer tends to emphasize formal planning processes and tries to balance cost containment and efficiency with risk taking and innovation.

A defender's strategy is to offer a relatively stable set of services to defined markets, concerning on doing the best job possible in its area of expertise. It emphasizes tight control and continually looks for operating efficiencies to lower costs.

A reactor essentially lacks a consistent strategy. Its strategy has characteristics of each of the other type's strategies at different times and thus is difficult to categorize clearly.

Researches on the typology study lie in a wide variety of organizations and industries. Snow and Hrebiniak (1980) found that prospectors, analyzers, and defenders outperformed reactors in competitive but not highly regulated industries. Hambrick's (1983) data indicated that defenders consistently outperformed prospectors in profitability and cash flow but that prospectors outperformed defenders in market share gains in innovative

industries. Zajac and Shortell (1989) discovered that prospector and analyzer hospitals outperformed defender hospitals in the rapidly changing health-care environment, results that Shortell, Morrison, and Friedman (1990) subsequently confirmed. The typology has also been used to differentiate tobacco firm's responses to environmental threats (Miles & Caneon, 1982).

Most studies of strategy typology are pursued in relatively similar industries. The most strategic behavior researches control the industrial differences in order to maximize organizational performance differences while minimize other noise factors. However, the barrier of industrial membership has been weakened by development of technology, especially information and communication technology. Many researchers call this phenomenon as "digital convergence" (Yun, 2006). We believe that the strategy typology research should get into inter-industrial perspective in order to integrate the concept of digital convergence. Moreover, the concept of digital convergence may bring significant effect for interpreting strategy typology in the information age.

## **Research Design and Methodology**

Recent attempts have been made to operationalize and measure Miles and Snow's strategic types using multi-item scales and multiple approaches. Although many researchers have advocated the use of multiple approaches to operationalize and measure key operational constructs, few studies have employed multiple approaches to operationalize and measure Miles and Snow strategic typology. Furthermore, most previous research has tended to exclude the reactor type from the scope of analysis. The need for multidimensional construct of strategic behavior is gaining a strong support for assessing organizational strategy. Furthermore, the relationships with overall performance have not gained strong references yet.

We decided to employ integrative measurement using self typing, objective indicators, and investigator inference. Self typing is used for the questionnaire responses. Objective indicators are used to measure respondents' strategic behavior such as market orientation, process definitions, and foreign business strategies and so on. However, the final judgment for organizations' strategic typology is based on the factor analysis which made composite components into a single strategy typology.

The advantage of this process lies in two folds. First, this process does not generate any bias for the respondents to be only one strategy typology. Responding various strategic process questions, the respondent's strategy typology is naturally declared. Second, the concept of strategy typology can employ some other distinguishing factors to differentiate strategy typology. For example, the global economy emphasizes the strategy for internationalization whether the organization is big or small. International business for the organization is not an option any more. Bringing respondents from the relatively homogeneous pool, Korean companies, we could

generate international strategy as another aspect for strategy typology.

The questionnaire items were developed for strategy and market orientation of organization. The sample was selected from top 2,000 leading exporters located near Seoul, Korea. The respondents were mostly high level managers who understand statistical figures and organizational strategy. We interviewed top managers who are in charge of the department or business unit in person. However, some companies were interviewed with middle managers when the top level managers were not available. The response rate was 22.5% (458 respondents).

Table 1 presents descriptive statistics for the research variables.

TABLE 1: DESCRIPTION OF VARIABLE AND CONSTRUCT USED IN THE ANALYSIS

	N	Minimum	Maximum	Mean	Std. Deviation
Sales	428	0.01	280	1.68	14.95
Profit	430	1	7	4.25	1.22
Future_sales	429	0	7	4.00	1.47
Product_diversity	427	1	7	5.00	1.46
New_product_introduction	425	1	7	4.65	1.53
Adaptability	427	1	5	2.22	1.17
Autonomy	383	1	7	5.13	1.60
Ln_Cpital	406	-2.3	10.74	2.78	2.23
Ln_Employees	429	0.69	10.82	4.43	1.86
Market_development	423	0	1	0.66	0.48
Price_ratio	426	30	150	82.39	14.42
Own_brand_equity	427	0	100	58.36	44.01
Quality	427	14.3	250	85.53	17.59
Product_competency	429	1	7	6.42	0.93
Price_competency	430	2	7	6.32	0.92
Promotion_competency	429	1	7	4.52	1.55
Place_competency	427	1	7	4.94	1.61
HR_language_Know	430	1	7	4.53	1.38
<b>Defender</b>	378	0	1	0.31	0.46
<b>Prospectors</b>	378	0	1	0.32	0.47
<b>Reactors</b>	378	0	1	0.17	0.38
<b>Analyzers</b>	378	0	1	0.19	0.39
Valid N (listwise)	344				

We developed and modified questionnaire items in order to differentiate strategic typology. Based on the Miles and Snow's theory and multiple components from the responses, we applied cluster analysis in order to

classify organizational strategy typology. Our study generated four clusters that are significantly different each other and four clusters successfully categorized four strategy typology. Table 2 shows the result of cluster analysis.

TABLE 2: TYPOLOGY OF STRATEGY OF FIRMS BY CLUSTER ANALYSIS

	Cluster			
	Defender (n=118)	Prospector (n=122)	Reactor (n=66)	Analyzer (n=72)
Product_diversity	4.13	6.25	3.64	5.68
New_product_introduction	3.62	5.95	3.18	5.50
Adapt	2.24	1.65	3.05	2.39
Autonomy	6.03	6.19	3.24	3.68

The cluster analysis shows four distinguished aspects for each strategy typology. The aspects are product diversity, new product introduction, adaptation, and autonomy. Product diversity refers that the organization's strategic intent to provide various versions of the product. New product introduction means the organization's ability to introduce new product in a short period of time. Adaptability denotes the organization's effort to modify the product for the various markets. Autonomy indicates the level of decentralized decision making structure.

Table 3 shows frequencies of strategy typology from the data. The number of responses shows that defender and prospector are similar and reactor and analyzer are also similar.

TABLE 3: PERCENTAGE OF EACH STRATEGIC TYPOLOGY OF KOREAN EXPORTING COMPANIES

	Valid Frequency	Cumulative Percent	
Defender	118	31.2	31.2
Prospector	122	32.3	63.5
Reactor	66	17.5	81.0
Analyzer	72	19.0	100.0
Total	378	100.0	

We developed the rationale that the relationship between organizational strategy typology and organizational performance should be somewhat interrelated. As most strategy typology researches have not concluded, using relatively homogeneous sample (Korean leading exporters) is expected to generate significant result.

First, we utilized ANOVA in order to investigate the performance relationship with strategy typology. We devised three components for performance, such as profit, sales and future sales expectation. The rationales to



regard this way are two folds. First, the sample is relatively homogeneous. The leading exporters in Korea are relatively stable in their market position and their strategy has not been changed very much. Second, compared to domestic business oriented organizations, exporters need to concentrate their strategy for increasing sale and improving profit in relatively in short period of time. The government policy and incentives lead relatively narrow scope for foreign business

Table 4 presents the relationships among dependent variables and strategy typologies. The analysis shows only profit demonstrates significant relationship with strategy typology.

TABLE 4: ANALYSIS OF VARIANCE

		Sum of Squares	df	Mean Square	F	Sig.
sales	Between Groups	955.34	3.00	318.45	1.26	.289
	Within Groups	94350.47	372.00	253.63		
	Total	95305.81	375.00			
profit	Between Groups	26.34	3.00	8.78	5.89	.001
	Within Groups	557.21	374.00	1.49		
	Total	583.55	377.00			
Future sales	Between Groups	16.00	3.00	5.33	2.45	.063
	Within Groups	811.83	373.00	2.18		
	Total	827.83	376.00			
	Within Groups	700368.93	371.00	1887.79		
	Total	716958.25	374.00			

Based on the ANOVA result, we decided to investigate the most contributing factor with organizational performance, in other words the relationships with profit.

The export market has been defined as product competitiveness (Porter, 1986). The price competitiveness or quality advantage may lead to the superior performance. Considering strategy typology, product competitiveness may be independent if we consider relatively short period of time. If we consider longitudinal standpoint, strategy typology and product competitiveness may be strongly correlated. Based on this short term perspective, we developed hypothesis 1 below:

H1: Organizations that have higher level of product competitiveness will have higher rate of profit. As we investigated middle managers, their time frame could not be long enough. In the cross sectional research, but not in the longitudinal research, organizational profit is strongly related with marketing strategy. Rigorous marketing strategy tends to improve short term profit. However, strong marketing strategy without improving competitive edge

eventually erodes the initial advantage. We considered marketing strategy as a significant factor related with profit. Based on this argument, hypothesis 2 was developed:

H2: Organizations that have strong marketing strategy will have higher rate of profit. In the global business, the most important factor for competitiveness has been considered as human resources (Peng & Luo, 2000). Where technical resources or institutional advantages can be easily eroded, human resources are hard to imitate and to substitute. Organizational human resource is the only source of sustainable competitive advantage. Based on this argument, we developed hypothesis 3:

H3: Organizations that have higher level of human resource will have higher rate of profit. The argument of strategy typology is sometimes criticized as ex post description. This means the rather than managerial decisions and actions, organizations' decision making habits are articulated afterward. In order to minimize this critic, we evaluated the strategy typology based on respondents' questionnaire items so called 'integrative measurement using self typing, objective indicators, and investigator inference.' We believe that strategy typology and organizational performance may have somewhat stringent relationship. Based on this argument, we developed hypothesis 4:

H4: Organizations that have different strategy typology will have different rate of profit.

TABLE 5: RESULTS OF REGRESSION ANALYSIS

<b>Variables</b>	<b>Basic Model</b>	<b>Product Competitiveness</b>	<b>Marketing Strategy</b>	<b>Human Resource</b>	<b>Strategy Typology</b>
<b>Basic Model</b>					
LnCapital	.120	.085	.092	.078	.065
LnEmployees	-.012	-.022	-.030	-.018	-.038
Market_develCntry	.118*	.140**	.142**	.149**	.143*
<b>Product Competitiveness</b>					
Price_ratio		.018	.024	.023	-.015
Own_brand_equity		.059	.052	.061	.052
Quality		.160**	.146*	.136*	.152*
<b>Marketing Strategy</b>					
Product_comptncy			.044	.025	-.040
Price_comptncy			-.036	-.033	-.018
Promotion_comptncy			.100	.092	.088
Place_comptncy			.003	-.009	-.023
<b>Human Resource</b>					
HR_language_Know				.095	.059
<b>Strategy Typology</b>					
Defender					-.190**
Reactor					-.179**
Analyzer					-.057
R <sup>2</sup>	.026	.055	.069	.077	.111
R <sup>2</sup> Change		.029	.014	.008	.034

§ The reference group in the strategy typology is prospector.

\* p<.05, \*\* p<.01, \*\*\* p<.001

## Results

The basic model includes the size of the organization such as capital range and number of employees and target market. Capital and number of employees were recoded with natural log because the value is high. Target market is distinguished by the main foreign market is either less developed countries or developed countries. The strategic orientation may vary by the target market with organizational demographic variables. If the organization emphasizes developed countries for its target market, the strategy should be different from the organizations for less developed

countries. The strategic orientation for different level of countries will also end different level of profitability by dealing with more value added products. The basic model results show that target market orientation has a significant relationship with the profitability. Other factors that reflect the size of the organization such as capital and number of employees did not show significant relationship.

The second model, adding variables concerning product competitiveness factors show that only quality is the significant predictor for profitability. R square change was .029. Price ratio and brand equity did not have significant relationship with organizational profitability.

The third model added marketing strategy resulted that no significant relationship with the level of profitability. R square change was .014.

The fourth model adding organizational human resource also resulted in no significant relation with performance. R square change was .008. Human resource in this study measured organizational members' foreign language capability.

The final model adding strategic typology resulted in significant relationship with organizational performance. Prospector strategy is significantly outperformed other strategy organizations. We based prospector as a reference group to investigate significant relationship. Many strategy typology researches concluded that prospector strategy demonstrated significantly higher level of performance (Conant et. al., 1990; Shortell and Zajac, 1990). Based on the past research results, we based prospector as a reference strategy. R square change was .034 and R square was .011.

## **Conclusion**

The study employed Miles and Snow's strategy typology for evaluating organizational performance of Korean leading exporters. The results demonstrated that prospectors outperformed other strategies.

This study contributed to the academia and practitioners in three perspectives. First, strategy typology study has pushed respondents to be only one set of strategic behavior. Other options were not available. In the information age, fast changing and very turbulent environment urges organizations to be fast adaptors. Strategy typology research should adopt this phenomenon. Based on organizations' various strategic behavior, researchers could apply triangulation to assign organizations' representative strategic behavior.

Second, not many studies are done for Korean exporter recently. Entering into information age, the Korean exporters showed structural change from utilizing cheap labor to creating new technology and market such as MP3 players and multi functional cellular phones. In the transitory environment, this study will light a way that organizations should follow.

Finally, this study shed a light to both academia and industry analysis practitioners. Two strategic options in global environment, being the same or being different, have not met any conclusive remark. Still some researcher and practitioners emphasize organization specific factors as the only source of sustainable advantage. Others start to consider revitalized institutional power considering fast spreading technology and standard setting environment. Keeping organization specific advantage might lose whole market abruptly as Sony's Beta max video cassette disappeared. Our study shed a clue for strategic options such a turbulent digital business arena. Organizations need to use bold competitive position with maximum flexibility. Traditional marketing strategy may not appropriate. Emphasizing quality in the arena, bold prospectors will survive in the global marketing arena.

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## **Determinants of Canned Fruit Exports in Thailand**

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### **Abstract**

With the strengthening of the Baht in 2007 and the looming AFTA and FTA and canned fruits export representing the 12<sup>th</sup> biggest Thai exports with a 2005 value of 2.5 billion USD, Thai canned fruit manufacturers need to identify critical success factors that could help them to develop certain competencies to weather the ups and downs of the economy. Literature identified 15 factors that were synthesized into 6 used in this research: Firm competencies, Management attitude, Business Strategies, Channel adaptation, Product Quality and Trade barriers. The objective of the research is to determine the relationship and the predictability of these CSF with export performance. 52 medium sized and 76 big manufacturers were selected and 770 questionnaires were distributed with a response rate of 39%. The results of this research indicated that there were four critical factors that had an effect on export performance of Thai canned fruit manufacturers, which were product quality, trade barrier, business strategy and firm competencies. The other two critical factors, management attitude and channel adaptation appeared to have no effect on export performance of Thai canned fruit manufacturers in this research.

### **Introduction**

International trade is a crucial issue for governments in many countries as it affects their trade balance and balance of payment. Governments are persuading and enhancing export and import activities amongst themselves through trade blocs NAFTA, AFTA or bi-lateral FTA agreements. In Thailand, the latest of such bi-lateral partnerships between Thailand and Japan was signed in April 2007. The export value in Thailand for 2004-2005 had grown around 22 % annually; Japan was around 15 %, China was up by 35 % and other Asian countries increasing at the rate of 15-20 % ([www.dep.thai.go.th](http://www.dep.thai.go.th)). Thailand had several types of export products, which had been changing from agricultural raw material to industrial and electronic appliances. Canned fruit that was listed as the 12<sup>th</sup> highest export product with export values value between 2004-2005 dramatically increased by 11.2 % as a result of lower tax and tariff in importing countries. The ratio of exported canned fruit and canned vegetable was 80: 20 because

Thailand was able to harvest fruits all over the year, which included tropical fruits and warm season fruits. Canned pineapple was the leading product with 36 % of overall canned fruit export volume, followed by canned pineapple juice of 15 %. This showed that pineapple covered more than 50 % of Thai canned fruit export. Other canned fruit product included Lynchee, rambutan, longan, mangoesteen and jack fruit, which made up 40 % of the total export volume in this industry and the product of canned mixed fruit juices, was 9 % of export canned fruit of Thailand ([www.thaitrade.com](http://www.thaitrade.com), fact sheet of canned fruit January 2006). The main markets of canned fruit from the last 5 consecutive years remained the same with United States as the highest value purchaser with more than 50 % of the total export value of Thailand followed by Holland and Japan, where the import values were almost equal ([www.thaitrade.com](http://www.thaitrade.com), General international export of Thailand 2006). During 2005- 2007, the export value to Japan will increase as a result from the reduction in import tax after the FTA (0% within 5 years). Other export markets consisted of Germany, Russia, UK, Canada, and Australia respectively. The Thai Commercial department identified Russia with a growth rate averaging 200 % during the 3 consecutive years of 2003-2005 that was strongly growing in the import of electronic and canned products and this new market might be a potential importer with high purchasing power in near future.

In the highly competitive world, companies are trying to increase their performance in terms of internal operation, working performance, customer satisfaction including, external factor such as opportunities to expand their markets. In other words, exporters in international market seek ways for improvement to compete in an intensive market environment. The companies cannot avoid the improvement of their organization; they need to understand the factors that affect their performance. Companies are trying to cope with how to improve company's sales, what companies should consider as their important survival means, or what appropriate strategies should be used to increase export performance.

Thai exporters of canned fruit faced controllable and uncontrollable problems that are related to both internal and external factors, which may reduce its degree of competitiveness. Some of the problems were: (1) The fluctuation in climate which will be a problem for production planning and raw material management; (2) Increases in cost of raw materials in this industry, 20% for steel in 2004-2005, 67 % for sugar mix in 2006, 15% for transportation in 2004-2006 (Thai trade facts sheet, Issue3 March, 2006); (3) Fluctuation in exchange rate with the Baht having appreciated more than 16 % that affected profits reduction from sales revenue (Bank of Thailand literature, April, 2006); (4) Trade barriers imposed by import countries like JETRO (2006) "prohibit ingredients and food additive", FDA in EU and HACCP USA, (2005) that caused higher cost of production and quality control adding to the non-competitiveness of canned fruit; (5) Competition from China (30% to 43% in 2003-2005, Philippines (15% to 17%), and some countries in South America (17% in 2005) were gaining more market share especially in pineapple product.



Two of the main internal factors are: (1) Management attitudes toward export market as they still maintain the family business mindset; (2) Quality control of Thai canned fruit does not reach international standard (sterilization standards – 20%, short shelf life – 40%, dented tin – 25%, and production defect – 10%). Based on the above premises, this research aims to identify the factors and their importance that have an effect(s) on export performance focused on Thai canned fruit manufacturers, who export their product internationally.

The main contribution of the research was to identify the determinants that were critical to the export performance of Thai canned fruits products so that the manufacturers could better plan and manage these factors especially the internal factors affecting their competencies within their direct internal control towards a more successful export of their canned fruits products. This research was also applicable to other canned food products as they faced similar issues that need to be managed with special attention to the internal factors that affected their capability and competencies that directly affect their international market performance rather subject themselves to the ever changing external factors beyond their control.

## **Literature Related to the Determinants of Export Performance**

### **Export Performance**

In the increasingly trend towards globalization, Crinkota et. al., (1999) stated that companies need to globalize their international strategies to take advantage of underlying market, cost, environment, and competitive factors, and export is the most common form of international business activity. Griffin & Pustay, (1996) pointed out that the export performance indicated the firm's success in the international business which was the main issue that every firm should consider through not only its internal competency of the firm but also in its surrounding condition. Lages (2000) stated that the export performance is defined as the firms' outcomes achieved in international sales whereas, Griffin and Pustay, 1996 considered export performance as a complex task for sustaining and assessing the export performance with two sets of financial and non-financial measures. Most of the researchers (Cavusgil and Zou, 1994; Matthyssens and Pauwel, 1996, Cooper and Kleinschmidt, 1985; Kolter, 1993; Lages, 2000; Bolton and Lehmann, 2004; Moini, 1995 and Bijmolt and Zwalt, 1994) agreed that the 3 factors of: (1) Export sales, (2) Export profits and (3) Export growth, could be used as a measure of export performance.

### **Critical Factors of Export Performance**

Evidence related to the factors affecting export performance was fragmented and often contradictory (Aaby and Slater 1989; Cavusgil and Zou 1994; Zou and Stan 1998) giving rise to a rather diverse set of literature as to the approach and methodology. Barney and Collis (1999) summarized the determinants of export performance into a 2x2 table based on two dimensions: internal vs. external and controllable vs. uncontrollable. Proponents of the

internal determinants were justified by the resource-based theory (Barney, 1991; Daft, 1999; Wernerfelt, 1984) and external determinants were supported by the Industry organizational theory (Scherer and Ross, 1990) as discussed below:

- The resource-based theory (Barney, 1991; Daft, 1999; Wernerfelt, 1984) conceived a firm as a unique bundle of tangible and intangible “resources” (assets, capabilities, processes, managerial attributes, information and knowledge), that were controlled by firm and that enable it to conceive and implement strategies aimed at improving its efficiency and effectiveness. It contended that the principle determinants of firms’ export performance and strategy were the internal organization resources (Barney, 1999; Collis, 1999), which helped to generate the firm’s success resulting from the internal strength that firm could control or that could be called, “firm’s competency”
- In the Industrial organization theory, Scherer and Ross, 1990 pointed out that the industrial organization (IO) theory argued that the external factors determined the firm’s strategy, which in turn determined its economic performance. The external environment imposed pressures and a firm must adapt in order to survive and prosper (Collis, 1999) which were the primary determinants of export performance.

Based on a review of the existing literature Zou and Stan (1998) created a matrix of the factors identifying the major factors of: Export market strategy and Management Attitudes and Perception (Internal and controllable); Management Characteristics and Firm’s characteristic & Competencies (Internal and uncontrollable); Industry Characteristics, Foreign market characteristics and Domestic market Characteristics (External and uncontrollable) affecting the 3 measures of export performance: Financial Measures, Non-Financial Measures and Composite scales. Chetty and Hamilton (1993) added their comment to Zou and Stan (1998)’s matrix that the particular independent factors have 3 types of effects on export performance, a significant positive effect, a significant negative effect, or a non significant effect.

The basic aspects of the matrix as proposed by Madsen (1987), Aaby and Slater (1989), and Chetty and Hamilton (1993), argued that the single most important set of determinants of export performance falls into the cell of internal-controllable factors. The prevalence of controllable factors suggested that most researchers held the view that export performance was under the control of the firm and its management. Thus, not only better export performance could be attributed to management’s superior work, but poor export performance should be blamed upon the management as well. In addition, Aaby and Slater, (1989) and Da Rocha and Christensen, (1994) classified the factors, which had crucial effects on export performance as:

- **Export Marketing Strategy:** As noted by Hofer & Schendel (1978); Porter (1980) and Ledesma (2002), the capacity to produce different varieties of goods and the quality of the product are crucial factors explaining export performance. Hofer & Schendel (1978) and Aaby and Slater (1989) stated that

differentiation through marketing mix employed in respective export markets was a key that led to sustainable goals. Burton and Schlegelmilch (1987) and Weerachai and Patriya (2002) confirmed a significant relationship between unique product attributes, through differentiation strategy and export performance and Poh-Lin and Jeong (1995) explained that the export firms are able to differentiate their level of firm's orientation by being innovative, more pro-active and were risk takers. Generally, price adaptation seemed to positively influence export sales, export profits and export growth in the study by Chetty and Hamilton (1993) but was insignificant in others (White, 2000, Bredahl and Zaibet, 1995). In channel adaptation, dealer/ distributor support, motivation, and involvement, emerged as a key determinant of export sales, export profits and export growth (Cooper, 1985; Poh-Lin and Jeong, 1995). The research by Cavusgil and Zou (1994), and Kirpalani and MacIntosh (1980) mentioned that the channel adaptation and promotion had direct effects on export performance in term of flexibility and maintaining the target markets.

- **Managers' Attitudes and Perceptions:** The Management's attitudes and perception on export performance referred to the management's point of views, opinions and how they perceived the export activities in terms of strategies, marketing, positioning, and other attributes, along with the perception in barriers, advantages and situation in the international export markets (Narver, 1993; Pitt 1996; Da Rocha and Christensen, 1994) that had been frequently cited as important determinants of export performance. Cavusgil and Zou (1994); Axinn (1998) and Cavusgil and Kirpalani, (1993) concluded that high management commitment allowed a firm to aggressively go after the export market opportunities and pursue export marketing strategies that improved export performance. Cavusgil and Zou (1994) and Leonidou and Katsikeas (1996) found that international orientation of the manager was a very consistent predictor of good export performance, measured in financial terms or as composite. In addition, Cavusgil and Zou (1994) stated that the management's perceived export advantage and how the management people and teams perceived the international export had benefits and could generate profits, growth and sales to firms was a relevant predictor.
- **Managers' Characteristics:** Da Rocha and Christensen (1994) and Axinn (1998) found that this had a positive effect on export sales, profits and growth while another study (Cooper and Kleinschmidt, 1985) found that it had an insignificant effect, and a few others (Chartien, 1993 and Christien (1988) reported a negative effect. Overall it could be concluded that firm's export performance did not benefit from having educated and internationally experienced managers.
- **Firm Characteristics and Competencies:** Kaynak and Kuan (1993), Bodur (1994) Das (1994) and Louter et.al., (1991) reported a negative impact of the firm's number of years in exporting on export profitability

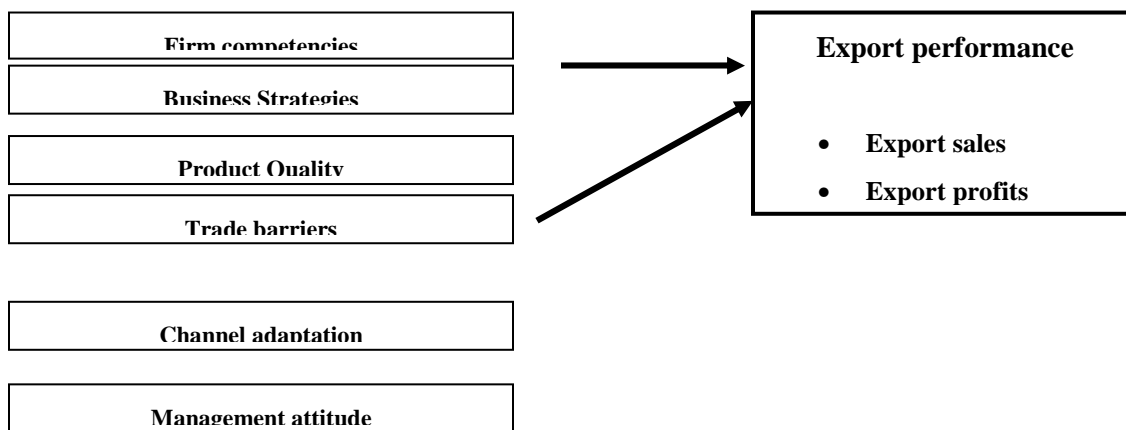
and sales but Aaby and Slater, (1989) stated that there was no relationship between years of exporting experiences with the export performance, since the number of years engaged in export activities did not indicate the success of export sales, profits and growths, but it helped to gain only reputation and reliability. They pointed out that although firm had a strong connection and several years in the industry, it could not achieve better profits and sales if they did not adapt themselves to the competitive environments. Reid (1986) Aaby and Slater (1989), and Chetty and Hamilton (1993) found that there was positive relationship between R&D/technology and innovation and export performance, since the R&D created the product innovation and new technology improvement, therefore, the firm was able to utilize these factors in other to gain customer's preference and build competitive advantages.

- **Industry:** Cavusgil and Zou (1994), Holzmuller and Kasper (1991) and Holzmuller and Stottinger (1996) argued that the industry's technological intensity or "Manufacturing complexity" had a positive influence on export performance. Cavusgil and Zou, (1994) found a significant indirect effect of export market competitiveness on export performance while Kaynak and Kuan (1993), and Madsen (1987) reported a negative effect of export market barriers (trade barrier, physical and psychological distance), which were not significant predictor of export performance. Kirpalani and MacIntosh (1980), Griffin & Pustay (1996) and Xuto (2003), found that trade barriers had direct influences on export performance, in terms of sales, profits and growths. Griffin and Pustay (1996) and Grimwade (1992) noted that non-tariff barrier or non-quantitative NTBs were the ways in which imports might be reduced.
- **Foreign and Domestic Market Characteristics:** Katsikeas (1997) reported a positive effect on export performance for the national export policy, but a non-significant effect for domestic market pressure and domestic currency devaluation. Seringhaus, (1998), Aaby and Slater (1989), Abalaka (1999), and Diamantopoulos and Schlegelmilch (1994) concluded that there were direct relationship between market information, market knowledge and export performance and that the level of export performance would be greater if information acquisition enabled market opportunities identification and threats to decision-makers. Narver (1993); Pitt (1996) and Aaby and Slater (1989) explained that there was increasing evidence that the marketing orientation of firms impacted positively on business performance, which mainly focused on the customer's satisfaction and preferences. The researchers agreed that satisfaction was the most important factor for every business. The environment could be conceptualized as attributes (e.g. hostility, uncertainty, dynamic) or as objects (e.g. general and task environment) and Cateora (1996) and Scherer & Ross (1990) pointed out that socio-cultural environment had a significant impact on export performance through the import countries' rules and regulations.

## Research Framework

The above literature came up with 15 main determinants of: Management and attitude; Research and development and firm competencies (e.g. technology); Business strategy; Channel adaptation; Trade barrier; Product quality; Firm size; Product adaptation; Product Information; Low cost strategy; Socio- cultural; Price adaptation; Market orientation; Promotion; and Management' international experience and 3 representation of successful export performance as: Export sales; Export profits; and Sales growth. Of the 15 main determinants, the 6 most significant were 5 main internal variables and 1 main external variable as shown in the research framework as shown in Figure 1.

### Internal Controllable Variable



### External Uncontrollable Variable

FIG 1: RESEARCH CONCEPTUAL FRAMEWORK

Based on the research framework above, the 2 main sets of hypothesis developed for this research were:

**H<sub>0</sub>1 to H<sub>0</sub>6** : There is no relationship between the determinants of firm competencies, management attitude, business strategies, channel adaptation, product quality and export performance of Thai canned fruit manufacturers.

**Ha1 to Ha6** : There is a relationship between the determinants of firm competencies, management attitude, business strategies, channel adaptation, product quality and export performance of Thai canned fruit manufacturers.

- H<sub>07</sub>** : There is no effect of determinants of firm competencies, management attitude, business strategies, channel adaptation, product quality on export performance of Thai canned fruit manufacturers.
- Ha7** : There is an effect of determinants of firm competencies, management attitude, business strategies, channel adaptation, product quality on export performance of Thai canned fruit manufacturers.

## Research Design

A self-administered survey instrument designed to identify the determinants of export performance of Thai canned fruit manufacturers was used in this study. In this study, the target populations were the canned fruit manufacturer in Thailand that exported to overseas markets with an export volume of more than 10 TEU (twenty footer container) per year since these medium and big size firms generated 80 % of sales revenue and had been operating more than 5 years. Altogether, there were 257 canned fruit manufacturers as listed in Thailand Export Promotion Department in 2005 and the sample size needed was 154 companies. Firstly, the 257 companies were listed and were assigned an ordered number. The ratio of medium firms (with total employees of 51 – 200) and big firms (more than 201 employees) was 40:60 (www.thaitrade.com/, fact sheet of canned fruit January 2006). The number 1 – 103 was assigned to medium companies and 104 – 257 to big companies respectively. Then, the sample units were selected by picking up odd numbers from 1 – 257 to get 128 companies (with 52 medium and 76 big firms) as the sampling units. The target respondents were persons who were engaged in export business such as export management people: Director, export manager or assistant export manager. A total of 770 sets of questionnaires were sent with each firm being allocated 5 sets. The overall response rate was 39%

TABLE 1: CRONBACH'S ALPHA OF PRE-TEST OF INSTRUMENT

Questionnaire components	No of items	Cronbach' s Alpha
Trade Barrier	8	0.8821
Business strategy	3	0.7325
Management attitudes	5	0.7268
R&D and technology	4	0.7187
Product quality	4	0.8767
Channel adaptation	5	0.8160
<b>Export performance</b>	<b>3</b>	<b>0.8178</b>

The pre-test of the reliability of the research instrument came back with the following Cronbach's Alpha as shown above in Table 1:

## Research Findings and Discussion

### Profile of Sampling Unit

Of the 300 respondents, 50% had been operating in the canned food business for more than 7 to 10 years, 30% between 5 to 7 years, and 20% more than 10 years with the majority of the group (45%) having more than 200 employees, followed by firms having employees between 51 to 100 (27%), 101- 150 (15%) and 151- 200 (13%) respectively and with export volume of canned fruit to foreign countries of more than 20 TEU (36.7%), more than 15 to 20 TEU (34%) and between 10 -15 TEU (29.3%) respectively. 46 % of the respondents had been engaged in the canned fruit export business between 7 to 10 years, followed by 5 to 10 years (40 %) and more than 10 years (14%) respectively.

### Level of Concern for the Determinants

TABLE 2: SUMMARY OF LEVEL OF CONCERNS OF DETERMINANTS OF EXPORT PERFORMANCE

<b>Concern Factors</b>	<b>Overall Mean Average</b>	<b>SD</b>	<b>Qualitative Rating</b>	<b>Rank order</b>
<b>Trade barrier</b>	4.079	1.055	Neutral	<b>5</b>
<b>Business strategy</b>	4.9	1.167	Quite High	<b>3</b>
<b>Management Attitudes</b>	4.306	0.9532	Neutral	<b>4</b>
<b>Firm competencies</b>	4.95	1.044	Quite High	<b>2</b>
<b>Product Quality</b>	5.6725	0.884	High	<b>1</b>
<b>Channel Adaptation</b>	3.982	1.028	Neutral	<b>6</b>

Table 2 showed the level of concern of each of the determinants of the 6 determinants of export performance. 3 of the factors, management attitudes (mean scores of 3.97 to 4.73 and overall mean average of 4.306), trade barrier (mean scores of 3.2 to 4.56 and overall mean average of 4.079), Channel adaptation (mean scores of 3.33 to 4.52 and overall mean average of 3.982) were in “neutral level of concern”. Business strategy (mean score of 4.65 to 5.10 and overall mean average of 4.90) and Firm competencies (mean scores of 4.44 to 5.43 and overall mean average of 4.95) fell into the “quite high level of concern”. The only factor with a “high level of concern” was Product quality (mean scores of 5.29 to 6.23 and overall mean average of 5.6725). The details of each of the factors were discussed in Appendix 1.

Based on this study, it was explicit that the key to success in the export was in line with the main stream literature that the internal controllable factors product quality, the firm’s business strategy and its R&D that led to a

firm's competence were more important than the external factors of the trade barrier and channel adaptation. What the management attitudes were would be rather irrelevant.

### Hypothesis Testing

TABLE 3: SUMMARY OF HYPOTHESIS TESTING OF DETERMINANTS OF EXPORT PERFORMANCE

Hypothesis of H <sub>0</sub> 1 to H <sub>0</sub> 6	Hypothesis testing technique	Level of significance	Correlation Coefficient	Result
H <sub>0</sub> 1: There is no relationship between R&D/ technology and export performance of Thai canned fruit manufacturers	Pearson's Correlation	.000	.57	Reject Ho
H <sub>0</sub> 2: There is no relationship between management attitudes and export performance of Thai canned fruit manufacturers	Pearson's Correlation	.54	.863	Fail to Reject Ho
H <sub>0</sub> 3: There is no relationship between business strategy and export performance of Thai canned fruit manufacturers	Pearson's Correlation	.000	.32	Reject Ho
H <sub>0</sub> 4: There is no relationship between Channel adaptation and export performance of Thai canned fruit manufacturers	Pearson's Correlation	.781	-.037	Fail to reject Ho
H <sub>0</sub> 5: There is no relationship between Trade barrier and export performance of Thai canned fruit manufacturers	Pearson's Correlation	.000	-.643	Reject Ho
H <sub>0</sub> 6: There is no relationship between product quality and export performance of Thai canned fruit manufacturer	Pearson's Correlation	.000	.783	Reject Ho

In the testing of 6 hypothesis (H<sub>0</sub>1 to H<sub>0</sub>6) of the relationships between the 6 determinants of firm competencies, management attitude, business strategies, channel adaptation, product quality and export performance of Thai canned fruit manufacturers as shown in Table 3, it appeared that all the determinants were significant with the exception of management attitudes and channel adaptation which might be construed that these 2 factors were not crucial or directly related to the export performance. In a sense, this might be interpreted that it was what the management or the firm did in terms of its product quality through its firm competencies and how the firm actually differentiated its product offer through its value proposition in terms of its quality created and delivered through its firm competencies' efforts that contributed to its differentiation from its competitor, all of which were within the internal control of the firm that it could choose to do or not to do, or improve on.



TABLE 4: SUMMARY OF REGRESSION TEST OF EXPORT PERFORMANCE PREDICTORS

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2.254	.558		-4.042	.001
	TRADE BARRIERS	-.754	.106	-.726	-5.810	.009
	DIFFERENTIATION STRATEGY	.518	.120	.427	5.810	.000
	MANAGEMENT ATTITUDE	.160	.127	.133	1.261	.220
	R&D/TECHNOLOGY	.622	.106	.542	.794	.008
	PRODUCT QUALITY	1.129	.136	.870	8.309	.000
	CHANNEL ADAPTATION	-.117	.098	-.106	-1.199	.243

a. Dependent Variable: EXPORT PERFORMANCE

In the testing of the hypothesis 7 ( $H_07$ ) of the effect of the determinants of firm competencies, management attitude, business strategies, channel adaptation, product quality on export performance, the regression Table 4 (R square of 0.973) showed that the channel adaptation and management attitude were not significant as predictors of export performance. Of the remaining that were significant, the internal factors of product quality (0.870), R&D or the firm's competencies (0.542) and business strategy or its differentiation strategy (0.427) were significantly important in predicting the export performance of which product quality and firm competencies were imperatives that the firm must excel in order to improve its export performance. The only external factor of trade barrier showed a significant inverse prediction of performance, meaning that if the trade barrier is high, and its export performance will decrease significantly.

### Discussion of Findings

The key findings of the research were in line with the main-stream literature of the importance and imperatives of these determinants as discussed in this section. It must be noted that these determinants of the product quality, business strategy and firm competencies were mainly internal and controllable factors of the internal capabilities and competencies. The trade barrier was the only main external determinants within the control of the trading countries and under the direct influence of the importing country government. This could be construed to the fact that the degree of success in export performance was dependant on the degree of success in managing these internal capabilities to achieve a staked out position in the industry.

Abalaka (1999) stated that exporters must consider product quality as their core competency rather than low cost strategy and his studies showed that the product quality affecting customer satisfaction and creating brand loyalty was the most important factor that influenced export performance and had strong relationship with export performance as also evidenced in this study. Good quality coming from raw material, processing and final

production including effective quality control system showed the significance of product quality with export sales and export growth, which would bring about higher export profits.

The studies of Kirpalani and MacIntosh (1980) showed that trade barriers had direct influences on export performance with strong relationship to sales, profits and growths. They suggested that the exporter should consider the government rules and regulations of import countries such as the tax and tariff systems, price policies and the restriction of foreign products. It was recommended that the exporter should prioritize their export activities to the low export barriers countries open to international trade as business logic to reducing risks and uncertainties in competitive environments. The research from Xuto (2003), as supported by this study, on problems of Thai canned Tuna exported to EU market indicated that the tariff barrier was a crucial factor that directly affected the export performance and had a strong relationship as it found out that the import tariff of those markets was up to 24 %, which was much higher than some developing countries. The research suggested that the Thai government should use the WTO right to secure more equitable treatment from the developed countries trading partners.

Chetty and Hamilton (1993) reported a positive effect of firm technology on export performance since a high technology firm was able to innovate on their production process, and overall management procedures bringing about lower costs of production and management, thereby generating more profits and lower costs. Maneerungsee (2000) who conducted an in-depth study of the Thai food exporters also concluded that to gain more competitiveness and foreign investment capital, Thai factories should implement and enhance the technology in production process, which could result in higher productivity and export performance. In this research, the firms' competencies in terms of R & D and Technology which is the firm competencies was also found to be a major determinant of export performance as achieving competitive advantage was based on the firm's internal capabilities and capacity that all contributed to the firm's competencies critical to achievement.

Hofer & Schendel (1978) stated that business strategy using differentiation had direct and significant influence with the level of export performance since the firm was able to differentiate their products and services to gain the competitive advantage over the intense competition as also evidenced in this study of the firm's differentiation strategies that was a key that led to sustainable goals. Along with the research paper from Ledesma (2002), which stated that the capacity to produce different varieties of goods and the quality of the product were crucial and significant factors affecting export performance. In other words, product differentiation and increases in quality had been widely recognized as crucial factors determining the export performance of the countries and export sectors. Further more, firms that wanted to have superior performance over other competitors, generally focused on innovative and highly differentiated products.

### **Managerial Implications**

In this study, the determinants or the critical success factor were “the minimum key factors that the Thai canned fruit manufacturers must implement for the successful export performance”; therefore, the Thai canned fruit manufacturers must pay special attention and emphasis on those four determinants, which showed significant relationship with export performance. The Thai canned fruit manufacturers can apply these determinants for their development and improvement of export performance and use them as a basis to formulate plans for implementation.

- **Product quality:** To improve product quality, both private and government sectors have specific roles. Since product quality is the bridge that connects the improvement process with priorities that support the organization’s long term success, in term of quality control and certification of the quality consistency, the government has an important role to verify the quality checking system in order to improve the product reliability among nations. The related departments should improve and issue more quality regulation and systems in order to comply with the International Food and Drug association standards (JETRO, FDA, EU standard). Private sectors also have the duty to improve the product quality in term of process and production by: (1) Improving the packing through stronger cans to avoid the damages during the transportation; (2) proper and adequate wrapping up of the product with strong pallets and roping the front row of container; (3) adjusting the label by adding specific information and explanation like nutrition facts and better designs as required by importing nations.
- **Trade barrier:** The Government was not only a regulator of the sector by developing the sector in the right way the use and implementation of internationally accepted standards, but also as a negotiator for a more favorable balance of trading with other countries in order to achieve competitive advantage in the canned fruit export environment. Tax and tariffs imposed by importing countries are one of the important factors that exporters were unable to control but the Thai government had to raise these issues and discuss them with other nations in order to build up the local competitiveness especially in the EU.
- **Firm Competencies:** Product innovation and the technology improvement in production and processes are mandatory as these represent the core competency inherent in the firm’s internal competitiveness. These are the internal processes capacity and capability that creates and delivers on the value that the customers seek in the purchase and consumption of the product and service offers. These cover the ingredients affecting health consciousness; can disposal practices that affect the environment and the overall value that the customer derived in the consumption of the product or service offer through the customer value (Gale, 1994) defined as:

$$\text{Customer Value} = f(\text{Product Quality, Service Quality, Relationship, Image})/\text{Cost}$$

- **Business strategy:** The components of the business strategy capitalize on the value addition to customers and the features that most of the competitors can not duplicate. In the canned fruit industry, manufacturers are able to offer value added product to consumers by both increasing special features like Vitamin C added in syrup, select only L-sized fruit in cans, or use only super refined sugar for mixing syrup. Another value added that manufacturers can contribute to consumers related to the ease of use is by offering convenience to consumers such as, attached spoon on the top of the cap, easy to open can (without use of opener) and the diced fruit (cubic shape and easy to eat), which is the new production technique from Japan. Value addition can also be in the form of lower cost that can generate higher company's profit, which leads to better export performance. Economies of scale, scope and speed and knowledge of the customers, competitors, organization and its technology utilization are the main ways to achieve lower cost that ultimately converts to a lower cost to the customers in the form of higher value. The firm's internal systems and logistics which contribute to 20% of the cost can also be re-designed through better management systems or outsource of the logistics.

## **Conclusion**

The above implications as had been evidenced in this research had shown that the success of the firm and its exports performance was within the controllable and internal firm's direct management. In conclusion, the above research highlighted the imperative that the success of the export performance of the Thai canned fruit exporters lie in the key internal factors within the control of the firm in order to improve its competitiveness in the international arena through its own competence that it must develop. Its success and future success in the export market would be based on its capacity and capability that are human based. If not managed carefully, its foundation of success would be weak. Its organization success lies in its management of the intangible assets of its human capital, information capital and organization capital (Kaplan and Norton, 2004). It cannot just wait for the external factors to happen, as building up the competence needs time and efforts that must start immediately and that ultimately represents the firm's competence to create and deliver value that will ultimately affect its export performance that finally affects the bottom-line financial performance.

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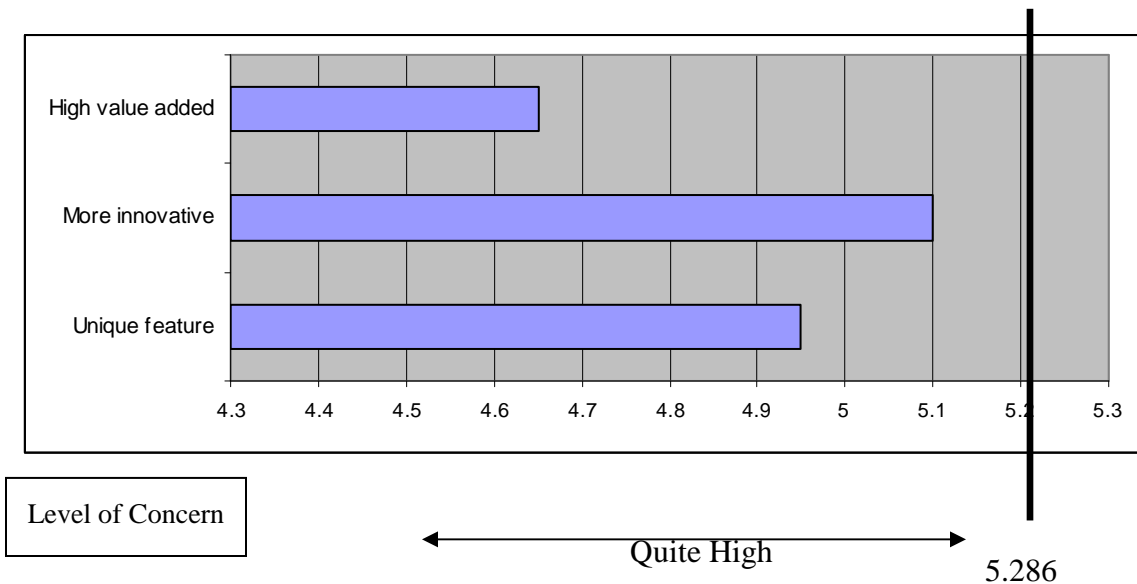


FIG 3: MEAN AND INTERPRETATION OF BUSINESS STRATEGY

Figure 3 showed that the three items in business strategy factor had a mean score ranging from 4.65 to 5.10 falling into the “quite high level” with an overall mean average of 4.90 rated as “quite high level”. This could mean that Thai canned fruit manufacturers had quite a high level of concern in implementing this factor, the highest level is the “company was considered as more innovative than others in the industry”, mean score 5.10, followed by the “canned fruit of the company has unique features, which others cannot duplicate”, and the “company’s product offers the high value added (e.g. Higher nutrients, refined sugar added) to customer as compared with those of competitors” with mean scores of 4.95 and 4.65 respectively.

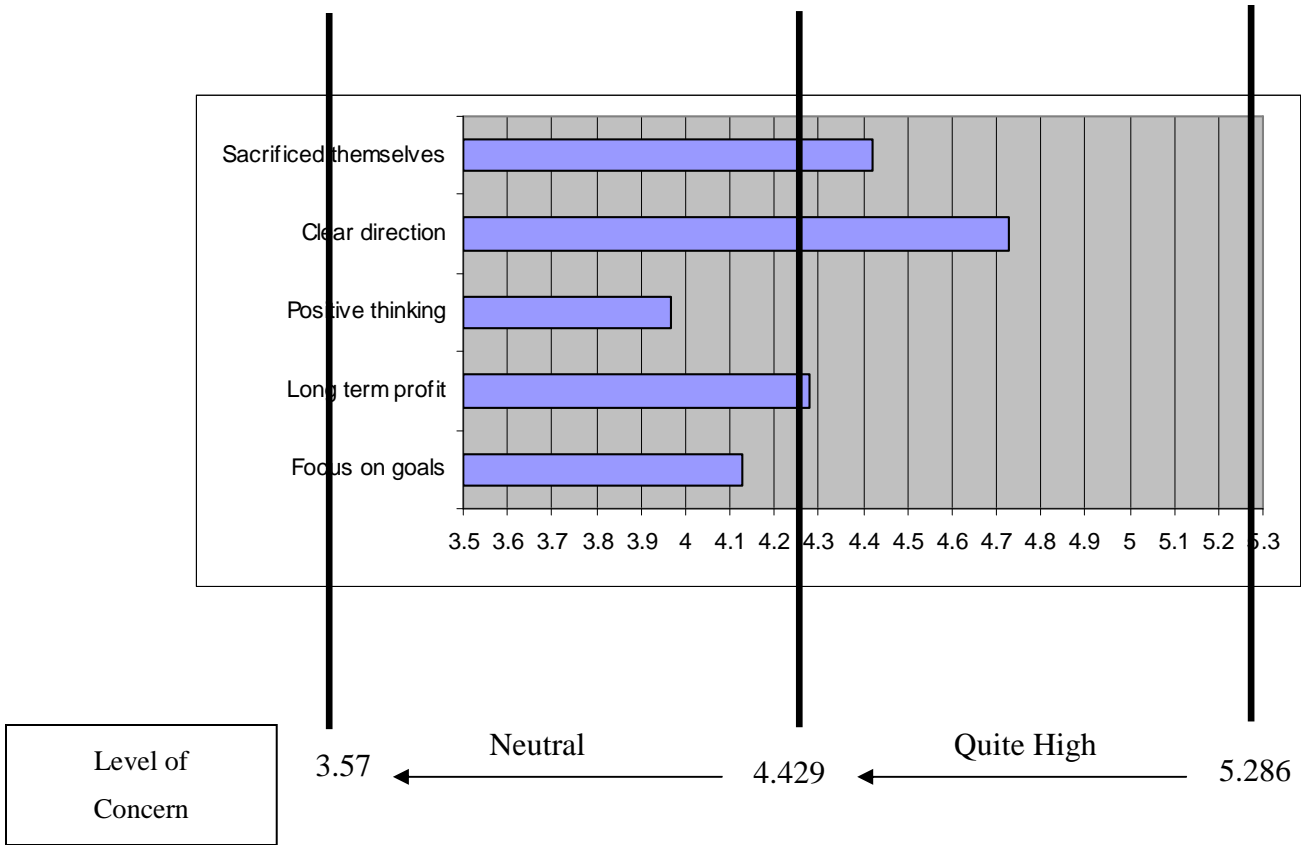


FIG 4: MEAN AND INTERPRETATION OF MANAGEMENT ATTITUDE

Figure 4 showed that the five items of management attitudes mean scores ranged from 3.97 to 4.73. The overall mean average was 4.306, rated as “Neutral” which could mean that the Thai canned fruit manufacturers for its attitude was neutral with the exception of the 4<sup>th</sup> item; management had a clear direction of export business e.g. Policies and strategy which was the highest level among five items in this factor with a mean score of 4.73. The remaining items were in a “neutral level” with mean scores between 3.97 to 4.42.



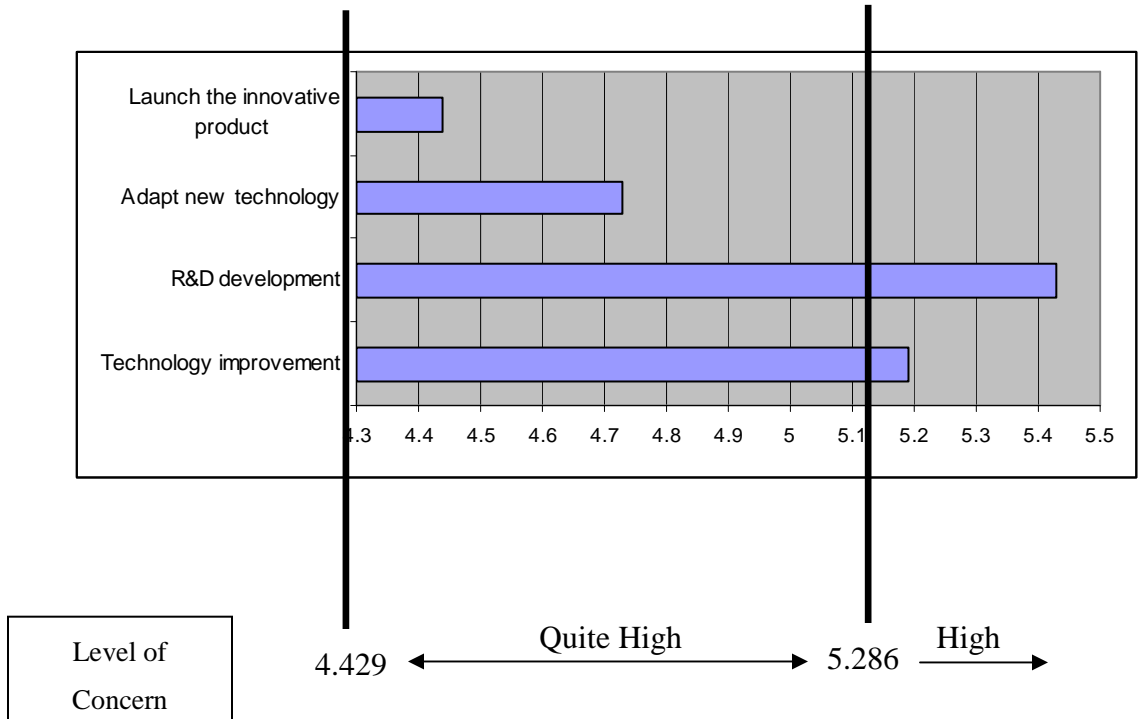


FIG 5: MEAN AND INTERPRETATION OF FIRM COMPETENCIES (R&D/ TECHNOLOGY)

Figure 5 showed that the four items of the firms' competencies (R&D/ technology) factor had mean scores ranging from 4.44 to 5.43 with most of the items falling into "quite high level" with the exception of R&D development that was rated a "high level". The overall mean average was 4.95 rated as "quite high level" showing the concern of the Thai canned fruit manufacturers for this factor. The Thai canned fruit manufacturers' highest concern was the company had training and enhancement of R&D/development with a mean score of 5.43 followed by the items 1, 3 and 4, which had mean scores of 5.19, 4.73 and 4.44 respectively.

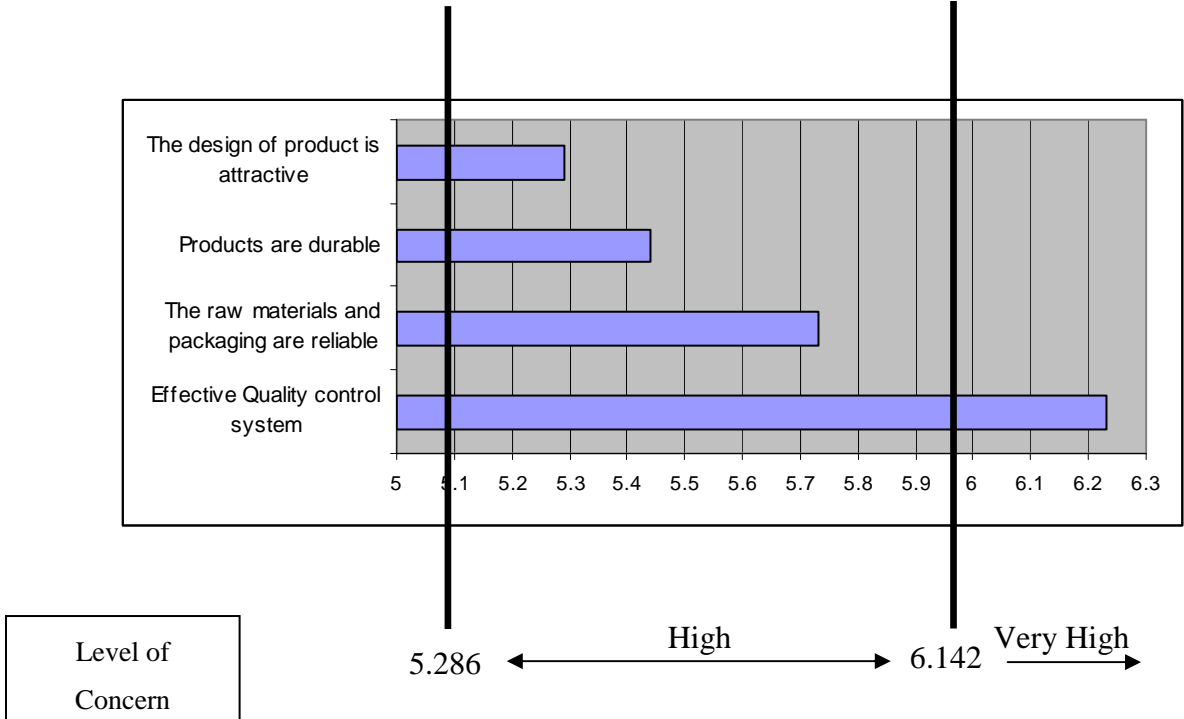


FIG 6: MEAN AND INTERPRETATION OF PRODUCT QUALITY

Figure 6 showed that the four items of Product quality factor had mean scores ranging from 5.29 to 6.23 falling into the “high level” range with overall mean average of 5.6725, which showed a “high level” of concern by Thai canned fruit manufacturers for this factor. The highest concern was effective Quality control system (defect rate less than industrial standard = 1.5%) with a mean score of 6.23. The second, third, and fourth items that Thai canned fruit manufacturers had concerns were that the raw materials and packaging were reliable (in term of freshness and cleanness), products were durable enough to meet the degree of customer requirements (without claims), and the design of product was attractive, with mean scores of 5.73, 5.44, and 5.29 respectively.

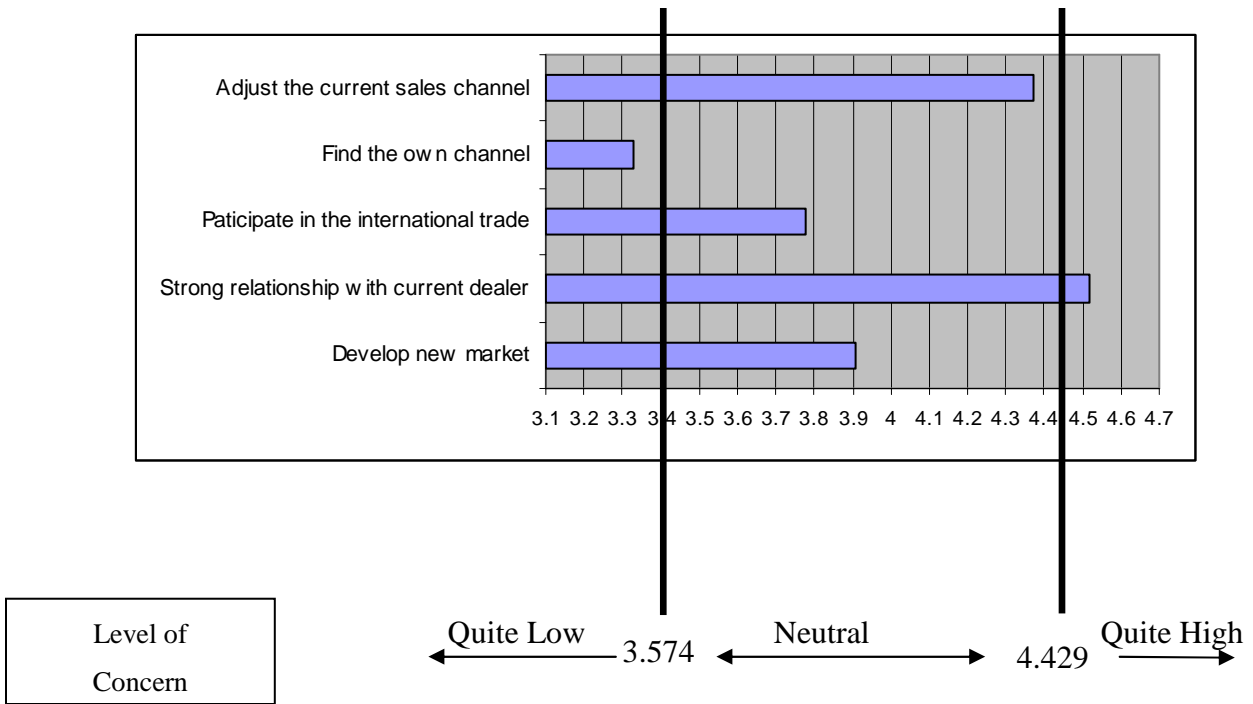


FIG 7: MEAN AND INTERPRETATION OF CHANNEL ADAPTATION

Figure 7 showed that the five items in the Channel adaptation factor had mean scores ranging from 3.33 to 4.52 were in “neutral level”, with the exception of the second item falling into “Quite low level” and the fourth item in the “Quite high level”. The overall mean average was 3.982 interpreted as “neutral level” could mean that the Thai canned fruit manufacturers were in the neutral level in their concern for this factor. Thai canned fruit manufacturers placed highest concern in Channel adaptation as the company had strong relationship with current dealers, which helped the company to adjust the sales channel to be more flexible with a mean score of 4.52. Other items, 1, 3, 4 and 5 were not considered as crucial concerns for the Channel adaptation factor, since the mean scores were considered as “neutral and quite low level”, therefore, the Channel adaptation factor had rarely received attention from Thai canned fruit manufacturers.

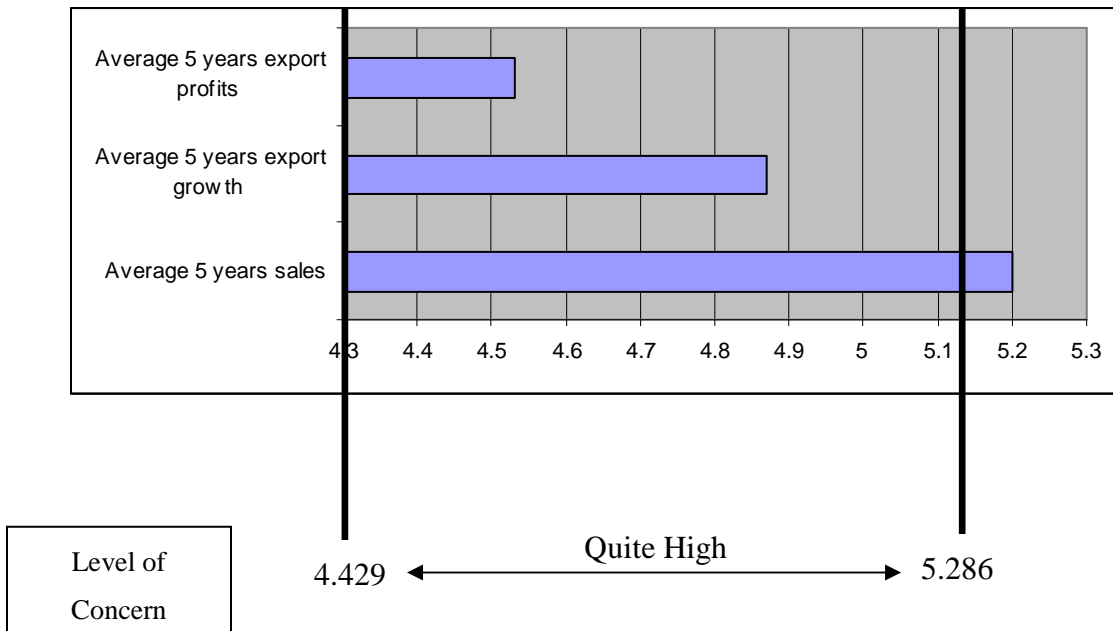


FIG 8: MEAN AND INTERPRETATION OF SUCCESS RESULTS OF EXPORT PERFORMANCE

Figure 8 showed that the 3 items of success results of export performance with mean scores ranging from 4.87 to 5.20 was considered as “quite high level” with export sales, export growth and export profit having mean scores of 5.20, 4.87, and 4.53 respectively. This could be interpreted that most of the respondents agreed that the export sales of the company had been growing in the last five years, which meant that the export sales in value (Baht) had increased and that had gained more revenue in export sales (without considering any costs). The sales growth was also growing in the same direction but not in the same percentage. Since sales growth was measured by volume (TEU), therefore, there might be some external factors such as Baht currency exchange, tax and tariff in import countries or the degree of competitions that affected the export growth. Similar to the export profits, since the higher export sales might require more investment in product and marketing, this would result in higher cost which pulled down the profits. Therefore, the increase in export sales might not necessarily affect the increase in export profits in the same level. Moreover, like export growth, export profits might be affected by the currency fluctuation (in case of Baht appreciation) and also through the increase in the logistic cost.

# **The Japanese Experience of Labour Export Policy and its Impact**

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## **Abstract**

It was witnessed in capitalist development process that labour export policy has been remained as one of the major strategies of economic development, not only in developing countries but also in most of the developed countries. This was not an exceptional to Japan. The commencement of modernisation or so-called industrialisation of Japan since Meiji Restoration (1868) had been employed this policy as one of the major development policies to overcome its capital needs required by the development process. This had continued until 1993. This policy was contributed to expand its industrial activities while supplying major relief to both macro- and micro-level of socioeconomic problems caused by the process of industrialization based capitalistic theory. This paper mainly aims to examine the policy aspects as well as practical experience of this policy in the process of industrialisation with special reference to Japan's experience since its embarking on modernisation in 1868.

## **Introduction**

Today, the developing countries in the world commonly use labour exporting policy as one of major development strategies in their development process. However, this is not a new phenomenon in the development sphere of the world. Historically, presently developed countries, especially Japan and European countries, have had an experience of international labour migration for a relatively long period at the first stages of their modernisation, or so-called industrialisation which commenced since the 19 century. Industrialisation has involved structural change effecting on both macro and micro level of socioeconomic environment, particularly transferring of the surplus labour force from traditional sector to modern sector. However the process of this transfer had not been occurred in smooth manner. This was resulted to employment of the labour export policy during the time of initial stage of economic development. However, development economists in recent years have argued that migration is having a strong relation with economic development in developing countries. For example, Castles and Miller (2003, p.156) noted that the migration transition as a result of all the changes through economic development and demographic transition. In this respect, Japan can be extracted as strange evidence that it used this policy at the very beginning of

her modernization. The present study attempts to examine the relationship of labour export policy with the development process of Japan during the period 1868-1993.

## **Labour Export Policy in Japan: An Overview**

According to historical evidence, the labour export policy in Japan can be described under three major periods: first, before Meiji Restoration; second, prior to WWII; and third post-WWII period. **Before Meiji Restoration:** During the feudal age, Japan was not having any socioeconomic pressures from foreign countries. This was continued for over 200 years. During this period, Japan did not have trade and other economic relations with overseas except a small island in Nagasaki<sup>1</sup>. The feudal policy strictly prohibited overseas visit of the Japanese people as well as the Japanese go abroad. However in 1866, the feudal government changed its national isolation policy and started foreign trade with some restrictions under agreements with foreign countries. Although trade relations were commenced under various restrictions, the labour export was prohibited because the feudal government was worried about slave trade and the conditions of Chinese and Indian coolies. Along with the abolition of the slave trade in most labour importing countries in the world, they started to use other strategies to acquire of labour force to fulfil their labour demand. Although the feudal government was not allowed to send Japanese labour force to abroad, the middlemen who were immersed in various forms were resulted to send 153 Japanese labourers to Hawaii, 42 to Guam and 40 to California during the emergence of new government after Meiji Restoration in 1868. This is the first mass labour migration from Japan<sup>2</sup>. However, the new Meiji government had also kept a conservative attitude towards the labour export policy for a long period.

### **Prior to World WWII**

In 1869, the Meiji government prohibited inflow of labour force from Japan to Hawaii as a result of worsening condition of working and living of already migrated Japanese people. However, rapid increase of requests of the Japanese people who want to work in overseas has caused signing a bilateral agreement of labour export from Japan to Hawaii with the Hawaiian government in 1886 (Arimoto, 1993, p.58). The conditions of the agreement were as follows: the employees have to send under rules and regulations of the agreement; employment contract limited to three years; the provision of security to all Japanese labourers by the Hawaiian government.

Enomoto Takeaki (1836-1908) is also a main promoter of Japanese labour export and settlement policy. In 1890, he submitted the Opinion Paper on Migration to the Cabinet, which insisted that the government should send farmers and make them settle in the new land overseas. After his assuming as the Foreign Minister of Japan in 1891, he established a Division of Migration in the Ministry of Foreign Affairs. He procured a land in Mexico, and sent around 30 migrants there. Although this project was failed to achieve successful results as expected, it contributed

to make a strong legal base for the Japanese migration policy (*ChunanbeiIjyuukyoku*, 1965, p.1). It also helped to diversify the destinations of Japanese migration.

According to various research findings, most Japanese migrant workers were subjected to be maltreated like slaves at the destination countries in the earlier time: most of them were died in illness, overwork and accidents, under the unaccustomed climate (Wakatsuki and Suzuki, 1975, pp.57, 73). The contract migrants under the Japan-Hawaii agreement resulted in relatively better conditions compared to other destinations because they had tried to improve the working conditions through diplomatic negotiations, but the migrants of other destinations were faced serious difficulties and hard situations. Except Hawaii, the Japanese government did not have any legal contacts with other countries which used by Japanese migrants as major destinations for their overseas works. As a result, problems relating to working and living of migrant workers were deteriorated during this period. In addition, the increase of private companies and brokers, which were worked as agents of migrant workers, resulted to further deterioration of the workers' socioeconomic condition in foreign countries. This was occurred because the migrant agents exploited the people who decided to work in foreign countries (Ishikawa, 1972; 1970, p.90). In April 1894, the government issued the Regulation of Protection for Migrants (*Iminhogokisoku* in Japanese) to protect the migrants and to crack down on a dishonesty services employed by migrant agents. Under this Act, it not only protected migrant agencies, but also rights of migrant workers. In 1896, the regulation was upgraded to legislation of Protection of Migrants. Since 1898, the government started to keep data under the following categories: *Imin* and non-*Imin*. The first group, *Imin*, was regarded as labour migrants, and the second one consisted public servants, business persons, students, and tourists. The all acts which enacted on this subject mainly aimed to protect the rights of the migrant workers. The government had revised the legislation of migration for three times until 1907. This legislation was the only one chief regulation concerning for international migration.

Migrant agencies had played a major role in labour exporting policy in Japan. However, labour importing countries had gradually imposed restrictions towards foreign labour force. For example, the anti-Japanese movement was increased along with the annexed of Hawaii by the United States in 1898. As a result, the US gradually imposed various restrictions on accepting foreign labourers, particularly Japanese immigrants. Similar situations had been also seen in Australia and Canada. This made further difficulty to increase of Japanese migration. Since then, the Japanese government started to find other labour importing countries, which had less anti-Japanese movements. As a result, Japanese migrants started to move to the Latin American countries as well as Southeast Asia and pacific islands after 1903. Thus, the destination of Japanese migrants became more diversified mainly because of the restriction of immigration policy in advanced countries.

From the Taishou era (1912-1926) downward, an advance of Japanese migrants to abroad became more brisk up, and the government began to introduce more encouraging policy towards migration (Ishikawa, 1972). For

example, the government established an association for promoting migration to abroad in each prefecture after 1915 while integrating six migration agencies into a new enterprise called *Kaigaikougyou* in 1917. In 1921, the government subsidized the new migration agencies and bought a land in Brazil. Moreover, after the Great Kanto Earthquake in 1923, the government provided the expense needs for migrants who were victims of the earthquake. The later this subsidy system was expanded to the other general applicants too. At the same time, the government abolished the applicant's payment duty paid as service charge of the formalities for going abroad to migration agencies. In addition, the government was compensated the same amount of that to the enterprise charged (Ishikawa, 1972, p.133). Through the clear vision of economic development policies, the government promoted export, and supported international migration and settlement and foreign investment (Matsuno, 1997).

In 1927, the government introduced much more reinforcement towards migration policy with enactment of the Act of International Migration Union in order to support an enterprise on its labour sending business. After the following year, the government placed an accommodation for pre-migrants' temporal stay near the Kobe port, and established the "Latin America & Amazon corporations" to send migrants to these specific destinations. When the Great Depression broke out in 1929, *Takumu-Shou* (the Ministry of Migration and Settlement) was established to control Japanese migrants and migration projects as a main migration institution<sup>3</sup>. However, the Brazilian government revised its immigration policy in 1934 that aimed to limit Japanese migrants. These restriction laws imposed in these countries resulted to decline of Japanese except Japanese territories and colonies<sup>4</sup>.

#### **Post-WWII Period**

Along with the defeated of Japan in the war in 1945, it lost its territories and colonies mainly in Asian region. The war also destroyed most of the economic structures and industrial bases, resulting to face serious socioeconomic difficulties<sup>5</sup>. Moreover, having been ruled by the Allied Forces between 1945 and 1951, Japan had been isolated from the world, and had not been allowed to hold its own diplomatic initiatives (Wakatsuki and Suzuki, 1975, p.79). During this period, Japan was not having its own policy of international migration. However in May 1948, the plenary session of the House of Representatives adopted the following three resolutions aiming to solve Japanese population problem: an industrial development; a birth control; and an international migration (The Diet minutes search engine web site).

Soon after the signing of San Francisco Peace Treaty in 1951, the Japanese government took an initiative to introduce some policies towards international migration, mainly permanent migrants. In the same year of the Peace Treaty, the Brazilian government agreed to accept 5,000 Japanese migrant families as permanent migrants. Along with the positive outcomes, the Japanese government made several plans to send Japanese permanent migrants to Brazil. The Ministry of Foreign Affairs of Japan also expanded the migration institution from an office into a division level of international migration. At the same time, the Ministry established the Federation of Japan



Overseas Association as a central organisation, and the Regional Association of International Migration in each prefecture as a subordinate organisation in order for them to take charge of a practical migration service (Wakatsuki, 2001, p.15). In 1954, the Ministry of Foreign Affairs did further expansion of the institution as International Migration Affairs Bureau. Moreover, when Prime Minister Shigeru Yoshida visited the United States in 1954, he officially received US\$ 15 million loan from three American banks, and decided to utilise those financial assistance on development of Japanese international migration scheme such as establishing the Council of International Migration and Japan Emigration Promotion, Co., Ltd. (*Chunanbeijyuukyoku*, 1965, pp.84-89; Consul of Department of International Migration, 1971, p.307). This new migration corporation was aimed to finance Japanese permanent migrants and the companies in the destinations which employed Japanese workers. The Japanese government subsidised to cover all overhead expenses of the new migration corporation (Wakatsuki, 2001, p.54). The Ministry of Foreign Affairs had eagerly sought wherever countries to accept as destinations for Japanese permanent migrants. The following countries were accepted as major countries to send Japanese migrants: Paraguay, Argentine, Bolivia, Peru, and Dominica. Since then, the Japanese government had promoted mass permanent migration policy focusing on Latin America and Caribbean countries. In this respect, the Ministry of Foreign Affairs had been the main actor of the international migration, which used about 83 per cent of the total budget for necessary expenses needed for the permanent migration service during the period 1952-1968. It could be also noted that the Ministry of Transport, the Ministry of Agriculture, Forestry and Fisheries, and the Ministry of Construction were also involved in Japanese international migration services but not that much like the Ministry of Foreign Affairs.

In addition to sending permanent migrants to Latin American countries, there were also labour export policy with the United States and West Germany. Japanese government made an agreement with some related associations in California in 1956 and decided to send young Japanese labourers to farms under three-year contract. This was expected train Japanese workers and help to Japanese people to save some money to invest after return to Japan (Suzuki, 1992, p.358). Moreover, the Ministry of Labour of Japan made an agreement with the West German in 1957 to send Japanese labourers to meet the shortage of coal miners there (Suzuki, 1992, p.260).

However, along with the decline of Japanese applicants for overseas migration in the beginning of 1960s, the Japanese government ceased the labour export policy to the United States and West Germany. The major reason for this can be recognized as not only the various immigration restrictions imposed by the US, but also the rapid economic growth in Japan made high demand for the labour domestically. In December 1962, the meeting of the Council of International Migration took these internal and international circumstances into consideration, and made a philosophy of international migration policy (*Chunanbeijyuukyoku*, 1965, p.116). According to this definition, the philosophy of Japanese international migration policy for the future should be regarded as the mobility of human

resources with talents and skills for development of both internal and international societies, not just any old type of a mobility of labour. From 1963, the Ministry of Foreign Affairs had reconsidered the policy of international migration, and planned to rationalise the permanent migration services. In this respect, Japan Emigration Service (JEMIS) was established through unifying the Japan Emigration Promotion, Co., Ltd. and the Federation of Japan Overseas Association, as a semi-government agency affiliated with the Ministry of Foreign Affairs. This new institution rolled as major agency of recruiting and sending of Japanese migrants. In the regional level, municipal governments worked as major institutions to promote Japanese international migration. One year later of the liberalisation of Japanese overseas travel in 1965, the Japanese government intensified the promotion of international permanent migration, and subsidised a fare of going abroad by ship instead of loan system through JEMIS (Yamada, 1998, p.225). Although JEMIS had supported a fare of ship of permanent migrants, the number of migration had never increased. As a result, JEMIS finally stopped this supporting system and sending of migrants by ship in February 1973 (Yamada, 1998, p.227). However, JEMIS had continued financing the Japanese settlers in South America with low interest. In 1974, JEMIS was taken over by Japan International Cooperation Agency (JICA) and continued the financing programme for the Japanese settlers. In 1978, JICA started sending Japanese professionals and skilled permanent migrants to Australia<sup>6</sup>.

In 1979, the Brazilian government asked the Japanese government to close a local corporation of JICA, as its response, the local corporation of JICA retreated from Brazil in 1981. In the internal situation, the training centre for Japanese pre-emigrants ceased to exist. In 1993, the government closed recruiting and sending of Japanese migrants but, there still had kept the related budget of the Ministry of Foreign Affairs. In 1974 there were four units of affairs relating to the Japanese international permanent migration service in JICA, but they were integrated into one division. In October 2003, the institutions related to Japanese permanent emigration functioned under the government were completely abolished. This was occurred when the JICA reformed from a special public institution to an independent administrative institution in 2003. As a result, the policy of international out-going-migration of Japan has come to an end.

## **Impact of Labour Export Policy on the Economy of Japan**

### **Trends of Japanese Labour Migration**

There is a distinctive difference in the trend of Japanese migration before and after WWII (FIG. 1). It can be recognized that diverse socioeconomic factors were caused the changing pattern of the Japanese out-going – migration. In particular, pushing factors of supply side in Japan and pulling factors of demanding side in overseas relating to migrant labourers have been largely affected to changing pattern of the Japanese migration. Prior to

WWII, particularly before 1930, people in Japan could move and stay relatively freely following market forces in the frontier or labour host countries without facing a strict immigration control. However the situation had been gradually changed after the Great Depression in 1929, the host countries started to impose various restrictions to limit the inflow of foreign labour. This impact was clearly seen the change of trend of the destination. For example, the share of labour migrants toward the United States and Hawaii declined and disappeared after the 1930s (FIG. 2). However the situation changed dramatically after WWII. The most obvious different points were the size of international migration and the trends of destinations. The number of Japanese international migrants had drastically decreased especially after the 1960s. However the share moving to the North America as permanent status had been constantly high, especially between the latter part of 1960s and

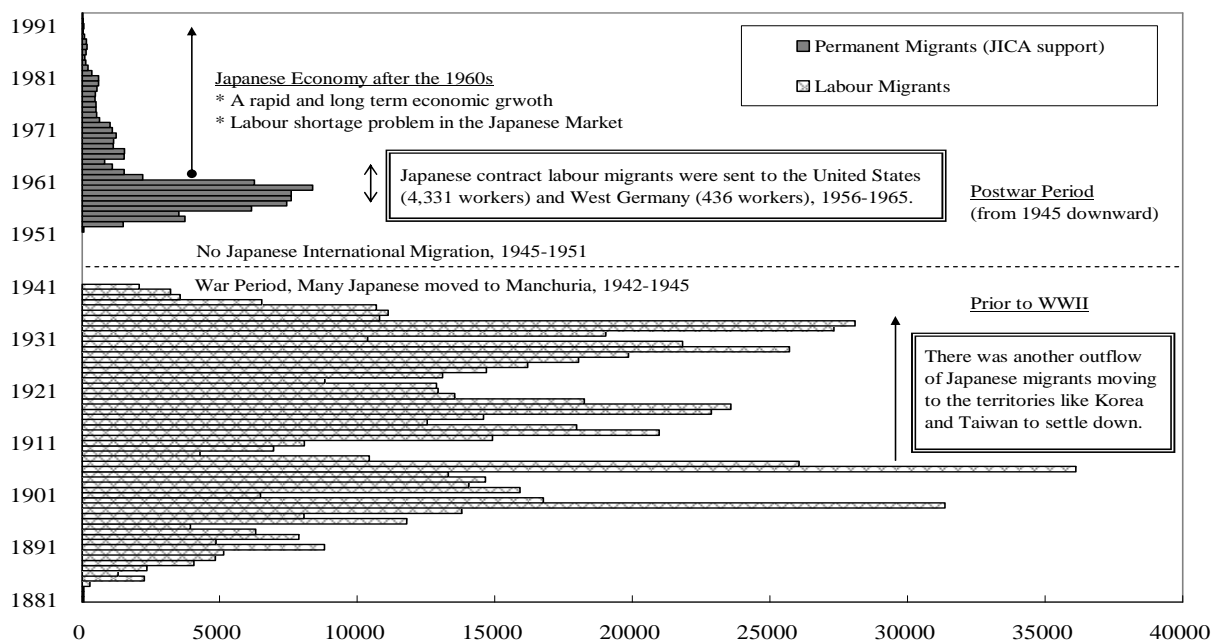


FIG. 1: OUTFLOW OF JAPANESE INTERNATIONAL MIGRANTS 1878-1993

Source: Source: Okamoto, Mitsuji. (1997). "Senzen no Nihonjiniminnshi nikansuru Tyousa/kenkyu no Seirihoukou nitsuite: Roudouidou no Shiten wo Chuushin nishite", *Bulletin of Niigata Sangyo University, Faculty of Economics*, 17, 7-42; JICA (1994). "Kaigai Ijyu Toukei", pp.116-119; Consular and Migration Policy Division, the Ministry of Foreign Affairs (2006); Suzuki, Joji. (1992). "Nihonjin Dekasegi Imin", pp.258-260, Heibonsha.

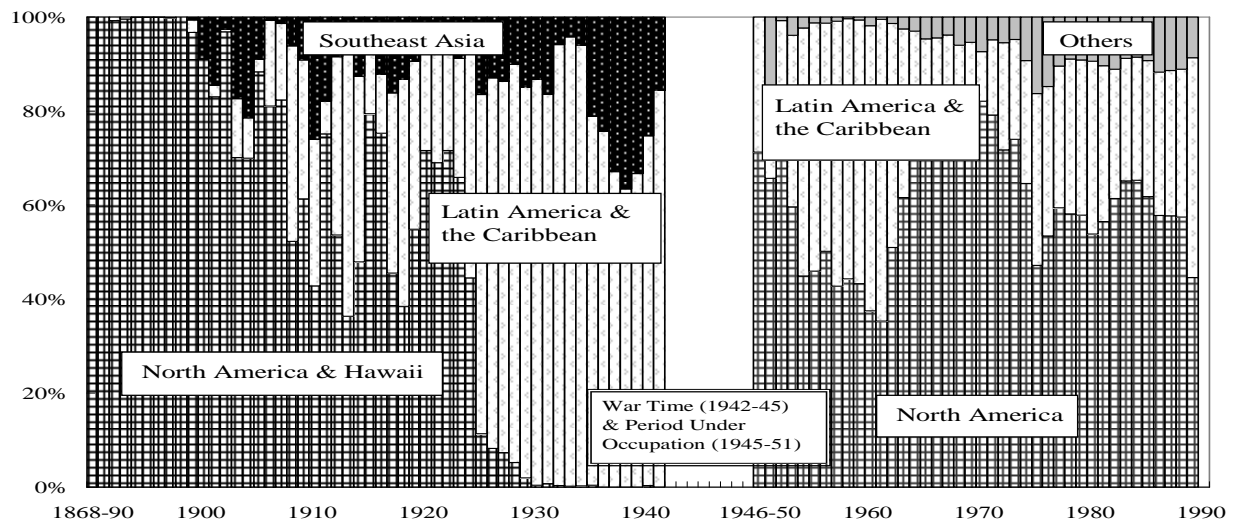


FIG 2: TRENDS OF THE DESTINATIONS 1868-1989

Source: JICA (1994). Kaigai Ijyuu Toukei, JICA.

Every year of during the 1950s, over 50 per cent permanent migrants had moved to Latin America and the Caribbean under the government (JICA after 1974) support to settle as farmers. According to Table 1, this total number of migrants<sup>7</sup> before WWII increased slowly and met a peak during the 1910s, but started to decrease after the 1920s. After WWII, however, it has grown rapidly after the 1970s, and the share of Japanese going abroad as the total population become over 10 per cent after the 1990s. While the outflow of Japanese labour before WWII showed constantly high trend, and its share kept roughly around 50 per cent of the total Japanese going abroad. After the 1930s, Japanese migrants started to move into Manchuria as rural settlers, and its number was massive. However after WWII the number of labour migrants going abroad dropped and disappeared from the Japanese international migration statistics. The available data of labour migration after WWII reported that there were 4,767 Japanese migrants, which was only 0.6 per cent of total Japanese going abroad, between 1956 and 1965. The number of permanent migrants has also decreased and the share of Japanese permanent migrants as a total Japanese going abroad became very small, especially after the 1960s. On the other hand, both periods of the number of Japanese resident in overseas are of increase trend, but dropped dramatically during war period.

TABLE 1: JAPANESE MIGRANTS AND RESIDENTS SINCE 1881

Period or Year	Migrants with Japanese Passport						Migrants Toward Manchuria	Resident of the Japanese in Overseas		
	Total	Labour Migrants (Imin)		Permanent Migrants				Total	Total	year
		total	(%)	Total	(%)	Permanent Migrants (JICA support) total				
1881-1890	38,977	20450	52.5	n/a	-	-	-	n/a	n/a	
1891-1900	251,358	116,723	46.4	n/a	-	-	-	n/a	n/a	
1901-1910	291,127	147,289	50.6	n/a	-	-	-	n/a	138,591 1904	
1911-1920	486,015	167,273	34.4	n/a	-	-	-	n/a	541,784 1920	
1921-1930	310,318	160,048	51.5	n/a	-	-	-	n/a	740,774 1930	
1931-1940	221,989	146,561	66.0	n/a	-	-	-	144,760	1,421,156 1938	
1941-1945	n/a	2,071	-	n/a	-	-	-	125,247	n/a	
1951-1960	257,128			116,298	45.2	46,014	39.6	-	n/a	
(1956-1965)	805,556	4,767	0.6	116,493	14.5	49,122	42.0	-	n/a	
1961-1970	2,428,258			63,301	2.6	18,498	42.2	-	325,285 1968	
1971-1980	26,900,758	0	0	54,886	0.2	6,379	29.2	-	445,372 1980	
1981-1990	63,364,552	0	0	25,916	0.0	2,023	11.6	-	620,174 1990	
1991-1993	37,722,601	0	0	n/a	-	121	-	-	728,268 1993	
Present (2005)	17,403,565	0	0	n/a	-	0	0	-	1,012,547 2005	

Source: Okamoto, Mitsuji. (1997). "Senzen no Nihonjinminnshi nikansuru Tyousa/kenkyu no Seirihoukou nitsuite: Roudouidou no Shiten wo Chuushin nishite", *Bulletin of Niigata Sangyo University, Faculty of Economics*, 17, 7-42; JICA (1994). "Kaigai Ijyu Toukei", pp.116-119; Consular and Migration Policy Division, the Ministry of Foreign Affairs (2006). "Annual Report of Statistics on Japanese Nationals Overseas", pp.206-209; Suzuki, Joji. (1992). "Nihonjin Dekasegi Imin", pp.258-260, Heibonsha.

## Impact of Labour Migration on the Economy

### Remittances and Balance of Payments

Private transfers consists in one of Transfers items in the Balance of Payments of which Japanese labour migrants had contributed to make up a large share of the private transfers. This has been recognized as private remittances. According to Table 2, the private remittances had increased during the former part of the twenty century, even though other components showed deficit trends. The increase rate until the 1920 was significantly high. Remittances differ from other sources of foreign exchange. In the case of balance of trade, it is regarded as one of foreign incomes, but it is easily fluctuated by the conditions of external market such as recession in trade partner, emergence of competitors, and drop of the international commodity price, especially when the country belong to the earlier stage of industrialisation. Even under these economic conditions, remittances enable to keep stable trend, as well as increase its value as the number of labour migration expands. This is also seen through the experience of Japanese economy prior to WWII.

TABLE 2: PRIVATE TRANCEFERS AND CURRENT ACCOUNT 1881-1970  
(VALUE IN ¥ MILLIONS 1881-1944; US\$ MILLIONS 1946-1970)

<i>Period</i>	<i>Balance of Trade</i>	<i>Service &amp; Incomes (net)</i>	<i>Net Transfers</i>	<i>Private Transfers (net)</i>	<i>Current Account Balance</i>
1881-1890	-5.2	-1.8	0.9	0.8	-6.1
1891-1890	-35.7	-4.3	42.4	8.9	2.5
1901-1910	-40.3	-28.5	10.3	16.8	-58.5
1911-1920	71.6	182.5	18.9	40.0	273.0
1921-1930	-413.0	165.1	20.1	54.9	-227.8
1931-1940	76.5	-185.3	59.2	81.2	-49.6
1941-1944	91.1	-1115.6	351.8	351.8	-672.7
1946-1950	-190.2	-69.6	404.8	14.4	145.0
1951-1960	-151.5	212.5	2.9	33.7	63.9
1961-1970	1558.2	-958.9	-115.0	6.4	484.3

*Source:* Yamazawa, Ippai and Yamamoto, Yuzo. (1979). "Foreign Trade and Balance of Payments", vol.14, Toyo Keizai Shinposha, pp.218-231.

Prior to the first half of 1920s, most Japanese labour migrants preferred to move to the United States and Canada, because they were the frontiers of immigrants from all over the world. Moreover, in those days, the United States became the most industrialised country with high technology and good wage rates, and had enjoyed the economic boom, and needed labour force especially in construction, agriculture and mining sectors to fulfil the shortage problem in the labour market. The remittances from these two countries in 1918 and 1926 accounted for about 143,692,000 Yen (per capita remittance is approximately 1,075 yen) and 49,552,000 Yen (per capita remittance is approximately 818 Yen ) respectively. The total remittances from the world during this period (1918-1926) amounted to 234,174,000 Yen (Suzuki, 1992, p.254).

TABLE 3: RELATIVE POSITION OF REMITTANCES 1881-1970  
(VALUE IN ¥ MILLIONS 1881-1945; ¥ BILLIONS 1946-1970)

<i>Period</i>	<i>Remittances (10-year- simple average)</i>	<i>As a percent of all current account receipts</i>	<i>As a percent of Merchandise Exports</i>	<i>As a percent of Trade Balance</i>	<i>As a percent of GDP</i>
1881-1890	1	1.32	1.46	15.28	0.13
1891-1900	9	5.02	5.66	24.94	0.52
1901-1910	17	3.57	4.40	41.62	0.53
1911-1920	40	2.64	3.37	55.85	0.55
1921-1930	55	2.09	2.67	13.28	0.38
1931-1940	81	2.03	2.67	92.24	0.45
1941-1945	352	7.94	17.55	0.99	0.71
1946-1950	14	11.52	12.75	7.57	0.53
1951-1960	34	2.97	4.17	22.24	0.43
1961-1970	6	0.61	0.75	0.37	0.07

*Source:* Yamazawa, Ippei and Yamamoto, Yuzo. (1979). "Foreign Trade and Balance of Payments", vol.14, Toyo Keizai Shinposha, pp.216-231; Ohkawa, Kazushi; Takamatsu, Nobukiyo and Yamamoto, Yuzo. (1974). "National Income", vol.1, Toyo Keizai Shinposha, pp.200-201.

During the war period between 1941 and 1945, Japan lost its profitable trade partner like the United States, so the remittances as a proportion of merchandise exports became quite large at 17.55, and the value as a proportion of the GDP grew at 0.71 from about 0.5 percent before that period (Table 3). After the war, the value of remittances as a percent of GDP had been at the same level as it was in the pre-war time, but its proportion has dropped dramatically after the 1960s. Since around 1960, the Japanese economy recovered from the war, and entered a high growth period, and finally the position of remittances became negligible afterwards. This reveals that the private remittances from workers abroad could support the time of early stage of economic condition.

### **Labour Export and Socioeconomic Problems: Surplus Labour**

It was commonly known fact that the agricultural sector remains as a dominant sector of the economy at the very beginning of the development process of in any country. This sector is also holding surplus labour force with simple and low technology. These characteristics are not an exceptional to Japan before its embarkation of modernization in the Meiji Era. However, agricultural sector is having vital contribution to accelerate the accumulation of capital through efficient usage of land, labour and tax system.

In the case of Japanese modernisation, there was no strict monetary tax system under the feudal era, so the new government allowed private property rights, and converted the feudal land tax in kind into an annual money tax (Ogura, 1982, p.374). This is the first step of accumulating capital in Japan. However this tax system made the other socioeconomic problems such as increase of tenant farmers, expansion of the gap of income and wealth or so-called inequality, increase of rural poverty and unemployment. It could be noted that the heavy burden of the tax was the main reason for all these problems. In addition, the industrial sector, which was required mainly female labour force because of its domination of light industries rather than technologically sophisticated heavy industries. As a result, absorbing of surplus labour from agricultural sector to industrial sector had been very slow. Therefore, it can be argued that this surplus labour problem became a main push factor of the labour export policy until the mid of 1910s. Since WWI period, industrial sector with heavy industries were gradually developed, absorbing male workers in the rural sector. Even though the Japanese industrialisation was advanced on that time, the potential to

absorb surplus labour was remained at slow and lower level. For example in 1923, there were nearly 1,000,000 dismissals of factory workers in Japan, in which about 30 per cent of them returned to farming. This returning farmers increased to 43 per cent (650,000 dismissals) in 1931 (Kondo, November 1978, p.12). These figures simply reveal how unemployment problem was remained as a serious issue during those periods. Moreover, since mid-1920s, population explosion became a serious issue in Japan, making grave consciousness on food security and land scarce problems. There was only 20 per cent of arable land available in Japan (Kondo, November 1978, p.13). In 1930, some foreign researchers reported their apprehensive for Japanese commencement of war with pointing out the Japanese facing social problems of excessively high population expansion, but there was no place to send Japanese surplus population to relief the pressure (Kondo, November 1978, p.13).

However, it sounds a contradiction that labour shortage in the rural sector became a serious problem during the WWII period. In those days, the military authorities mustered young males, and the number increased as the war became severely. However after the war, the situation changed, there were much returnee and veterans returned from abroad to Japan that created serious shortage of food during the latter of 1940s and the 1950s. Consequently, the government enforced international migration policy again, focusing on permanent or settlement to acquire land abroad in order indirectly to secure foods for Japan. This was continued until the early 1990s.

## Conclusion

This paper overviewed the Japanese international migration policy since the Meiji Restoration. The study learned that the government introduced this policy to overcome some major socioeconomic problems like scarce of land, increase of surplus labour especially in rural area, expansion of inequality, increase of unemployment faced by Japan along with its development process. The migration largely aimed to find an immediate solution to the above problems while finding new markets and lands in other countries needed to achieve a sustainable industrial development at home. All these reveal that Japan's intention to use this policy as one of the most effective strategy to implement the modernization without social unrest while using this policy to improve the capital accumulation in some level.

However, it should be noted that the international migration or labour export policy, which employed Japan as a government-sponsored policy cannot be recognized as major contributory factor of the Japanese economic development. It can be considered that Japanese migrants prior to WWII could contribute to stabilise balance of payments in some level through inflow of remittances of workers.

Japan met a migration transition in the 1960s ceasing labour export policy as a result of shortage of labour in the domestic labour market. Today Japan became labour importing country. Thus, ending up the labour export policy seems to be a beginning of new stage of economic development.

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### End Notes

The small island called, *Dejima*, and the place was only allowed to trade with Dutch. In actual situation, during the Tokugawa era, there were some other areas to facilitate trade with foreign countries, like Korea, Ryukyu (Okinawa), Ainu (Hokkaido).

<sup>2</sup> In 1868, E. M. Van Reed, an American businessperson, sent a group of Japanese migrants to work sugar plantations, and this unauthorised recruitment of labours is known as *Gannenmono*.

<sup>3</sup> The Great Depression started in 1929 until 1936 when world trade, partly through protection and the cautious fiscal policies of national economies, suppressed the level of economic activities (Rutherford, Donald 2002, Routledge Dictionary of Economics, 2<sup>nd</sup> edition, London: Routledge, p.239).

<sup>4</sup> In 1931, Japan attacked Manchuria, and the government started a project of Japanese migration and settlement in the region since the following year as a national project. The Ministry of Migration drew out the Outline of Scheme of Farmer Migration in Manchuria, and planned to subsidize all the related expenses for the agricultural migrants. In 1935, the government established Corporation of Manchuria Migration to procure land and to finance. Furthermore, the government, especially the military authorities, send armament migrants to the region and recruited young Japanese boys. The number of Japanese migrants to Manchuria had dramatically increased after Japan lost other destinations in the world.

<sup>5</sup> As of September 1949, there were 11,797,000 increased Japanese population, including 6,249,000 veterans and refugees from overseas, and 6,377,000 natural increased by birth, regardless of the deducted number of foreigners (Consul of Department of International Migration, 1971: p.8).

<sup>6</sup> Back in 1965, the emigration of Japanese professionals and skilled workers started in Canada (<http://www.janm.org/projects/inrp/english/overview.htm>).

<sup>7</sup> The total number of Japanese migrants according to passports includes all types of migrant status; permanent and temporary, and their purposes like travel, business, working, studying and official.

## A Non-linear Approach to the Japanese Business Cycles

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### Abstract

Since non-linear dynamic approach to economics had started, considerable interest has been taken in empirical tests of finding chaos in the business cycles. Amongst the several empirical works on macro-economic time series, Frank, Gencay and Stengos (1988) found the strong non-linearity in the Japanese data. This paper attempts to give a mathematically precise version of empirical tests on Japanese time series for presence of low dimensional deterministic chaos. 'The Residual diagnostics' which is first presented by Brock(1986), is conducted on the Japanese macro-economic quarterly time series including the periods of 'rapid growth', 'twice oil crises' and 'bubble economy and after bubble depression'(from 1955 to 2000). For the tests of low dimensional deterministic chaos, correlation integral, correlation dimension and BDS statistics are examined. Empirical results show that the correlation dimension grew linearly with the embedding dimension and did not saturate at a certain value. Distribution of the BDS statistics has a large peak near 0. Based on these results, evidence for chaos in Japanese quarterly macro-economic time series is weak, and fluctuations are mainly explained by 'random noise'. J. E. L. classification number *C19, C32, E32*. This research is supported by the Grant-in-Aid (No. 16653021), Ministry of Education, Science, Sports, and Culture, Japan.

### Introduction

In the field of business cycle theory, much attempt to model the basic underlying dynamics of an economy have been taken. The Samuelson-Hicks type multiplier and accelerator mechanism, for example, isolated the regular forces in oscillating time series and explained them with appropriate assumptions concerning the structures of the economy. Although they had succeeded in modeling the business cycles generated from the internal dynamics of economy, they could not succeed in describing entire fluctuations of actual business cycles. As actual time series are characterized by much more irregular behavior not only with respect to the monotonicity of cycle but also with respect to the amplitude and frequency of the cycle, stochastic exogenous influence had been thought to be included in the theoretically expressed linear systems.

Rational expectation theory on business cycles constitutes a stochastic business cycle models which describe actual cycles by including stochastic exogenous influences in addition to the implicit regularity with the linear difference and difference systems. Typical examples of such models are Lucas (1975) and Prescott (1986). Non-linear economic dynamics, on the contrary, attempts to explain seemingly irregular actual fluctuations in actual time series by using the simple deterministic non-linear difference equations. Theoretical approaches to the non-linear macroeconomic dynamics have been started by Stutlar (1980), Benhabib and Day (1982) and Day (1982, 1983). Since then theoretical interest of economists has increasingly enhanced: see, for example, Grandmont (1985) and Lorentz (1993) for the literature.

Concurrently with the progress of non-linear macroeconomic dynamics, the empirical interest concerning the evidence of chaos in the actual economic time series has been taken. Brock (1986) and Brock and Sayers (1988) examined several American time series. They found significant evidence of non-linearity in the labor market and in investment data. Frank and Stengos (1988) examined several Canadian macroeconomic time series and found no evidence for low dimensional deterministic chaos. Amongst the several empirical contributions, Frank, Gencay and Stengos(1988) found the strong non-linearity in the Japanese data. This paper attempts to give a mathematically precise version of empirical tests on Japanese time series for presence of low dimensional deterministic chaos.

This research differs from Frank, Gencay and Stengos (1988) in two respects. In terms of statistical procedure, in order to avoid trend-reversions, Frank, Gencay and Stengos (1988) took ‘first differences’ of the time series to induce data stationarity. We use two types of time trends, linear and moving average time trend, in this research for excluding this problem. The second difference is concerning the period of data. Though Frank, Gencay and Stengos (1988) used the Japanese quarterly GDP time series from 1965 to 1986, we use longer time series dated from 1955 to 2000, which includes the periods of ‘rapid growth’, ‘twice oil crises’ and ‘bubble economy and after bubble depression’.

For the tests of low dimensional deterministic chaos, correlation integral, correlation dimension and BDS statistics are examined. Empirical results show that the correlation dimension grew linearly with the embedding dimension and did not saturate at a certain value. Distribution of the BDS statistics has a large peak near 0. Based on these results, evidence for chaos in Japanese quarterly macro-economic time series is weak, and fluctuations are mainly explained by ‘random noise’.

The remaining part of this paper is organized as follows. Section 2 presents the back ground knowledge of the non-linear macroeconomic dynamics. Section 3 defines and discusses the testing procedure which is used in this paper. Our empirical results are reported in section 4. Section 5 concludes the paper.

## Theoretical back ground

In 1975 T. Y. Li and J. A. Yorke discovered the emergence of chaotic trajectories from logistic map:  $N_{t+1} = bN_t(1 - N_t)$  which is the differential-difference equation of the logistic equation:  $dN/dt = aN(1 - N)$  and established the sufficient conditions for chaotic trajectories. Their theorem was introduced into economics by Benhabib and Day (1980) and Day (1982, 83). They indicated the conditions for chaos in the neo-classical economic growth model. In the field of endogenous business cycle, Benhabib and Nishimura (1985) showed the conditions for emergence of chaos by using the optimal growth model. For the references of this field, see Brock and Dechert (1991) and Lorenz (1993).

To review the main issues of deterministic chaos, consider the simple difference equation which is known as ‘the logistic equation’:

$$x_{t+1} = \mu x_t(1 - x_t) \equiv f(x_t). \quad (1)$$

Equation (1) is the real-valued continuous map from interval  $[0, 1]$  into itself. Here the value of  $\mu$  is crucial to the nature of dynamics. If we set  $0 < \mu \leq 3.57$ , the trajectory is approaching to the fixed point  $1 - 1/\mu$  either asymptotically or oscillatory. However, for  $3.57 < \mu < 4$ , there emerges infinite number of cycles with differing periodicity as well as an infinite number of stationary points. Any two time paths of  $x_t$  never coincide each other and two nearby trajectory locally diverge exponentially. This type of behavior is called ‘chaos’. The Li and Yorke theorem indicated, more generally, that if a continuous map from an interval to itself has a periodic point of period 3, then the map also has periodic points of all other periods.

To implementing the time series test for the presence of non-linear dynamics, the definition of deterministic chaotic explanation by Brock and Sayers (1988) and Sayers (1991) is instructive.

*Deterministic chaotic explanation:*

The series  $\{a_t\}, t = 1 \cdots T$ , has a deterministic explanation if there exists a system  $\{h, F, X_0\}$  such that  $a_t = h(X_t)$  for all  $t, X_t = F(X_{t-1}), X_0$  given. Where  $\{a_t\}$  is observed univariate time series. The function  $h$  is ‘observation function’ which maps  $\{X_t\}$  onto  $\{a_t\}$  and may scrambled the signal from  $\{X_t\}$  as it is mapped onto  $\{a_t\}$ .  $F$  denotes the deterministic law of motion which is unknown to researchers.  $X_0$  is unknown initial condition. The time series is, then, said to be chaotic, if it satisfies the above stated ‘deterministic conditions’ and if nearby trajectories diverge from one other exponentially. Such trajectories demonstrate ‘instability’ and ‘sensitive dependence upon initial conditions’.

## Testing procedures

This section attempts to give a mathematical procedures of empirical tests on Japanese quarterly Gross Domestic Product (GDP) time series  $GDP_t$  ( $t=1, \dots, N$ ) including the periods of ‘rapid growth’, ‘twice oil crises’ and ‘bubble economy and after bubble depression’ (from 1955 to 2000) for presence of low dimensional deterministic chaos.

A trend of the logarithmic GDP  $g_t = \log_{10} GDP_t$  ( $t=1, \dots, N$ ) is removed. The simplest trend is the linear function of time  $At + B$ . The de-trended logarithmic GDP time series  $x_t$  are written for the linear trend:

$$x_t = g_t - (At + B). \quad (2)$$

If the logarithmic GDP has complex time structure, the suitable trend function will be a moving average  $(g_{t+1} + g_t + g_{t-1})/3$ . Then the de-trended logarithmic GDP time series  $x_t$  are written for the moving average trend:

$$x_t = g_t - (g_{t+1} + g_t + g_{t-1})/3. \quad (3)$$

The de-trended logarithmic GDP time series  $x_t$  are tested using the procedure of the nonlinear time series analysis described below.

A fundamental concept of the nonlinear time series analysis is reconstructing an attractor of the system. Embedding vectors  $X_n(m)$  ( $n=1, \dots, N$ ) are obtained from the de-trended logarithmic GDP time series  $x_t$ :

$$X_n(m) = (x_n, x_{n-\tau}, \dots, x_{n-(m-1)\tau}). \quad (4)$$

The definition of the embedding vector  $X_n(m)$  is schematically explained in Fig. 1. Estimation of lag  $\tau$  will be given later.

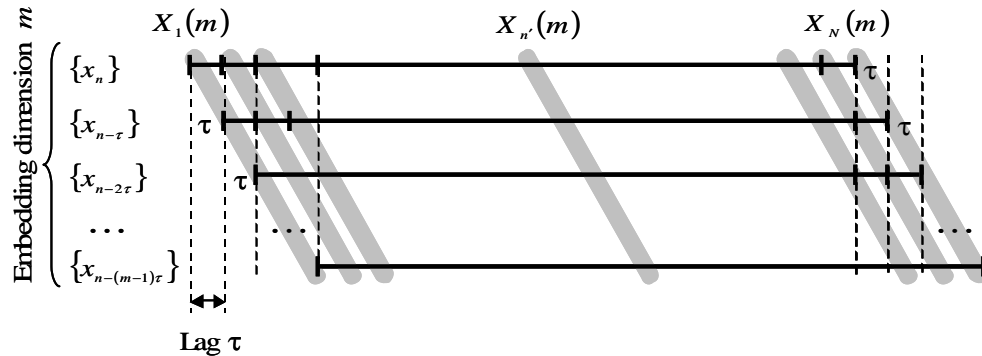


FIG.1 DEFINITION OF THE EMBEDDING VECTOR  $X_n(m)$ .

The next step is to measure the spatial correlations among points  $X_n(m)$  on the attractor. To do this one calculates the correlation integral,

$$C_m(\varepsilon) = \frac{2}{N(N-1)} \sum_{n=1}^N \sum_{n'=n+1}^N \Theta(\varepsilon - \|X_n(m) - X_{n'}(m)\|). \quad (5)$$

Here  $\Theta(z)$  is the Heaviside's step function, and  $\|\cdot\|$  denotes the distance induced by the selected norm:

$$\Theta(z) = \begin{cases} 1 & (z > 0) \\ 0 & (z \leq 0) \end{cases}, \quad (6)$$

$$\|X_n(m) - X_{n'}(m)\| = \left[ \sum_{j=1}^m (x_{n-(j-1)\tau} - x_{n'-(j-1)\tau})^2 \right]^{\frac{1}{2}}. \quad (7)$$

For small values of  $\varepsilon$ , one can demonstrate that  $C_m(\varepsilon) \approx \varepsilon^D$  so that  $D(m)$  is the system's dimension, which is called the correlation dimension, (Ref: Grassberger and Procaccia, 1983)

$$D(m) = \lim_{\varepsilon \rightarrow 0} \frac{\log C_m(\varepsilon)}{\log \varepsilon}. \quad (8)$$

Dimensionality measures complexity of an object. A chaotic time series has positive but finite dimensionally. A random process is infinite dimensionally. Thus, for random noise, the correlation dimension  $D(m)$  grows linearly with the embedding dimension and dose not saturate at a certain value. If the system dose not saturate then the system is regarded as 'high dimensional' or stochastic.

For estimation of the lag  $\tau$ , one calculates the mutual information,

$$I(\tau) = \sum_{x_n, x_{n-\tau}} P(x_n, x_{n-\tau}) \log_2 \frac{P(x_n, x_{n-\tau})}{P(x_n)P(x_{n-\tau})}. \quad (9)$$

The definition of  $x_n$  and  $x_{n-\tau}$  is schematically explained in Fig. 2.

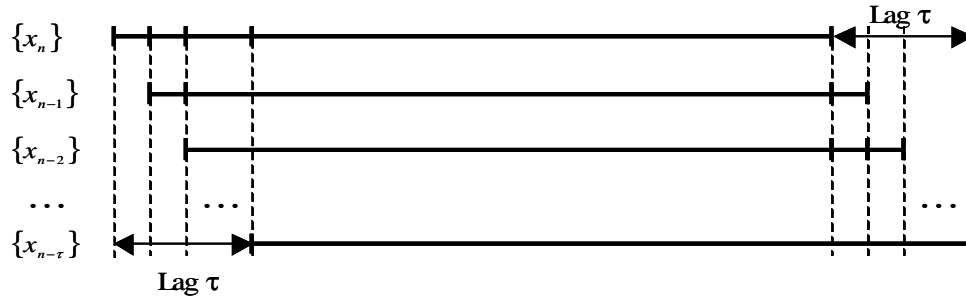


FIG. 2 DEFINITION of  $x_n$  and  $x_{n-\tau}$ .

The plane  $(x_n, x_{n-\tau})$  is divided by small elements  $(\Delta x_n, \Delta x_{n-\tau})$ , then the number of data passing the small element  $P(x_n, x_{n-\tau})$  is counted. The first minimum of the average mutual information  $I(\tau)$  is the lag  $\tau$ , and is corresponding to the maximum mutual information.

In order to check for the presence of deterministic chaos, two different empirical tests were conducted on the time series. The first test is the residual test, which is first presented in Brock (1986), is briefly explained. The de-trended logarithmic GDP  $x_t$  is modeled by the  $L^{\text{th}}$  order auto regression model AR(L):

$$x_t^{(p)} = a_1 x_{t-1} + a_2 x_{t-2} + \dots + a_L x_{t-L} \quad (t=1, \dots, N). \quad (10)$$

Then the residual time series  $r_t = x_t - x_t^{(p)}$  ( $t=1, \dots, N$ ) is obtained. If time series is chaotic, the correlation dimension will be unaffected by the linear transformation. A random noise will be drastically affected. This procedure is referred as the residual test. Thus, if the de-trended logarithmic GDP  $x_t$  is chaotic, the correlation dimension estimated for  $x_t$  will be same to one for the residual time series  $r_t$ .

The second test is the BDS test, which is first proposed in Brock, Dechert, and Scheinkman (1991). They proposed a hypothesis testing based on the correlation dimension  $D(m)$ . Under the hypothesis of independently distributed data (iid), the correlation integral at embedding dimension  $m$   $C_m(\varepsilon)$  will equal the correlation integral at embedding dimension one  $C_1(\varepsilon)$  raised to the power  $m$ . The BDS statistics is defined by

$$BDS(m, \varepsilon) = \sqrt{N} [C_m(\varepsilon) - C_1(\varepsilon)^m] / \sigma_m(\varepsilon), \quad (11)$$

$$\sigma_m(\varepsilon)^2 = 4 \left[ K_m(\varepsilon)^m + 2 \sum_{i=1}^{m-1} K_m(\varepsilon)^{m-i} C_m(\varepsilon)^{2i} + (m-1)^2 C_m(\varepsilon)^{2m} - m^2 K_m(\varepsilon) C_m(\varepsilon)^{2m-2} \right] \quad (12)$$

$$K_m(\varepsilon) = \frac{6 \sum_{t=1}^N \sum_{s=t+1}^N \sum_{r=s+1}^N \Theta(\varepsilon - \|X_t(m) - X_s(m)\|) \Theta(\varepsilon - \|X_s(m) - X_r(m)\|)}{(N-m+1)(N-m)(N-m-1)}. \quad (13)$$

If the BDS statistics  $BDS(m, \varepsilon)$  is near zero, the time series essentially consists of random noise.

## Empirical Results

The analyzed GDP time series of Japan is the nominal seasonally adjusted quarterly data from the 1Q of JFY 1955 to the 4Q of 2000 (Former SNA68 series). The number of GDP time series is 184 and unit of GDP is JPY  $10^9$ . A trend of the logarithmic GDP  $g_t$  was removed using two different trends, a linear function and a moving average. The de-trended logarithmic GDPs  $x_t$  were modeled by the 2<sup>nd</sup> order auto regression model AR(2):

$$x_t^{(p)} = ax_{t-1} + bx_{t-2} \quad (t=1, \dots, N). \quad (14)$$

Results of AR(2) for  $x_t$  (linear function) and for  $x_t$  (moving average) are shown in Table I and II, respectively. The obtained residual time series for a linear function was  $r_t$  (linear function) and time series for a moving average function was  $r_t$  (moving average).

**Table I AR(2) for  $x_t$  (linear function)**

	Value	Std.Error	t-value	Pr(> t )
<i>a</i>	1.4188	0.0669	21.2168	0.0000
<i>b</i>	-0.4155	0.0674	-6.1634	0.0000
<b>Multiple R-Squared: 0.9974</b>				

**Table II AR(2) for  $x_t$  (moving average)**

	Value	Std.Error	t-value	Pr(> t )
<i>a</i>	-0.7010	0.0727	-9.6369	0.0000
<i>b</i>	-0.2129	0.0695	-3.0637	0.0025
<b>Multiple R-Squared: 0.3666</b>				

The lag  $\tau$  was estimated by calculating the mutual information  $I(\tau)$ . The calculated mutual information  $I(\tau)$  is shown in Fig.3. Although Fig.3 (a) decays slowly as time increase, Fig.3 (b) to (d) decay quickly. It was estimated that the lag  $\tau=1$  for  $x_t$  (moving average),  $r_t$  (linear function), and  $r_t$  (moving average) from Fig.3 (b) to (d). For  $x_t$  (linear function), an appropriate lag was not estimated from Fig.3 (a), due to the slow decay. We adopted the lag  $\tau=1$  for all time series to construct the embedding vector  $X_n(m)$ . This choice of the lag is consistent with previous researches (references).

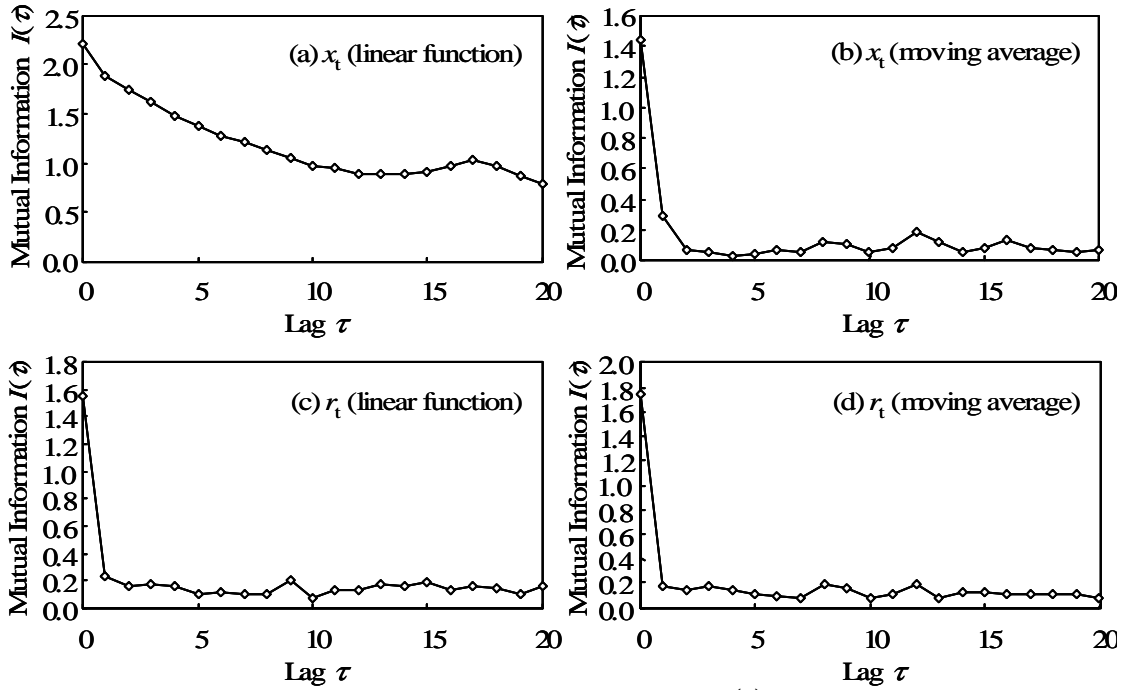


FIG.3 MUTUAL INFORMATION  $I(\tau)$ .

The correlation integral  $C_m(\varepsilon)$  at embedding dimension  $m$  was calculated using Eqs. (5) to (7) for various  $m$  and  $\varepsilon$ . As an example, the correlation integral  $C_5(\varepsilon)$  at embedding dimension  $m = 5$  was shown as a function of  $\varepsilon$  in Fig. 4.

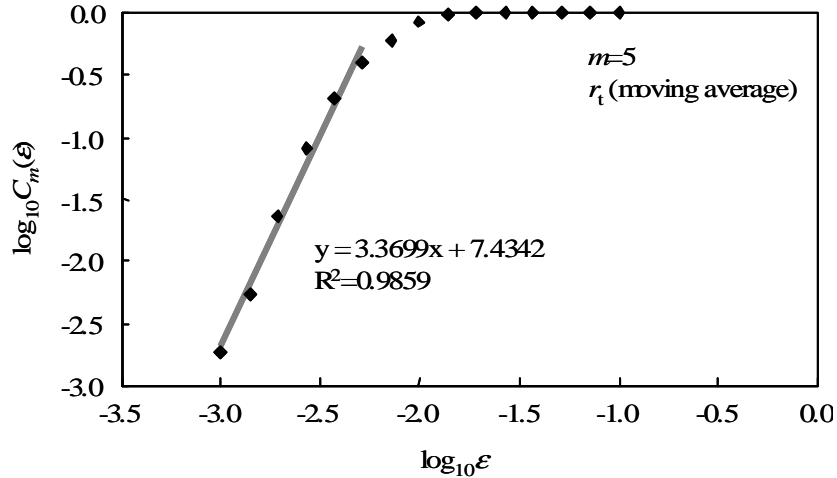


FIG. 4 THE CORRELATION INTEGRAL AT EMBEDDING DIMENSION  $m$ .

Then the correlation dimensions  $D(m)$  were estimated using Eq. (8) in the region of small  $\varepsilon$ . For  $x_t$  (linear function) and  $r_t$  (linear function), the correlation dimensions  $D(m)$  are shown as a function of  $m$  in Fig.

5. The correlation dimension  $D(m)$  for  $r_t$  (linear function) grows linearly as  $m$  increases. This dependence of  $D(m)$  on  $m$  suggests that the system is regarded as ‘high dimensional’ or stochastic. The correlation dimension  $D(m)$  was drastically affected by the linear transformation. Thus, time series could not be regarded as chaos.

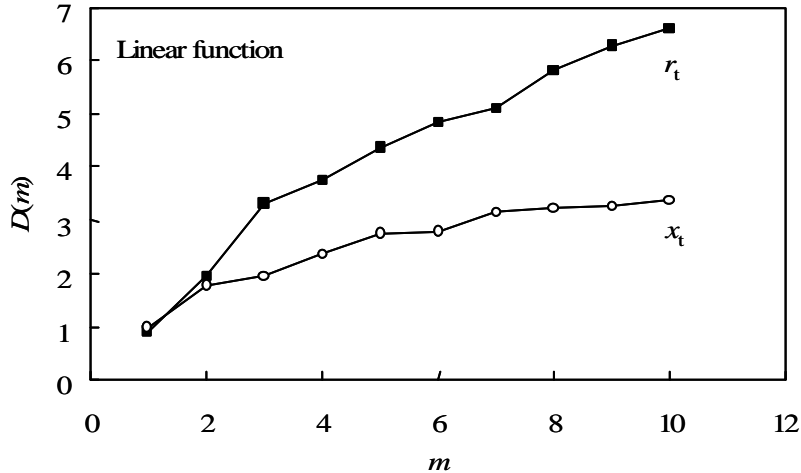


FIG 5 THE RESIDUAL TEST FOR TIME SERIES DE-TRENDED USING A LINEAR TREND.

For  $x_t$  (moving average) and  $r_t$  (moving average), the correlation dimensions  $D(m)$  are shown as a function of  $m$  in Fig. 6. This dependence of  $D(m)$  on  $m$  suggests that the system is regarded as ‘high dimensional’ or stochastic. Although it seems that  $D(m)$  was not affected by the linear transformation up to  $m = 6$ ,  $D(m)$  was drastically affected for  $m > 6$ . Thus, time series could not be regarded as chaos, again.

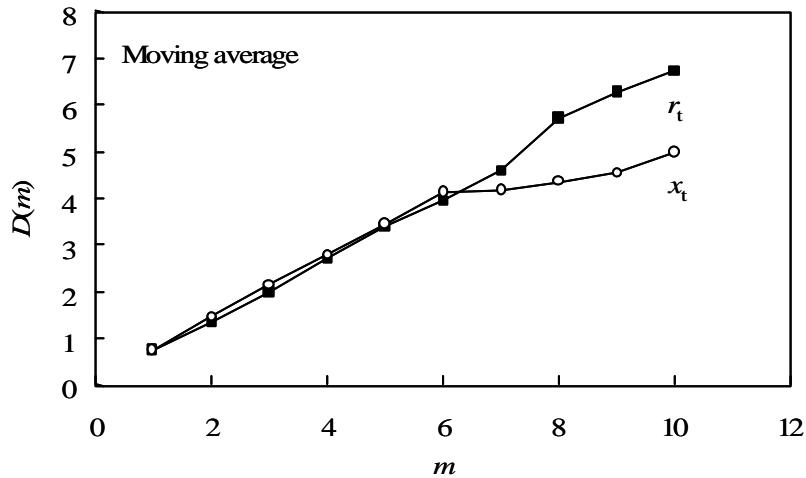


FIG. 6 THE RESIDUAL TEST FOR TIME SERIES DE-TRENDED USING A MOVING AVERAGE TREND.



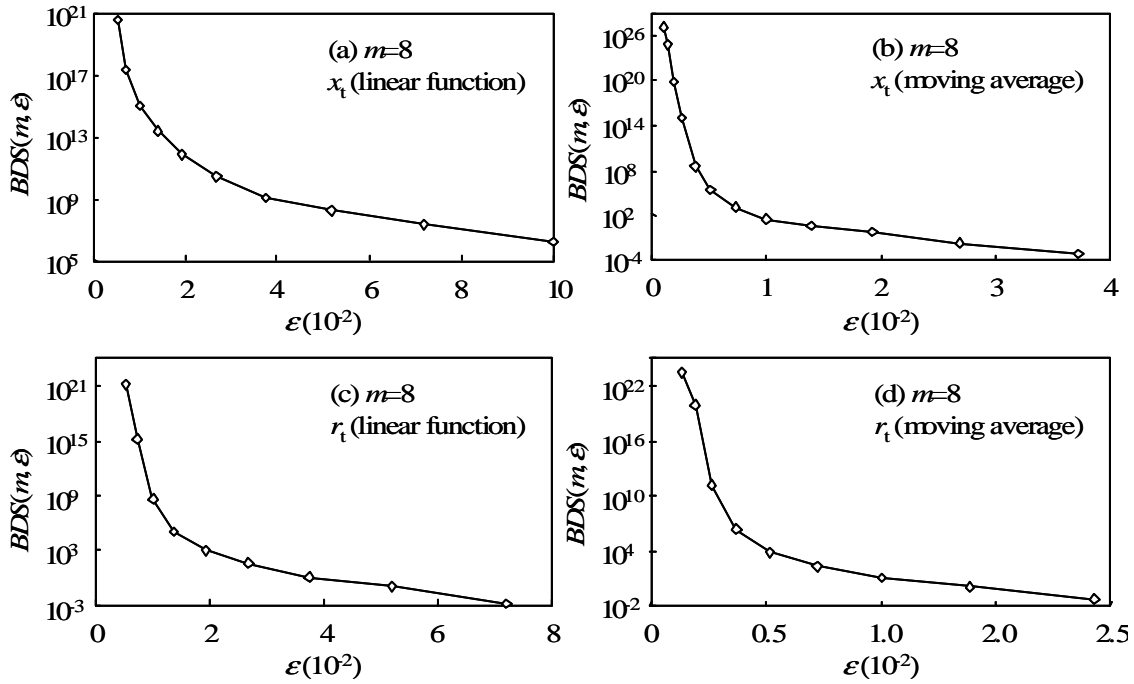


FIG. 7 RESULTS OF THE BDS TEST

Finally, the BDS statistics  $BDS(m, \varepsilon)$  were estimated for  $m=8$  using Eqs. (11) to (13), and shown in Fig. 7.  $BDS(m, \varepsilon)$  asymptotically converge to zero as  $\varepsilon$  increase. Thus, the time series are essentially regarded as random noise.

Based on these results, evidence for chaos in Japanese quarterly macro-economic time series is weak, and fluctuations are mainly explained by ‘random noise’. This implies that prediction of future GDP is possible using a liner model.

## Conclusions

In this paper, we attempted to give a mathematically precise version of empirical tests on Japanese time series for presence of low dimensional deterministic chaos. ‘The Residual diagnostics’ is conducted on the Japanese macro-economic quarterly time series including the periods of ‘rapid growth’, ‘twice oil crises’ and ‘bubble economy and after bubble depression’(from 1955 to 2000). For the tests of low dimensional deterministic chaos, correlation integral, correlation dimension and BDS statistics are examined. Empirical results show that the correlation dimension grew linearly with the embedding dimension and did not saturate at a certain value. Distribution of the BDS statistics has a large peak near 0. Based on these results, evidence for chaos in Japanese quarterly macro-economic time series is weak, and fluctuations are mainly explained by ‘random noise’.

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# Plastic Industry Growth Potential in China

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## Abstract

Chinese record GDP growth speed cannot go unnoticed, especially in context with the low level of inflation, stable foreign exchange rate, and a significant trade and budget surplus balance. This dynamically growing economy is having the ever-growing needs in each industry sector. One of those sectors is a plastic industry with its products in every part of the economy. To measure the plastic industry growth potential in context with the enormous Chinese economy growth is this article goal. Those questions are answered by defining Chinese plastic industry growth efficiency, sector employment figures, fixed capital growth and manufacturing capacities effectiveness, compared with the other sectors.

## Introduction

From 1949, the New China Era beginning and reforms introduction, China has changed a lot. From the economy point of view the most important changes were from 1978 to 2000, when GDP growth was from 147.3 billion USD to 1.6494 trillion USD and foreign trade from 20.6 billion USD to 1.1548 trillion USD. [6] China thus became the global economic power, more and more influencing the world economy.

Plastic industry is a fast-growing sector of Chinese economy. Outputs can be seen everywhere, from the food industry as packaging, to construction, automotive industry, agriculture, health sector etc.

This industry is one of the fastest growing sectors with the yearly growth around 11 %. China is thus a real power in the world plastic industry sector.

Chinese economical power is growing dynamically, forming up to 1/3 of the global economy growth during the last 3 years. From 1999 yearly GDP growth is reaching more than 7 % (in 2003 even over 11 %) with the growth estimates for 2007 - 2010 around 8 % per year. [6]

According to the Chinese Customs Office statistics the foreign trade turnover growth was 23 % higher for a 2005 fiscal year compared with the previous, up to 1.42 billion USD. It was No.3 in the world for that year, nearly triple, compared with 2001. Export growth is bigger than that of import causing a big trade surplus for China. Biggest trade partners are European Union, USA, Japan and South Korea. EU is with trade volume of 217.3 billion USD for 2005 (22.6 % growth compared with 2004) the biggest partner, China being the second one for EU. [10]

Plastic industry products export is stronger and stronger. According to the statistics for 2003 this export was 8.8 million tons of plastic materials, 22 % more than during the previous year. Total export value was 9.74 billion USD, 8.4 % of a total Chinese export. Plastic products exports were mostly low-tech and low production-requirement items, but with some sophisticated and high value-added products as well. [12]

Plastic industry, even with its growing importance in the world economy and with the new technological approach, is nevertheless, according to the qualitative characteristics classification of its products discerning on the product scale, but low on the technological level or the operating skills. [9]

## Research Aim

This research aim is to draw the attention to the growing plastic industry strength in China and advancing and increasing sector development, with the possible negative impact and even the bankruptcy of some of the industry corporations within the developed economies.

## Research Methodology

Economy growth is mostly represented by product growth, together with the sufficient production factors growth. It is the determinant and economy growth conditions analysis in regards to the goods and services production. In such growth models the indicators are used such as capital intensity, labour coefficient, labour intensity, capital gain, capital coefficient, efficiency etc. Such models can be divided into Keynesian models of growth or neoclassical ones. The rise and development of such theories are related with the names such as T. R. Malthus, A. Smith, D. Ricardo, J. Schumpeter and others. Keynesian models are based on theories of Roy F. Harrod, E. D. Domar, M. Kalecki, N. Kandor, J. Robinson and other economists. Shares of the practical analysis of the economy growth determinants are from CH. W. Coob, P. H. Douglas, R. M. Solow, J. Tobin, T. Swan, S. Kuznets, A. Maddison, P. Romer, R. Lukas and many others. [5, p.318]

The sources of the potential product growth are in the production factors as well as in the level of the technology used. Growth accounting theory was developed by professor R. M. Solow, the growth of the potential product is according to his theory the difference between the capital growths, and labour input growth and technology growth. Often used is there Coob-Douglas production procedure.

New growth theory is based mostly on P.Romera and R.Lukas (1988) works, their goal being to define the explicit paradigm, where long-term growth is determined using endogenous models, with a state policy having an important role. Another section of the new growth theory is based on sing the explicit research and development and imperfect competition within a model framework. The models of research and development can be divided into two groups, first being the technological advance defined as the number of new products and semi products (P. Romer) and second defining the products quality ( Grossmann, G. a Helpman). [11]

### Research Questions

The following research questions were thus postulated:

- What is the plastic industry position in a Chinese industry?
- Does the growth of this industry sector correspond with the overall Chinese economy growth?
- Is the growth extensive or intensive?

### Hypotheses

H1: The plastic industry growth in 1998 - 2004 periods is bigger then of the China economy growth during this time.  
H2: Dynamic development of the plastic industry in China is caused by the input intensity rather than the extensive growth.

### Statistical Characteristics Used

Analyzing the plastic industry in China the official statistics of NBSCh, .National Bureau of Statistics of China were used:

1. To define each of the indicators in time frame the following statistical characteristics formula was used:

→ growth rate

$$G = \frac{X_t - X_{t-1}}{X_{t-1}} \cdot 100 \quad (1)$$

2. To define the average growth rate per year the median geometrical average growth rate was used for a certain number of years:

→ median geometrical average growth rate

$$Gr = \sqrt[t]{\frac{X_t}{X_0}} - 1 \quad (2)$$

3. To define the capital involved in the production process was this equation used:

→ capital coefficient

$$\lambda = \frac{K}{Y} \quad (3)$$

Where K is fixed capital, Y is a production volume

4. Defining the amount of capital used for one worker and given output this formula was used:

→ capital intensity coefficient

$$v = \frac{K}{L} \quad (4)$$

Where K is fixed capital, L is number of workers

## Research Study Outcome

### Plastic Industry Position in Chinese Industry

As can be seen on tab.1, even with the growing industrial output in China, the plastic industry is still keeping its 11 position in the volume output scale. Actually 2.4 % was a plastic industry share on a total industrial output in 1998; in 2004 it was a small increase to 2.6 %. The most important industrial sectors in China are electronics and optics, with their total share of 15.5 % and in 2004 even 17.9 %. Second was in 2004 from the sixth position metalworking and machinery industry with 12.3 %. The other important sector is transportation machinery, where its output was between 1998 and 2004 from ninth position to the fourth.

TABLE 1: OUTPUT SHARE PERCENTAGE FROM TOTAL

Industry	% share		Rank	
	1998	2004	1998	2004
Food and tobacco	12.2	8.3	2	6
Textile, clothing and leather	12.1	8.5	3	5
Woodworking	1.0	1.0	14	15
Paper and printing	2.0	2.4	12	12
Coke and refinery	8.6	8.0	5	7
Chemistry and pharmaceutical	10.9	9.1	4	3
Rubber	1.2	1.4	13	13
Plastics	2.4	2.6	11	11
Glass, ceramics and construction elements	5.1	4.0	10	10
Metallurgy and metalworking	7.3	12.3	6	2
Machinery	7.2	7.6	7	8
Electronics and optics	15.5	17.9	1	1
Transport machinery	6.7	8.5	9	4
Manufacturing, general	0.5	1.1	14	14
Other	7.2	7.2	7	9
<b>TOTAL</b>	100.0	100.0	X	X

Source: NBSCh .National Bureau of Statistics of China

As of the number of corporations, you can see according to tab. 2, there is a growth in the plastic industry, their share growing as well. Biggest number of registered corporations is in the textile, clothing and leather industry, with 2004 as their biggest number. Comparing the results from tab.1 and tab.2, this sector is playing smaller and smaller role in China, but the number of registered corporations is growing. It is because the investment capital and labour investment is there low.

TABLE 2: NUMBER OF REGISTERED CORPORATIONS BY SECTOR - PERCENTAGE ON INDUSTRY TOTAL

Industry	Registered			
	% share		Rank	
	1998	2004	1998	2004
Food and tobacco	13.0	9.8	1	5
Textile, clothing and leather	12.9	14.8	2	1
Woodworking	1.9	1.8	13	12
Paper and printing	2.9	2.8	11	11
Coke and refinery	2.6	2.3	12	12
Chemistry and pharmaceutical	9.3	9.6	6	6
Rubber	1.1	1.0	14	15
Plastics	3.6	4.3	10	9
Glass, ceramics and construction elements	8.8	8.3	7	7
Metallurgy and metalworking	10.7	10.8	3	3
Machinery	9.6	10.0	5	4
Electronics and optics	10.5	11.6	4	2
Transport machinery	4.1	4.2	9	10
Manufacturing, general	0.9	1.1	15	14
Other	13.0	9.8	8	8
<b>TOTAL</b>	100.0	100.0	X	X

Source: NBSCh .National Bureau of Statistics of China

During 2003 number of registered corporations in a plastic industry sector in China was 8 240, 10 % being big and average size, the greatest number of them was small size by output. During the first half of 2004 this number was 700 higher. Compared with 2003 in 2005 there was 3 160 more plastic industry units, total number now is 11 400, wit the 465 billion RMB sales and 19 billion RMB profit. Total plastic industry output was 22 % higher than in 2004, 21 million tons. [12]

As can be seen on tab.3, plastic industry is making an average profit. Its 18 % from the area in red numbers, which corresponds with the total industry figure. The most losers (20 %) are in the industry of electronics and optics, where their output is the biggest in industry.

TABLE 3: PROFIT AND LOSS CORPORATIONS 2004 (UNITS)

Industry	Profit		Loss		Total	
	Abs.	%	Abs.	%	Abs.	%
<b>Food and tobacco</b>	16801	81	3948	19	20749	100
<b>Textile, clothing and leather</b>	26949	82	5981	18	32930	100
<b>Woodworking</b>	3574	85	607	15	4181	100
<b>Paper and printing</b>	4977	82	1109	18	6086	100
<b>Coke and refinery</b>	4595	87	690	13	5285	100
<b>Chemistry and pharmaceutical</b>	16872	82	3750	18	20622	100
<b>Rubber</b>	1872	83	373	17	2245	100
<b>Plastics</b>	7755	82	1718	18	9473	100
<b>Glass, ceramics and construction elements</b>	14703	82	3277	18	17980	100
<b>Metallurgy and metalworking</b>	20627	85	3703	15	24330	100
<b>Machinery</b>	19507	85	3528	15	23035	100
<b>Electronics and optics</b>	20487	80	5053	20	25540	100
<b>Transport machinery</b>	7650	81	1739	19	9389	100
<b>Manufacturing, general</b>	2055	84	401	16	2456	100
<b>Others</b>	10991	72	4171	28	15162	100
<b>TOTAL</b>	179415	82	40048	18	219463	100

Source: NBSCh .National Bureau of Statistics of China

### Production Growth 1998 - 2004

Total production growth during those seven years in China was nearly 300 %, from 6 279 389 million Yuan to 18 722 070 million Yuan. A similar growth was in the plastic industry sector, by 330 %. One of the biggest growths for the industrial sector during this period was in the metallurgy and metalworking, with the five-fold increase.

As can be seen in tab.4, using median geometrical average growth rate the yearly average of production growth, number of registered corporations and number of employees for the 1998 - 2004 period, by sector was calculated. The average industrial growth rate is 20% and number of employees increase 15.6 %. Biggest average yearly increase was in the general manufacturing sector and than metallurgy and metalworking. Plastic industry sector with 22 % average yearly growth was among the better growing sectors than the industry average. Comparing this growth with the number of employee's growth percentage (5.5 %) it is obvious, that the production increase during the mentioned period was caused by the extensive growth increase of productivity, not the labour intensity. Biggest level of productivity growth can be observed in the transportation machinery production growth, paper and printing, and rubber sectors as well. Average increase of the industrial corporations number was for this period by 32.9 %, plastic industry sector only increase was 57.5 %.

TABLE 4: MEDIAN GEOMETRICAL AVERAGE GROWTH RATE BY INDUSTRIAL SECTORS IN CHINA 1998 - 2004

Industry	Median geometrical average Growth Rate (Gr)		
	Production volume	Corp. number	Number of employees
Food and tobacco	0.1255	-0.0325	0.3818
Textile, clothing and leather	0.1309	0.5420	0.2460
Woodworking	0.1963	0.3396	0.0173
Paper and printing	0.2410	0.2778	-0.0152
Coke and refinery	0.1847	0.2206	0.2706
Chemistry and pharmaceutical	0.1641	0.3403	0.1994
Rubber	0.2345	0.2577	-0.0185
Plastics	0.2206	0.5746	0.0550
Glass, ceramics and construction elements	0.1533	0.2403	-0.0185
Metallurgy and metalworking	0.3080	0.3793	0.2988
Machinery	0.2102	0.4469	0.0966
Electronics and optics	0.2279	0.4683	0.3051
Transport machinery	0.2490	0.3850	-0.0051
Manufacturing, general	0.3724	0.6707	0.1386
Others	0.1985	0.6073	0.2301
<b>TOTAL</b>	0.1997	0.3294	0.1560

Source: NBSCh .National Bureau of Statistics of China

### Level of Labour and Capital Factors

The sources of the economic growth in China, its production volume are the inputs such as production factors, labour and capital investment. Their level of increase is influencing the production volume directly.

The following tab.5 is explaining the employment level in each sector. In the textile, clothing and leather industry a biggest employment exists. During the 1998-2004 periods the number of workers increased. In the plastic industry a decrease was noted, from 4.3 % in 1998 to 2.5 % in 2004.



TABLE 5: EMPLOYMENT LEVEL IN % OF TOTAL, BY INDUSTRY

Industry	Number of employees			
	Number of employees %		Rank	
	1998	2004	1998	2004
<b>Food and tobacco</b>	2,3	6,7	14	8
<b>Textile, clothing and leather</b>	10,7	16,7	4	1
<b>Woodworking</b>	2,5	1,1	13	13
<b>Paper and printing</b>	5,1	1,9	9	12
<b>Coke and refinery</b>	4,9	8,6	10	4
<b>Chemistry and pharmaceutical</b>	6,2	7,8	5	7
<b>Rubber</b>	3,0	1,1	12	13
<b>Plastics</b>	4,3	2,5	11	11
<b>Glass, ceramics and construction elements</b>	17,8	6,7	1	8
<b>Metallurgy and metalworking</b>	5,6	11,2	8	3
<b>Machinery</b>	11,6	8,5	3	5
<b>Electronics and optics</b>	6,1	12,7	6	2
<b>Transport machinery</b>	13,2	5,4	2	10
<b>Manufacturing, general</b>	1,0	0,9	15	15
<b>Other</b>	5,7	8,3	7	6
<b>TOTAL</b>	100,0	100,0	X	X

Source: NBSCh .National Bureau of Statistics of China

The labour productivity means the production volume for one employee and is explaining the share of labour on the output. If the productivity is growing, the growth is intensive. As it can be seen in tab. 6, productivity was growing in the industry during the given period.

A biggest productivity growth was in the rubber industry sector, and paper and printing as well. Plastic industry, with the average yearly increase 15.7 % was among those sectors with the bigger growth in the industry overall.

TABLE 6: MEDIAN GEOMETRICAL AVERAGE GROWTH RATE (GR) BY CHINA INDUSTRIAL SECTORS DURING 1998 - 2004

Industry	Medianian geometrical average Growth rate (Gr) 1998 - 2004		
	Labour productivity (Y/L)	Capital coefficients (K/Y)	Capital intensity (K/L)
Food and tobacco	-0.1855	-0.0674	-0.2403
Textile, clothing and leather	-0.0924	-0.0653	-0.1517
Woodworking	0.1759	-0.1727	-0.0272
Paper and printing	0.2601	-0.0989	0.1356
Coke and refinery	-0.0677	-0.0679	-0.1309
Chemistry and pharmaceutical	-0.0295	-0.0788	-0.1058
Rubber	0.2712	-0.1320	0.1035
Plastic	0.1569	-0.0965	0.0453
Glass, ceramics and construction elements	0.1750	-0.0999	0.0577
Metallurgy and metalworking	0.0070	-0.1686	-0.1627
Machinery	0.1035	-0.1237	-0.0329
Electronics and optics	-0.0592	-0.0836	-0.1378
Transport machinery	0.2553	-0.1369	0.0935
Manufacturing, general	0.2053	-0.1535	0.0203
Other	-0.0258	-0.0586	-0.0828
<b>TOTAL</b>	0.0377	-0.0901	-0.0558

Source: NBSCh .National Bureau of Statistics of China

Capital coefficient is explaining the share of fixed capital for a unit of production. As is can be seen in tab. 7, the share of fixed capital on total production was during 1998 just 0.695, it was lower during the next period to only 0,394 in 2004. In the plastic sector during this period this figure was decreasing, from 0.435 to 0.394. This situation means the production capital requirement. Average pace of this trend was around 9 % for the plastic industry sector (see tab. 6)

TABLE 7 CAPITAL COEFFICIENT

Industry	Capital coefficient (K/Y)						
	1998	1999	2000	2001	2002	2003	2004
Plastics	0.435	0.437	0.402	0.400	0.396	0.333	0.237
<b>TOTAL</b>	0.695	0.412	0.607	0.560	0.531	0.464	0.394

Source: NBSCh .National Bureau of Statistics of China

Capital intensity means how much fixed capital is needed for one employee. Tab. 8 is explaining that during 1998 this intensity in plastic sector was significantly lower than in other industries. During the time a certain

leveling took place, but even in 2004 this indicator is lower than the industrial average. Positive is that, the rate of growth in the plastic sector, in contrast with the lowering figure in the industry as a whole. (see tab. 6)

TABLE 8: CAPITAL INTENSITY

Industry	Capital intensity (K/L)						
	1998	1999	2000	2001	2002	2003	2004
Plastics	5,9	6,4	6,8	7,3	7,4	7,2	7,7
Total	17,1	3,5	22,3	23,8	25,1	27,2	12,1

Source: NBSCh .National Bureau of Statistics of China

## Conclusion

Plastic industry in China is not the one with the decisive role in forming the GDP; nevertheless it is the important one. These sector products are more and more important part of any production process or used by the other sectors. Plastic sector share in the country industrial output during 2004 was 2.6 % and share on the employment level 2.5 %. As of the number of corporations it was the industry with their highest number (4.6 % of total in 2004) since practically nonexistent strong barriers for entry to this sector. During 1998-2004 periods there was a significant increase in the production and employment as well.

Since the GDP median geometrical average Growth rate (Gr) in China during 1998 - 2004 was 0.1003, which is lower than in plastic industry, (0.2206), it is possible to conclude that this sector is capable to fulfill the growing needs in the overall economy.

The great increase of production volume was not because the extensive growth, that is by higher number of employees, and capital volume, but because of capital intensity, amount of capital per each worker.

Plastic industrial sector in China in its development is not lacking behind the overall dynamic growth of the nation economy and is in the future capable to supply this economy needs. Plastic sector growth is mostly intensive one. This sector in China is not only able to keep-up with the overall growth, but with this trend even to endanger many plastic industry corporation existences in developed countries.

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# The Role of Institutions in Effectiveness of Foreign Aid: The Experience of Japanese Aid in Sri Lanka

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## Abstract

Use of foreign aid in development in recipient countries overwhelmingly depends on the existence of efficient institutions of the country. In order to evaluate the effects of Japanese aid in the local institutional setting the “Walawe Left Bank Upgrading and Extension Project”, was selected. The project aims to upgrade existing irrigation facilities and to develop new area for cultivation and settlements. The irrigation system has operated effectively in the existing areas but with improvements in irrigation efficiency much below design. Water demand at the upstream is similar to pre project levels, due to lack of integrated implementation practices among the responsible organizations; unanticipated events such as encroachment of lands, that were not promptly addressed; and unrealistic expectations of farmers on water availability and officials on water use efficiencies. The development of the extension area seemed unwarranted until the institutional set up is strengthened to address the needs of the locale.

## Introduction

In recent years, the role of institutions for development has received considerable attention from development researchers, policy makers and practitioners. Institutions are generally defined as “constraints that human beings impose on themselves” (North, 1990:3). Other scholars include organizational entities, procedural devices, and regulatory frameworks in their definition of institutions (Williamson, 2000: 595). Therefore for this study institutions will be defined as **“a set of rules, norms and constraints including their enforcement arrangements, which guide behavior, intentions, norms and beliefs through human incentives in pursuing a goal”**. Following this definition, institutions prohibit, permit or require specific type of action, i.e. political, economic or social, that are important for reducing transaction costs, for improving information flows and for defining and enforcing property rights. In most of the recent articles, institutions are defined in a broader sense, linking various different measures of institutional quality to development outcomes from various angles and disciplines.

In reviewing existing literature on the impact of institutions on development outcomes, although a consensus that institutions “matter” has now emerged, influence between the institutional setup and development outcomes is not well comprehended. Correlations between institutional variables and growth suggest a relationship but not the direction of effect. It can run in both directions, good institutions resulting better growth and improved growth resulting better institutions. Most of the reviewed studies find a strong positive correlation between the quality and performance of institutions on development outcomes. However, due to various methodological draw backs and conceptual problems, it is difficult to assess of the impact of institutions on developing economies at macro level.

The present study focuses on the role of formal local institutions in irrigation resource endowments through Japanese aid, in Sri Lanka. Viewing development, as a mere set of technical engineering endeavors, is impractical as irrigation management is an important a social issue. The outcomes of the project are governed by the evolution of the behavior and choices of the different actors concerned, in which their interests, mindsets and strategies are embedded. It is important to pays attention to how changes in resource endowments change behavior within a given institutional context. Such a focus is particularly relevant when thinking about institutions in low income countries, since development, by definition, is about change

## Background of the Project: Project Area, Analytical Framework and Institutions

### The JBIC Funded WLBP and Project Area

The project<sup>2</sup> titled, “Walawe Left Bank Upgrading and Extension Project (WLBP)” was launched in 1997 with loan assistance from Japan Bank for International Cooperation (JBIC), to further expand and upgrade the irrigation infrastructure in the Walawe River Basin (FIG. 1).

The rehabilitation and extension project anticipates to achieve the following objectives; i) to increase food self-sufficiency by increasing rice production and increase production of other field crops (OFCs), ii) to increase employment opportunities, iii) to mitigate environmental degradation, iv) to boost regional economic development, and v) to alleviate poverty. The project was designed in two phases; rehabilitate and upgrade the existing irrigation areas under Phase I, and further development of additional 5,200 ha of the down stream of Left Bank in Phase II which is identified by the project as the “Extension Area”.

Phase I of this project has been completed, providing new irrigation facilities to an additional 1,600 ha of land and improved irrigation facilities (concrete lining of all canals) to about 2,400 ha of existing irrigated areas in the Kriibbanwewa and Sooriyawewa blocks (see FIG. 1). At present, LBMC irrigates a total of 6,000 ha of land. The Extension area to be developed under Phase II of the project is presently rain fed or under traditional slash and burn cultivation, which is called ‘chena’ cultivation. With the completion of the project, the total area under irrigation would increase to 11,200 ha in the WLB.

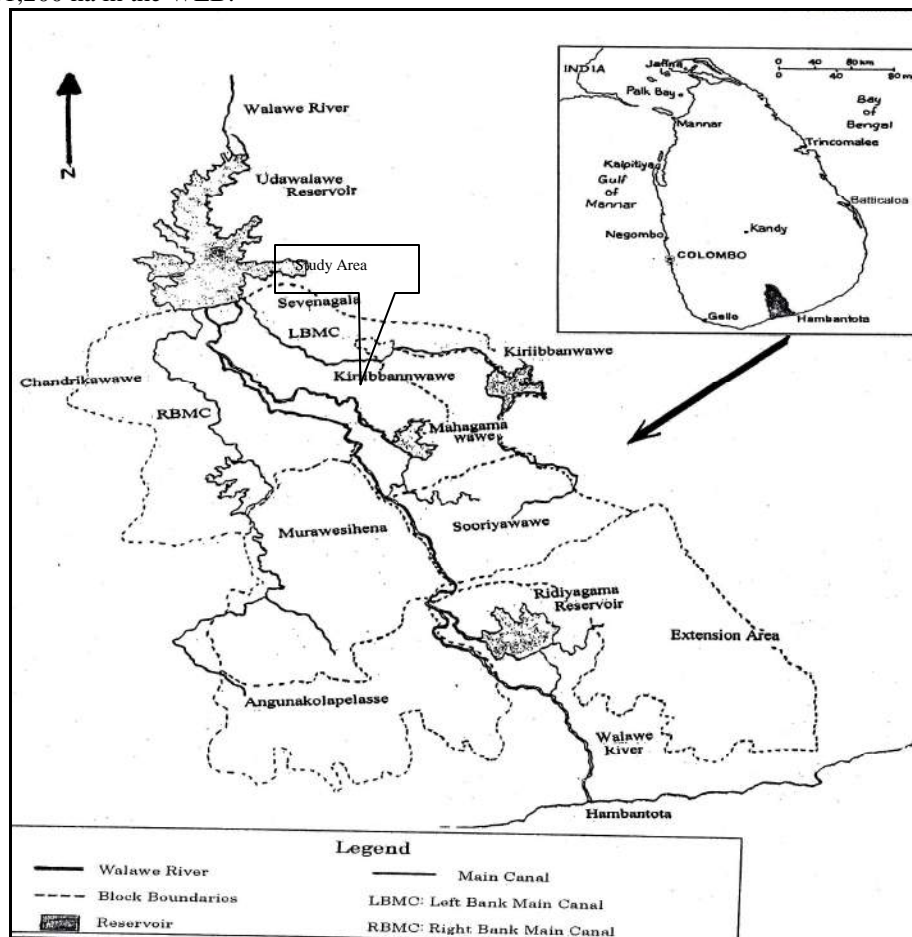


FIG. 1: UDAWALAWE IRRIGATION AREA

The estimated cost for completion of the project was US\$143.5 million (1995 prices), which included US\$33.5 million for the rehabilitation and upgrading of the Existing Area and US\$110 million for the development of the Extension Area. It had been concluded that the project was “technically feasible and economically sound, and the adverse environmental impacts could be minimized by mitigation measures” (Nippon Koei and MASL 1995: S-6). The financial details of the loan agreement for WLBP by JBIC are summarized in Table 1.

TABLE 1: FINANCIAL DETAILS OF THE LOAN AGREEMENT FOR WLBP BY JBIC

Project Phase		Feasibility Study	Phase I	Phase II
Date of approval		1994-07-04	1995-08-31	1996-10-23
Amount of approval (Yen, million)		379	2572	9393
Main portion (Portion applied to reduced interest rates)	Interest rate (%)	-	2.6	2.3
	Payment period (years)	-	30	30
	Grace period (years)	-	10	10
	Tying status		General untied	General untied
Consultancy portion	Interest rate (%)	2.6	2.6	2.6
	Payment period (years)	30	30	30
	Grace period (years)	10	10	10
	Tying status	General untied	Partially untied	General untied

Source: www.jbic.go.jp down loaded on 2006/05/31

The scope of the project suggested changes in cropping patterns, rural infrastructure development and implementation schedule. The whole design and planning process unfolded with cropping patterns predetermined. The plan assumed that all aspects of the project could be engineered according to the blueprint. For example, it was assumed that all irrigated land would be double cropped annually, that the area under each crop would be fixed, that farmers will apply the recommended inputs, and that the squatters who had moved into the area in hopes of securing land, would be removed. The very feasibility of the project itself depended, among other things, on efficient production of other field crops<sup>3</sup> on the Reddish Brown Earth (RBE) soils. Failure to achieve this objective would endanger the economic, environmental and social outcomes of the project. But viewing development as a mere set of technical engineering endeavors, is impractical as irrigation management is an important a social issue, which is highly interrelated with the daily life style of the villagers.

Table 2 shows the expected and actual irrigated land development in the project area. The second phase of the project is yet to be completed at the time of the study. However, different studies based on different scenarios do not agree yet whether there will be enough water to irrigate the whole area (IWMI, 2002:28).

TABLE 2: EXPECTED AND ACTUAL IRRIGATED AREAS OF THE PROJECT (ha)

Project	Expected area at evaluations	Realized area at completion
ADB- RB downstream	12369 <sup>a</sup>	10978 <sup>a</sup>
WIIP	12000 <sup>a</sup>	11901 <sup>a</sup>
WLBUEP phase I	4130 <sup>b</sup>	4130 <sup>b</sup>
WLBUEP phase II	5150 <sup>b</sup>	Ongoing

Source: MASL (2005:2); IWMI (2005:24)

#### Analytical Framework and Institutions

The conceptual framework of the analysis of the study is demonstrated in FIG. 2. The project aims, planned to achieve at the planning and implantation stages of the project is identified as “Expected Benefits”. The benefits achieves at the completion of the project were identified as the “Realized Benefits”. In the process of transforming the expected benefits into realized benefits, behavior of various institutions, in this case different organizational

setups as well as rules and regulations play a major part. How these institutions act or perform their duties would eventually decide how far the project aims are to be achieved. The institutions involved in the implantation process of this JBIC funded project have described as follows:

**Japanese Bank for International Cooperation (JBIC):** Japan Bank for international cooperation (JBIC) has provided a concessional loan in financing the Walawe Left Bank Upgrading and Rehabilitation Project. Thus the agency acts as a main stakeholder of the project.

**Mahaweli authority of Sri Lanka (MASL):** Apart from the responsibilities on project planning and implementation activities, MASL is responsible for water releases from the Udawalawe reservoir and administration of the land under the irrigation scheme. Accordingly, performance of MASL affects the project success.

**Block Offices:** On block level activities are coordinated by the block offices. The block offices take care of the adjustment of the structures in the branch, distributary and field canals. The field officers are daily in the field to adjust the structures or for maintenance, also report problems in the field to the block offices. Therefore their performance of duties at the field level and timely feedbacks from the block officers to higher hierarchy officers will affect the project in achieving its objectives.

**Consultancy Company:** The consultancy company, in this case, the Nippon Koei Engineering Consultancies (PVT) Ltd. was hired as the consultancy company by the MASL. They are responsible on overseeing planning, and implementation activities. Their perceptions of the project objectives, understanding about the village and its culture, accurate interpretation of the feed backs from local officials will help in better project planning and thereby success of the project.

**Farmer Organizations:** Farmers are organized in farmer organizations, organized per distributary canal. The farmer organizations manage the field canal system and represent the farmers towards the MASL. They coordinate irrigation water turns and maintenance and settle disputes within the organization. Therefore involvement of farmer organizational can improve the water and land use efficiencies of the member farmers and reduce resource related conflicts among farmers.

These formal institutions hold responsibility on planning, implementing and managing the project. Thus their performance, motivation and perseverance to the project objective will play a major role in project performance.



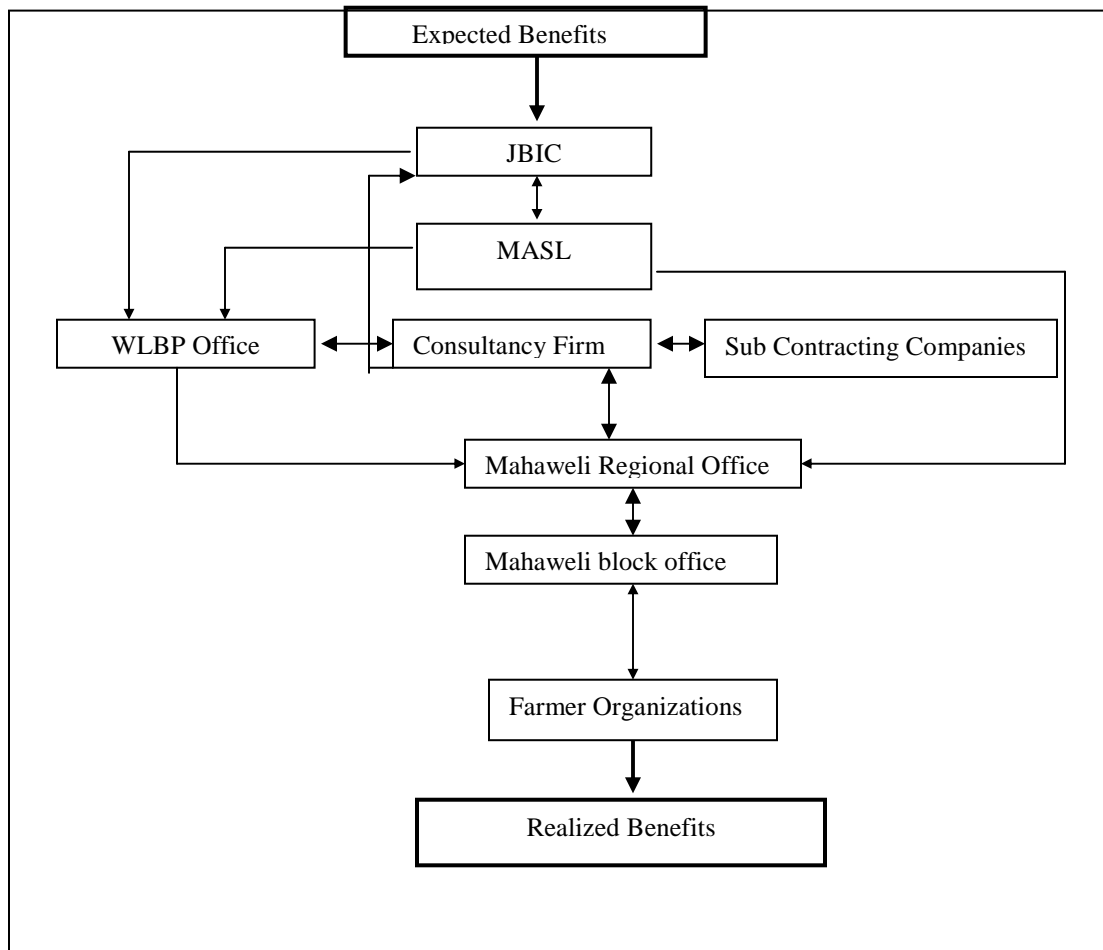


FIG. 2: CONCEPTUAL FRAMEWORK

To assess the impact of the project, the Kiriibbanwawe Unit<sup>4</sup> was selected as the study area, as its rehabilitation work has been completed by 2001 and had adequate time to realize impacts of the project, at the time of the survey. A sample of 106 settlers was selected for the case study and interviews were carried out using a structured questionnaire. Apart from that MASL, JBIC, and Nippon Koei Consultancy Company were identified as the main organizations involved in the project, and the officers' in-charge were interviewed to get relevant information about the project.

The construction work in the Kiriibbanwawe unit under the project has involved heightening of the banks of the canals and repairing and replacing various structures such as gates, valves and measuring equipments required to efficient water distribution (Table 3). A total length of 55.2 km long canal was rehabilitated and 49.2 km was constructed under this project. A total length of 105 km was developed as a drainage canal. More than 12,000 various structures required for water distribution in these canals were either replaced or newly placed. An area of 850 ha was developed as new agricultural land.

TABLE 3: MAJOR WORK OF THE JBIC FUNDED WLB PROJECT

Description		Unit	Quantity
<b>Irrigation upgrading and rehabilitation work</b>			
Left bank main canal	Earthwork (bank heightening and protection)	km	4
	Structures (new, replace & repair)	nos	90
Branch canals	Earthwork(bank heightening and protection)	km	3.5
	Structures (new, replace & repair)	nos	119
Distributary canals	Earthwork(bank heightening and protection)	km	47.7
	Structures (new, replace & repair)	nos	523
Field canal	Earthwork(bank heightening and protection)	km	170
	Structures (new, replace & repair)	nos	9244
<b>Irrigation extension work</b>			
Branch canals	Earthwork(bank heightening and protection)	km	3.5
	Structures (new, replace & repair)	nos	119
Distributary canals	Earthwork(bank heightening and protection)	km	45.7
	Structures (new, replace & repair)	nos	454
On-farm work	Land grading	ha	850
	Field canal earthwork	km	107
	Field canal structures	nos	2200
	Drainage canals	km	105
<b>Rural infrastructure</b>			
	Development center	nos	1
	Market facilities	site	1

Source: MASL, 2003

## The Role of Institutions in the Aid Delivery Process

**Mahaweli Authority of Sri Lanka (MASL)**<sup>5</sup> has been responsible for the administrations of irrigation and land development in the Walawe basin, thus responsible for the administration of WLBP as well. The internal structure within the MASL is highly hierarchic. All employees perform a task as a small part of a long chain and often have limited insight into their contribution to the eventual goal (Buysse, M., 2002:6). Similar to all irrigation projects administered by the Mahaweli Authority, a regional Mahaweli office is responsible for the Walawe area<sup>6</sup>, headed by a Residential Project Manager(RPM). A separate office<sup>7</sup> for the administration and implementation of WLBP, headed by the Project Manager for Walawe Left Bank Irrigation Upgrading and Extension Project' from here on wards identified as the project manager.

**The Residential Project Manager (RPM)** and the project manager are integrated in the organizational structure as a collateral relationship. Therefore rather than one person being accountable for the other, their official relationship involves only correspondence of the activities of each other. The project manager is directly accountable to the director general of the MEA, as same as the RPM. This arrangement has created a gap within the coordination of construction stages and implementation stages of the project, as the project manager is responsible for the coordination at the construction stage, whereas the RPM is responsible for the coordination at the implementation stage. RPM assumes little responsibilities in the construction stage and vice versa. An error of either one stage can cause problems in the other and thereby for the success of the project achievement. But in the current arrangement problems at the implementation stage are often unaccounted for.

**The consultancy company** is accountable to the project manager and their correspondence to higher levels of the organizational hierarchy is officially through him. With this environment, the block office and lower level officials who are directly involved in activities at the grass root level, do not have a direct influence at the planning stages of the project. This could lead to a vast loss of important information to both parties. It is important for the

consultancy firm to have a good background information source about the field conditions, especially as it is alien to the region. And also it is similarly important for the block officers to clearly identify the project objectives and reasons for some activities in order to maximize the resource use efficiency at the implementation stage. This opportunity is lost for both parties because of lack of direct communication linkages.

The project success is also threatened by the ignorance of the farmers about the actual effects of the project. Although there had been discussions between officials in charge and farmers prior to commencement of the project, understanding of the overall affect, and perception of the project benefits is a matter of debate. Farmer perceptions about the project benefits are summarized in Table 4. Almost all the farmers (97 percent) anticipated better and timely availability of irrigation water, while 62 percent of the farmers expected a better water distribution in the distributary and field canals. Although only 12 percent of the farmers expected to increase the cultivable land, many of them (67 percent) expected an increase of productivity. Thus it is clear that farmers' expectations are mainly on improvement of water availability, and distribution within the existing system.

TABLE 4: FARMER PERCEPTIONS ON PROJECT BENEFITS

Perception	Percentage
Better availability of irrigation water	97
Timely availability of irrigation water	97
Increase of cultivable land	12
Better water distribution	62
Reduce maintenance cost (currency, labour, etc.)	54
Less time involvement for canal maintenance	45
Reduction in farmer conflicts over water issues	62
Increase in crop yield per land plot	67
Increase in cropping intensity	9

Farmers' perception has been that after rehabilitations and upgrading of the existing resources, the availability of the irrigation water would be improved, as oppose to limited. Yet, in order to achieve project objectives, the efficiency of irrigation water usage in the system must be improved. The same quantity of irrigation water that has been utilized so far only by the existing areas, must be used by both existing and extension areas after the completion of the project. Thus the farmers in the existing cultivation areas, who have experience abundant irrigation water until now, must entail limitations in water use. Although the farmers in the area were aware of the extension of the projects, Table 4 depicts that none of them were aware or expected a limitation of available irrigation water in order to supply water to the extended areas. Since the project implementation agency and the consultancy agency had a very sparse relationship with farmer organization and farmers as individuals, the farmer attitude towards efficient water utilization, which is the key to the success of the project, has been overlooked.

## Problems and Prospect

Encroachment is one of the major problems in the project area. When MASL took over in 1982<sup>8</sup>, there were only about 7000 legal settlers and since up to date about 25000 encroachers have been regularized by the MEA (MASL & Nippon Koei, 1995:A5-2). This shows the severity of the problem and due to this, many constrains are been faced in selecting suitable farmers for settlements. Mainly, two groups of land encroachers can be identified. One is the group of farmers practicing encroached farming because they do not have access to other legal land. The other group of farmers practice encroached farming, in order to increase their land extent, in addition to their legally received land. As shown in Table 5, land encroachments of paddy lands are greater than upland, and most of them (68 percent) are land less farmers.

TABLE 5: DISTRIBUTIONS OF ENCROACHED LANDS (Percentage)

Category	Paddy land	Upland
Encroachers with own land	10	3
Encroachers without own land	68	7
Encroached land leased out	3	3
Encroached land leased in	3	3
Total encroached	84	16

The primary cause of encroachment was the delay in placing legal settlers in possession of allotments (Table 6). It was further aggravated by the lack of allotment surveys and land marks and the failure to issue land permits timely to legal settlers. The encroachers have generally occupied the land with permeable soil conditions. These lands are categorized as unsuitable for paddy cultivation. But, most of these encroachers are not willing to change their encroached lands even they are given land in some other suitable place. Because of this reason it has been difficult in blocking out the land to a proper plan. In addition, cultivating paddy in unsuitable land has increased the water requirement for irrigation in the area than anticipated.

The Mahaweli has been so far accommodated them by giving land permits for the lands they have been cultivated, thus regularizing the encroachers, but this adhoc and lax approach has confused the consultancy firm in adhering to a specific land blocking system in the area. Although this policy has been employed as a way to settle the encroachment problem, it is motivating the encroachers, giving them a prospect that if they cultivate for a long enough time, they have a high possibility to get the land permit for that land. Further more, the land encroachers who are not officially registered as land holders at any official agency are entitled for the government social welfare, whereas other farmers with official allotments are not. This sometimes act as a positive incentive for the encroacher to remain as encroachers, where they are in a position to reap the benefits of the land as well as social welfare benefits.

TABLE 6: LAND DISTRIBUTION AND ISSUE OF LAND RIGHTS IN KIRIIBBANWAVE IRRIGATION UNIT (ha)

	Irrigated land	Upland	Other	Total
Total distributed land	477	712	341	1,530
Land rights issued	454	495	326	1,275
Percentage of land plots without land rights	4.8	30.5	4.4	39.7

Encroachment also has caused disputes among settlers regarding rights to water use. The illegal status of the encroacher prevented their access to irrigation water, institutional credit and other agricultural support services. As a result, water theft becomes a common practice. Some encroachers restored to use of force and often damaged the irrigation structures in the process. They also disrupted attempts to introduce more effective water management systems and agricultural development in the project area. Although the MASL has given a high priority to regularize the encroacher problem, work progress is slow because of numerous legal and administrative problems.

As a result of these institutional weaknesses, the realized benefits of the project in the locale have been limited. Table 7 illustrates the changes in cultivable land area before and after the rehabilitation of irrigation infrastructure under WLBP. The extent of homesteads has not been changed after rehabilitation, signifying no new settlers afterwards within the households. The area of paddy cultivation has increased marginally by about one percent and two percent in *Yala* and *Maha*<sup>9</sup> seasons respectively.

The survey also found out that the decline of the chena cultivation and upland cultivation, particularly in the *Yala* season. The most significant point in this land utilization pattern is that *chena* cultivations, which usually had been practiced only in *Maha* season, where rain water is freely available, had decreased drastically after the rehabilitations. But it is important to note that although the upland cultivation in *Maha* season has increased by 2.5 percent, it has been decreased by nearly 8 percent in the *Yala* season. This change directly relates to the rehabilitation work in the irrigation canals, under WLBP. The traditional water supply for upland had been

percolation and seepage water from the earthen canals. Before the rehabilitations, the canals were not lined with concrete, but were earthen. As a result, percolations and seeping of water freely took place. This had been the main source of irrigation for upland. But the rehabilitation works carried out under the project, which mainly attempted to line all the canal surfaces with concrete, has impeded the percolations and seepage of the water as usual, purging the natural irrigation source for uplands. As a result, farmers had to face an unexpected water scarcity for their uplands after the upgrading and rehabilitation of the irrigation infrastructures of their village. At present, farmers have to pump water from the canals for the cultivation of uplands, which are the only alternative and the expectation of the project activities. But, farmers with uplands far from the canals or faces difficulties in mobilizing the required resource such as water pumps, longer pipes etc., have resigned to cultivate grains or vegetables and only in 'Maha' season where water can be supplied through rains, abandoned their upland cultivations.

TABLE 7: CHANGES IN CULTIVABLE LAND AREA BEFORE AND AFTER THE REHABILITATION OF IRRIGATION INFRASTRUCTURE UNDER WLBP

Land category	Before rehabilitations		After rehabilitation		Difference (percentage)	
	Yala (ac)	Maha(ac)	Yala (ac)	Maha (ac)	Yala	Maha
Upland	121	121	111	124	-8.3	2.5
Paddy land	280	282	283	287	1.1	1.8
Homestead	29	29	33	33	0	0
Chena	0	48	0	34	0	-29.2

Another reason exist for some farmers to have expressed difficulties in getting sufficient water for their irrigated lands, especially the farmers, who have land in the tail ends of the canals (Table 8). In the rehabilitation and upgrading of the irrigation canals, some canals had been extended in length while some canals has been widened or narrowed. With this effort the positions of some of the outlets<sup>10</sup> has been changed. Along with these changes some demarcations of land boundary have also been changed. But the farmers are still using the old land boundary demarcations, which also attributes, to the reduction of the extent cultivated as well as the water scarcity they faces. An outlet placed to irrigate a land of new land demarcations may not optimally be placed to irrigated the land area demarcated by old land boundaries still been used by the farmers.

TABLE 8: CHANGES IN ADEQUACY OF IRRIGATION WATER BY THE PROJECT (Percentage)

Adequacy of Water Receipts	Head reach	Middle	Tail end
Adequate water before and after the project	32	23	4
Inadequate water before and after the project	0	4	11
Adequate before project, but inadequate after project	0	6	10
Inadequate before project, adequate after project	0	8	3

The source of water utilization of the villagers, (refer Table 9), has changed in the recent years. The water issue from the Udawalawe reservoir focuses mainly water requirements for irrigation on each cropping season. Water uses for other activities are also dependent on water release for farming, mainly paddy. The water release from the reservoir to the distributary canals is rotational. With the introduction of perennial crops in the area, there has been a year round irrigation, increasing water availability to non irrigation purposes, but still the rotational period increases in the off seasons. According to SAPI study (2000:18), about 6 percent of the total water releases from the Udawalawe reservoir is for non irrigation purposes, but no adaptation to the irrigation schedule is made to accommodate water for non irrigation purposes.

The source of water for bathing and laundry activities for some villagers changed even within an irrigation season, depending on the water availability in the irrigation canals. At the times the water is not issued, the people in the study area use the reservoir for their bathing; while once the water is issued in the canals they go to the canals.

Thus the source of water use for daily life of the people changed according to the water rotation calendar. However, for drinking and cooking in general, preference is given to water from shallow wells, constructed by the people themselves. But, the survey found out that there is a decline in the water levels in these villages along with the rehabilitation works of the project. This is due to the reduction in the shallow water tables in the region because of the impediment of percolation and seepage water into the ground water table. Thus the percentages of households of which use own wells for cooking, bathing, laundry and cultivation in the study area has declined by 1.9 percent, 5.2 percent, 5.2 percent and 2.1 percent respectively. The reduction is 5.2 percent and 3.8 percent for cooking and bathing in common wells respectively. Although there is an increase in use of tube wells for cooking and drinking purposes, according to Buysse, M. (2002:12) more than 60 percent of the region has poor quality deep ground water. He further noted that this type of water is not good for human consumption, because it contaminated with salinity, fluoride and iron as main polluters.

TABLE 9: CURRENT SOURCE OF WATER FOR DAILY ACTIVITIES AND AGRICULTURAL ACTIVITIES  
(Percentage of households)

Purpose	Reservoir	Canal	Own well	Common well	Tube well	Own Tap
Cooking/drinking	0	0.9	14.2 (-1.9)	21.7 (-5.2)	19.9 (+2.8)	43.3 (+8.1)
Bathing	31.2	53.7	6.6 (-5.2)	1.9 (-3.8)	1.9 (-3.8)	4.7 (+8.1)
Laundry	33.2	59.3	5.7 (-5.2)	-	-	1.9 (+0.8)
Cultivation	-	98.1	1.9 (-2.1)	-	-	-

Note: Values within brackets represent the percentage changes of utilizers of each source before and after rehabilitations of the canals with the sign showing a reduction or increase

Reservoir and canal water uses highly varies even within an irrigation season and show no significant difference in the changes before and after rehabilitation of the canal. Therefore the changes in the percentage of uses of reservoir and canals before and after rehabilitations were ignored to minimize the error.

## Summary and Conclusions

The impact of WLBP on existing populations has been limited, since the study area was an already settled study area, cultivating using the Udawalawe reservoir water. In general, it can be emphasized that the success of the project relies on the efficient water use in the existing irrigation areas (including the study area), in order to provide water to the extension area. The farmers in the existing area considered irrigation water released to the left bank of the reservoir, as an abundant resource so far, mainly due to the limited command area. But with the commencement of the phase II of the project, the same amount of water released to the left bank, has to be used economically in order to irrigate a larger extent. Thus the farmers in the existing irrigation area experience a water limitation for their irrigated land because now some of the water earlier irrigated their land, has to be sent down the canal to irrigate the extension area. Therefore, if the farmers in the existing area is not prepared adequately to economize their water usage, not only the farmers in the extension area, but also some of the farmers in the existing area, especially the tail enders of an irrigation canal are bound to experience a water scarcity. This possible externality can be overcome through farmers' understanding and participation. Otherwise the whole project may face a failure due to lack of adequate irrigation water.

Another aspect of water scarcity was experienced in upland cultivations. The farmers were not forewarned and unprepared for the impediment of percolation and seepage water that had been irrigated their uplands before the project. But according to the project design, the uplands were not to be directly irrigated through canal water. At the earlier stages of the project, water requirements of the area were calculated only for the paddy land. But realizing the

failure of the calculations, an additional day of water is released to the canals for the irrigation of uplands. Without the natural seepage and percolation, the farmers are left with the only choice of pumping the water for their uplands. Not all farmers possess water pumps and some fields far from the canal, which require a longer pipe length. As the farmers were not prepared to endure this shadow cost of irrigating the land, upland cultivation has somewhat stagnated in the area. But if OFCs and other crop species, which has a low water requirement, are to be promoted in the region as planned by Mahaweli, farmers has to face this shadow cost of irrigating uplands. To overcome the problem, Mahaweli is now promoting new irrigation systems such as drip irrigation to increase the water use efficiency. But these methods still require pumping the water from the canals to the upland.

The institutional environment in the area, has not been fully compatible with the assumptions of the project design. Inefficiencies and relaxations of institutions have driven encroachment of land resources in the area. The farmers who has encroached lands illegally, are not prepared to release their holdings, as well as peer farmers are not willing to exclude them out from the system.

The development of the extension area seemed unwarranted by the very high amount of water used in the existing area. The second phase of the project was implemented before management was brought in line with acceptable standards to manage the land encroachments and to meet the needs of the area. The new project did not depart much, in its style from top-down, engineer-oriented projects with the design, settlement processes and economic feasibility dependent upon assumptions of cropping patterns, practices and productivity that had been ad hoc and unrealistic in the past, threatening the success and sustainability of the project.

The limitations of available data have constrained an in depth assessment of formal institutions, in this study. Incentives available within the organizational setting for the actors; i.e. officers-in-charge, effect their motivation for carrying out their responsibilities to such extent witch facilitates the achievement project objectives. But the incentives and motivational factors of the personnel involved in the organizations in the locale were not taken into consider for this analysis. This limits the comprehension on the effect of formal institutions, in effective utilization of foreign aid in the development process. This warrants further studies to concentrate on the incentives and motivational factors of formal institutions involved in the foreign aid delivery process, on achieving project objectives.

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## End Notes

<sup>1</sup>This paper is written by Hansamali Pitigala under my supervision.

<sup>2</sup> Development of the Walawe basin, a large-scale irrigation, resettlement and rural development project was initiated in the 1950s as some of the first in the wave of agrarian settlements of the post-World War II period in Sri Lanka. The project was conducted in several stages, where the Asian Development Bank funded the initial phase.

<sup>3</sup> Other field crops include crops cultivated in low lands other than paddy; mainly chilli and onions.

<sup>4</sup> Udawalawe reservoir water is conveyed to two irrigation canals: the Right bank main canal (RB) and the Left bank main canal (LB). It is divided in five major blocks demarcated for the convenience of administration by the Mahaweli authority: Chandrikawewa, Murawasihena and Angunakolapelessa on the Right Bank and Kiriibbanwawe and Sooriyawaweon the Left Bank. Kiriibbanwawe Irrigation Block, which is located in the middle of the LB, has four irrigation units. They are Habaraluwawe, Kiriibbanwawe, Habaralugala and Mahagama. Kiriibbanwawe irrigation unit was selected for this field survey. The sample survey was conducted during 2005 March/April.

<sup>5</sup> The Mahaweli Authority of Sri Lanka (MASL), was inaugurated in 1979, in order to accelerated the 'Mahaweli Ganga Development Programme', the largest integrated rural development multi-purpose programme ever undertaken in Sri Lanka based on water resources of Mahaweli and allied six river basins. With the introduction of reforms to the public sector institutions and with the devolution of powers through the 13th amendment to the constitution, Mahaweli areas developed under the accelerated programme were provided with additional layers of institutional structures by installing Divisional Secretariats, Pradeshiya Sabhas (local authorities), and some align agencies such as Department of Agrarian Services. But in the Walawe basin, this has not yet been fully implemented, and MASL remains the sole authority for the Walawe area, therefore the WLBIU project area concerned in this study.

<sup>6</sup> A Residential Project Manager (RPM) is heading the organization and he is directly accountable to the MEA through a director general (DG). The RPM is assisted by four Deputy Residential Project Managers (DRPM), who are responsible for land, irrigation, institutional development and general affairs.

<sup>7</sup> The person in charge of the project office is designated as 'the, and all the employees working in the project office are employees under the Mahaweli Authority.

<sup>8</sup> Encroachment problems were not been addressed until 1982, when the management of the project was transferred from RVDB to the Mahaweli Authority. By the time some encroachers had been on the land for more than 15 years.

<sup>9</sup> This annual rainfall pattern defines the two cultivation periods, namely the *Maha* Season lasting from September to March of the following year, and the *Yala* Season from April to September. The latter season is comparatively dry.

<sup>10</sup> Drip irrigation system refers to a structure of a pipe, which connects the canal to the field and creates an opening in the canal to flow the water in to the field.



## Food Consumption and its Constraints – Evidence from Household Survey in Rural China

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### Abstract

This paper explores the effect of household characteristics and financial asset constraint on household demand using a large household data set from Jilin Province, China. In addition to income and price factors, household size, labour's education level, and financial assets are found to have significant impacts on Chinese consumer behaviour. Based on the assumption of multi-stage budgeting procedure and weak separability, the Almost Ideal Demand System (AIDS) is used to estimate a complete demand system. In the first stage household spends all its expenditures on consumption goods and service by nine different groups in kind; while in the second stage, only food group in detailed is studied. The model with household characteristics and financial constraints results in better parameter estimates as compared to those without. The estimated elasticities of income, price and household characteristics and financial constraints are presented and these findings can provide decision-makers and business agents with important policy and market insights for understanding Chinese consumer behaviour.

### Introduction

As a fast developing country with about one-fifth of the world's population, China's food consumption and demand market is one of the greatest interesting focuses in the world. China had been struggling for its food supply-shortage with rationing for a long time. This situation has not been changed until its pursuing economic reform starting from the rural area in 1978 and the nature of the reforms led inevitably to a research agenda that tended to concentrate on the impact on farm household production and consumption. Even though China has had a high economic growth rate of around 10% per year for about 20 years, its consumption growth has not been as high as expected. According to China's Statistical Yearbook, China's final consumption rate is about 60 per cent for the last decade, which is about 20 per cent lower than the average level of the world. Because the fact that China is on course to become the world's second-largest consumer market, its consumption stagnate problem and huge potential market pressure have led the researches in China to a urgent need to provide the market-demand information on the Chinese food consumer.

The goal of this article is to explore rural household food consumption behaviour using a large data set from Jilin Province in Northern China. It particularly describes consumption expenditure patterns and estimates expenditure and price elasticities of various food groups. Jilin Province has a population of about 26 million and occupies a "middle" position in nationwide rural development indices. Its consumption patterns may well reflect the whole country's consumption behaviour in general. It is recognised as a predominantly agricultural province and is one of the main grain producing areas in China. This article focuses in particular on the understanding of how household characteristics and financial constraints affect the behaviour of Chinese rural households. The interesting question is that whether there are any differences in food consumption patterns among consumers who have the same income and face the same prices but have varying degrees of access to financial markets? As there are few published papers present this topic, this study can fill a gap in the literature. Using a high quality household sample survey data set for Jilin rural households and a rigorous and theoretically plausible modelling framework, this study, comparing to previous studies, may provide a reliable estimate of Chinese consumer's consumption demand structure and behaviour in informing policy design and business strategy.

## Methods

The Almost Ideal Demand System (AIDS) model, introduced by Deaton and Muellbauer (1980b), is a popular framework for estimating price and income elasticities when expenditure or budget data are available. As a flexible complete demand system, the AIDS model is consistent with economic theory without requiring additivity of the utility function. It is derived from the indirect AIDS cost or expenditure function, so it poses a function form consistent with household budget data. In a basic specification, the budget share equations of the model assume the form:

$$w_i = \alpha_i + \beta_i \log\left(\frac{Y}{P}\right) + \sum_j \gamma_{ij} \log P_j \quad (1)$$

Where,

$w_i$  is the household budget share on the  $i$ th commodity;

$\alpha_i, \beta_i, \gamma_{ij}$  are parameters of the system; and

$$\gamma_{ij} = \frac{1}{2} (\gamma_{ij}^* + \gamma_{ji}^*)$$

$Y$  is total household income or expenditure;

$p_j$  is the price of the  $j$ th commodity;

$Y/P$  is “real expenditure”; and

$P$  is overall price index.

In most empirical work using the AIDS, the overall price index  $P$  is approximated by the Stone price index. Green and Alston compared the traditional AIDS and the LA-AIDS with Stone’s price index and found similar elasticity results. So, this study uses the LA-AIDS form by substituting the overall price index  $P$  with Stone price index  $P^*$  ( $\log P^* = \sum_i w_i \log P_i$ ).

The demographic translating method (Pollak and Wales 1978) is adopted for the incorporation of household characteristics and financial variables because of its flexibility and simplicity. Now we have an enhanced LA-AIDS model incorporating household characteristics and financial variables:

$$w_i = \rho_{i0} + \sum_s^d \rho_{is} H_s + \beta_i \log\left(\frac{Y}{P^*}\right) + \sum_j \gamma_{ij} \log P_j + \mu_i$$

(2)

Where,  $H_s$  are household characteristics and/or financial variables.

$\mu_i$  is an independently distributed error term assumed to be normally distributed with zero mean and constant variance  $\sigma^2$ .

According to Alston *et al.* (1994), the uncompensated own-price, cross-price, and expenditure elasticities for this system are as follows:

$$\epsilon_{ii} = -1 + (\gamma_{ii}/w_i) - \beta_i$$

(3)

$$\epsilon_{ij} = (\gamma_{ij}/w_i) - \beta_i (w_j/w_i)$$

(4)

$$\eta_i = 1 + \beta_i/w_i$$

(5)

and the household variable elasticities are:

$$\delta_{is} = H_{is} \rho_{is} / w_i$$

(6)

As household variables can influence the value and sign of the  $\beta_i$ , they can, therefore, influence the elasticity values.

The Seemingly Unrelated Regression (SUR) procedure, developed by Zellner (1962), with adding-up, homogeneity, and symmetry restrictions imposed is adopted with LIMDEP software for model estimation.

## The Data

The rural household consumption expenditure sample survey data in 2004 were provided by the Jilin Provincial Statistical Bureau. The data covers 19 counties 1600 households in Jilin. Sampling is conducted in a multi-stage systematic way with a random start. The Provincial Statistical Bureau selects sample counties, then sample villages and finally sample households within the selected villages. The sampling method at each stage is controlled and is identical. Households maintain logbooks that separately record cash transactions—in value and volume terms—and own consumption/goods in kind exchanges. Table 3 provides a statistical summary of the basic features of the sampled households and quantities of food consumed. In budget terms food was by far the largest item, accounting on average for 50.66 per cent of household expenditure in 2004, followed by transportation, education and housing costs of 10 per cent, 9.57 per cent and 9.14 per cent respectively. Comparing to the index 10 years ago in 1995, food consumption dropped, transportation and education increased and clothing dropped the most. This is why the students' number and household labours' education level were selected as new variables adding to the model estimation. Within the food category grain consumption was by far the largest item accounting for 26 per cent of the total food budget (while it was 45 per cent in 1995) followed by meat and meat products at 24.4 per cent (while it was 14 per cent in 1995) and vegetables at 14.8 per cent (while it was about 10 per cent in 1995).

The data set is extremely large and in order to make the analysis feasible it is necessary to assume that households adopt a two-stage budgeting procedure. In Stage I Food is treated as a separate budgeting category from other principal categories such as Clothing, Residence, Household appliance, Transportation and communication, Cultural educational and recreation, Medical, Others goods and service. In Stage II within the Food category households are assumed to budget separately for nine categories: Grains, Potato, Soybean and its products, Oil, Vegetables, Meat poultry eggs milk, Aquatic Products, Cigar and liquor, and Others Foods. In treating the data in this way it needs to assume weak separability of preferences (Deaton and Muellbauer, 1980a). A utility function is weakly separable if and only if the goods can be partitioned into subsets in such a way that every marginal rate of substitution involving two goods from the same subset depends only on the goods in that subset. This means, for example, that the demand for a particular food group—say grains—can be expressed as a function of the prices of the items in that group and total expenditure on those items. Expenditure on and the prices of goods outside the food group enter the demand functions for food only through their effect on total expenditure on food.

Three household characteristics and two financial variable are selected for the estimation, based on the empirical analysis on Chinese rural households behaviour and the information available in the data set: (a) number of people in the household; (b) number of middle school and high school students; (c) number of labour with education level higher than middle school; (d) ratio of financial asset to disposable income; and (e) ratio of financial debt to disposable income.

## Model Results

We estimated the models with and without the household characteristics and financial variables constraints imposed. Using the log-likelihood ratio test we examined the impact of including household characteristics in the models. Chi-square tests suggested significant differences between the log-likelihood ratios at least at the 5 per cent level for the models including the characteristics compared to those without. This suggested that the AIDS model incorporating household characteristics should produce superior results. With the SUR method in LIMDEP (7.0), the AIDS model equations were estimated without using OLS method, therefore, the R-squared was not bounded in [0,1] and could not provided the goodness of fit information. But all the  $F$  values for Model Test for all food groups are statistically significant. Most of the  $t$ -values are statistically significant at 95% level. The reason to choose

LIMDEP econometric software package is because it is very suitable for econometric analysis with cross-sectional data.

Table 1 presents the estimated conditional and total expenditure elasticities for the selected food groups. A conditional value refers to the elasticity of that food group (e.g. grains) with respect to the expenditure on the whole food groups (food consumption in total) only, the latter amount having been determined a higher stage which includes food and other household consumptions under the assumption of weak separability. The total (or real) expenditure value is the expenditure elasticity of a particular group (e.g. grains) with respect to total household expenditure. If no saving behaviour involving, then the total expenditure elasticity is the same as the income elasticity. The total elasticity value, of course, is the more relevant measure when considering possible future changes in demand and also for policy analysis purposes.

The inclusion of household characteristics and financial variables increased a little household elasticity values for Grains, Soybean and its products, Meat poultry eggs milk groups, and decreased household elasticity values for Potato, Oil, Vegetable, Aquatic products, Cigar and liquor groups. They had the same direction effect on both conditional expenditure elasticities and total expenditure elasticities. It is worth noticing that the grain and soybeans are Chinese peoples' staple foods and meat poultry eggs milk group is the typical Northern Chinese family's animal product food. These food groups conditional and total elasticities became bigger when household characteristics and financial variables were added into the model. The total expenditure elasticity for Grains group ranged from 0.22 to 0.25, this was lower than the previous estimate results, from 0.64 to 0.67, ten years ago in 1995 (Jiang 2001) for the same households in Jilin, China. In comparison, for example, Wan (1996) using an Engel function on provincial rural household data in 1995, estimated an elasticity value of 0.4. Halbrendt *et al.* (1994), however, using an AIDS model estimated a value for rural Guangdong Province in 1990 of 0.58. The highest conditional elasticity and total elasticity values were for Grains, Soybean and its products, and Meat poultry eggs milk groups, with each conditional value of around 1.50 and each total value of about 0.25 among them. This was similar to the estimate of Zhang *et al.* (2001) for 5group food consumption of urban and rural households in Henan province, China with data from 1985 to 1999. Their results indicated that the largest conditional expenditure elasticities (from 1.4 to 1.8) were for grain, and cigarette and liquor groups. Other related estimate results were Halbrendt *et al.* (1994) of 1.09, Fan *et al.* (1995) of 0.9. For a fuller review of elasticity estimates from previous studies see Jiang (2001). There seems likely to be four main reasons for the differences between the various elasticity estimates: (a) the most obvious is differences in coverage between urban, rural, region etc. and the inherent quality and suitability of the data sets; (b) the majority of previous studies excluded own-price effects which tended to lead to underestimates of the expenditure (income) elasticity; (c) unlike some previous work this study explicitly takes account of the demand interdependencies of food items within a rigorous framework; and (d) studies before the mid 1980s tended to encounter the effects of central planning, particularly inadequate variation in price and income data. It is worthy to mention that China had not totally abolished the food rationing coupon until 1993. In this study, however, we have used a theoretically plausible AIDS model on high quality pooled household data from a relatively developed market situation, and thus we feel confident that our results are less susceptible to the above sources of error.

In addition to the expenditure elasticity estimation, which indicated a significant change in local households' food consumption behaviour and may supply useful information for decision-making policies, another main finding in this article is that the effect of household characteristics and financial variables on household food consumption. These are the only elasticity estimates that we are aware of in the literature for the incorporation of financial constraints into the AIDS model. We calculated the elasticity of household demand with respect to the three measured household characteristics and two financial constraint variables in Table 2. We found that the household size coefficient was significant for all food groups; labour's education level was significant for grains, oil, meat etc., aquatic products, and cigar and liquor groups; and financial variables were significant for oil, vegetables, and cigar and liquor groups. This means that these variables have some effects on a certain food groups but not for others. The absolute values of the elasticities, however, were relatively small except for labour's education level elasticity for cigar and liquor group consumption, which was 1.66. As expected, household size elasticity was among the highest, ranged from -0.2 to 0.3, and had effect on almost all food groups except for oil (-0.07) and potato (0.05). The financial variables had very little effect on all the food groups. This likely implies that all the food

groups are necessities for rural households and mainly response to current income instead of permanent income. The biggest financial variable elasticity was for cigar and liquor group, but its value was only -0.01.

Table 3 presented the estimated price elasticities. It is expected that all own-price elasticities will be negative for all goods except Giffen goods according to consumer demand theory. When household characteristics were imposed, it did not change the signs of the estimated elasticities. Most own-price elasticities in this study had the expected negative sign, implying that the results were conform to the demand theory, except for soybean and aquatic products group. Most own-price elasticities' absolute values were less than one, implying that they were own price inelastic, except for grains, potato, and vegetables groups. These three groups were the most price-elastic commodities with values of -1.5671, -2.3134 and -1.3596 indicating that a uniform percentage decrease in prices of all commodities would elicit a greater demand for grains, potato and vegetables than for others foods. The own-price elasticity for meat poultry eggs milk group was almost equal to 1 and decreased a little when household variables added. This means that it was nearly unitary price-elastic commodity.

The above results are consistent with the occupational groups and roles of the more educated rural households in Jilin. Their members tend to be the cadres, rural teachers and village enterprise managers who frequently have important public relations roles to perform including the entertaining of guests and visitors. Based on the estimation of the fact that grains and meat groups had high conditional expenditure elasticities and high own-price elasticities, it was very sensitive to current income and price changes. As food consumption takes account of 50.66 per cent of rural household total consumption expenditure. It seems likely that rural Chinese households are still in a lower stage of food consumption stage, and their food, especially grain and meat consumptions should keep rising rapidly when their income increases.

## Summary and Conclusions

In this paper we have followed a two-stage budgeting procedure, assuming weak separability of preferences, to allocate households' total expenditure within a complete consumption system. In the first stage we allocated total expenditure to Food at home, Food away from home, Clothing, Residence, Household appliance, Transportation and communication, Cultural educational and recreation, Medical, Others goods and service. In the second stage, food expenditure was allocated to nine food groups of Grains, Potato, Soybean and its products, Oil, Vegetables, Meat poultry eggs milk, Aquatic Products, Cigar and liquor, and Others Foods. In this way a complete demand system for food was estimated--in a theoretically and econometrically plausible way--using the LA-AIDS modelling framework. We also incorporated three household characteristics and two financial constraints variables in our specification. We used a high quality, highly disaggregated, household data set obtained from the Rural Jilin Provincial Statistical Bureau—a branch of the State Statistical Bureau. And, of course, the results apply only to this particular rural region. However, the "middle" position of Jilin in relation to nationwide rural development indices means that, arguably, the results provide a closer approximation to the national rural position than previous studies on, for example, Guangdong and Jiangshu Provinces or Beijing City.

The relatively high positive expenditure elasticity for Grain confirms that it was a normal good during the period studied. Substantial growth in household demand, therefore, can be anticipated, particularly for fine grains such as rice and wheat, as per capita incomes continue to grow in rural areas. In the circumstances it is likely that the internal demand pressures in China will continue to keep the Grain "self-sufficiency" goal high on the list of policy priorities.

At the same time, rural households have been shifting their consumption from coarse grains in particular towards animal products. We found that grains and meat groups had the highest expenditure and price elasticities of all the groups studied. Our results suggest that we can anticipate a relatively high increase in demand for fine grain and meat as household incomes grow. Of course this will result in considerable growth in indirect demand for Grain as a key input in animal production. Thus the composition of domestic demand for Grain will change but the added pressures from animal production will also serve to keep grain policy high on the political agenda. And of course it would be informative to analyse demand within the Meat category in more detail for further work if sufficiently disaggregated data were available.

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## Appendix

TABLE 1: CONDITIONAL AND TOTAL HOUSEHOLD EXPENDITURE ELASTICITIES

	Food Groups	Budget shares	Conditional Expenditure Elasticities	Total Expenditure Elasticities
Without household and financial variables	Grains	0.2601	1.32	0.22
	Potato	0.0142	0.38	0.06
	Soybean and its products	0.0194	1.37	0.23
	Oil	0.0554	0.74	0.13
	Vegetables	0.1481	0.68	0.11
	Meat poultry eggs milk	0.2443	1.37	0.23
	Aquatic Products	0.0290	0.71	0.12
	Cigar and liquor	0.0915	0.80	0.14
With household and financial variables	Grains	0.2601	1.46	0.25
	Potato	0.0142	0.32	0.05
	Soybean and its products	0.0194	1.51	0.26
	Oil	0.0554	0.70	0.12
	Vegetables	0.1481	0.51	0.09
	Meat poultry eggs milk	0.2443	1.49	0.25
	Aquatic Products	0.0290	0.60	0.10
	Cigar and liquor	0.0915	0.64	0.11

TABLE 2: HOUSEHOLD CHARACTERISTICS AND FINANCIAL VARIABLES ELASTICITIES

	H1*	H2	H3	H4	H5
Grains	0.1927	0.0107	-0.0124	-0.0041	-0.0007
Potato	0.0523	0.0039	0.0157	0.0029	0.0013
Soybean and its products	0.3246	-0.0440	-0.0114	0.0079	-0.0010
Oil	-0.0067	-0.0165	-0.0161	0.0092	0.0003
Vegetables	-0.2256	-0.0085	-0.0017	0.0090	0.0003
Meat poultry eggs milk	0.1732	0.0000	0.0099	-0.0046	-0.0004
Aquatic Products	-0.1536	-0.0314	0.0307	0.0014	0.0008
Cigar and liquor	-0.2190	-0.0131	1.6612	-0.0106	0.0035

Note: H1 number of people in the household

H2: number of middle school and high school students

H3: number of labour with education level higher than middle school

H4: ratio of financial asset to disposable income

H5: ratio of financial debt to disposable income

TABLE 3: PRICE ELASTICITIES

Commodity	Grains	Potato	Soybean	Oil	Vegetables	Meat etc.	Aquatic Products	Cigar and liquor
Grains	-1.5671	-0.3195	-0.0604	0.1700	-0.4001	-0.1188	-0.6112	0.0215
Potato	0.5205	-2.3134	0.0835	-0.0329	-0.0829	-0.4050	-0.6138	-0.1633
Soybean and its products	-1.7629	0.1368	0.4560	-0.6866	-0.2400	-0.3662	-0.8995	-0.2369
Oil	0.4578	-0.1780	-0.0786	-0.4317	0.1287	-0.5036	-0.3234	-0.0498
Vegetables	-0.3766	0.0063	-0.0707	0.0192	-1.3596	-1.2917	-0.1740	-0.0493
Meat poultry eggs milk	0.8031	0.3040	0.0694	-0.0720	0.1327	-0.9750	0.4457	-0.1107
Aquatic Products	0.6116	0.2091	0.0044	-0.1845	0.8491	1.8565	0.6697	-0.2113
Cigar and liquor	-0.1859	0.0433	0.1282	0.1213	0.5072	1.6370	0.6046	-0.4551

TABLE 4: BASIC INDICATORS OF RURAL HOUSEHOLDS IN JILIN, 2004

commodity	expenditure budget share (%)	expenditure (yuan)	commodity	expenditure budget share (%)	expenditure (yuan)	consumption amount (kg)
food commodities consumption	0.49	3145.40	Grains	0.26	869.38	711.38
food consumption with service	0.02	192.15	Potato	0.01	42.91	11.54
clothing	0.07	495.76	Soybean and its products	0.02	66.29	36.30
residence	0.09	804.93	Oil	0.06	167.06	22.47
household appliance	0.03	230.48	Vegetables	0.15	446.46	524.10
transportation and communication	0.10	798.08	Meat poultry eggs milk	0.24	785.99	95.62
cultural educational and recreation	0.10	881.12	Aquatic Products	0.03	89.18	12.89
medical	0.07	598.29	Cigar and liquor	0.09	274.53	51.93
others goods and service	0.02	171.91	Other foods	0.14	403.61	84.17



## **End Notes**

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# Managing Water – A Crucial Resource for Development: A Case Study of India

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## Abstract

Demand for water has been rising and is expected to rise further in the 21<sup>st</sup> Century in the developing countries due to increases in population, urbanization and agricultural and industrial development. This paper analyzes the availability, demand and uses of water as well as water policy and management of this crucial resource in a sustainable way to meet the increasing demand in the coming decades. India is the focus of this research. Insights gained from water management policies of the United States are analyzed for their applicability to the Indian context. The role of the ecological principles and climatic factors that have a bearing on the quantity and quality of water is also analyzed. The analysis shows that there has been an acute and persistent shortage of water in all major metropolitan centers in India. The critical question now facing the policymakers, especially the politicians, is the transfer of water from irrigation to meet urban demand without raising the ire of the farmers who form the majority in the countryside. Growing human population in concert with an effort to have economic growth will require additional water supply and a wiser policy of water management. This paper explores the water issues, in all its complexity, in the context of India.

## Population and Economic Growth

India's population of 1,121 million people in 2006 is expected to increase to 1,363 million by 2025 and ultimately to 1,628 million by the middle of this century, 2050 (PRB, 2006). The magnitude of population that would be added by mid-century is staggeringly large, half a billion people (Figure 1). The urban population, currently estimated as 29 percent in 2006, is projected to grow to above 50 percent by mid-century. These statistics translate into an urban population of 325 million in 2006 and 800 million by 2050. Another important facet of Indian urbanization is that only "class one" cities have increased their share of population since 1950. All other class cities' share has remained the same or declined. Class one cities are cities above 100,000 in population. This trend is interpreted to mean that more and more people are attracted to larger metropolitan centers (Figure 2). This is a global urban trend and is expected to accelerate. The expected increase in the number of mega cities, cities over 10 million people, is another trend that will be pronounced throughout the developing world as well as in India (Brockerhoff, 2000). These demographic trends foretell the challenge India faces to meet its demand for water. Two recent United Nations publications concur with the urgency of dealing with the looming water crisis. (UNDP, 2006, UN, 2006).

## Population Growth of India

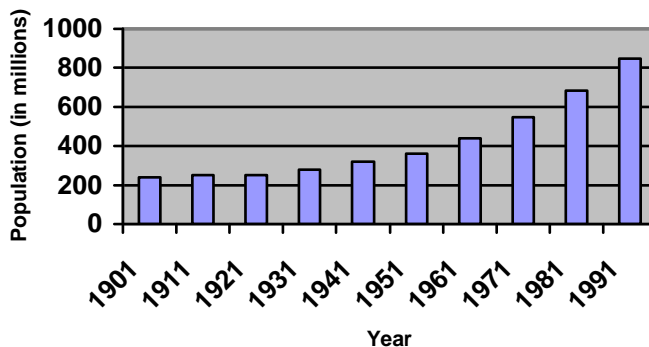


FIG. 1: POPULATION GROWTH OF INDIA

## Growth of Urbanization by Class of Towns (in %)

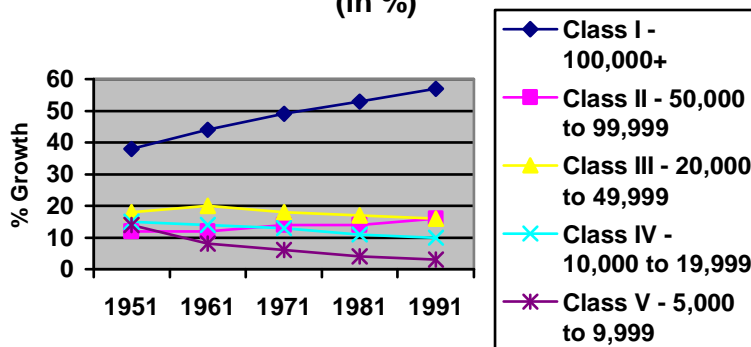


FIG. 2: GROWTH OF URBANIZATION BY CLASS OF TOWNS

## Water Availability

The principles of hydrology, hydrological cycle and climate are the keys to understanding water availability. The total amount of water on the earth as estimated by the U.S. Geological Survey to be  $1.36 \times 10^{21}$  liters, or  $1.36 \times 10^9$  (1,360,000,000) cubic kilometers. Most of it (97.2 percent) makes up the oceans and is saline. The remaining 2.8 per cent resides on the continents. The largest share (76.78%) of the continents' water is in ice caps and glaciers. This water is mostly confined in the Antarctic and Greenland ice caps and is not accessible for human consumption. Mountain glaciers are an important source of water for rivers, make rivers perennial, therefore, a reliable source of fresh water supply. Groundwater available in large quantity is also an important source of fresh water supply. In comparison to other sources, the share of water flowing in rivers and streams is very small but of utmost importance as a source of freshwater supply (Table 1).

The annual global hydrologic cycle controls the overall supply of water and its understanding is critical for water management. Simply defined, the hydrologic cycle is a flow of water that evaporates from oceans and is carried by winds towards land. It results in precipitation over the land. As a result, precipitation recharges groundwater and water flows in streams and rivers which empty into the oceans. The amount of water which forms

the annual global hydrologic cycle is fairly constant at 500,000 cubic kilometers. The water that evaporates from oceans is 430,000 cubic km or 86 percent. The evapotranspiration from land contributes 70,000 cubic kilometers or 14 percent of the hydrologic cycle. Land surface, because of geography and mountains, receives a higher amount of precipitation, 110,000 cubic kilometers. Oceans receive 390,000 cubic km. Annually, land receives 40,000 cubic km of water as a surplus that makes up the surface flow of rivers and streams. The flood state accounts for 70 percent of this surplus water. To increase water supplies, it is necessary to capture the flood state water (Ambroggi, 1980). The global pattern of water availability and the hydrologic cycle provides a rough estimate of the water availability to nation states.

The linkage between climate and water availability cannot be overstressed. Climate is a determining factor for the hydrologic cycle. In agriculture, climate determines the water demand for irrigation – a predominant user of water in India. Among the elements that make up the climate, precipitation is central for this analysis. Furthermore it is the amount, geographic distribution as well as monthly variations of precipitation that are of utmost importance.

TABLE 1: GLOBAL WATER SUPPLY AS ESTIMATED BY THE U.S. GEOLOGICAL SURVEY

<u>Location</u>	<u>Water Volume Liters</u>	<u>Percentage of Total Water</u>	<u>Percent of Land Water (2.8 percent = 100%)</u>
<u>Surface Water</u>			
Fresh Water Lakes	125X10 <sup>15</sup>	0.009	0.3214
Saline Lakes Inland Seas	104X10 <sup>15</sup>	0.008	0.2857
Average in Stream Channels	1X10 <sup>15</sup>	0.0001	0.0036
<u>Sub-Surface Water</u>			
Vadose Water Including			
Soil Moisture	67X10 <sup>15</sup>	0.005	0.1786
Groundwater Within a Depth of Half Mile	4170X10 <sup>15</sup>	0.31	11.0714
Groundwater Below Half Mile	4170X10 <sup>15</sup>	0.31	11.0714
<u>Other Water Locations</u>			
Ice Caps and Glaciers	29000X10 <sup>15</sup>	2.15	76.7857
Atmosphere	13X10 <sup>15</sup>	0.001	0.0357
World Oceans	1,320,000X10 <sup>15</sup>	97.2	

Source: Skinner, Brian J., 1976: Earth Resources, p. 128 , Prentice Hall, New Jersey.

India's climate is characterized by its seasonal precipitation mainly during summer months over much of the country. This climate is commonly known as tropical monsoon. Only the Western Ghats, Northeastern India and lower Ganges Valley have abundant rainfall (Figure 3). The monsoons arrive in the middle of June at the Western Ghats initiating the rainy season. The monsoons reach Northeastern India a few days later. The Northwest section of the country experiences monsoon rainfall in the first week of July. The rainy season ends at the beginning of October. Upwards of 90 percent of rainfall occurs during this period (Figure 4). There is some precipitation in Northern India and the adjoining Himalayas associated with the temperate low pressure systems coming from the west. There is winter precipitation in Southeastern Tamil Nadu from the Northeastern trade winds. This rainfall is orographic in nature.

Seasonal precipitation causes river flows to fluctuate widely from flood state during monsoon rains to a trickle in dry months. Rivers having headwaters in the inner Himalayas are perennial. Their flow is augmented from snowmelt in Spring and early Summer. The rivers of Punjab, as well as Brahmaputra, Yamuna and Ganges and some of their tributaries fall into this "perennial" category. In the South, the Kavery is the only perennial river because its basin gets rainfall from the monsoons during summer and orographic rainfall from the Northeasterly

trade winds during winter months. The Kavery is the southernmost river originating in Karnataka and then flowing in Tamil Nadu. Water sharing of the perennial rivers between states and between countries has been a politically contentious issue.

Pollution of the rivers is another pressing factor limiting the availability of water. The water pollution problem is so dire that during the sacred Melha in the winter of 2006-2007, the Sadhus (holy men) protested and refused to take ritual baths in the Ganges at Allahabad. During the low flow in the dry season, there is not enough water to dilute pollution and urban sewage discharges. The rivers become flowing cesspools. The river downstream from the point where river water is diverted into irrigation canals, experiences similar degradation. Also, polluted channels contaminate groundwater.

Overall, water resources of India are meager. India has 2.45 percent of the land surface of the world but its share of world's water resources is lower (1.58 to 1.67 percent). In terms of population, water resources become very meager and acute because India has 17 percent of the world population (Tables 2, 3).

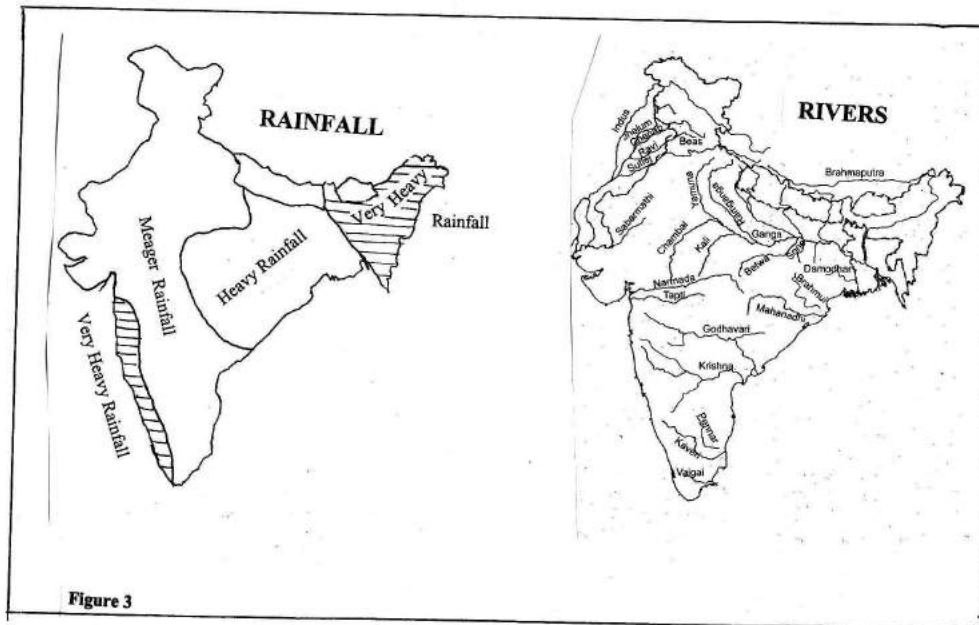


FIG. 3: GANGES VALLEY

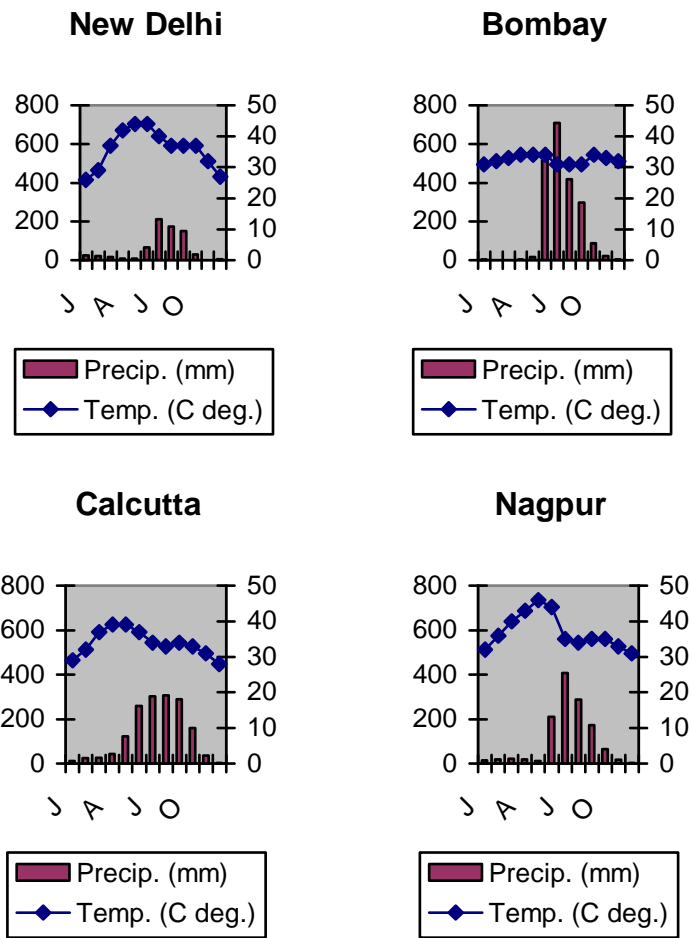


FIG. 4: RAINY SEASONS

Note: Precipitation= Mean Monthly Temperature.

Temperature= Mean Monthly Temp. Maxima

Source: Rudloff, Willy(1981)World Climates, Wissenschaftliche Verlagsgesellschaft mbH Stuttgart.

## Water Use

Harnessing of water resources goes far back to the origin and development of the Indus Valley civilization 4500 years ago on the Indian sub-continent. This cultural achievement that the river valleys provide resulted in achieving food surplus which was necessary for the development of cities and centers of civilization that first took hold and flourished in Mesopotamia and then diffused eastward to the Indus Valley (Sjoberg, 1965). From its core urban centers of Mohenjo-Daro and Harappa, the Indus Valley civilization reached from the lower Indus Valley to the river valleys upstream north to Punjab. Much later, this complex human organization spread eastward to the Ganges Valley with major religious centers of Hinduism along its banks.

Since antiquity, irrigation has been the major user of river water in India. Rulers built canals but these were seasonal and carried water when the river was in flood stage. Rulers also constructed tanks in every settlement

to store water. The British were the first to build large perennial canals. The flow to the canal was controlled by a permanent weir across the river. In 1861, the upper Bari Doab Canal was the first major irrigation project completed in Punjab (Buck, 1906). It happened 14 years after the British annexation of the Sikh Empire in Punjab. The Bari Canal irrigated the heartland of the Sikh Empire in present day districts of Gurdaspur, Anmritsar and Lahore. With this, a new era dawned for major canal construction. The rivers of Punjab and adjoining Uttar Pradesh were diverted into canals for irrigation. Canal irrigation ushered in a period of regional growth and prosperity for the farmers. Above all, it cemented and enhanced the authority of British rule in India. Because the British were in a position to give land grants to their supporters in canal colonies, they won further popular support with the construction of new irrigation projects. Also, there developed a market for the agricultural products from irrigated lands, especially cotton. Cotton was especially lucrative because the American Civil War disrupted supplies to British mills. Canal irrigation was a major undertaking by British rule. Even today, these canals are functioning very well.

TABLE 2: MEAGER WATER RESOURCES IN INDIA

Total Actual Renewable Water Resources (TARWR) in 2005		
India:	TARWR	= 1897 cubic km
	% Surface Water of TARWR	= 64
	% Ground Water of TARWR	= 22
	% Overlap between Surface & Ground Water	= 20
World:	TARWR	= 113,500 TO 120,000 cubic km
India's Share of the World TARWR (%)		= 1.58 to 1.67
India's Share of the World Land Surface (%)		= 2.45
India's Share of the World Population (%)		= 17.12

Source: Water data is from the United Nation's World Water Development Report 2, p 123, 133.

Area and Population figures are from PRB, "World Population Data Sheet 2002 and 2006" respectively

TABLE 3: TOTAL ACTUAL RENEWABLE WATER RESOURCES (TARWR) PER CAPITA 2005, CUBIC METERS PER YEAR

	Per Capita TARWR Cubic Meters 2005	% USE OF TARWR
India	1750	34
China	2140	NA
United States	10270	16
Japan	3360	21
Iran	1970	53
Israel	250	122

Source: The United Nations World Development Report 2

Water: A Shared Responsibility, 2006, New York

After independence in 1947, India followed the Soviet model of development with five-year plans. The first five-year plan was launched in 1950-51 with an emphasis on the construction of dams for hydroelectric energy and irrigation. These major projects were called multi-purpose projects. They were 26 in number. The Bhakra

Nangal Project on River Sutlej at Bhakra was the biggest multi-purpose project with a dam 226 meters high and 518 meters long. Mr. Jawaharlal Nehru, the first Prime Minister of India, used to reverently call these projects “The Temples of Modern India.”

Irrigation has been a high priority. Within the first two decades of independence, more than 600 major and medium projects were planned and initiated and 380 of these projects were completed (India, 1975). As a result of the expansion of irrigation, river flows are totally consumed except during the floods.

In addition to using river water, the major expansion in irrigation has also been made possible by tapping ground water. Tube wells are a ubiquitous feature of the agricultural landscape. The groundwater is pulled out at a faster rate than the hydrologic cycle can replenish it. As a result water tables are declining and pumping the water from a greater depth becomes costly. When the water table is higher than the floor of the river channel, groundwater fills the channel and contributes to the steady flow of a river. The water flow in this state is of high purity because it has gone through the natural filtration process. This pure water is transported free of cost to localities downstream. When the water table declines below the river channel, the river is no longer fed by groundwater. The amount of river flow decreases. If there are pollution discharges flowing in the river, they seep through the bottom of the river channel and have the likelihood to contaminate groundwater. Groundwater is under great threat from over withdrawal and pernicious pollution.

## Meeting Demand

Community wells used to be the source of water for basic human needs in villages and small to medium urban centers for drinking, bathing, washing and sanitation. Larger cities had a centralized system of water supply. This pattern of water supply has undergone a revolutionary change. Currently an overwhelming majority of people in villages and all houses in small to medium urban centers have motorized private pumps that supply household water needs (Table 4). As noted earlier, India’s population will increase to 1.6 billion people by 2050. By then, the majority of the people will live in towns and cities. Large cities and mega cities will attract a much larger share of the population. Vast and rapid changes have to be made to meet the human demand for water. Plans must be formulated to meet the industrial and commercial demand for water of the metropolitan economy. Case studies from the more developed countries suggest that the large flow of surface water is the economical way to meet the water demand in years to come in India (Schneiderman, 2000).

TABLE 4: AVERAGE HOUSEHOLD WATER USE PER PERSON PER DAY IN LITRES (1998-2002)

	Litres
India	135
China	86
United States	575
Japan	375

Source: UNDP: Human Development Report 2006, P.34

## Water Management

The large diversion of canal water from irrigation to the metropolitan economy is fraught with the danger of conflict and civil strife. Such a diversion can reduce food production and jeopardize food security. Therefore, the likelihood of such a transfer of water is remote. Conservation is often suggested as a desirable way to reduce wasteful use and free the water for other uses. This option is partly impractical because there is already a shortage of water for urban use. With new irrigation technology, efficiency of water use can be improved. But large diversion of water away from agricultural use is politically not feasible in the foreseeable future. The only alternative that will increase water supply is to aggressively intervene in the hydrologic cycle to capture more of the water during the flood flow. The



water can be captured from the flood flow by recharging the groundwater aquifer. A second possibility to capture the flood water is to build additional reservoirs by damming rivers and their tributaries. The third possibility is to transfer water from surplus areas to deficit areas. All or a combination of these possibilities have to be pursued to meet new water demand.

The Intergovernmental Panel on Climate Change (IPCC) in its drafts of climate change report, issued in 2007, predicts a severe water shortage in Asia and Africa. The hardest hit regions are those with seasonal rainfall with most of the rain falling during summer. Most of India falls in this category. The IPCC also predicts that the intensity of rainfall will increase but its frequency will decrease in countries such as India. This means the flood will be of higher magnitude and droughts will be more severe (Goswami, et al, 2006). In such conditions, to meet the water demand, water has to be captured during the flood flow.

From the perspective of water management, an important contentious issue is large versus small dams and reservoirs. Large reservoirs are created by the construction of high dams across rivers. All multipurpose projects created large reservoirs storing huge volumes of water. The construction of large dams is criticized because it dislocates larger numbers of people who happen to live in the submerged area. The dams gravely injure or destroy the fauna and flora and thus do irreversible damage to the ecological services the river provides. The Sardar Sarover Dam over the Narmada River in Gujrat recently attracted as much controversy as The Three Gorges Dam over the Yangtze River in China.

The alternative to large dams and their resultant large reservoirs is to construct a large number of smaller reservoirs on tributaries with minimum displacement of people. There may not be much saving in terms of protecting the agricultural land from submersion. The historical experience in the Northeastern United States suggests that small reservoirs can be an important source of water. However, this region is endowed with a precipitation that is fairly distributed throughout the year. The Indian situation, in terms of policy for water management, resembles to that of the dry western United States where large dams and large reservoirs are the norm (Archibold and Johnson, 2007). An additional benefit of the high dams with large reservoirs is the generation of green, carbon emission-free electricity. Currently the hydroelectric share of total electric production is 14 percent in India. Large dams can help generate additional electricity with zero carbon emission. Carbon dioxide is a major greenhouse gas, causing global warming. Any reduction of carbon emission is a step in the right direction for the health of the planet.

Temperature is one of the indicators of water quality. Cold water absorbs more oxygen and thus increases the purity and quality of water. Oxygen rich water supports a diversity of organisms. As water temperature increases the water is rendered oxygen poor and that, in turn, degrades the quality of water. Oxygen-poor water loses its natural ability to self-clean by biodegrading the pollutants. As a result, oxygen-poor water remains polluted. Fish and other organisms are unable to survive in oxygen-poor water. Water that supports life is considered of high quality. In this regard, large dams and their reservoirs have the advantage of maintaining cooler water temperature because of greater depth. Smaller reservoirs are shallower and the water is liable to become warmer. The smaller reservoirs can become dry due to evaporation after a long, dry season and therefore become less reliable as a source of water supply. The dry period coincides with the extremely high summer temperatures before the onset of the monsoons. Cold water is refreshing during the oppressive heat of summer months when noon temperature daily climbs to above 100°F for months.

Water pollution is a severe problem in India. Natural ecological principles can be brought to bear to increase the purity and quality of water. One such important principle is the creation of wetlands and maintaining the already existing wetlands. Wetlands filter pollution, especially organic pollution, as water slowly flows through them. Maintaining a vegetation buffer along the banks of the waterways is another time-tested technique for the restoration of streams to enhance water quality (NRC, 1992). Water shed protection, though improbable, in a densely populated country like India, is desirable. The people can be made aware that whatever you throw anywhere ultimately ends up in your water. Economic forces have a profound impact on the allocation of crucial resource such as water. The U.S experience suggests that it is the public investment that provided abundant water to the metropolitan areas and their economy. Water supply systems in major cities such as New York are still managed as public utilities. As the experience of Bolivia in the privatization of the water supply, indicates private companies are disappointed by meager returns on their investment. Private companies can distribute water and collect charges

more efficiently after the vital infrastructure of dams, reservoirs, and aqueducts are already in place. The pricing of water done in the right way can lead to efficient use of water resources.

As India becomes urbanized with large numbers of big and mega cities with robust economy it will require large amounts of water. This additional water can only be met by aggressively capturing the flood flow of rivers. All options in concert have to be pursued to secure water (Gleick, 2003). There is a role for small as well as large reservoirs in the nation's water management. Large reservoirs are more suitable to meet the large demand of the mega cities and their economy. Ground water will remain a desirable source for users who are dispersed over a large area such as the residents of rural and small towns and the agricultural sector.

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## Bank Distress in Malaysia Using Bank Level Data

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### Abstract

This paper examines the financial distress in commercial banks and finance companies in Malaysia using logistic regression (LR). A comparison between these two groups of the financial institutions was made using the bank level data. This study covers the period from 1988 to 1999 with a sample of 30 commercial banks and 36 financial companies. The findings indicated that the rate of distress status using LR is 93% for commercial banks and 95% for financial companies. On the other hand, seven variables were found significant in finance companies, they are DEPIB (ratio of deposit and placement of bank), LIQ (liquid asset-liquid liabilities to shareholder funds) PSIZE( log of total asset), RREM( ratio of total director remuneration to total assets), NIITL(ratio of net interest income to total loan, LOANCON (ratio of loan concentration, real estate constructions, purchase securities, credit consumption and purchase of landed property to total loan) and LLPNPL (loan loss provision to NPL).Among the portfolio of financial ratios used, DFLA (ratio of liquid funds to total assets), EARNING (ratio of interest income to earning assets minus interest expenses on interest bearing liabilities) and NPLDPTL (NPL to ratio of deposit to total loan) were found to be significant in commercial banks. Key words: bank distress, logit analysis, too-Big-to-fail (TBTF) doctrine

### Introduction

The financial health of the banking industry plays a vital role for the economic stability and growth. Hence, the assessment of a bank's financial condition is a fundamental goal for the regulators in banking supervision. This assessment includes the prediction of bank distress and the provision of valuable information about troubled banks with sufficient lead time for the regulators and management to take preventive or remedial action at problem banks. In the past two decades, many countries have experienced significant distress in the financial sector. The Malaysian banking sector was not spared from this phenomenon and suffered from the financial crisis in 1997-98. As a result, in 2000, Bank Negara Malaysia, the central bank of Malaysia, intervened on behalf of the government by putting the financial sector consolidation as an important agenda for improving the soundness of the financial system through strengthening preemptive and prudential regulations.

This study attempts to derive an estimate for the probability of a bank with a given set of characteristics falling into distress or non-distress. Logistic regression (LR) was used following similar studies that used logit regressions in distinguishing "good" and "bad" banks (Dimitras, Zanakis & Zopounidis, 1996; Lane, 1986; and Martin, 1977).

Secondly, the study sought to understand the common fundamentals and characteristics that govern bank distress and non-distress. Lastly, we investigated the causes of bank distress using selected financial ratios. We also investigated the relationships of these ratios with the size of the bank since it was commonly postulated that larger-sized banks would be less likely to fail. This perception is based upon the higher possibility of a government bailout or rescue to a bigger bank that was in distress rather than a smaller-sized counterpart.

## Related Studies

Many factors contribute to the causes of bank distress. Among them were factors such as business cycles, firm-specific or sector-specific events pertaining to the market structure (see Berger & DeYoung, 1997; Fisher, Gueyie & Ortiz, 2000; Galloway, Lee & Roden, 1997; Neal, 1996). However, as to date, there is no distress theory used in the previous studies that elaborated and focused specifically on the causes of bank distress. Apparently, most studies on the banking distress are much related to the theory of financial intermediation and the frameworks of public theory “Too Big to Fail” by Kane (1988). The financial intermediation theory was seen as are much related function in the study of bank distress, because it mobilized the domestic financial resources through a variety of instruments, such as the facilitation of credit to productive activities, and as the depository of the nation’s savings.

There are several reasons that contribute to the interest in the prediction of bank distress or corporate distress or “business failure”. Firstly, bank distress could involve business failure at various levels and large bail-out or bank nationalization (Demirguc-Kunt & Detragiache, 1977) or a large non-performing loan problem. Consequently, the distress of one bank will lead to a downward spiral for the whole economy of a country via the “contagion-effects” where the cost of failure of a bank with a large network of related companies may also cause the financial system distress. As such, early and accurate bank distress predictions will enable preventive and corrective actions to be taken in to prevent failure. Secondly, the stronger competition among banks has made the government to impose regulation in many countries to overcome bankruptcy or increasing failure rates. Finally, The New Basel Capital Accord, which replaced the original Capital Accord of 1988, effective in most countries in 2005 allowed banks to use their own internal systems in order to determine their adequate risk equity coverage. Hence, the New Capital Accord creates a great incentive for banks to develop their own internal risk assessment models including prediction of bank distress.

The study of the bank-level fundamentals begins with the investigation of management quality that had played a big role in determining the future direction of the bank. Theoretically, the management quality of a bank is strongly related to its asset quality. The management has an overview of a bank’s operations, manages the quality of loans and has to ensure that the bank is profitable. In doing so, the management sets the profitability objectives and the risk levels to be undertaken by the bank’s supervision. For example, a factor that distress banks seem to have in common is the problems that they have in their loan portfolio. Therefore, these types of banks have inadequate control systems in monitoring and spotting problem loans. Perhaps another reason to this is the management may be too aggressive in expanding the bank’s loans by over lending and does not follow their loan policies strictly and stringently. At the same time, the management seems unable to screen and monitor borrowers through numerous credit exception rules on loan portfolio. This would likely result banks to have more risky loan exposure. The first study that adopted the ratio of earning assets to total assets as a proxy for measuring management efficiency in relation to net interest margins was by (Angbazo, 1997). The study indicated that the high exposure of risk taking in credit risk and interest rate by the management led to lower net interest margin that affected the growth of revenue and profitability of the bank.

We define adequately capitalized banks as those banks with at least 5.5 percent primary (tier 1) capital to total assets ratio for the whole sample period. This capital threshold is consistent with regulatory standards for adequate capitalization (Jagtiani, J., Kalori, C. Lemieux, and H. Shin, 2003). It is an advantage to use the threshold for adequate capital, since capital deficiency could be a core fundamental in identifying and providing an early signal of bank distress. Furthermore, it allows for the possibility that two banks with an equally risk would be in a different standing if one has a set aside reserve to cover for a significant amount of the problem loans, or if it has a higher level of adequate capital. (See Appendix 3)

## Description of the Data

The bank level data used for this study comprised of selected balance sheet, and profit and loss item of financial institutions in Malaysia. The external data represented statistics on banking industry and selected macroeconomic variables. The financial items were extracted from the annual reports of 30 commercial banks and 36 finance

companies operating in 1988-1999. They were then computed into relevant ratios. These amounted to twenty five ratio variables. All were considered in the setting up of the distress prediction models. (See Appendix 1)

## Methodology

The logit is one of the most commonly employed parameter in detecting potential failure risk. The logit model assumes that there is an underlying response variable  $Z_i$  defined by the regression relationship. This model was adopted from Ohlson (1980) and Gujarati (1995, p.554). It formulated a multiple regression model consisting of a combination of variables, which best distinguished distress and the non-distress banks using the formula:

$$P_i = E(Y = 1 | X_{1i}, X_{2i}, \dots, X_{ki}) = \frac{1}{1 + e^{-Z_i}} \quad (1)$$

Where  $Z_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_k X_{ki}$ ,  $Y = 1$  representing distressed banks,  $P_i$  then represents the probability of distressed banks,  $X_{hi}$  = financial ratio  $h$  of firm  $I$ ,  $h = 1, \dots, k$ .  $Z_i$  ranges from  $-\infty$  to  $\infty$ . Equation (1) is known as the cumulative logistic distribution function.

This study estimated two logit models using maximum likelihood. Each sample bank was assigned a dummy value,  $Y = 0$  (non-distress) using the ratio of primary capital to total assets greater than or equal to 5.5 percent, and  $Y = 1$  (distress) otherwise.

Both models estimated the probabilities of distress institutions from a sample of 30 commercial banks, and 36 finance companies, respectively. Here we wanted to investigate and highlight which variables were common to distressed commercial banks and distressed finance companies. By doing so, we could identify the characteristics that were valuable in determining distressed in both types of institutions, regardless to their function and specialization.

## Results

### The Descriptive Statistics

Table 1.1 present the descriptive results for both financial institutions using twenty-five independent variables from the various attributes to capture variation in bank risk (such as liquidity risk, market risk, credit risk) and external factor of economic variables (such as GDP and CPI). The descriptive result shows both commercial banks and finance companies exhibit the same variables that score the highest means. Both institutions consistently capture P-size as the highest mean score of 22.49(CB) and respectively follow by 20.99(FC) and NPLDPTL of 20.87 (CB), 19.42(FC), INTCO 0.943(CB) and 0.964(FC). Apparently, among the highest mean score of the independent variables are from bank specific characteristics variables such as P-size, NPLDPTL and INTCO. Out of the twenty-five variables only two external variable of CPI represent the macroeconomic attributes and BTLDGP. As such, the descriptive results suggest that bank distress could be determined by P-size, NPLDPTL, INTCO, CPI and BTLDGP. As a whole, the result shows the bank specific characteristics variables and external variables are important variables to develop lojit models of bank distress.

TABLE 1.1: DESCRIPTIVE STATISTICS OVERALL COMMERCIAL BANK AND FINANCE COMPANIES

Variables	Commercial Bank		Finance Companies	
	Mean	Std. Deviation	Mean	Std. Deviation
CA	0.053	0.016	0.047	0.052
LF LOANS	0.058	0.080	0.046	0.118
INTCO	0.943	0.227	0.964	0.117
LAS	0.450	0.088	0.506	0.059
DEPPUB	0.491	0.118	0.564	0.111
DEPIB	0.130	0.098	0.117	0.133
DINTDEP	0.056	0.052	0.062	0.015
DLFA	0.107	0.056	0.114	0.083
CPI	4.367	0.113	4.388	0.113
INTRS	2.007	0.210	2.010	0.201
BTLGDP	0.656	0.137	0.285	0.078
PSIZE	22.495	1.522	20.992	1.747
POPA	0.018	0.011	0.015	0.014
PIDI	0.392	0.088	0.456	0.061
PSEXP	0.0003	0.001	0.0003	0.001
PTOI	0.607	0.103	0.675	0.039
PMGT	0.539	0.100	0.578	0.050
IMPLICIT	0.016	0.011	0.0258	0.019
INTRATE	0.859	0.974	1.902	0.907
EARNINGS	0.059	0.033	0.063	0.085
NIITL	0.048	0.021	0.056	0.051
LOANCON	0.346	0.095	0.340	0.126
NPLDPTL	20.877	0.904	19.417	1.422
LLPNPL	0.235	0.075	0.153	0.064
LLPEQUITY	0.890	0.305	0.655	0.373
Valid N (listwise)				

#### The Descriptive Statistics of Variables Used to Estimate logit Model

Table 1.2 and table 1.3 reports mean score value results for (FC) distress vs. (FC) non-distress and (CB) distress vs non-distress (CB) which includes the twenty five variables of the same bank-level fundamental to explain bank distress. Again, the results explain almost the same variables as compare to Table 1.1. Similarly, both descriptive statistics show P-size as the highest mean score of distress and non-distress finance companies and Commercial bank. For example, P-size distress (FC) is (20.99) and non-distress P-size (FC) (19.90). On the other hand P-size distress (CB) is (22.495) and non-distress (CB) P-size is (21.997). The second highest mean distress (FC) is NPLDT (19.417) and non-distress (FC) is (17.39), non-distress (CB) is (19.388), and distress (CB) is (20.877) and follows by distress (FC) is CPI (4.388) and (4.416), and non-distress (CB) is (4.399).and distress (CB) is 94.367). The result again consistently shows P-size, NPLDT and CPI as important variables that could be explained finance companies and commercial bank distress.

TABLE 1.2: DESCRIPTIVE STATISTICS FC DISTRESS AND NON DISTRESS

Variables	Distress		Non distress	
	Mean	Std. Deviation	Mean	Std. Deviation
CA	0.047	0.052	0.0763	0.028
LF LOANS	0.046	0.118	0.092	0.2694
INTCO	0.964	0.117	0.959	0.109
LAS	0.506	0.059	0.500	1.083
DEPPUB	0.564	0.111	0.552	0.102
DEPIB	0.117	0.133	0.123	0.122
DINTDEP	0.062	0.015	0.062	0.017
DLFA	0.114	0.083	0.120	0.089
CPI	4.388	0.113	4.416	0.120
INTRS	2.010	0.201	2.022	0.218
BTLGDP	0.285	0.078	0.304	0.083
PSIZE	20.992	1.747	19.908	0.994
POPA	0.015	0.014	0.0123	0.015
PIDI	0.456	0.061	0.475	0.075
RREM	0.0003	0.001	0.0004	0.0005
PTOI	0.675	0.039	0.682	0.013
PMGT	0.578	0.050	0.574	0.056
IMPLICIT	0.026	0.019	0.030	0.030
INTRATE	1.902	0.907	1.667	0.716
EARNING	0.063	0.085	0.051	0.024
NIITL	0.056	0.051	0.053	0.039
LOANCON	0.340	0.125	0.333	0.164
NPLDPTL	19.417	1.422	17.390	1.095
LLPNPL	0.153	0.064	0.139	0.115
LLPEQUITY	0.655	0.373	0.828	0.466
Valid N (listwise)				

TABLE 1.3: DESCRIPTIVE STATISTICS CB DISTRESS AND NON-DISTRESS CB

Variables	Distress		Non distress	
	Mean	Std. Deviation	Mean	Std. Deviation
CA	0.053	0.016	0.081	0.039
LF LOANS	0.058	0.080	0.065	0.114
INTCO	0.943	0.227	1.002	0.163
LAS	0.450	0.088	0.466	0.064
DEPPUB	0.491	0.118	0.532	0.073
DEPIB	0.130	0.098	0.099	0.086
DINTDEP	0.056	0.052	0.050	0.014
DLFA	0107	0.056	0.119	0.080
CPI	4.367	0.113	4.399	0.331
INTRS	2.007	0.210	2.010	0.219
BTLGDP	0.557	0.137	0.716	0.154
PSIZE	22.495	1.522	21.997	1.353
POPA	0.018	0.011	0.018	0.013
PIDI	0.392	0.0878	0.412	0.116
PSEXP	.0003	0.001	0.0003	0.0004
PTOI	0.607	.103	0.640	0.042
PMGT	0.539	0.100	0.555	0.077
IMPLICIT	0.016	0.011	0.016	0.014
INTRATE	0.859	0.974	0.680	0.999
EARNINGS	0.059	0.033	0.051	0.050
NIITL	0.048	0.021	0.487	3.091
LOANCON	0.346	0.095	0.390	0.117
NPLDPTL	20.877	0.904	19.388	1.402
LLPNPL	0.235	0.075	0.221	0.230
LLPEQUITY	0.890	0.305	0.850	0.647
Valid N (listwise)				

TABLE 1.4: THE SIGNIFICANT VARIABLES OF COMMERCIAL BANK

Financial ratio	distress CB		Non-distress CB	
	Mean	SD	Mean	SD
DFLA	0.083	.051	0.089	.051
EARNING	0.038	0.027	0.034	0.020
NPLDPTL	19.570	1.435	19.390	1.402



TABLE 1.5: THE SIGNIFICANT VARIABLES OF FINANCE COMPANIES

Financial ratio	Distress FC		Non-Distress FC	
	Mean	SD	Mean	SD
DEPIB	0.117	0.133	0.157	0.097
PSIZE	20.992	1.746	21.447	1.536
RREM	0.000	0.000	0.000	0.000
LIQ	1.902	0.906	1.699	0.698
NIITL	0.056	0.500	0.045	0.020
LOANCON	0.334	0.125	0.334	0.144
LLPNPL	0.655	0.378	0.148	0.091

Table 1.4 shows the results of the significant variables used in the study. Most of the financial variables used are related to the liquidity risk and credit risk. The results indicate three variables are found significant in the commercial bank. They are DFLA, EARNING and NPLDTL. DFLA represent of (Ratio of liquid funds (cash and short term to total assets) is the overall measure of liquidity risk that would give a signal of the healthy bank. This implies that liquid funds are significant important in order to reduce bank exposure to liquidity risk. One possible reason identified in the theoretical literature is that the bank is motivated to hold liquid assets (particularly cash and securities) to protect against unexpected withdrawal by depositors or draw downs by the borrowers (Saidenberg and Strahnan, 1999), which could to bank run. Commonly, bank distress is often characterized by runs on banks, where depositors withdraw a large of amount of funds from a large number of intermediaries (Beng and Ying, 2001). On the other hand, EARNING has a significant and negative impact on the non-distress bank. It represent the ratio of interest income to earning asset minus interest expense on interest bearing liabilities indicates on average about 0.038 and 0.034 of the total assets in the commercial bank is earning interest. NPLDTL represent of Non-performing loans to ratio of deposits to total loans and the average mean are 19.570 to 19.390. the results indicates that the higher ratios of non-performing loans are associated with a higher probability of bank distress

Table 1.5 shows that the significant variables of finance company are different form the significant variables found in the commercial bank. They are seven variables found to be significant in the sample they are P-SIZE, LIQ, LOANCON, DEPIB, RREM, and NIITL AND LLPNPL. Among the highest score mean are, P-SIZE (20.00) and (21.447), LIQ (1.902) and (1.70), LOANCON (0.334) and (0.334). The results supports and consider bank sizes are important variable. Generally, banks are divided into different sizes base on assets size and average capital ratio and bank would significantly affect to the growth rate of total loans. As larger bank are better and able to diversify their loan portfolios, thus reducing their assets risk (Calomiris and Mason, 2000). A study of comparative analysis bank failures and fundamental by (Arena, 2005) also used bank size as a measure of total assets as a bank-level fundamental and found that foreign banks are perceived as more stables and safer than domestic banks, because they may be able to resort to upstream financing from the mother institutions, which could contribute to stabilize the supply of credit, in particular during bad times, and they behave a much more stable deposits base. She found that no big bank in term of size failed in the banking crises in East Asia and Latin America during the nineties. As such, banks with smallest assets and lowest capital leverage ratio are most affected by financial distress. Hence, it indicate that P-SIZE as important dimensions of bank activity and as a proxy for too big to fail where a large banks may be less likely to fail, given the expected relative advantage of large banks of diversifying risk taking .The log of bank assets, which represents the size of bank, is almost similar on average, for distress bank and for non distress banks throughout the sample period. Therefore, we expect that large banks may be less likely to fail, given the expected relative advantage of large banks, such as, in raising new capital, alleviating illiquidity, and diversifying risk. For example, commercial banks with higher levels of assets would be in a more secure financial position, even if they have the same high level of non-performance loan.

The second highest score mean and significant variable is LIQ (liquid asset minus liquid liabilities to total shareholder's fund) which indicates that finance companies are not exposed into high fractions of liquid assets and exposure to liquidity risk is high and will increase the probability of distress. The finance companies LLP/NPL (Loan loss provision to Non-performing loans) represent of ratio loan loss provision and mostly been allocated to non-performing loans. Therefore a higher ratio of LLP/NPL in particular is associated with a higher probability of distress. The LOANCON indicates loan concentration, real estate, construction, purchase of securities, credit consumption and purchase of landed property) to total loans. The LOANCON results are associated with a higher probability of distress, that real estate loans were quite risky. The study suggests that credit risk was a problem in the finance companies.

The LLP/NPL (loan loss provision to Non-performing loans) considered a traditional proxy to measure of assets quality. LLP/NPL is expected to be positively related to risk of bank distress as such a higher means of ratio non-performing loan to total asset also have a positive impact on bank distress. The study, estimate that loans were classified as a bad loans only if they had been in arrears for six month or more, and banks would frequently restructure such loans to reduce the size of reported portfolio problems (Lindgren et al.1999) and (Arena, 2005), (Ahmad, 2003).

The result in (Table 1.6) indicates that the logit models are highly significant and the model shows a good predictive power and able to correctly predict 98.9% of the distress commercial bank and 44.4% of the non-distress commercial bank in the sample. Overall the model could predict 94.9 of the sample.

TABLE 1.6: CLASSIFICATION TABLE (THE CUT –OFF IS 0.05) COMMERCIAL BANK

	Observed	Predicted		Percentage Correct (%)
		Non distress	Distress	
Step 3	Non distress	70	1	98.6
	Distress	5	4	44.4
	Overall Percentage			92.5

TABLE 1.7: CLASSIFICATION TABLE (THE CUT –OFF IS 0.05) FINANCE COMPANIES

	Observed	Predicted		Percentage Correct (%)
		Non distress	Distress	
Step 7	Non distress	33	2	94.3
	Distress	2	42	95.5
	Overall Percentage			94.9

Table 1.7 indicates the model is able to correctly predict 95.5% of distress finance companies and 94.3% of the non-distress companies in the sample. Overall the model could correctly predict 94.9 of the sample. Note that table 1.6 and Table 1.7 are based on the observations of commercial bank and finance companies for the period (1988 to 1999). The total number of institutions in the model did not match with the number mentioned earlier. For example, we studied 35 finance companies and 30 commercial bank, but modeled 81 and 85 commercial bank. Both finance companies and commercial bank were consolidated and merged and eventually prior to merging there were 81 of (FC) and 80 (CB)

## Conclusions

This study provides a test of distress prediction models in Malaysia. The result indicates that finance companies which are smaller size in assets are more distress than commercial bank that is considered larger-sized. The results are contrary to the finding studied by (Bongini, 2000) on the sample of financial intermediaries in Korea where, the percentage of distressed institution was smaller among smaller-sized than the larger-sized institutions.

The results support the hypothesis that the “Too –Big-to- Fail” Doctrine applied by the central bank in Malaysia when they believe that some event will result in severe economic distress. As such, the adopted of a doctrine too-big-to-fail was successfully safeguards the big banks from distress. Specifically, estimating a logit model proves that the probability of distress is systematically smaller for the institutions that have larger-sizes in assets. As a result, those institutions that have larger-sized in assets stands a better chance to survive in the financial intermediaries. It is proved that smaller institutions find it harder to compensate a deposit drain by promptly collecting funds in the wholesaler financial market. In the event of systemic crisis, smaller-sized financial institutions are more likely to experience liquidity problem and to be unable to solve problem either in the market or with the help of the authorities. These findings are consistent with (Kasyap and Stein, 1997) which provide that monetary restriction hurt smaller banks more than larger one.

All in all, the finding indicate that the internal factors contributing the most factors to bank distress and finds that the macroeconomic variables does not explain the likelihood of distress. Changing in bank specific factors is found to add to bank distress of both commercial banks and finance companies. Thus, the bank-level fundamental is significantly affected the likelihood of bank distress. The study supports the view that the distress banks in the systematic banking crisis fundamental weakness in their assets quality, liquidity and capital structures prior to the on set of the crises.

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## Appendix

### Variables and definitions

Variables	Definition
<b>Market Risk:</b>	
CA	Ratio of total shareholder’s fund to total assets
LFLOANS	Ratio of loans deposit and placement with financial institutions to total loans
<b>Credit risk/ default risk:</b>	
LAS	Ratio of gross loans to total assets
INTCO	Ratio of interest income to interest expense
EARNINGS	Ratio of interest income to earning asset minus interest expense on interest bearing liabilities
<b>Liquidity risk:</b>	
DEPPUB	Ratio of deposits from the customer (public) to total assets
DEPIB	Ratio of deposits and placement of bank and other financial institutions to total assets (inter-bank deposits)
DINTDEP	Ratio of interest expenses to total deposits
DLFA	Ratio of liquid funds (cash and short term) to total assets
<b>Macroeconomic variables:</b>	
CPI	Yearly quarter percentage change in the consumer price index
INTRS	Short-term real interest rate
<b>Other bank variables</b>	
PSIZE	Logarithm of total assets
POPA	Ratio of total operating profit to total assets
PIDI	Ratio of interest expense on deposits to total operating income
PTOI	Ratio of total interest income to total operating income
PMGT	Ratio of earning assets to total assets
RREM	Ratio of total director remuneration to total assets
<b>Structural variables:</b>	
(Banking sector)	
BTLGDP	Ratio of total banking system loans to total GDP
NIITL	Ratio of net interest income to total loan

IMPLICIT	Non interest expense minus non interest revenue to earning assets
LIQ	liquid asset minus liquid liabilities to total shareholder's fund
LOANCON	Ratio of loan concentration (real estate, construction, purchase of securities, credit consumption and purchase of landed property) to total loans
NPLDPTL	Non- performing loans to ratio of deposits to total loans
LLP/NPL	Loan loss provision to Non-performing loans
LLP+EQUITY/NPL	Loan loss provision and Equity to Non-performing loans

<b>Financial Institutions</b>	<b>Distress</b>	<b>Non Distress</b>
<b>Commercial Bank</b>	Bank Bumiputra Malaysia Bhd	Arab-Malaysian Bank Bhd (Security Pacific Asian Bank Limited before 1994)
	Bank of Commerce (M) Bhd (merged with United Asian Bank Bhd (UAB) in 1991)	Ban Hin Lee Bank Bhd
	Bank Buruh (before 1995)	Bank Utama (M) Bhd
	Kong Ming Bank (before 1992)	BSN Commercial Bank Malaysia Bhd (Bank Buruh before 1995)
	MUI Bank (before 1994)	EON Bank Bhd (Kong Ming Bank before 1992)
	RHB Bank Bhd (Kwong Yik Bank & DCB Bank before 1997)	Hock Hua Bank Bhd
	Sime Bank Bhd (United Malayan Banking Corp Bhd before 1998)	Hong Leong Bank Bhd (MUI Bank before 1994)
	United Malayan Banking Corp Bhd (UMBC) (before 1998)	International Bank (M) Bhd (Hock Hua Bank (Sabah) before 2006)
		Hock Hua Bank (Sabah) (before 1997)
		Malayan Banking Bhd
		Multi-Purpose Bank Bhd (Malaysian French Bank before 1996)
		Oriental Bank Bhd
		Perwira Affin Bank Bhd
		PhileoAllied Bank (M) Bhd (United Overseas Bank Limited before 1994 & AlliedBank before 1997)
		Public Bank Bhd
		Kwong Yik Bank (before 1997)
	DCB Bank (before 1997)	

		Sabah Bank Bhd
		Southern Bank Bhd
		The Pacific Bank Bhd
		Wah Tat Bank Bhd
		Bank Islam Malaysia Bhd
<b>Finance Companies</b>	BBMB Kewangan Bhd	EON Finance Bhd (Kong Ming Finance)
	Kong Ming Finance	Perdana Finance Bhd (Pertama Malaysia Finance)
	Mayban Finance Bhd	Advance Finance Bhd (East Malaysia Finance)
	Oriental Finance Bhd (Malaysian International Finance Bhd)	Affin Finance Bhd
	Pertama Malaysia Finance	Bolton Finance Bhd
	Public Finance Bhd	BSN Finance Bhd (Kewangan KGN)
	Sime Finance Bhd (UMBC Finance)	Delta Finance Bhd (Delta Finance Company)
	UMBC Finance	Delta Finance Comp
	East Malaysia Finance	Interfinance Bhd
	Malaysia Credit Finance	Sabah Finance Bhd
	Arab-Malaysian Finance Bhd	Kwong Yik Finance Berhad
	Asia Commercial Finance (M) Bhd	Southern Finance Company Berhad
	Kewangan KGN	
	Cempaka Finance Bhd	
	City Finance Bhd	
	Credit Corporation (M) Bhd	
	Hong Leong Finance Bhd	
	Kewangan Bersatu Bhd (Kewangan Usaha Bersatu Bhd)	
	Kewangan Usaha Bersatu Bhd	
	MBf Finance Bhd	

	Perkasa Finance Bhd (KCB Finance Bhd)	
	United Merchant Finance Bhd (MUI Finance)	
	MUI Finance	
	Multi Purpose Finance Berhad (add share premium)	

Note: measurement of distress using Jagtiani, J., Kalori, C. Lemieux, and H. Shin. (2003) formula  $> 5\%$  non distress and  $< 5\%$  distress

## Studies in the Characteristics of Volatility in China's Stock Market

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### Abstract

This paper mainly focused on the effect that China's entry into WTO had on the volatility of the yield in China's stock market. China entered into the WTO on December 11, 2001 and we divided the time series into two periods—before and after the day. AR-EGARCH-M model was used to test the two periods and some meaningful conclusions were drawn from the analysis. Some conclusions we got were that (1) the speculation was decreasing and investors were becoming more and more rational; (2) China's stock market possessed the characteristic of 'Policy Market', but the effect was diminishing; (3) similar to developed country's stock market, the volatility in China's stock market also showed the characteristics of asymmetry and longer persistence.

### Introduction

Volatility of yield plays a very important role not only in the theory of finance but also in the actual practices. The volatility of underlying asset is used in the process of option pricing. And volatility is supposed to be constant in the Black-Scholes option pricing model. However, Mandelbrot (1963) found that "large changes tend to be followed by large changes, of either sign, and small changes tend to be followed by small changes." This phenomenon is called volatility clustering<sup>1</sup>. To capture volatility clustering phenomenon and break through the constraint of constant volatility assumption, Engel (1982) set up Autoregressive Conditional Heteroskedasticity (ARCH) Model. From then on, Bollerslev (1986) and Nelson (1991) brought forward GARCH and EGARCH model and other ARCH models were also introduced. Since then, the study and application of volatility have flourished all over the world.

Watanabe (2003) compared GARCH model, GJR model and EGARCH model's ability in option pricing under different distributions and different risk hypotheses. Meanwhile, Watanabe also empirically tested the models with Nikkei 225 index and option price based on Nikkei 225 index. Watanabe and Sasaki (2006) used ARCH models and ARFIMAX model to make forecast of volatility and test the describing ability of VaR model. Engle and Mustafa (1992), Sabbatini and Linton (1998) and Duan and Zhang (2001) used ARCH models to price options.

There are many literatures on China's stock market volatility. Chen Langnan and Huang Jiekun (2002) applied GJR-M model to test the effect of asymmetry of volatility on China's stock market with different fluctuating periods divided by ICSS rule. The data they used were daily Shenzhen Component Index from January 3, 1993 to October 28, 2001. Wang Yuyong and Pan Hongyu (2003) compared the ARCH models' ability on capturing the characteristics of volatility.

Compared with other studies, this paper contributes to the volatility literature in the following aspects.

First, existed literatures are wild about comparing different country's volatility, comparing different model's ability on capturing volatility and the application of VaR model or option pricing. This paper supports the opinion that due to the changes of emerging market's system arrangement, models based on sub-samples should be introduced separately (Chen Langnan and Huang Jiekun, 2000). From this viewpoint, this paper divided the time series into two periods—before and after December 11, 2001, the day on which China entered into the WTO. Volatility models are introduced to test the changes between the two periods.

Second, when existed literatures introduce volatility models, the process of choosing lag length is subjective. As we know, the posteffects from omitted variable are more serious than the ones from redundant variable. Therefore, as to autoregressive model, the choice of lag length should be careful. Otherwise, parameters



estimated will not obtain the characteristics of unbiasedness and consistency. Up to now, there is no accurate procedure to choose the lag length of ARCH models. However, this paper employ more precise methods to choose the lag length.

The arrangements of the rest of the paper are as follows. Section II will describe the variables and the data utilized in this study, the statistic characteristics of yield series and the result of unit root test. Section III describes the Models utilized in this paper and the methods used to choose lag length. Section IV presents the empirical results. Finally, Section V of the paper concludes with a discussion about the possible explanations of the findings.

## Data

### Data and Descriptive Statistics

In this paper, we choose the data of Shanghai Securities Exchange Composite Index (henceforth SH) and Shenzhen Securities Exchange Composite Index (henceforth SZ) as sample data. Securities Law of the People's Republic of China was implemented as of January 1, 1999. The promulgation of the Securities Law indicated China's securities market was becoming mature. Therefore, the testing period is from July 1, 1999 to December 11, 2006. The number of the observations from the sample is 1793 in total. To illustrate different performance of the stock market before and after China's entry into WTO, the sample was divided into two sub-samples, from July 1, 1999 to December 10, 2001 and December 11, 2001 to December 10, 2006. The Data used in this paper come from Bloomberg.

$R_t$  is the daily return of stock index, and the formula of  $R_t$  is  $R_t = [\ln(P_t) - \ln(P_{t-1})] \times 100\%$ , where  $P_t$  is the closed price at  $t$  and  $P_{t-1}$  the closed price at  $t-1$ . To catch the basic characteristics of daily yield series, we conduct descriptive analysis on  $R_t$  series in Shanghai and Shenzhen Securities Exchange. The result is shown in Table 1.

As shown in Table 1, both of the two series' kurtosis values are above 3. This indicates that the yield series possesses the characteristic of excess kurtosis. In addition, the mean values of SH and SZ' yield series are distinctly different with zero under 10% significant level. The paper carries out Lagrange multiplier test (LM test) on mean equations (Equation (1) in the 3rd section) in different periods. The result shows that LM(q) (q=1,2,3...7) of series SH and SZ are significant at 1% level of significance except that LM(q) of series SH in the 2nd period is significant at 5% level of significance. This also indicates that the yield series of Shanghai and Shenzhen securities market have high order ARCH effect. The value of LM(7) is also shown in the table.

TABLE 1: STATISTIC OF SHANGHAI AND SHENZHEN COMPONENT INDEX YIELD SERIES

	SH			SZ		
	Whole Periods	Period I	Period II	Whole Periods	Period I	Period II
Mean	0.0164	0.0193	0.0159	0.0027	0.0148	-0.0023
S. E.	1.3691	1.4311	1.3385	1.4461	1.4850	1.4274
Skewness	0.6598	0.7590	0.5973	0.4073	0.5820	0.3086
Kurtosis	8.2672	9.8271	7.2171	7.3985	8.9585	6.4863
LM ( 7 )	43.382*	14.533**	40.025*	70.761*	20.349*	68.732*
Observations	1792	588	1203	1792	588	1203

NOTES: \* and \*\* denote the null hypothesis that ARCH effect is not existed at 1% and 5% significant level, respectively.

### Unit Root Test

In describing real economic activities, variables such as stock index are showing characteristics of time series. If regressions are performed with these variables directly, it is easy to fall in the trap of "pseudo-regression". Therefore, we perform Augmented Dickey-Fuller test to examine the stationarity of the series.

The Table 2 exhibits the results of unit root test on series SH and SZ. As shown in Table 2, we do not reject the null hypothesis that the two series have unit roots. The result from the test indicates that series SH and SZ are nonstationary. On the contrast, the null hypothesis is rejected. The rejection indicates that the yield series are stationary. From the test, we find that series SH and SZ are integrated of order one, I(1). Therefore, these variable's yield series can be used in volatility model directly.

TABLE 2: UNIT ROOT TEST OF SERIES SH, SZ, □SH AND □SZ

Variable		Constant			Constant and Trend		
		Lag	ADF stat	P-Value	Lag	ADF stat	P-Value
SH	Whole Periods	0	-1.1689	0.6899	0	-0.7989	0.9643
	Period I	0	-1.5552	0.5049	0	-1.1837	0.9120
	Period II	0	-0.7872	0.8219	0	-0.2122	0.9928
SZ	Whole Periods	1	-1.2605	0.6498	1	-1.0644	0.9331
	Period I	0	-1.4505	0.5581	0	-0.9827	0.9442
	Period II	0	-1.3882	0.5894	0	-0.3956	0.9877
□SH	Whole Periods	0	-41.555*	0.0000	0	-41.566*	0.0000
	Period I	0	-24.010*	0.0000	0	-24.018*	0.0000
	Period II	0	-33.853*	0.0000	0	-33.958*	0.0000
□SZ	Whole Periods	0	-40.889*	0.0000	0	-40.890*	0.0000
	Period I	0	-24.060*	0.0000	0	-24.077*	0.0000
	Period II	0	-33.006*	0.0000	0	-33.086*	0.0000

NOTES: \*, \*\* and \*\*\* denote 1%, 5% and 10%, respectively.

## Methodology

### Volatility Model

EGARCH model introduced by Nelson (1991) is one of the best tools to describe the asymmetry of volatility. In addition, to capture the tradeoff relationship between yield and risk in China's stock market, the variable of conditional standard error is introduced into mean equations (Engle, Lilien and Robins (1987)). Finally, AR (k)-EGARCH (p, q)-M is introduced as follows:

$$R_t = c + \sum_{h=1}^k j_h R_{t-h} + \sum_{l=1}^4 \delta_l D_l + \varphi \sigma_{t-1} + \varepsilon_t \quad (1)$$

$$\varepsilon_t = \sigma_t z_t, \quad \sigma_t > 0, \quad z_t \sim i.i.d., \quad E(z_t) = 0, \quad Var(z_t) = 1 \quad (2)$$

$$\ln(\sigma_t^2) = \omega + \sum_{i=1}^p \beta_i \ln(\sigma_{t-i}^2) + \sum_{j=1}^q \alpha_j \left[ \theta z_{t-j} + \gamma (|z_{t-j}| - E(|z_{t-j}|)) \right] \quad (3)$$

Equation (1) is mean equation.  $R_t$  denotes daily yield of stock index in the two stock markets.  $\sigma_{t-1}$  denotes conditional standard error at  $t-1$ .  $D_l$  denotes Dummy variable of  $l$  in a week. For example, when  $l$  equals 3 and if the yield observed is Wednesday's, then  $D_3=1$ ; otherwise,  $D_3=0$ . Dummy variable is introduced into the model to get rid of the problems originated by day-of-the-week effect. Feng Lichen (2000) studied day-of-the-week effect in China's stock market. Daily data of Shanghai Composite Index and Shenzhen Component Index are utilized in the analysis. The analysis found that there was significant minus 'Tuesday effect' and significant positive 'Friday effect' in Shanghai stock market<sup>3</sup>. Day-of-the-week<sup>2</sup> effect may result in serious autocorrelation. The dummy variable introduced into the model can effectively reduce residuals' correlation.

$\phi$  denotes the tradeoff relationship between yield and risk. In another word,  $\phi$  denotes investor's relative risk aversion. If investors are risk averters, then there is positive correlation between risk premium and conditional variance.

Equation (3) is EGARCH model introduced by Nelson (1991). The existence of the item  $E(|z_{t-j}|)$  on the righthand side of the equation depends on different distribution of  $z_t$ . If  $z_t$  follows normal distribution, then  $E(|z_{t-j}|)$  equals  $\sqrt{2/\pi}$ . Because  $z_t$  in equation (2) is supposed to follow normal distribution, equation (3) can be transformed to the following one:

$$\ln(\sigma_t^2) = \omega + \sum_{i=1}^p \beta_i \ln(\sigma_{t-i}^2) + \sum_{j=1}^q (\alpha_j |z_{t-j}| + \gamma_j z_{t-j}) \quad (4)$$

Where  $z_{t-j}$  is standardized variable, i.e.,  $z_{t-j} = \varepsilon_{t-j} / \sigma_{t-i}$ . Good news ( $z_{t-1} > 0$ ) and bad news' ( $z_{t-1} < 0$ ) effects on stock market are asymmetry. Parameter  $\gamma$  in the model reflects the effect of the asymmetry. When  $\gamma = 0$ , good news and bad news' effect on stock market is symmetry; when  $\gamma > 0$ , good news' effects on stock market is bigger than bad news'; when  $\gamma < 0$ , bad news' effects on stock market is bigger than good news'. The existing literature found most of  $\gamma$  was minus, i.e. bad news' effect on stock market was bigger than good news'.

In EGARCH model,  $\beta$  measures the effects shocks made on the persistence of volatility.  $E(\ln(\sigma_t^2) | I_{t-1})$  is the conditional mean of  $\ln(\sigma_t^2)$  based on the information set  $I_{t-1}$ :

$$E(\ln(\sigma_t^2) | I_{t-1}) = \omega + \beta \ln(\sigma_{t-1}^2) \quad (5)$$

When this indicator is approximate to 1, it means stock market has very high persistence. In another word, if stock yield is shocked and fluctuates abnormally, it's hard to get rid of the fluctuation.

#### Methods to Choose Lag Length of EGARCH Model

Up to now, there is no accurate procedure to choose the lag length of ARCH models. The following methods are used to choose the lag length of AR ( $k$ )-EGARCH ( $p, q$ ) model.

First, AR ( $k$ ) model is estimated and from lag length 1 to 17, the length of the model  $k^*$  is the one making the value of SC minimized.

Second, AR ( $k$ )-EGARCH ( $p, q$ ) model is examined with ( $p, q$ ) equals (1,1), (1,2), (2,1) and (2,1) respectively and the one making the value of SC minimized is chosen as the length of the model, ( $p^*, q^*$ ).

Third, Ljung-Box test is performed on the standardized residuals and the square of standardized residuals got from AR ( $k^*$ )-EGARCH ( $p^*, q^*$ ) model. If the standardized residuals and the square of standardized residuals are not rejected, then  $k^*, p^*, q^*$  are affirmed. No matter which one of the standardized residuals and the square of standardized residuals is rejected, test in second step will be continued with lag length  $k^* + 1$  until none of them is rejected and  $k^*, p^*, q^*$  are affirmed.

## Empirical Results

According to the methods mentioned in the previous section, we compare different lag length with each other and get the proper one,  $k^*, p^*, q^*$ . The result is shown in Table 3. Based on the result, the paper uses maximum likelihood estimation method to estimate parameters in EGARCH model<sup>4</sup> and detailed results are shown in Table 4. The terms  $Q(20)$  and  $Q^2(20)$  denote the statistic of the standardized residuals and the square of standardized residuals at lag length 20, respectively. For each  $m$  equals 1, 2 ... and 20, series  $Q(m)$  and  $Q^2(m)$  can not reject null hypothesis at 5% significant level. Therefore, there is no autocorrelation in residual series and the lag length of AR-EGARCH-M model in this paper is proper<sup>5</sup>. Ljung-Box statistic only at lag length 20 is shown in the table.

TABLE 3: ESTIMATED SC OF EGARCH MODLES

Period	$k$	SH ( $p, q$ )				$k$	SZ ( $p, q$ )			
		(1,1)	(1,2)	(2,1)	(2,2)		(1,1)	(1,2)	(2,1)	(2,2)
Whole Periods	1	3.3578	3.3637	3.3599	3.3654	1	3.4471	3.4549	3.4509	3.4571
Period I	3	3.4180	3.4388	3.4281	3.3371	3	3.4742	3.4936	3.4833	3.5048
Period II	1	3.3774	3.3767	3.3755	3.3724	1	3.4811	3.4881	3.4844	3.4891

TABLE 4: ESTIMATED PARAMETERS OF EGARCH-M MODEL

Coefficients	SH			SZ		
	Whole Periods	Period I	Period II	Whole Periods	Period I	Period II
$\phi$	0.1542*** [0.0813]	0.0007 [0.1066]	0.2411*** [0.1257]	0.1714** [0.0749]	0.0529 [0.1062]	0.2820** [0.1182]
$\omega$	-0.1511* [0.0155]	-0.4355* [0.0818]	-0.2684* [0.0397]	-0.1522* [0.0150]	-0.2073* [0.0348]	-0.1330* [0.0184]
$\beta_1$	0.9580* [0.0070]	-0.0362* [0.0010]	0.0151 [0.0299]	0.9617* [0.0066]	0.9553* [0.0107]	0.9645* [0.0110]
$\beta_2$		0.9157* [0.0168]	0.9106* [0.0300]			
$\alpha_1$	0.2315* [0.0221]	0.4172* [0.0559]	0.1123* [0.0355]	0.2320* [0.0210]	0.3087* [0.0482]	0.2031* [0.0273]
$\gamma_1$	-0.0468* [0.0106]	-0.0644* [0.0253]	-0.0159 [0.0192]	-0.0414* [0.0100]	-0.0548* [0.0195]	-0.0282** [0.0138]
$\alpha_2$		0.1908* [0.0583]	0.2934* [0.0398]			
$\gamma_2$		-0.1451* [0.0263]	-0.0330 [0.0211]			
$Q(20)$	24.923	27.139	23.773	22.062	26.503	18.574
$Q^2(20)$	9.3238	21.346	22.535	10.145	10.501	21.342

NOTES: 1) \*, \*\* and \*\*\* denote 1%, 5% and 10%, respectively.

2) Standard errors are in [ ].

Parameter  $\phi$  denotes the tradeoff relationship between yield and risk, i.e. risk premium of yield. In theory, if stock market follows the characteristic of risk and return based on the assumption that investors are rational, then  $\phi$  is significant positive. Parameter  $\phi$  of first period in Shanghai and Shenzhen stock market does not pass the significant test and the value is very small. This indicates there is no risk premium in the stock market<sup>6</sup>. This result is conflicted with the theory of risk premium that when most of investors are irrational, speculative preference is bigger than investment preference. In the second periods, parameter  $\phi$  in Shanghai and Shenzhen stock market is significant under 10% and 5% significant level and parameter statistics are 0.2411 and 0.2820. This phenomenon indicates the development of China's stock market, decreasing speculative preference and more and more rational investors. In addition, risk premium in Shenzhen stock market is obviously higher than the one in Shanghai stock market. This means risk in Shenzhen stock market is bigger than the one in Shanghai stock market and investors ask for higher risk premium.

$\beta < 1$  is both necessary and sufficient condition that GARCH process is weak stationary. As Table 4 shown, the values of  $\beta$  in both periods are less than one and the models are weak stationary. The result shows that both Shanghai and Shenzhen stock market obtain the characteristic of persistence and the one in Shanghai stock market is longer than the one in Shenzhen stock market. Many empirical studies on developed countries' stock markets show that, commonly speaking, the indicator  $\beta$  of yield series is very close to 1<sup>7</sup>. Though there is gap

between the value of  $\beta$  and 1 in Shanghai stock market, the value of  $\beta$  is increasing from 0.8795 in the first period to 0.9106 in the second period. The phenomenon also happens in Shenzhen stock market and the value of  $\beta$  is increasing from 0.9553 to 0.9645. On the other side, it also witnesses the process that China's stock market is integrating with the world market.

Many empirical studies shows that asymmetry of volatility exists in both mature stock market and emerging stock market<sup>8</sup>. Meanwhile, under the same conditions, good news' effect on stock market is bigger than bad news' effect<sup>9</sup>. As the empirical result shown, all parameter  $\gamma_i$  are significant at 5% level except SH's  $\gamma$  in the second period. At the same time, all parameter  $\gamma$  are minus in both markets and both periods. This indicates that asymmetry of volatility is existed in both Shanghai and Shenzhen stock market and bad news will lead to much more violent fluctuation than good news. This result agrees with other research. The range of asymmetry in Shanghai and Shenzhen stock market are same with each other. Parameter  $\gamma$  in Shanghai and Shenzhen stock market are -0.0468 and -0.0414 in the whole sample at 1% significant level.

Graph 1 illustrates the changes of volatility<sup>10</sup>. The arrows in the graph indicate that there are slowly damped right tails, which means the persistence of volatility. Shocked volatility fluctuates much more violently than general level. As interesting phenomenon observed, volatility of China's stock market made fierce respond to policy shock. For example, on October 22, 2001, state stock reduction policy in IPO and increase issues in stocks was paused. On June 24, 2002, state stock reduction in stock market is stopped. On September 13, 2004, Some Opinions of the State Council on Promoting the Reform, Opening and Steady Growth of Capital Markets was brought forward. On May 18, 2006, Regulations Concerning Administration of Initial Public Offerings and Listings of Shares was implemented and IPO was restarted. All of these policies led to fierce fluctuation in stock market. Therefore, the characteristic of 'policy market' can not be ignored in China's stock market. However, the effect of the shock on Shanghai and Shenzhen stock markets is decreasing. Table 5 shows that the statistics of volatility, such as mean, maximum and standard error, are decreasing after China's entry of the WTO. This indicates China's stock market is perfecting itself.

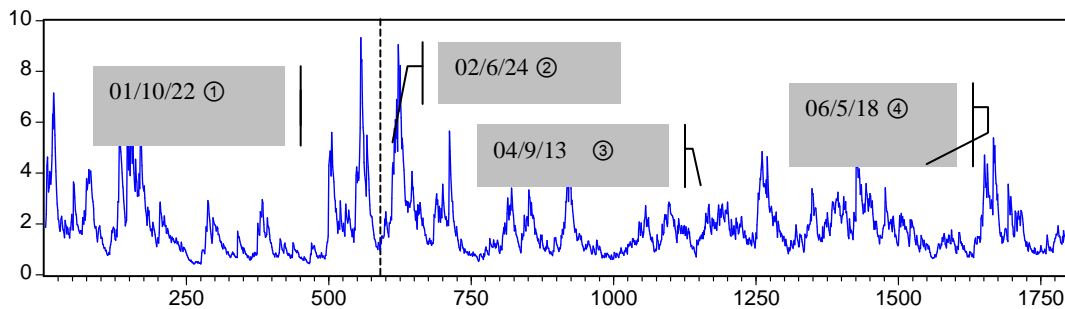


FIG.1: VOLATILITY OF SHANGHAI STOCK MARKET (JULY 1, 1999-OCTOBER 8, 2006)

NOTES:

- STATE STOCK REDUCTION
- STOP REDUCING STATE STOCK
- SOME OPINIONS OF THE STATE COUNCIL ON PROMOTING THE REFORM, OPENING AND STEADY GROWTH OF CAPITAL MARKETS
- RESTART IPO

TABLE 5: STATISTICS OF VOLATILITY IN SHANGHAI AND SHENZHEN STOCK MARKET

	SH			SZ		
	Whole Periods	Period I	Period II	Whole Periods	Period I	Period II
Mean	1.8590	1.8058	1.7962	2.0612	2.1438	2.0146
Maximum	9.3311	13.762	8.9253	10.681	11.448	9.5710
Minimum	0.4255	0.2492	0.4585	0.4200	0.3319	0.6165
S.E.	1.1260	1.6116	1.0406	1.3122	1.7635	1.1057

## Conclusions and Suggestions

AR-EGARCH-M model is utilized to test the characteristics of the volatility of the yield in China's stock market. Some meaningful conclusions we get are summerized as follows. (1) From the theory of risk premium's viewpoint, it shows that the speculation was decreasing and investors were becoming more and more rational; (2) China's stock market possesses the characteristic of 'Policy Market', but the effect is diminishing; (3) Similar to developed country's stock market, the volatility in China's stock market also exhibits the characteristics of asymmetry and quite longer persistence.

Since Shanghai Securities Exchange and Shenzhen Securities Exchange established in 1992, China's stock market has made tremendous progresses in the last decade. However, compared with developed countries' mature stock markets, there is still a big gap in trading system, investor's structure, quality of listed companies and the system of information disclosure, and so on. Besides, China's stock market has to face abstrusive problems, such as equity division reform, market opening-up and the combination of A share market and B share market. There is still a long way to promote China's stock market reform. In spite of these problems, based on the empirical test, this paper finds that Shanghai and Shenzhen stock market are experiencing fast development. The component of speculation is decreasing and investors' behavior is becoming more rational. The reform of China's stock market makes progress. Now, the reform needs to be continued on deepening the understanding of the stock market's development and providing the outer circumstance and policy supporting measures, such as training institutional investors, standardizing listed companies and perfecting rules of law.

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Contact authors for the full list of references

### End Notes

To see the reason of volatility clustering, referring to Granger and Machina (2006).

<sup>2</sup>A day-of-the-week effect for a particular type of security exists if (1) the returns for that type of security are greater on some days of the week than others (a trading day effect), or (2) the returns on that security over a trading period are not proportional to the number of calendar days affected (a calendar day effect). Because returns for a given day are traditionally measured from the close of the previous trading day, Monday's returns would be computed from Friday's close to Monday's close, a period that includes three calendar days.

<sup>3</sup> Many literatures support the opinion that the-day-of-the-week effect is existed in China's stock market, such as Xue Jirui, Gu Lan (2000) and Chen, Kowk and Rui (2001).

<sup>4</sup> GARCH models' other estimated methods includes minimum distance and Markov Chain Monte Carlo (MCMC).

<sup>5</sup> To improve the accuracy and reliability, we performed LM test. At 10% significant level, all series do not reject the hypothesis that there is ARCH effect, i.e., ARCH effect is got rid of.

<sup>6</sup> Wang Yurong and Pan Hongyu (2003) performed EGARCH-M test on closing price of Shanghai Composite Index from May 21, 1991 to May 14, 2002 and the result they got was similar to this paper's opinion. The result indicated that there was no significant tradeoff relationship between risk and return in Shanghai stock market.

<sup>7</sup> Many existed literatures support the opinion, such as Bollerslev, Chou and Kroner (1992), Watanabe (2003) and so on.

<sup>8</sup> Referring to Crouhy and Rockinger (1997), Watanabe (2003), and so on.

<sup>9</sup> To see the reason of volatility's asymmetry, referring to Campbell and Hentschel (1992). They thought leverage effect or feedback effect could explain the phenomenon.

<sup>10</sup> Because trends of the volatility in Shanghai and Shenzhen stock markets are similar, Shanghai stock market's volatility trend is provided here.

# **Integrating Asian Polycontextual Assumptions to the Contemporary Managerial Frames: Trends and Transitions**

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## **Abstract**

Globalization is changing the managerial architecture in corporations around the world. The dynamics of this change process has made it necessary for an urgent reexamination of the dominant concepts and practices of management around the world. Most significant contribution of this process may be the rise of a large number of new multinationals from India and China. While U.S., European and Japanese multinationals tended to spread managerial cultures with their unique administrative heritages, companies around the world harmonized upwards in drawing lessons from them in terms of better working practices, managerial visions, ethics and social and environmental responsibilities. The formidable array of skills of contemporary managerial frames in areas of market-related strategies, knowledge intensive work performance, innovation and enterprise may not be sufficient as emerging country multinationals begin to dominate the global scene. It is difficult to dispute that most of the global management knowledge today is dominated by European and North – American (ENA) business schools, scholars and practitioners.

## **Introduction**

This dominance is evidenced through university course curriculums, executive education programs, textbooks and the authors and their affiliations in leading scholarly management journals. It has been argued that about 100% of the leading management journals are published in ENA countries where acknowledgements of non ENA scholars are so rare. Management journals based in Asia may have significantly higher readership but are not recognized as top – tier scholarly outlets and therefore publication in such journals do not lead to support and recognition by the national funding bodies as well as university promotion systems in ENA countries. Most of the research in Asia, Latin America and Africa need to be indigenously contexted in order to be of value. In spite of their unique contributions they rarely draw the attention of the dominant managerial frames. As has been pointed out, “American – based research on organizations, especially research on behavior within them, has been largely U.S. domestic focused” (Porter, 1996. p262). Rigour is defined in terms of the use of quantitative methods and exploration of those variables that are easily quantifiable. The key point of this dominance of the margin is evident in the limitation of influence that research has in the global context. The essential distinction between *analytical* rigor and *descriptive* rigor is of particular relevance in the context of global domain.

Given the western domination in contemporary managerial paradigms, it is surprising that except for culturally contexted formulations on Japanese management, other Asian locations have yet to add value to the contemporary management knowledge. The stream of research on culture using the national context as an independent variable however uses the same theories and similar empirical measures and the area of comparative and international management are overused in simple replications of existing Western Theories. The central underpinning of ‘man’ from the perspective of needs, utilities, satisfaction and preferences leads to a world of ‘managerial hegemony’ with the legitimization of power of managers through the creation and perpetuation of culture, authority patterns, structure, strategies and processes. The question that needs a voice in challenging this domination is: Is the positivistic and scientific method relevant to the study of management from a global perspective?

### **Roots of Western Managerial Assumption**



The first victory of modern management method was signaled by Frederic Winslow Taylor in 1899 with his well known "Pig iron question". The successful raising of individual worker productivity to 45.75 tons of pig iron from 12.5 tons at a wage of \$1.85 per day at the Bethlehem Steel Company heralded the birth of contemporary management. Taylor was hailed as the hero of a new cause and management began as a distinct social function performed by a unique breed of men with special intellectual and behavioral levels in getting not so intelligent people to increase their productivity. He contended, "The science of handling pig iron is so great and amounts to so much that it is impossible for the man who is best suited to this type of work to understand the principles of this science, or even to work in accordance with these principles, without the aid of a man better educated than he is" (Stewart, 2006. p81). It is paradoxical that Taylor's scientific management was not based on any science. The forty percent "adjustment" he made to his ideal productivity achieved through his chosen ten Hungarian workers as model performers has never had any "scientific basis". When the study of lifting bars into rail carts was investigated by the US Congress, his defense of these adjustments was the importance of "managerial judgment", not scientific methods. This first victory therefore was not a positive one. "Taylorism, like much of management theory to come, is at its core collection of Quasi – religious dicta on the virtues of being good at what you do, ensconced in protective bubble of parables (otherwise known as case studies)". In spite of this, Taylor's pig iron story captured the imagination of the whole country as he was successful in generating a wide range of followership and acceptance by the U.S. establishment. His regular seminars at Harvard University were critical in the establishment of the famous Management School in 1908.

In his book titled "False Prophets: The Guru's who created Modern Management and why Their Ideas Are Bad for Business Today" Hoopes argue that the popularity of the impactful writer's of Management led more to the legitimization of immoral and anti – democratic practices of management and less to the values inherent in their concepts (Hoopes, 2003). He categorizes these Gurus's into two groups - *one with heart in the right place* (Mary Parker Follett, Edward Demming and Peter Drucker) and *those whose moral authority was questionable* (Frederick Taylor and Elton Mayo).

A popular management technique with global acceptance in recent years is the concept of balanced scorecard. The conceptual foundations of the Balanced Scorecard were built on the Quantitative Measurability of Organizational Performance on four dimensions of customer service, process management, knowledge generation and financial performance. However, the widespread use of the frame is not in accordance with the ideas of Kaplan and Norton. The aim of this management frame lies in the financial results emerging from the organizations dedicated to meeting four goals. But in most companies, the financial measures are now wrongly the input measures serving these goals (Kaplan and Norton, 1992).

The Search for the transforming concepts that energies the passive – obedient Taylorist employees into holistic partners of a human organization dominated the past three decades. Some of the leading proponents seeking such transformation, however, have not argued on the ideological foundations of the managerial practices. The central question of determining the role of 'human beings' in terms of their relationships with organizations cannot be answered through the conceptual masks of one society over the others. It is interesting how the Japanese managerial concepts and practices impacted on the rise of a new and influential genre of managerial writings around the theme of corporate culture. (Burrell & Morgan, 1979, Ouchi, 1981, Pascale & Athos, 1981, Peters and Waterman, 1982, Deal & Kennedy, 1982, Schein, 1985, Senge 1990). Most of the recent best sellers from these genre essentially revolve around the theme of corporate culture with terms like "shared values", "quality circles", "team development" etc. Until the 1960's, the managerial paradigms on meeting production and other performances but this was just an extension of Taylorism softened by a myriad of concepts around the behavior of individuals, groups and teams. The following decade saw the emphasis move away from making products in large volumes to a newer managerial culture where "creativity" and "initiative" of employees were encouraged. There were very few exceptions in these literatures in the conceptualization of the role of human beings in organizational settings. The 'human element' considered in the management literature over the past few decades is not a 'holistic' or 'global' in essence. The concepts mask the implications the "man" is a fragmented and soulless "instrument of profit" for the organization. As has been pointed out, "It is as if we need only call on this person and tell him or her that we earnestly want him or her to embrace the right culture and symbols, to join the team, and become a champion. It is as if there was no need to have a clearer idea of the reasons, events and circumstances that might bring about such a

metamorphosis. Obviously, such clarity can be gained only if we are willing to take the point of view of the employee who is, after all, the “human element” that these theories want to promote. Thus, it is necessary to construct a vision of the person other than that conveyed by the theoretical framework to be overcome” (Aktouf, 1992, p.411).

The dominant Western frames from the Tayloristic directness to the contemporary subtleties ignore the critical challenge of opening up of the managerial practices that ensures an “agricultural mindset” where the nurturing of the employees holistic and powerful energies results in his / her desire to belong and contribute to his / her work life in spite of economic, industrial, legal and other constraints. This is an anti –thesis of the dominant western managerial assumptions that an employee of an organization is “instrumental element” of the production / service generation and delivery. The answer to the narrow economism and the mask of human relations cannot be incremental reframing of this praxis – but in the search for an alternative paradigmatic canvass.

#### **Weakness of the Western Concepts**

Over the past decade, one of the refreshing voices within the dominant western managerial theories has been the intellectually challenging ideals of Sumantra Ghoshal. In his posthumously published paper, “Bad Management Theories Are Destroying Good Management Practices” and other papers he had presented a series of provocative and constructive thinking to challenge managers in building organizations as better places to work for greater good. (Ghoshal, 2005, Birkinshaw and Piramal, 2005). In Ghoshal’s view, most of the contemporary management assumptions and formulations were seriously flawed. He argued that bad theories being articulated by generations of University academics, and management trainers, and popular authors had a profound and damaging impact on managerial practices around the world. This, he argued, had led to the production of dysfunctional organizations with misguided governance systems, misplaced priorities and poor ethical compass. Western managerial ideas have neither served the shareholders nor created meaningful work environment for employees. Societies and economies around the world have suffered because of these bad theories. His critique of the force for good can be understood as, “If a theory assumes that the sun goes round the earth, it does not change what the sun actually does. So, if the theory is wrong, the truth is preserved for discovery by someone else. In contrast, a management theory if it gains sufficient currency – changes the behaviors of managers who start acting in accordance with the theory. A theory that assumes that people can behave opportunistically and draws its conclusions for managing people based on that assumption can induce managerial actions that are likely to enhance opportunistic behavior among people”. (Ghoshal, 2005 p.77)

In a word, Ghoshal was right. He was right in the sense that the dominant theoretical underpinning of the modern managerial frame accepted and popularized by scholars around the world is needs widening and enrichment. As Kanter maintained that it was the ‘demand side’ of the management theory that perpetuated the dominance of the Western Managerial tools and techniques. She suggests that the gloomy picture portrayed by Ghoshal was correct but it was mainly due to the demand for it rather than its supply. She asserts,” These theories corresponded to what looked like the triumph of capitalism over other economic systems. In 1989, Communism collapsed in Eastern Europe with the fall of the Berlin Wall, Asian financial markets deregulated; Latin America was looking for market reforms. Economics seemed to be more important than societies, as the public sector privatized and shrunk. American theories and theorists had disproportionate influence”. (Kanter, 2005, p.94).

Another long standing critic of the dominant U.S. Managerial frames from a very different point of view is an Australian academic, Donaldson, who has been advocating the creative contingency of context relevant realities as the answer to the problem of misguided management theories over a long period of time (Donaldson, 2002). His criticism of the institutional, population ecology, resource dependence, transaction costs and agency theories and the defence of activist managers have often been criticized as pro-capitalistic paradigms. However, the critical point he makes about the lack of relevance of these major theories in diverse contexts still remains instructive. The idea that an organization will perform better when their values, structures and strategies match the contextual imperatives cannot be disputed. His normative views about managerial competencies may not however be widely shared.

Other voices warning on the limitations of contemporary managerial frames are Henry Mintzberg, Charles Handy and Peter Drucker (Mintzberg 2004, Handy 1998, Drucker 1997) who have spent lifetimes in writing about the need for managerial ideals of the industrial society to be able to absorb and respond to post – industrial societies as they cross over to the knowledge and service economies. Handy explored the internal transformations needed at

every level in modern work organizations in his extensive writings. (Handy, 1998). It is clear that correct questions were being asked but somehow the answers have yet to emerge with global relevance. Drucker's ideas were based on family mentor and famous economist Schumpeter and on the minimalist role of Government. He contended that productivity in manufacturing and agriculture had increased fifty fold in the last century and growing still faster but they only employ less than one sixth of the US workforce. The challenge is that over the three fourths of workforce in most countries now are in the service and knowledge sector. However, the productivity and dignity of knowledge and service work still remains very low in the managerial concepts and practices (Beatty, 1988). The creation of a sustained argument about the role and purpose of managers and work organizations in such societies need to be based on a very different assumption about 'man and "essential purpose of economic success". A transformation of the dominant managerial model requires an integration of global perspectives not only in terms of polycontextuality of locations, but also time, institutions, developmental trajectory of societies.

#### **Japanese Case**

Japan is an interesting example of an Eastern Nation that embraced the western technology and market philosophies with considerable uniqueness. The preservation of many indigenous values while allowing the western thinking to sink into their organizational life may provide a new window. Since 1980's, western logical realm subordinating indigenous ethical, spiritual and aesthetics have been more widespread within Japan while its own managerial philosophies and techniques took the west by storm. As has been argued, "Westernization was somewhat like an impact item for Japan in the free marketplace of ideas. The issue may have been conditioned by external circumstances (most notably, the expansion of Western imperialist powers into Asian and the Pacific), but to some extent, at least the Japanese welcomes the imported product". (Kasulis, 1995, p.228).

Japanese experience may be extended to consider the following:

1. A global managerial framework blending the best of the west and the east can become sustainable without destroying the roots and rich indigenous traditions. The trends of western dominance appear to be taking a stronger hold as many companies abandon their life time employment policy to follow western style employment policies. The tradition of building market through extended '*nemawashi*' (social networking) platforms is no longer unquestionably employed.
2. The Asian (and certainly Japanese) philosophical tradition has opposed a 'single monolithic ontology'. The ideas of multiple truths of pluralism have always had a strong base.
3. The Japanese example of accepting science without embracing 'scientism' may provide an example for others. This positions a society away from "excessive order and structure" as well as "brittleness to outside dominance".
4. The interdependence of economic and business relations as globalization takes hold needs to extend to cultural, social, educational and other relations so that the hegemonic dominance of one over the other can be avoided. The idea of '*ordered flexibility*' has been a successful managerial positioning. The idea of maintaining order as well as embrace circumstance allows the 'core' and 'peripheral' identities to find an intelligent network.
5. Man's nature is undeniably social and community orientated and this has been one of the main traditions of Asia. In a private discussion, one of India's most celebrated management innovators Narayana Murthy reflected on the value of family bonding and enriching the workplace through social commitment as the single most feature sustaining Indian organizations (Chatterjee, 2005).
6. Evidence is available to indicate that for Japanese practices to work in overseas conditions, subjective experience, knowledge of the local context and the strategic motivations at every level need to be taken into account much more seriously (Taylor, 1999).
7. Over the past three decades, there has been an overemphasis of research linked to 'keiretsu' in the mainstream ENA research. The US based leading management journals would welcome scholarly papers incorporating any aspect of 'keiretsu' membership as part of their models while ignoring research exploring whether 'keiretsu' actually exist (Lynn, 2006).

#### **Incorporating Pan-Asian Contributions**

In order for the managerial ideas and ideals to have a global relevance, the action – focused and technique orientated modern managerial formulations may benefit by drawing on the reflective and contemplative civilization heritage of Asia. Exploration of the traditional roots of Asian civilization and the diversity in mindscapes for managers and their worlds began with the wider understanding of the Japanese mindscapes three decades ago (Maruyama, 1994).

Discussions on Japanese managerial mindscapes over the past decades and the Chinese traditional influences in recent years can be complemented significantly by a new investigation into the mindscapes shaped by the Indian wisdom tradition. There is a need for a pan-Asian alternative frame to integrate the ideals drawn from these three wisdom tradition and present itself as an alternative. 'Core' and 'peripheral' values of these three national contexts have exerted differential social control at both individual as well as organizational levels over a very long period of the past decades. The traditional Confucian values of 'kinship' have remained 'core' in the Chinese society for generations.

The traditional Indian 'core' values of reciprocal bonding of 'Sneha' and 'Sradha' discussed later in this paper is an example of such a long sustaining primary ethos of the Indian tradition. In recent years, a global relevance of the Asian heritage has mostly been attempted in terms of Confucianism over the past few decades. After decades of vilification not only by Chinese mainstream but also by Western observers, Confucianism has suddenly been in ascendancy. A large part of tradition in China, Korea, Japan, Vietnam and Singapore derive from Confucian heritage. A contrast to the wider discussion of the role of Confucian frame in the Asian context, the relevance of the Indian tradition has not received scholarly attention in the management literature. It may be of interest to note that the Meta physical literature of the ancient Indian tradition was not only concerned with deeper philosophical and spiritual issues of human values, but also dealt in details on the universal questions of individual behavior, models of social functioning, leadership and organizational governance.

Like the residual frames of Confucianism still dominating the managerial ideas for Chinese, Koreans, and Japanese and to some extent overseas Chinese, the Indian tradition had a strong secular foundation that continues to sustain the interpersonal world in Indian organizations. Like Confucian ideas, the rich Indian tradition focused on individual, community and broader society's commitment beyond narrow economic goals. These ideals provided rigid frames of discipline where individuals learned with the primary motivation to serve the community.

"Asia is the demographic, geographic and developmental future of business. Japan is the world's number two economy; China and India and numbers two and three in Asia. Before too long, half of the world's largest 500 firms will be headquartered in Asia. East Asia and the countries of China, Japan, South Korea, and Taiwan all deserve far more attention...." (Fruin, 2007, p.353). Asia represents about twenty percent of world economy and about forty percent of the world's population. Its emergence as an economic powerhouse, therefore, makes exploration of Asian perspectives in management more urgent. The recognition of the traditional roots of India and China in the managerial thinking worldwide can only benefit the contemporary managerial ideas. Economic reform and sustainability through imported ideas need to be grounded through the freshness of the ideas of generations.

The economic rise of Asia of the past decade and specially the (economic emergence of) China and India over the recent years has increasingly generated global attention to the managerial systems in Asia (Chatterjee and Nankervis, 2007). Despite Asia' diverse and sometimes conflicting trajectory into the world of contemporary business, there are sufficient similarities in geographic, historic and cultural characteristics. The extended family networks within and outside their respective countries have maintained a cohesive entrepreneurial spirit. A number of commentators on Asia have emphasized the potential contribution that Asia can make in developing managerial frameworks beyond the imperatives of narrow competitive strategies, profitability, efficiency or market domination (Dobbs-Hingginson, 1993; Mahubani, 2004). As Chinese and Indian companies show global aspirations through stunning foray into the economic world of business in the region and beyond as well as the imperatives of intellectual globalization draws global corporation into Asia, it is inevitable that lessons of Asian heritage may provide a significant broadening of contemporary managerial frames.

Cultural dimensions of Confucianism – dynamism popularized by Hofstede and Bond has dominated managerial thinking for the past two decades (Hofstede and Bond, 1998). It is now evident that such notion of explaining the complex and multi – faceted roots contributing to Asian work settings needs a much broader perspective than the dimension of long and short terms orientations. The dichotomization of 'long' and 'short' terms may not adequately explain viewing 'time' as cyclical and repetitive where past, present and future coalesce people's behavior as they interpret the world around them. Most of large and small economic organizations in Asia have embraced formal principles and practices of modern managerial culture while the unseen world within these organizations is deeply embedded to the reasoning and intuitive understandings of their respective settings.

Recent decades have witnessed an acceleration of isomorphic acceptance of western managerial values around the world. Amongst the myriad of reasons including joint-ventures, global technological regime, global industry culture, supply-chain networks (for example, the rise of auto parts industry in India over the past decade have seen a techno-managerial isomorphism). “The much cited examples of McDonald’s or Coke hide the fact that most multi national corporations, even when they adopt their products to local tastes, introduce management practices that are the same all over the world. More importantly, because they are the dominant players, they are models generally emulated by most firms in developing countries” (Hafsi and Farashahi, 2005 p. 499). The pan-Asian wisdom may be symbolized as agricultural model where planting of seeds, protection from extreme climatic conditions, fertilizing, watering lead to the harvest. This is a very different approach to the hunting culture where the shooting of the wild game becomes the strategic intent.

This paper argues that the experiences of multinational companies operating across the world should have generated a ‘reverse isomorphism’ and established a countervailing effect on the dominant managerial frames. If the discipline of management is to make a global contribution, it needs to be anchored explicitly on the set of core and peripheral foci across countries (figure 1). At a minimum, the figure explores the cross-verging balances needed in four key areas of managerial attention.

Figure 1 summarizes the key themes of this presentation. The two dimensions of Holistic Emphasis and Polycontextual priorities are overlapped to generate four areas where the priorities of the alternative framework need to focus. The relevance seeking a global frame highlights the process of corporate transformation that involves building multi-directional priorities and capabilities. Success and performance in the new paradigm are defined largely in terms of its sustainability. It is surprising how many scholars and practitioners have considered brilliant marketing strategies while not grasping the elementary principles of community, communication and society. The pillars of success in management practices beginning with Taylor were built on having resources or technology while the pillars of success for tomorrow are knowledge and the people who have the dreams.

The contributions from Asia to the dominant managerial frames are therefore, in terms of scale, diversity, values. The development of such knowledge and dreams depends on a culturally endorsed organic knowledge creation. Such knowledge flow can enrich and empower not only the managerial world but also the world management as new corporate language and symbols. Transnational social and educational network building through conferences such as this facilitate not only the flow of knowledge, but also the network essential. The more the momentum for globalization occurs, more is the need to complement it with contextual inheritance of ‘core’ assumptions and identity. The cognitive skills of conceptual understanding, reasoning and openness to the world complemented by the roots of tradition create a global mindset that empowers the ability to overcome ethnocentric narrowness (Chatterjee, 2005).

## **Blending the Best of West & East**

A central concern in management of work organizations need to be the search for variables that can be generalized not only at the technical micro or strategic meso levels but also at the macro societal wisdom levels. In physics, chemistry or biology, the scholars need to be totally objective across these levels while in disciplines like management, the subjective domains of people, values and tradition are the central areas of concern. The challenges of generalizability across nations in management therefore are much more complex as no models of management function can remain unaffected by the contingent imperatives of locality. The “context-embedded and context-specific” societal variables need to be understood in searching for managerial level variables as well as “context-free” variables may not be so readily generalizable (Rosenweig, 1994, Cheng, 1994). Based on the management extend theories and research practiced and preached in universities around the world.

This is an exciting opportunity for global scholars in management as Indian and Chinese companies are adopting the goals of extending their operational boundaries with wisdom drawn from their societal traditions. The increasing disquiet about the impact of economic globalization and the critical role of global companies can be answered not by making the same managerial mistakes as their predecessors from the west few decades ago. These new global champions can only become history builders if they can leverage their societal wisdom in practical

managerial challenges by seeking sustainability, social harmony, creative inclusiveness, network building and commitments to social responsibility. Dominance of western managerial logic should not be the managerial frames of global companies from Asia. As has been suggested, “The best universities in the U.S., Australia, the U.K., and to some extent continental Europe are populated with many Asians. Some of the best and brightest have stayed, others have returned home. If cleverly exploited, this group can be an enormous advantage to a global corporation. Those who have stayed overseas form a potential network of allies. The ones that have returned bring home potentially a vast wealth of know-how about foreign markets and culture, but prerequisite to leveraging this potential advantage is an appreciation that today it is knowledge and values, not just resources that will be decisive in future global competitive battles” (Meyer, et al 2005, p. 14).

Asia houses about two-thirds of the world’s population and unlike the west majority of Asians are less than thirty years of age. With the rise in Asia’s stature as the economic hub of the world, it is hardly surprising that management education draws the best talents in Asia. It is in this context that the new generation of managers in Asia needs to be able to create a major impact upon the architecture of long-term and relevant management knowledge. The idea of imparting immediately usable skills to management students through specialized courses need to be resisted with increasing devotion to the development of theories that are relevant in a polycontextual setting. As Asian economical progress, business will be increasingly focusing on the short-term and technique orientation. Management scholars need to work together to increase the tolerance for theories that are relevant in polycontextual settings.

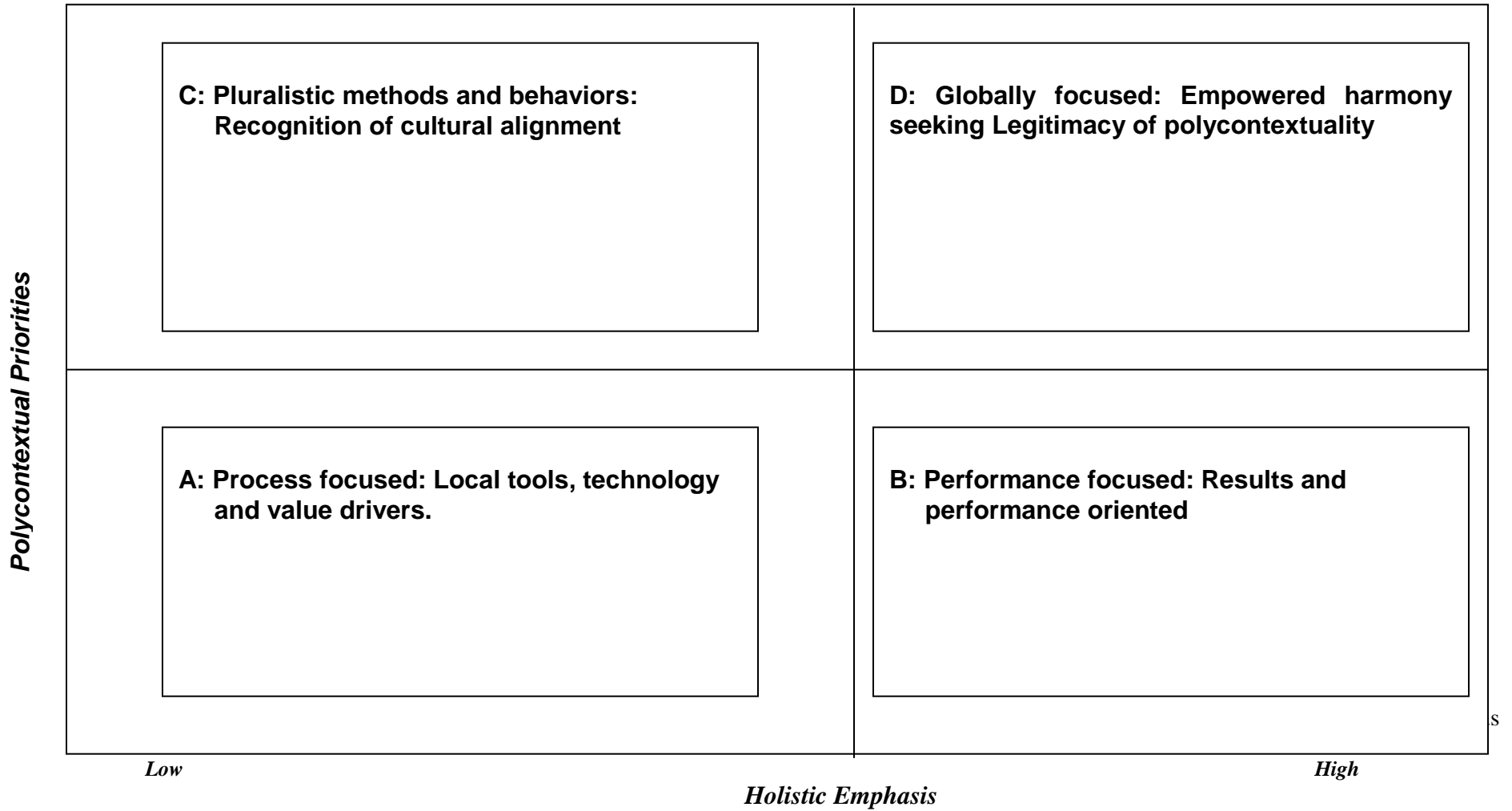


FIGURE 1: INTEGRATING POLYCONTEXTUALITY IN CONTEMPORARY MANAGEMENT

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# **Effective Management Change Through Change of Company Culture: A Case Study on Cerebos Pacific Limited in Asia**

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## **Abstract**

**This case study depicts how Cerebos Asia envisioned the need to be proactive in facing the competitive challenges of the 21<sup>st</sup> century and subsequently planned for a total revamp of the company's organization structure to gear towards customer focus and the practice of CRM.**

## **Introduction**

At the end of the millennium, the health (therapeutic and functional) supplement and energy supplement market was valued at US\$100 billion in Asia and had been growing at double digit rate as consumer health consciousness across Asia increased with consumers (particularly the middle class) becoming more affluent and knowledgeable about health issues. The wide range of health supplements catered for different consumption purposes from general health maintenance, building up body resistance, to recuperation from sickness, restoration of physical and/or mental energy and was available in many different product forms and packagings e.g. multi vitamin pills, protein supplement, fiber supplement, royal jelly, bee pollen, cod liver oil, Korean ginseng, American ginseng, essence of chicken, bird's nest, etc.

## **Competitive Landscape of the Health and Energy Supplement Market**

Cerebos Pacific Ltd. marketed in Asia a range of energy health supplement in the form of chicken extract under the brand name of Brand's® Essence of Chicken. The brand's product positioning over the past fifty years had been single mindedly focused on the benefit of physical and mental energy replenishment leveraging on the traditional Chinese belief that regular consumption of double boiled chicken soup delivers the best "bu" (Chinese word "补" meaning "support") to the body which helped improve long term health. Brand's® Essence of Chicken therefore provided consumers with a convenient (since making double boiled chicken soup at home kitchen required at least 4-6 hours of cooking) one shot RTD energy supplement (in a 2.5 oz glass bottle retailing at US\$2/bottle) which provided immediate replenishment of physical and mental energy as it was a pure and natural chicken extract with no artificial preservative or active ingredients.

Competition in the energy supplement was keen and there were some major brands like Lucozade (glucose RTD by Beecham), Centrum (multi-vitamins), Paolyta B and Red Bull (both instant energy drink laced with caffeine and taurine) with huge advertising support while competitive brands in the essence of chicken category were few. Hence, Brand's® Essence of Chicken (BEC) dominated most of the markets in Asia with over 50% market share in the energy supplement category and over 90% in the essence of chicken category. BEC's dominant market position in the energy supplement category was primarily because of its brand heritage, credibility in its product efficacy and 100% natural claim versus competition (mostly artificial concoctions) which blended in well with the traditional Chinese belief in the goodness of chicken. This dominance however changed in 1996 when President Group (one of the biggest conglomerates in Taiwan which was also the 7-Eleven franchisee with over 4,000 outlets islandwide there) launched an essence of chicken product called President's Essence of Chicken (PEOC) and within a year captured almost 20% of the BEC market share in Taiwan. This rang a major alarm to the Cerebos Pacific management as they realized for the first time that BEC was not as invulnerable as they thought despite the strong brand equity that the company had built successfully across Asia in the past fifty years. What was

ironic was that President's Essence of Chicken was not made from real chicken but from cheap chicken powder imported from US which delivered a cost advantage to President. President's ability to make such speedy inroad to BEC's consumer franchise was therefore due to this cost advantage which allowed them to plough back the saving to ATL advertising support as well as reduce the price to consumer by as much as 20% versus BEC's, not to mention its existing channel of 4,000+ 7-Elevens islandwide. Apparently there were consumers who did not see much difference between two brands of essence of chicken as they were made from chicken anyway. In other words, the differentiation of the two brands was difficult to be perceived.

## **Company History of Cerebos**

Cerebos Pacific Limited traced its name to 1892 when a French chemical engineer decided to mix phosphate with salt and invented dry-pouring salt.

The brand name "Cerebos" was registered – derived from "Ceres" for the Roman goddess of wheat harvest, and "os" from the French word for "bone" that the phosphates in salt strengthen.

Cerebos subsequently grew to include a wide range of food products acquiring Brand & Company in 1959 but was in turn acquired by Rank Hovis McDougall PLC (RHM) of United Kingdom in 1968.

The modern history of Cerebos thus began in 1981 in Singapore when Cerebos Pacific Ltd. was formed and bought over all RHM subsidiaries in the Far East in 1982 and itself being subsequently acquired by Suntory Ltd, Japan in 1991. Listed on the Singapore stock exchange since 1983, Cerebos was now a leading food company with its corporate headquarters in Singapore and provided management services to subsidiary and associate companies in the Asia Pacific. Its flagship product, Brand's® Essence of Chicken was the category leader. Its main markets were Thailand, Taiwan, Singapore, Malaysia, HK and China. More than 100 million bottles of Brand's products were sold in 1998. In Australasia, Cerebos' products included gravies, sauces, coffee and cooking aids marketed under established brand names including Fountain, Gravox, Robert Harris and Greggs

## **History of Brand's® Essence of Chicken RTD Health Supplement**

Brand's® Essence of Chicken was invented way back in 1835, by a chef to the British Royal family named H. W. Brand who worked in Buckingham Palace during the reign of King George IV. Concerned about the ailing King's health, Mr. Brand decided to improve on the age-old chicken soup remedy by creating a fat-free, easily digested chicken consommé. This was the very first batch of Brand's® Essence of Chicken (BEC).

In the 1920s, the first shipments of BEC arrived in Asia and quickly became one of the most popular health supplements among British expatriates as well as ethnic Chinese communities across Asia. Part of the reason why BEC caught on so fast was its similarity to the Chinese's double-boiled chicken essence, widely used for centuries as a health tonic. But, BEC was even healthier because it was completely fat-free, unlike grandmother's chicken soup. People also liked the similarities between BEC and traditional Asian medicine since both use 100% natural ingredients to maintain health.

BEC was also convenient to consume as it could be drunk straight from the bottle at either room temperature, chilled or warmed versus home made double boiled chicken soup which usually required 4-6 hours of preparation:- the chicken was placed in a small pot. The pot was sealed and placed into a larger pot with boiling water. The indirect heat kept the contents hot but just under the boiling point. This temperature and pressure control resulted in a thick, rich and healthy concentrate of chicken extract.

BEC was completely fat free while there was a high percentage of fat, even after skimming, in the home made double boiled chicken soup.

## **Meeting Competitive Challenges by Building a Customer Focused (Yeung et al, 2007) Organization**

Brand's® Essence of Chicken range of energy supplements had historically been the key contributor to both substantial sales and profit (EBITDA) of the total Cerebos group accounted for 49% and 72% respectively since acquisition by Suntory. This was obviously both a strength and a weakness for a company to depend so much on one single product line. Although sales and profit had grown by double digits in the last 5 years, in 1997 Cerebos saw the first drop in sales and profit decline due to competitive encroachment which indicated clearly an urgent need to keep abreast of consumer trend, develop new products to remain competitive (McGraw-Hill, 2007) in order to address these health needs. It was an important strategy therefore for Cerebos to be able to retain its current consumer base and at the same time recruit new users to its existing product portfolio/NPD. However, despite increased R&D support from parent company Suntory (which had 200 Ph.Ds alone in their R&D center in Japan), new product launches in the past 5 years had been slow and negligible. Acquisitions had also not been aggressive with only two companies in the table sauce category (with very thin gross margins) being acquired in the last 5 years. The CEO of Cerebos Pacific Ltd. realized, after studying the internal organization structure and the existing culture together with the VP Corporate Planning, realized that Cerebos Pacific had the organizational characteristics of being a "Defender" and it should move on to become a "Prospector" (as defined in Miles & Snow's Strategy Profiles and Kotler's and Keller, 2007) and that one of the key issues was the lack of customer focus culture in the current organization and in order to re-establish Cerebos' healthy growth trend in the health supplement category, there was a real need to redefine the key role of the company as one of excel in customer focus to avoid consumer switching intention (Anton et al, 2007). As such, the following issues were identified:

1. Cerebos' sales and profit contribution depended heavily on one single product line viz. Brand's® Essence of Chicken;
2. The company had limited experience against multinational retail power since it used distributors across Asia instead of utilizing its own sales forces hence heavily dependent on distributors' information & performance;
3. Poor marketing information system due to lack of commitment to customer focus(Gulati, 2007 Penttinen and Palmer, 2007).
4. Lack of empowerment to local leaders due to the functional reporting structure but at the same time lack of strategic direction from corporate head office;
5. Lack of group wide management system and HR policy that would focus employees to CRM( Hoboken, 2007)
6. Lack of resource utilization

In a nutshell, the CEO summarized the problems with Cerebos as being 'a company getting "moldy"' caused by a lack of vision from the previous top management resulting in unfocused strategy (limited business portfolio, delay in strategic business development) and weak in innovation (unchanged image of traditional product leading to less differentiation from competitors). This resulted in the limited growth potential as seen by the investors and reflected in fall of share price from US\$1.80/share in 1997 to US\$0.25/share in 1999. Unless the company could re-engineer its culture to become customer focused very quickly and innovate with new products, he felt that the chances of survival of the company by depending on basically a single product or SKU viz. BEC would be minimal (*Step 1 of Kotter's 8-step transformation: establish a sense of urgency*)

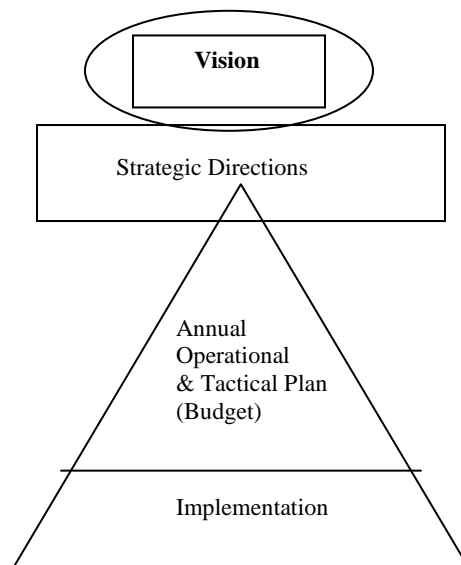
### **Cerebos Restructured: Summer 1998 Adopting Kotter's 8-step Process**

To achieve the above, Cerebos could use a combination of Theories E and O to change its corporate culture and develop human capability through individual & organizational learning (*HBR May June 2000: Cracking the Code of Change by Michael Beer and Nitin Nohria*). The goal as agreed was to transform the company itself to a value creating company focusing on customers by following the guideline as laid down in John P. Kotter's 8 necessary steps (*HBR March-April 1995: Leading Change: Why Transformation Efforts Fail*) for the effective implementation of such critical restructuring/re-engineering program viz.

"1. Establish a Sense of Urgency;

2. Form a Powerful Coalition;
3. Create A Vision;
4. Communicate the Vision;
5. Empower Others to Act on the Vision;
6. Plan for and Create Short-Term Wins;
7. Consolidate Improvements and Produce Still More Change;
8. Institutionalize New Approaches”

As well, the development of a common vision (as shown below) of the company was crucial in that it would a) define strategic focus of the company; b) unify focal point of effort; c) stimulate progress; d) energize people and e) create momentum.



The vision created (*Step 2 of Kotter’s 8-step transformation*) was therefore to be a leading consumer food products organization in the Asia-Pacific Region by creating value for customers, shareholders and employees.

Creating value for our customers meant:

- a) enhancing and enriching their lifestyles with Cerebos’ products;
- b) providing them always with high quality and value for money products
- c) appreciating and meeting their needs and wants

Creating value for our shareholders meant:

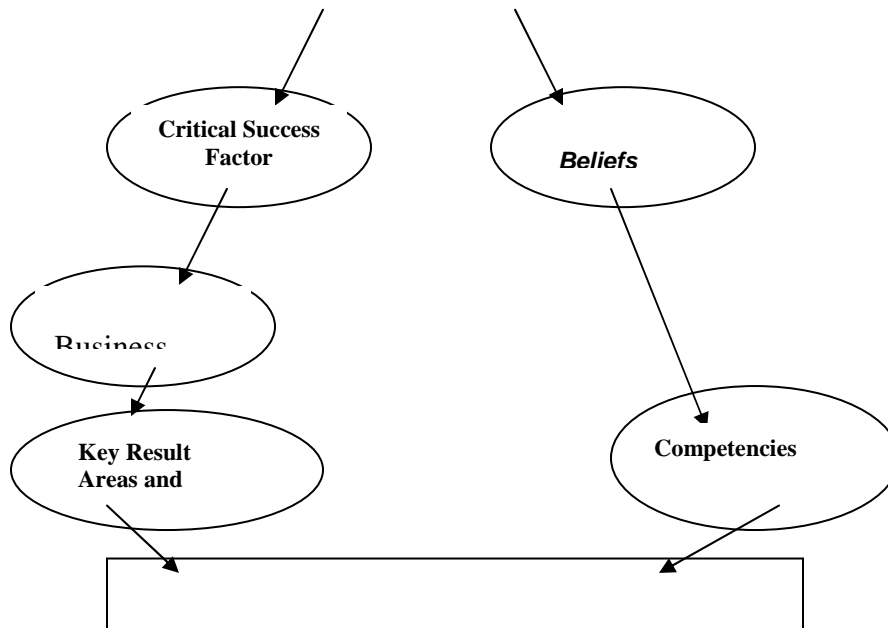
- a) increasing the long term value of shareholders’ equity;
- b) ensuring fair returns to them;
- c) reinvesting earnings wisely and prudently for long term growth

Creating value for our employees meant:

- a) empowering them with the authority to make decisions in their work
- b) encouraging and offering opportunities for continual improvement in their personal growth, career development and work

The new company vision will cascade downwards translating into a strategic road map for the company and ultimately reflected in the new performance management system that would tie in with the key customer focus matrix:





There would be four critical success factors for Cerebos:

- a. Appreciate and satisfy customer expectations
  - i. Creating value for Cerebos' customers
- b. Enhance R&D practices in support of marketing efforts (connecting the backend with the front end)
  - i. Creating value for Cerebos' customers
- c. Increase efficiency by integrating Economic Value Added (EVA®) into business systems
  - i. Creating value for Cerebos' shareholders, customers and employees
- d. Attract, develop, motivate and retain quality employees
  - i. Creating value for Cerebos' employees

It was believed that creating value for Cerebos' customers would create value for the company and the employees and ultimately create value for the shareholders.

The four beliefs for Cerebos will be:

- Customer Focus
  - i. Understanding and meeting the needs and wants of both internal and external customers
- Empowerment (*Step 5 of Kotter's 8-step transformation – Empower Others to Act on the Vision*)
  - i. Creating a sense of ownership by providing clear objectives, control of resources, responsibility and coaching
- Constant Improvement (*Step 7 of Kotter's 8-step transformation – Consolidate Improvements and Produce Still More Change*)
  - i. Continuously challenging employees' potentials to explore and seek better ways to do their work
- Innovation (*also Step 7 of Kotter's 8-step transformation*)
  - i. Developing creative ideas and improvements to the company's products and processes

**Top 3 Priorities of Cerebos Group were:**

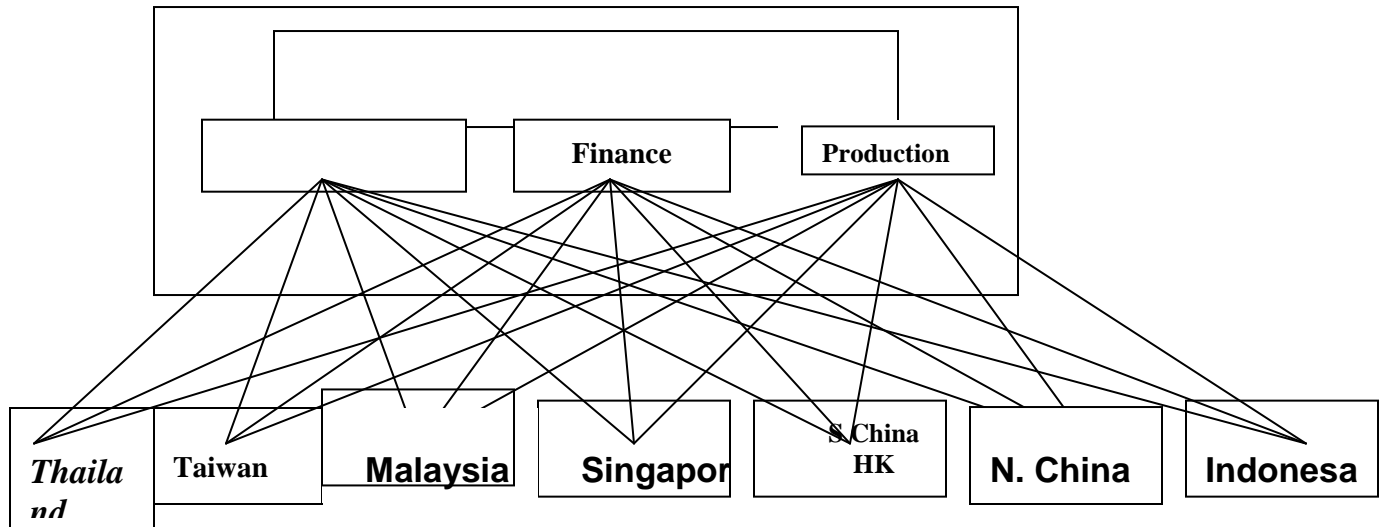
Reformation of Group Structure, Management System

Revitalization of Brand's business

Restructuring of loss-making operation & investment

**Reengineering to bring about Customer Focus Initiative**

The existing organization structure of the Cerebos Asia Division which was the business unit responsible for Brand's® Essence of Chicken in Asia was in a matrix form:

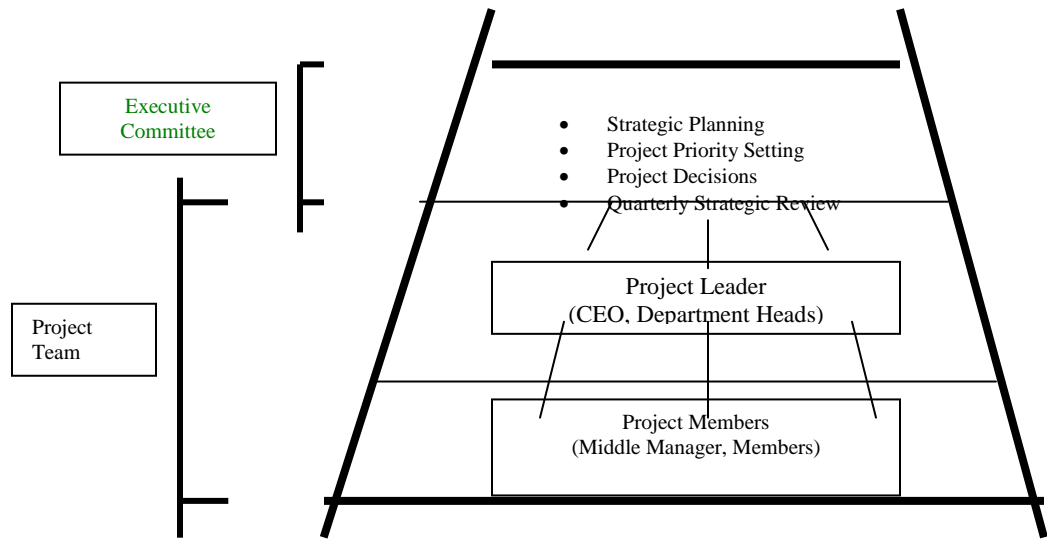


With the matrix organizational design in the Cerebos Asia Division as shown above, it was found that:

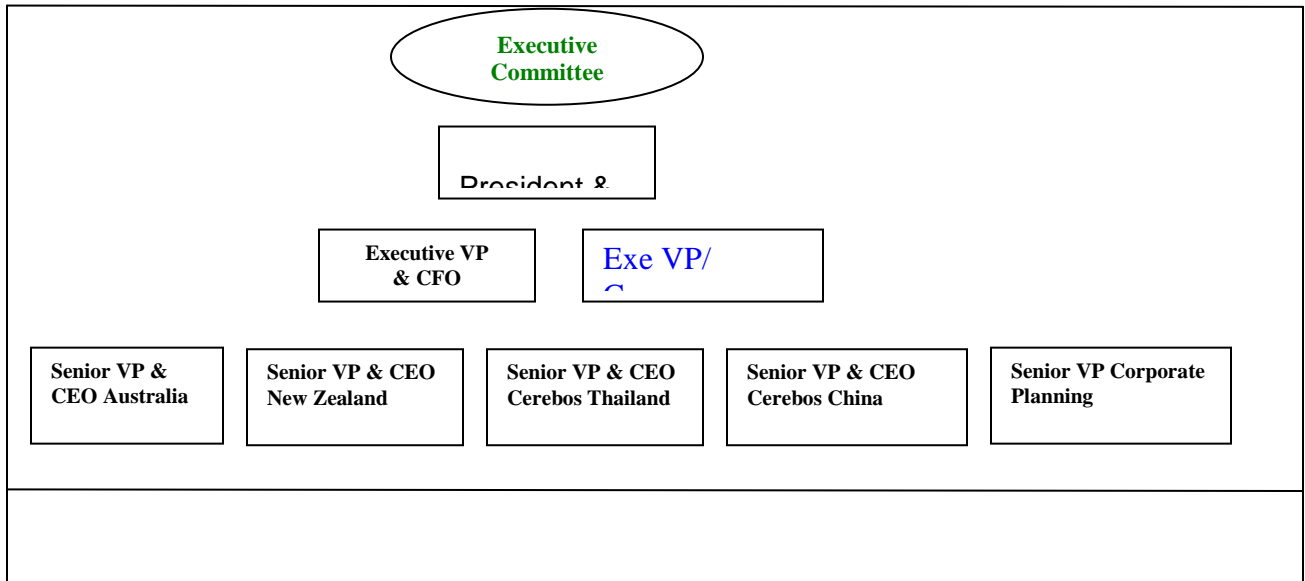
- Functional difference between local markets and Regional Marketing Department (RMD) was unclear
  - RMD was only supporting, monitoring and coordinating
  - RMD had no initiative to create fundamental strategy
  - No brand management function
- Flat structure within RMD caused lack of communication and integration
  - Only GM had full knowledge of everything
  - Integration/joint effort among functions within division was difficult
- Financial performance was not monitored/evaluated in RMD
  - Only Regional Finance Director had full access to overall financial status of the whole region
- Inefficient information system harmed both local/RMD performances
  - Info flow from distributors/local markets was not smooth
  - Consumer info was difficult to access

To facilitate local empowerment (as embodied in Quinn and Spreitzer's "Road to Empowerment") and commitment to customer focus, it was proposed to implement the following new organization structure



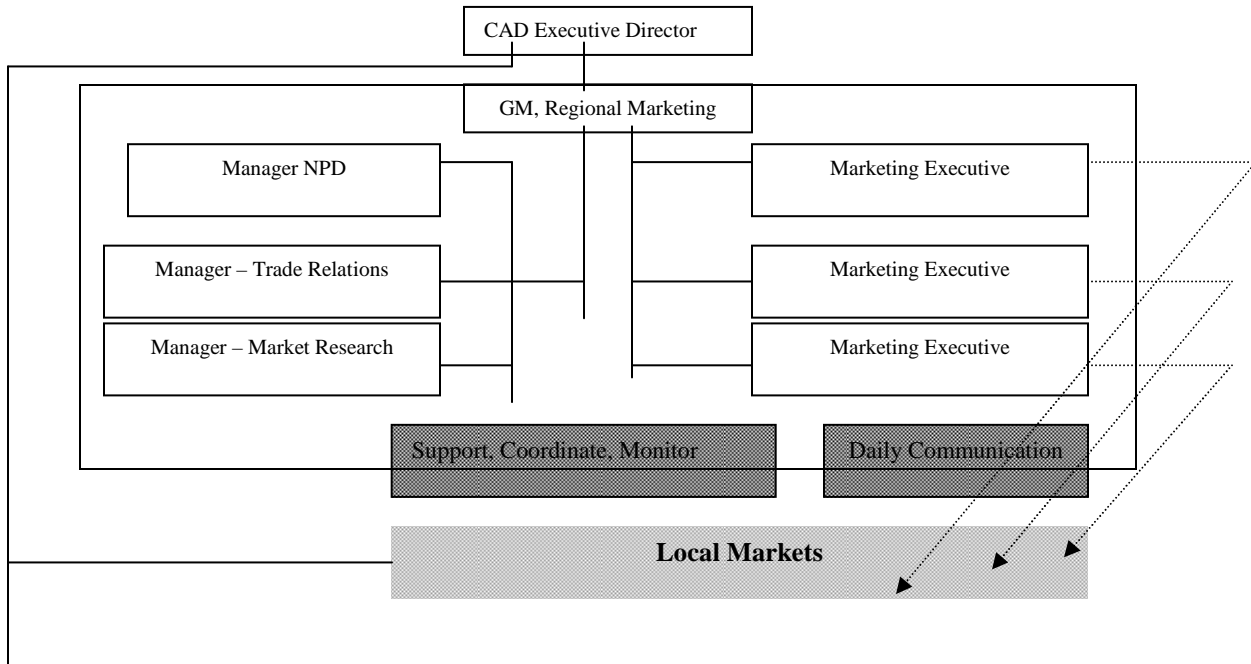


**Executive Committee**

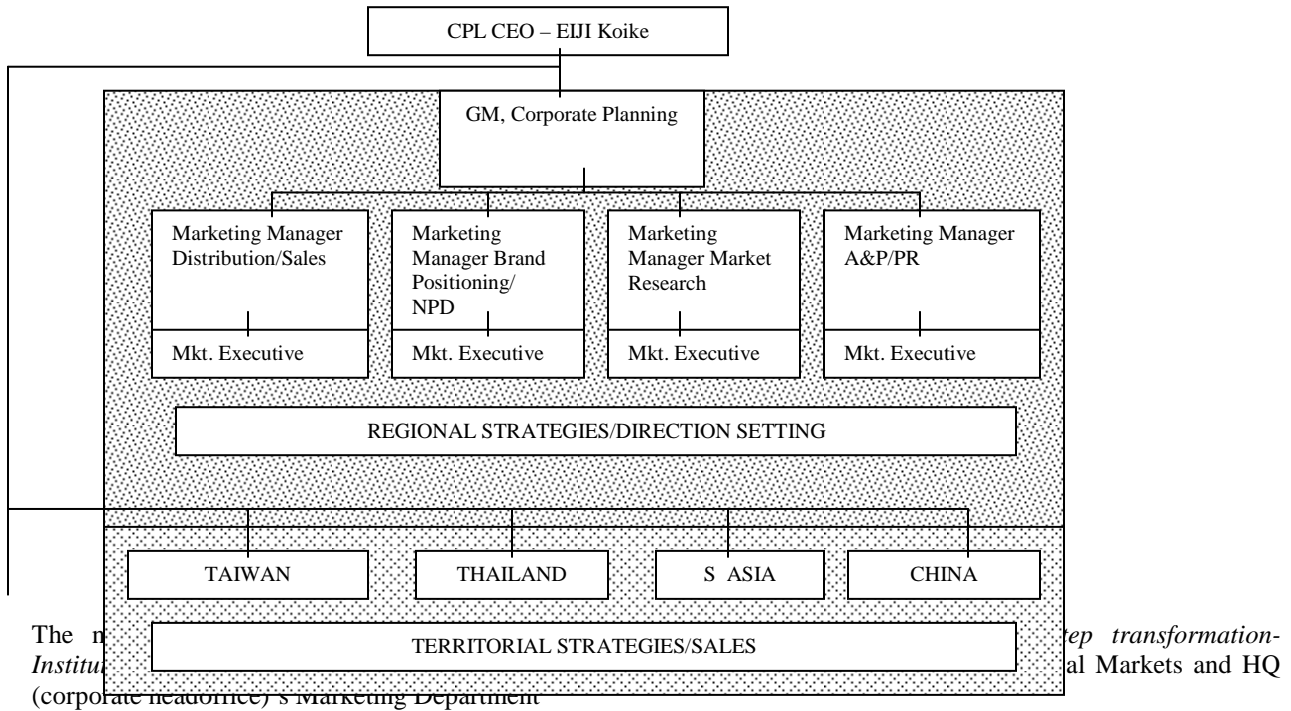




### Previous Cerebos Asia Division's Organization



**New CPL Organization to replace the previous CAD Organization above**



- Local Markets
  - Territorial strategies
  - Sales/profit center function
  - Tactical & operational issues
  - Trade relations & production control
- HQ Marketing Department
  - Regional strategy & direction setting
    - Re-construct product portfolio
    - Refine marketing mix
    - Establish brand management scheme
    - Build up long-term distribution strategy
    - Set the direction for overall A&P strategy
    - Initiate more sophisticated consumer marketing research to help strategic decision making
  - Standardization & implementation of production & system
    - Establish methods to measure customer satisfaction
    - Construct efficient & sophisticated marketing information system
    - Refine internal procedures for NPD, A&P, Sales tracking, etc.
    - Standardize various manuals for better product management/customer service
  - Spearhead group wide issues & project
    - Participate and contribute to projects/task forces for better group management

- Monitor and track territory marketing performance
  - Establish efficient ways to track performance through new MIS & procedures

In the words of the VP Corporate Planning, the whole re-organization was really “going back to basic” to “face the reality”

Back to basic meant the need to establish Customer Focused Marketing Mind; minimize the reliance on distributors’ marketing service function; planning, action, review based on meaningful data, information, research; focus on the flagship brand BEC before moving on to aggressive NPD programs

Face the reality was to understand the previous organization’s lack of structure, system, procedure for effective marketing activities and Cerebos had made mistake by aggressively hunting for expansion (company/product/territory) without the basic marketing infrastructure and the accompanying corporate culture.

In this respect, the right Process for Identifying, Developing & Retaining Customers needed to be implemented per following objectives

- Understand Markets & Customers
  - Understand the market environment
  - Understand customers’ wants & needs
  - Segment customers
- Involve Customers in the Design of Products & Services
  - Develop new concepts and plans for products & services
  - Design, build & evaluate prototypes
  - Refine & customize products & services, then test their effectiveness
- Market & Sell Products & Services
  - Secure channels of distribution
  - Establish pricing
  - Develop advertising & promotion strategies
  - Develop & deploy a sales force
  - Process orders
  - Develop customers
- Involve Customers in the Delivery of Products & Services
  - Offer broad delivery options to become the “supplier of choice”
  - Use delivery customization to attract & retain core customers
  - Identify customers’ delivery needs
  - Develop distribution capability
- Provide Customer Service
  - Establish “points of contact” excellence
  - Build cross-functional “points of contact” cooperation
  - Train employees to improve customers’ expectations for products & services
- Manage Customer Information
  - Build customer profile
  - Establish service information
  - Measure customer performance & satisfaction

To be able to implement the above process smoothly, a new group wide Performance Management System geared to customer focus was also developed:

- Individual performance targets linked to organizational objectives
  - Linked to vision
  - Linked to Critical Success Factors and Belief
  - Linked to Business Plan

***Business Plans for “New” Cerebos were therefore drawn up with Priority on Customer Focus*** (step 6 of Kotter’s 8-step transformation: Plan for and Create Short-Term Wins)

- *Complete review of consumers’ profiles*
- Innovative & diversified marketing approach by country
- Establish distinct marketing competency to distributors & competitors
- Strengthen R&D to be synchronized with marketing to connect the backend with the front end with HQ Marketing Department being the pivot point

## **Conclusion**

“The biggest challenge was to secure the buy-in from the employees despite the implementation of a Performance Management System that linked incentives to achievement of customer focus targets (which was in essence a change in the culture of rewards and punishments)” The CEO spoke to the reporter of CNBC Business Leader of Asia TV program of the Sony 3 CCD TV Camera in the Singapore TV studio in the spring of 2001, reflecting on the progress of the organization restructure after securing Suntory board approval back in the spring of 1998. “The structuring of Performance Management System around the customer focus matrix facilitates acceptance but the key to success of the promulgation of the new company vision has to be attributed to “effective communication” whereby the whole vision and strategic road map down to the business plan linked to a new performance management system are clearly communicated and cascaded to all levels of the company

This communication of the vision is very critical to the success of the whole change management process and as such right at the beginning Phase One, we have organized a series of group meetings attended by management staff across territories, the purposes of which were a) to stimulate the participants’ thinking and interest in effecting the necessary changes; b) provide opportunities for the employees to participate in the actual change management process.

Moreover, to implement the concept of empowerment and to facilitate true understanding by the management staff of what empowerment really meant, a copy of the book “ZAPP: *The Lightning of Empowerment: How to improve Productivity, Quality and Employee Satisfaction*” (by Jeff Cox & William Byham) was given to each individual manager as required reading prior to participation of the group meeting. Effective communication of the new company vision and culture resulted in dramatic improvement in more customer focused based marketing programs as well as a distinct shift in positioning of Brand’s Essence of Chicken towards a health maintenance platform (*Appendix IV – new BEC print ad with new positioning of health maintenance*) from the previous energy replenishment platform .

We have also started line extending to other Chinese herb based natural health supplements developed by Suntory R&D using consumer feedback acquired by local markets and analyzed by our HQ Marketing Department.”

“We see our market shares across Asia stabilized and started back on an upward growing trend and we also see encouraging consumer off takes from our new products launched in test markets like Taiwan and HK” (*Step 6 of Kotter’s 8-step transformation – Plan for and Create Short-Term Wins*) concluded the CEO.

“We are now onto the next phase of improving further our customer focus by moving on to CRM which I envisaged will take at least a year to perfect. I am confident that we will achieve what other companies have failed since we have the past experience of re-engineering a company and managing the change process successfully and we have, as Japanese, the patience. We also understand the success of CRM will depend on creating a customer strategy which we have now in place. If we meet again one year from now, I am sure I will be able to report to you a happy conclusion!”

The Anchor Woman and Reporter of the TV program, replied “I am sure we will meet again next year to talk about Cerebos’ success story. Already we know Cerebos Pacific has been voted one of the best 100 Asian companies by Asia, Inc. magazine in Year 2000 and we are very happy to share this great news.....”

The story of Cerebos Pacific’s quest for continuous improvement in customer force does not end here. The result of its next phase of CRM implementation remains to be assessed.

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## End Notes

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# The Use of Non-cash and Informal Compensation in Thailand: A Case Study of Five Companies

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## Abstract

Much prior economic research addresses executive compensation in large US public companies. Less is known about compensation for lower-level employees and for smaller, private, or non-US companies. This paper describes compensation practices in 5 Thai companies of various sizes and industries. In addition to cash compensation and fringe benefits, which are paid formally according to employment contract or company policy, some employees receive informal payment. While formal cash compensation is more significant in terms of the amount of payment, non-cash and informal compensation play an important role in shaping employee behaviour. The findings suggest that in addition to how much to pay, we should also consider the composition of compensation packages and the payment method (formal or informal). The case studies also suggest that human resource problems (in addition to shirking) which are traditionally solved by monitoring and penalty can better be solved by proper compensation design.

## Introduction

Human resource experts stress the importance of non-cash compensation in recruiting and retaining employees (Healey, 1998; De Young, 2000). Articles in practitioner's magazine report the use of non-cash compensation like luxurious cars, allowing employees to bring pets to work, telecommuting, concierge service, the companies' own products, etc. (Fenn, 1995; Healey, 1998; De Young, 2000; Vogt, 2005). Google, for example, offers excellent maternity benefits, healthy free lunches and dinners, company pool room, low-cost daycare, laundry and dry-cleaning services, massage therapy, health services, and gym facility (Anonymous, 2002). According to the executive interviewed in those articles, all the incremental compensation expenses make employees satisfied, resulting in lower turnover and hence associated costs. Most of the prior compensation literature in accounting and finance, however, investigates empirically and theoretically the use of formal cash compensation in businesses. Less is known about compensation practices in Asia and about non-cash compensation. Very little is known about informal compensation – the additional compensation, apart from the one paid according to employment contracts, company charter, or company policy.

The purpose of this paper is to describe the use of non-cash and informal compensation in Asian settings (south-east Asia in particular). The paper explores why an employer pays in terms of goods or services rather than cash, and why pays informally rather than formally. A case study of five Thai companies shows that employers pay in terms of good to exploit a cost advantage (from providing the goods to a large number of employees or from access to low-cost wholesale suppliers), to better recruit and retain employees, to comply by the law, and to enhance production. Informal compensation is paid because it is more flexible (easier to change) and because it gives the payer some influence or power over the payee. The cases illustrate how the companies studied creatively and intelligently use non-cash and informal compensation to solve employee misbehaviors.

Traditional agency literature focuses on hidden action problem – employees are self-interested and we cannot observe employee's action or work effort perfectly. Compensation contracts are designed to deter shirking. The use of compensation design to solve other employee deviant problems is not yet thoroughly investigated. The case findings suggest that proper compensation design may be superior to monitoring and punishment in mitigating employee misbehaviors.

## Literature Review

Non-cash compensation is used increasing in western countries (Hashimoto, 2000; Dale-Olsen, 2006). Economic researchers discuss various benefits of non-cash compensation: (i) an economy of scale from providing goods or services to a large number of employees, (ii) tax benefits, and (iii) productivity - the beneficial effects of consumption of a certain good (e.g. education) on production (Long & Scott, 1982; Rosen, 2000; Rajan & Wulf, 2006; Oyer, 2006). Empirical evidence tells a consistent story. Oyer (2006) find a firm is more likely to pay in terms of goods when it has a cost advantage (an economy of scale or ability to acquire the good at a lower cost), when the goods (e.g. meal and child care) help reduce disutility from working, when an employee pays income tax at a higher rate, and when an employee has higher preference for the good. Dale-Olsen (2006) finds that a company tends to pay in terms of goods or services when it can exploit an economy of scale and that fringe benefits improve production outcome. Furthermore, the author finds that the number of fringe benefits provided is decreasing in the labor supply and that the probability that an employee leaves the firm is negatively associated with the value of fringe benefits, implying that firms pay in terms of good to attract job applicants and to retain employees. Rajan and Wulf (2006) focus on executive compensation. They find that firms are more likely to pay in terms of goods when the goods benefit production more, and when the income tax rate is higher. Also, a firm with more organizational hierarchies is more likely to allow executive personal use of corporate jets, implying that some perks are paid to convey a high social status to the payee.

Contrary to the above studies, some researchers argue that allowing perquisites, especially for executives, can be undesirable. Jensen and Meckling (1976) addresses perk over-consumption problems. Since perk consumption is more difficult to monitor, self-interested executives may over indulge themselves in perks at the expense of shareholders. Anecdotal evidence can be seen in the press from time to time. Yermack (2006) provides empirical evidence. He finds negative abnormal stock returns when the firms first disclosed the CEO's personal use of a company aircraft in an event study. While Rajan and Wulf (2006) finds that a firm is more likely to have a corporate jet when the jet is more productive (e.g. when the firm is located farther from convenient airports), Yermack (2006) finds that the cost of personal aircraft use is strongly positively associated with an indicator whether the CEO belongs to a long-distance golf club.

As for analytical works on non-cash compensation, Marino and Zábojník (2004), Marino and Zábojník (2006), and Adithipyangkul and Feltham (2006) characterize the optimal use of non-cash compensation in a setting with agency problems.

In addition to the remuneration paid according to employment contract, company charter, or HR policy, some employees receive extra cash, goods or services. For example, scrap raw materials or overstocked items may be available from time to time. When workload is minimal, employees may be allowed to leave early. In this paper, the term informal compensation includes any form of payment (monetary or non-monetary) that is not specified in formal compensation practices, as documented in an employment contract, company's charter, or company policies. It also includes items like expense reimbursement and entertainment allowance, where relevant policy may exist, but the policy does not identify the reimbursement or allowance as compensation to employees.

Mars (1982) remarks that the total compensation from work consists of formal, legal rewards (e.g. wages, salaries, etc.), informal, legal rewards (e.g. tips, perks, etc.), and hidden economic rewards (e.g. pilfering, overcharged expenses, etc.) He documents a case of a journalist being compensated informally for superior news articles through expense reimbursement. A journalist with a better news article can submit a more inflated expense list for reimbursement. Another form of informal compensation is the controlled "theft" system, where a certain employee is occasionally allowed to "steal" a certain amount of a certain item as part of her compensation (Zeitlin, 1971; Altheide, Adler, Adler, & Altheide, 1978; Greenberg & Scott, 1996). In a supermarket, those working on late-night shifts can consume food or beverage while working; this is considered additional compensation for undesirable working conditions (Greenberg & Scott, 1996). In addition, Ditton (1977) reports the following.

For example, an employee is told that the rate of wages is low, but this statement is accompanied by some sort of a figurative or a real wink.<sup>58</sup> Perhaps, he is told that he can purchase products at "give away" (wink) prices. Or, that there are always "cheap" (wink), "spare" (wink), or "extra"

(wink) goods to be had. Perhaps he is told, like I was at the Wellbread Bakery, that “they” would see that I didn’t “go short” (wink) or “lose out” (wink) when I complained that the wages were low. Everybody else, I was told,<sup>59</sup> was able to “make a bit on the side” (wink), or, “have their little perks” (wink), or, “take the odd loaf” (wink). With the meta-communicative wink the employer is able to craftily say something specific about the actual statements he has made.

Ditton, 1977: 48

Adithipyangkul and Simunic (2006) formally analyse this controlled theft system and discuss evidence from large publicly traded US companies. They studied the change in compensation following the Sarbanes Oxley Acts (SOX), which requires a firm to maintain effective internal control, to disclose any material weaknesses in internal control, and to disclose any theft or fraud incidents. A firm which previously implemented weak internal control and allowed informal compensation in form of “theft” and personal use of corporate assets now needs to implement better internal control and cancel informal compensation. Formal compensation is predicted to increase to redress employees for the canceled informal remuneration. The authors find that the percentage change in CEO salary increases in the year 2003 and 2004 following the passage of SOX in 2002, followed by a drop in 2005. They also find a sharp increase in percentage change of other annual compensation in 2002.

As for the advantage of informal compensation, researchers argued that “controlled” theft is a more timely and flexible way to compensate employees, apart from being tax-free (Greenberg & Scott, 1996). Also, knowing that employees “steal” something, a supervisor or an employer has some power over the payee (Ditton 1977).

Rather than studying non-cash and informal compensation in western settings as in prior literature, this paper explores the use of non-cash and informal compensation in Asian settings. Also, rather than focusing on employee “theft”, this paper consider other forms of informal payments. (There seems to be two kinds of informal compensation: legal and illegal. Examples of legal informal compensation include a boss paying for a birthday gift or a party for a certain employee. Some types of illegal informal compensation seem outright illegal, e.g. controlled “theft” discussed above. Other types may not be so obviously outright illegal. For example, consider the “abuse” of an expense account. It can be difficult to define “abuse” if the company does not have thorough reimbursement policies.) In addition to the question why pay informally, this paper explores how informal pay is transferred to employees. How do employers limit informal pay to an acceptable level?

## Methodology

Case studies to describe the use of non-cash and informal compensation in Thai companies were conducted in 2004 and 2005. To provide a good representative picture of compensation practices, the author includes in this study firms from a variety of industries and of various sizes. The Thai business studied includes two pharmaceutical manufacturers, a hotel, an auto parts manufacturer, and a chemical manufacturer. The two pharmaceutical manufacturers and the hotel are family businesses. The automobile parts manufacturer is affiliated with a car manufacturer in Japan. The sample description is summarized in Table 1 below.

TABLE 1: DESCRIPTION OF FIRMS STUDIED

Company Fictitious Name	No. of Employees	Description of Business	Respondent
Pharma A	289	Pharmaceutical manufacturer	Production manager
Pharma B	144	Pharmaceutical manufacturer	Production manager & personnel manager
Auto Parts	636	Automobile parts manufacturer	Advisor
Chemical	151	Chemical manufacturer	Accounting manager
Hotel	588	Hotel (three-star)	Internal auditor

I use questionnaires, email correspondence, in-person interviews, and phone interviews for data collection. The questionnaire first explains the definitions and gives examples of non-cash and informal compensation. The first part of the questionnaire asks for the background information of the respondents and the businesses. The next parts



are about the use of formal (cash or non-cash) compensation and the use of informal (cash or non-cash) compensation respectively.

Questionnaire replies from the hotel are in English. Questionnaire replies from the chemical manufacturer and one pharmaceutical company (Pharma A) are in Thai. Replies from the auto parts manufacturer and another pharmaceutical company (Pharma B) are mixed. When the questionnaire replies in English are quoted, they are shown exactly as the originals, except for minor correction of grammatical errors and word choices.

## The Use of Non-monetary Compensation

Before discussing the use of non-cash compensation, this section briefly reports cash compensation paid in the firms studied. In addition to salary and overtime payment, cash bonus (either for performance or for tenure), commission, and retirement benefits (contribution to provident funds) are paid. Less common cash compensation includes monetary gifts for a new-born child, a funeral, and other important events, which are paid at Hotel and Auto Parts, and gas expense reimbursement paid at Auto Parts.

The data from the questionnaires on the types of non-cash compensation used in each company for most employees and for executives are summarized in Table 2 and Table 3 respectively. Table 4 shows the proportion of cash and non-cash compensation used in each firm.

TABLE 2: TYPES OF NON-CASH COMPENSATION PAID TO EMPLOYEES

	Pharma A	Pharma B	Auto Parts	Chemical	Hotel
Health Insurance	√	√	√	√	
Medical Check-ups or in-house medical services	√	√	√	√	√
Paid leaves	√	√	√	√	√
Group annual trip	√		√	√	
Training programs	√	√	√	√	√
Food	√		√		√
Lodging	√	√			
Others					
Uniforms		√	√		√
Laundry of staff uniforms					√
Coffee break /Coffee room/Free coffee or other drink		√			
Monthly group birthday party	√				√
Religious activities	√				
Annual staff party	√				√
Transportation					√
Sport facilities/activities					√
Funeral flower for death of staff's close relative					√
Accident insurance					
Goods sold at discount prices		√			
Life insurance					

TABLE 3: TYPES OF ADDITIONAL NON-CASH COMPENSATION FOR EXECUTIVES

	Pharma A	Pharma B	Auto Parts	Chemical	Hotel
A better office	√				√
A company car			√	√	√
A driver	√	√	√		√ *
A secretary					√
Better meals					√
Better paid vacation				√	
Hospital medical expenses					√
Official Check **					√
Lodging					√
Gym facilities					√
Entertainment			√		
In-house entertainment bills ***					√
Meals for R & D ****					√
Cars sold at discount prices			√		
Privilege (no need to punch time card)	√				
Better health and accident insurance policy					
Additional for foreign executive: Lodging			√		

\* For managing director only.

\*\* Official Checks (used at Hotel) are commonly used in the hotel industry as a quality control measure. A high-level employee can dine at any of the hotel's own restaurants, and sign the official checks. He can order anything at any prices, except alcoholic drinks. There are no limits on the amount a staff can sign the checks. If the employee brings guests, the guests will be billed separately. The portion consumed by the guests is classified as an "in-house entertainment bill," rather than official checks.

\*\*\* In-house entertainment bills (used at Hotel) refer to entertainment at the hotel's own restaurants. The in-house entertainment is controlled by an annual budget.

\*\*\*\* For R & D purposes, a team of hotel's staff from various departments (e.g. Food and Beverage, Kitchen, Quality Control, Marketing, Internal Audit) are invited to dine in a restaurant outside the hotel.

TABLE 4: PROPORTION OF FORMAL CASH AND NON-CASH COMPENSATION FOR AN AVERAGE EMPLOYEE

	Pharma A	Pharma B	Auto Parts	Chemical	Hotel
<b>Cash Compensation</b>					
Monthly Salary	80	89	65	67.5	90
Cash bonus for tenure	10	10	24	8.1	-
Cash bonus for performance	5	1	8	1.4	7
Other	5	-	2	23	3
Total	100	100	100	100	100
<b>Non-cash Compensation</b>					
Health Insurance and health benefits	15	20	25	16.6	5
Paid leaves	25	-	-	21.6	4
Training programs	20	20	25	6.2	4
Food	20	-	40	-	80
Lodging	20	20	-	-	-
Other	10	40	10	55.6	7
Total	100	100	100	100	100
Cash compensation	60	75	70	96	90
Non-cash compensation	40	25	30	4	10
Total	100	100	100	100	100

Cost advantages are often cited as the reason for paying non-cash compensation. I asked the respondents to specify whether the company benefits from an economy of scale from providing non-cash compensation to a large number of employees. All companies accept that they benefit from cost advantages at least for some types of non-cash compensation, e.g. group insurance and group annual trip. In addition to cost advantage, I find that the firms studied pays in terms of goods for other reasons, depending on the situation of each individual company.

At **Pharma B**, the respondent mentioned in the questionnaire that the company pays in terms of goods to benefit from “... an economy of scale, and employees also can use the non-cash items like uniforms [i.e., the goods also benefit the employees, not just the firm]”. From further interview, I find that Pharma B also provides certain goods for productivity and legal reasons. They provide lodging for some employees – driver and maintenance workers. The driver is allowed to live in a unit on site, and is expected to serve after working hours when an executive wishes to go somewhere after work. Maintenance workers are allowed to live on site just in case machines require emergency repair. Their cash salaries are not decreased because of the additional housing benefits.

As for legal reasons, cleanliness is legally required for consumer safety. Employees are not allowed to eat in manufacturing areas, since the residual food may attract insects and mice. Those employees who are caught will be fined. However, wrapping papers or emptied cartons of milk were always found. This was because some employees did not have breakfast before coming to work, and they became hungry. Pharma B solves this problem by allowing a coffee break once in the morning and again in the afternoon. Employees now can eat only at the break room. The break room is situated far from the manufacturing area. Food and drink are sold at the prices lower than the market prices. There is no cashier. Those who eat must put the money in the pay box themselves. The company announced that the coffee break will be cancelled if it loses money. Employees, who seem to want to keep the coffee break, pay honestly. Sometime they even overpay. Employees have to record their names in the guestbook before using the break room. It turns out that about 30% of the employees use the break room, and that it is the same employees frequenting the break room, mostly in the morning. The employees benefit from the discount on food items; the employer solve pest problems.

Note that the firm sells the food, rather than provide food for everyone as fringe benefit. The practice of selling rather than simply giving the goods to employees seems to be the company's response to its information disadvantage about employee preferences – who wants foods and drink, and the kind of food and drink the employees like. Other companies use different means to learn about employees' preferences, as discussed below.

Uniforms are also given to those in production, transportation, cleaning, and lab departments. Production workers are required by law to wear uniforms for consumer safety. Employees change at work. Uniforms are in very vivid colors to prevent employees from using them at home. There are no uniforms for administrative workers.

For other companies, although they admit that they benefit from cost-saving in providing a good, cost-saving does not seem to be the main motivation. The respondent at Auto Parts replied that the firm pays in terms of goods for "uniformity and convenience". Note that Auto Parts also pays in terms of food as Pharma B. At Pharma B, the food is sold to employees at discount price, possibly because the firm does not know employee's preferences. At Auto Parts, the quality and quantity of food are controlled by the catering committee. The twelve committee members are chosen by the employees. In the past, Auto Parts gave coupon for lunch, but employees requested the firm to pay cash instead. The company accommodates the change on the condition that employees eat only at the cafeteria.

At **Pharma A**, the psychological effects of non-cash compensation seems important, i.e., the business pays in terms of fringe benefits to show that the organization cares for its employees, to allow employees to have social activities together (annual group trip, annual party, monthly birthday party, and religious activities), and to promote sincere loyalty from the employees. Pharma A does not pay its employees in terms of defective or overstocked products, because in Thailand drugs are prohibited from distribution without pharmacists' approval. One exception is the cases of employees' minor illnesses. The pharmacists at the plant can issue some medicine for immediate use. The medicine given is the flawed or excess product that cannot be sold. This appears to suggest the practice of providing a good due to cost advantages.

**Chemical's** respondent replied that the health-related benefit is necessary, since those health benefits help assure and motivate employees – enhancing their morale.

**Hotel** pays in terms of many goods it can produce itself (i.e., food, laundry, lodging, and gym facilities). The hotel also provides sport facilities/activities, which are chosen by popular votes from all staff. Voting seems to be one way the firm extracts private information about employee preferences.

Interestingly, at Hotel, it seems that the company pays in terms of goods to avoid their employees being overly cash-sensitive, which is counter-productive in the hotel industry, where good service is a key to success. Also, the use of non-cash compensation is to deal with moral hazard issues other than shirking. As the respondent put it,

Cash is just a tool to promote an activity, event, and/or experience. If we want certain things to happen, we had better create them. Paying cash and creating experiences are two different things. And, in many cases, cash represents greed and selfishness. Good experience brings morale. We do not want to promote a cash-oriented mind among our staff. ... many compensation types fit into the cost saving scheme [in-house entertainment, official checks, lodging, gym facilities, laundry services]. But they do not play an important role in our organization. There are reasons for each item provided. For example, employee's meal will prevent everyone from going out to find food, and they may not be back on time. Someone may skip lunch because she/he has no money. Laundry will make sure that staff put on clean and good-condition uniforms.

This is reinforced by the fact that Hotel does not pay cash bonus for performance to employees on an organizational-wide basis. (Cash rewards are paid to only an employee selected as an employee of the month. The rewards seem to be in terms of recognition, rather than economic benefits per se.)

While most of us are aware of agency problems associated with executive's over-consumption of perks, as argued by Jensen and Meckling (1976), the reply from the hotel above seems to suggest that the hotel pays in terms of good or services to solve under-consumption problem. For example, for good image, hotel staff should be in clean and neatly ironed uniforms. However, if uniform laundry is not provided, it is not likely that an employee will pay for professional laundry service daily or spend much time and effort to neatly clean and iron her uniform. Also, if an executive needs to pay by herself to entertain a business guest, she may not do it at all or may bring a guest to a

cheap restaurant outside the hotel. So, allowing in-house entertainment ensures an executive will not cut down entertainment activities to a suboptimal level and it is not cost efficient for the hotel to provide food and venue for entertainment.

When asked whether the company thinks that the use of non-cash compensation helps improve the firm's performance, Pharma A, Pharma B, and Hotel gave positive replies. The respondent from Hotel emphasized the importance of non-cash compensation, "Non-cash compensation contributes to better organizational performance because it delivers necessities required for daily living and work activities. It also saves cost and time for everyone." Notice that much of the non-cash compensation provided in these three companies are productive goods.

To sum up, the firms we studied pay in terms of goods or services because of cost advantage and legal requirements. They also pay in terms of the goods or services which help improve production outcome, to avoid under-consumption, and to improve employee morale. The hotel we studied pays in terms of goods to avoid making its employees overly cash sensitive.

It appears that the companies design compensation packages taking into consideration employee preferences, and they generally know their employees' preferences with respect to the goods they provide or have a way to extract the information e.g. by voting, by selling rather than providing the goods or services, by allowing employees to select their representatives to take care of fringe benefits.

## **The Use of Informal Compensation**

### **Nature of Informal Compensation and the Reasons for Informal Pay**

The respondents are asked to describe the use of informal compensation, if any, in their organizations. At **Pharma A**, the production manager reported that he informally pays cash to important employees (e.g. the department head or some other significant employee) in various departments, and to employees in the mixing department. The cash paid comes from the founder-owner. It is included in the production manager's (the respondent's) monthly salary. The production manager then distributes this informal cash compensation himself monthly.

The production manager initiated this pay originally to solve the turnover problem in the mixing department. (Today, the majority of employees who receive the informal pay are in the mixing department.) The mixing job is extremely tiring (but this fact is not necessarily known to employees in other departments). Absenteeism was high, because the workers needed to rest. The turnover rate was also high because of the hard work. This had been very problematic in the past. The production manager solved the problem by paying cash informally to compensate the workers for their hard labor. This system works well; absenteeism and turnover have decreased.

The informal cash compensation is now paid not only to the mixing workers, but also to the heads and key employees in various departments. For low-level employees (assistants to department heads) in the mixing department, punching department, coating department, and glazing department, the average amount of cash per employee is B200 per month. (An average salary per employee is B6,000 per month.) For middle-level employees (department heads), the average amount of cash per employee is B500 per month. (An average salary per employee of B8,500 per month.) The pay, as mentioned in the questionnaire, is to reward the employees' ability to perform the job satisfactorily, to supervise, to solve work-related problems, and to make useful suggestions.

This cash rewards are given after 5-7 years of working. Employees must perform well, report what is going on in the workplace to the production manager, and train any newly hired employee who is still not efficient at her work and is still not loyal to the business. The amount of cash is sometimes adjusted to catch up with inflation. In terms of tax effects to the employer, the pay is added to the production manager's salary, and thus is tax-deductible for the business. The production manager, who is the cash distributor, is taxed for this additional "salary". The employees who receive the pay informally are not taxed. However, for each payee, the amount of informal pay is not very large so that there is no real tax reduction benefit.

The production manager chooses not to ask the department heads or supervisors to distribute the money. He distributes the cash himself, for fear of embezzlement, and because he wants to maintain power over those key employees. The informal pay makes the payees more cooperative and more responsive to his orders, especially those orders related to the job beyond their job descriptions, or the job for which a formal order is not issued yet.

Furthermore, he chooses to pay informally because this method is more flexible. Flexibility seems to be an important motive. In fact, the business even changes the employee evaluation and compensation practices yearly to prevent the employees from resisting the changes by arguing that the current practices are the organizational norm or tradition, as discussed below.

In this setting, the production manager pays informally to obtain power over the key employees so that they will obey his orders, and report to him the “news” in the factory. However, the informal pay seems to have a side effect of deterring undesirable actions like strikes as well. Because employee dissatisfaction is reported to the manager immediately, issues can be resolved early. Also, it is difficult to initiate strikes without cooperation from the key employees, who really run the operation, and who cannot be replaced easily. With this informal pay, the key employees who receive the informal pay seem to be on the manager’s side rather than on the workers’ side.

Note that one issue related to informal compensation is how to control informal compensation (especially controlled theft type) to an acceptable level. At Pharma A, the production manager can easily control the payee, and the amount and frequency of the pay, because he distributes this informal compensation himself. The founder-owner can perfectly control the total amount of pay, since the cash payment is recorded properly each month (as the production manager’s salary) by the firm’s accountant. Additionally, if not paid, the key employees can complain to the founder-owner. This prevents the production manager from keeping the cash for himself.

In addition to the informal cash payments, an in-person interview reveals that a New Year’s party and gifts are another form of informal compensation. During the New Year Festival, gifts are given to outstanding employees. But the management does not announce truthfully that the gifts are given because of performance. They instead claim that a gift is given because a certain employee has been with the business for a long time, and has a good attendance record. (It is usually the same employees who receive the gifts each year.) This is to avoid labour conflict, since all employees think that their performance is good, and they also deserve the gifts. Attendance rates and tenure are objective. An executive is rewarded in terms of bonus and a salary raise rather than with a New Year’s gift. (An executive’s bonus is based on performance rather than attendance. A low-level employee’s bonus is based more on attendance rate. For the both Pharma A and Pharma B, attendance rate is important. It is very desirable to minimize absenteeism to avoid disruption in production, as explained below.)

When asked why pay informally, the production manager gives the following reply.

The business does not pay informally as a main compensating way. It pays informally to promote flexibility in operation. The informal pay is used marginally. It is paid only to supervisors or other key employees. Without the informal pay, it can be difficult to ask them to do something beyond their job description, or to ask them to work on a new job for which the formal job order has not been issued yet. They may not cooperate, claiming they have to wait for the formal order. The informal pay makes them more cooperative and responsive to my request. ... The informal pay is not designed to motivate the employees to cooperate in doing anything that is already within their job descriptions. ... After the supervisor gets cash, they are responsible for monitoring and motivating the lower level employees to make sure the job is done in time. They will report any problems that occur more promptly as well.

The business does not plan to formalize the pay above, because it will lead to inflexibility. The employees are told that the informal compensation is not to be expected monthly – it is paid only at the discretion of the production manager, and it can be cancelled at any time. Note that the informal cash compensation is paid to a rather small number of employees so that it is less likely that they can join forces to resist the change in informal compensation anyway. Therefore, it appears easier to change than formal compensation.

Consider another pharmaceutical manufacturer. In the questionnaire, **Pharma B** mentioned they do not use any informal compensation other than cash bonus. Although cash bonuses are formal in many organizations, cash bonuses are informal in this factory. The company’s charters, policies, or the employment contracts do not indicate the company’s obligation to pay bonuses (discretionary or non-discretionary). The company does not pay bonuses in bad years in which the company earns no or little profit, or the years in which the economic condition is not good.

An annual cash bonus is paid to an employee whose performance and attendance rate are good. Since absenteeism disrupts the workflow, it is really important to encourage employees to minimize their leaves or lateness. The company does not have extra labor to cover those who come in late, or those who take a leave. If

someone is absent, another employee must work harder to cover for her. Lateness is problematic, since the production manager does not know whether that employee will be absent for the whole day or not, and hence whether it is necessary to find someone from another department to replace her.

If employees are not late for work, do not take a leave, and do not call in sick all year, they receive a full bonus of 15% of a monthly salary. If an employee is absent more often than the limit, the bonus is reduced. Those who take a leave right before, or right after the Chinese New Year or Thai New Year (to create a longer vacation), are penalized by having their bonus decreased by 20% instantly.

Furthermore, an additional bonus equal to a month's salary will be given, if performance is good. (But if the attendance rate is not adequate, they will not receive a full one-month bonus.) Nonetheless, the company mostly uses salary raises to compensate employees for better performance. Bonuses are mainly used to minimize absenteeism.

Another way to pay employees informally is through discretionary financial assistance, e.g. employee loans and scholarships for child education. Discretionary scholarships for child's education may be granted case by case to employees who have been with the company for a long time, and also have performed well. The free scholarship is usually given to "good," old employees, whose child's area of study is "good," e.g. pharmacy. Note that "good" is subjective, and hence it allows the employer freedom whether to give a free scholarship or not. A scholarship includes both tuition and living expenses. For an average employee or an average area of study, the company gives a loan, rather than a scholarship.

In addition, for a "good" employee who has been with the company for a long time, the company may grant an interest-free loan for home improvement, etc. Employees then pay back the principal by installments. The amount to be deducted from salary each month must not be too high so that it affects the employees adversely.

Employees who need help can contact the personnel manager, who knows more about the employees' situation and performance. If the personnel manager thinks that it is appropriate to help, she requests a loan or a scholarship from executives. The maximum amount of financial assistance is approximately B50,000.

The company also gives gifts to employees. During the New Year season, the company receives many gifts from its traders. Some of these gifts will be given to key employees who work closely with an executive, have been with the company for a long time, and perform well. However, employees cannot expect these gifts every year.

Note that the items chosen as informal pay are the items which can be easily controlled to an acceptable level.

Similar to Pharma A, the informant from Pharma B reported that the company chooses to pay informally rather than formally because it is more flexible and easier to change.

To compare the two drug manufacturers, both businesses experienced difficulties in their mixing departments. Pharma A invented an informal pay system to effectively solve this problem, and also subsequently implemented it widely in the factory. The problem remains unsolved at Pharma B. Possibly, the unconventional use of informal compensation depends greatly on organizational culture and leadership style. Both are family businesses whose founders are Thai-Chinese. At Pharma B, the ownership family seems more conservative. The operation is controlled by the second generation. At Pharma A, the most powerful figure is the founder, who is still very active as a consultant to the business. The day-to-day operation is controlled by his wife and his older brother (i.e., the first generation.) According to the respondent, the founder is a very capable, resourceful, and creative person. Possibly, a more daring, open atmosphere or leadership style encourages more unconventional use of informal compensation. However, this is not to imply that Pharma B is less capable in problem-solving. In fact, the company uses conventional means creatively to solve the problem, rather than inventing an unconventional solution. For example, both businesses experienced a problem of employees eating on manufacturing sites as mentioned above. While the problem remains unsolved at Pharma A, Pharma B solves the problem by using a conventional coffee room.

At **Auto Parts**, the informal compensation paid includes an entertainment allowance for a Japanese executive, an executive's right to purchase a used car at a discounted price, and gifts for employees.

Concerning entertainment allowances, Japanese executives (department heads) are entitled to an allowance of about B30,000 per month. This allowance is a policy dictated by the parent company. The pay must be approved by the managing director. A Japanese executive must show receipts for reimbursement. The pay is informal in the sense that the reimbursement regulations for executives are more flexible than those for operational employees.

Department managers have a right to purchase a used company car. The amount of discount is about B150,000 per car (an average salary per employee is B 35,000 – 80,000). The purpose of this special pay is to boost employees' morale. This is done once a year, 2-3 cars each year. The company uses a lottery to determine a buyer. Those who have already purchased a car cannot buy another in the next ten years, or until all the remaining managers have a chance to purchase one.

Further, the firm gives awards, plaques, or cash rewards to employees or units which can attain specified goals. The cash reward is to be paid for a celebration party for the unit. The rewards are paid informally because "it is easier to change, and because it helps motivate employees for a certain task." The company tries not to use this informal compensation too often. They use it only at critical times and when they want to create great motivation and morale. (They are afraid that frequent use will make an employee feel indifferent to it so that the rewards can no longer motivate effort.) The company does not plan to formalize the payment since "it is not necessary".

The company does not seem to have difficulties controlling the items chosen as informal pay. The pay seems to be aimed toward morale enhancement.

At **Chemical**, the respondent reports the use of informal compensation in terms of reimbursement for gas, etc., for middle-level employees. A vice-manager of the factory can request about B 2,500 - 3,000 per month. (An average salary per employee is B 30,000 – 40,000.) A cashier is also entitled to B2,000 - 2,500 per month (The average monthly salary is B30,000 – 35,000.) The cash is paid to enhance morale and work efficiency. The respondent mentioned they do not plan to formalize the informal pay. "Before paying this extra compensation to an employee, the executive considers both performance and other factors. Therefore, for convenience, paying extra compensation should be the firm's "option" [rather than commitment]; it is more suitable to pay informally."

At **Hotel**, the respondent mentioned the hotel does not use any informal compensation in the questionnaire. From further enquiry, informal compensation in terms of gifts is paid. As the respondent puts it, "We give gifts to employees at the annual staff party only. We collect gifts from suppliers and high-level staff, and buy some more. Almost all employees receive gifts. The lucky draw will decide who gets what. The values of the gifts range from B30 to B10,000."

When asked why the firm pays informally, the respondent from Hotel gave a different answer than other respondents.

... most employees do not distinguish between formal and informal. If they receive anything regularly, those things will become "formal" to them automatically. They hardly read any rulebook unless someone points out something to them. And formal or informal does not really matter to them because management has the ability and power to change the rules. ... If we want to start something new, we want to try it first. For informal benefits, we can quit more easily if it does not work. Once again, if we do something regularly for a long time, people will think of it as formal regardless of the rules in the book. For example, we have had employee meals for over 30 years; many people think that it is required by law to provide employee meals. Only the personnel manager and few other people know that this is something extra to them. Later on we put employee meals into our employee handbook to make it official.

Interestingly, it seems that we have an example of the firm which does not seriously enforce its control, in order to allow extra compensation here, as the respondent explained below.

New Year's gifts [from suppliers] are prohibited by the managing director. Many gifts slip through because we do not seriously enforce the policy, and rejection of such a gift is difficult – it could be impolite and ruin the relationships. Small gifts, like calendars and organizers, are common. Small gifts can help promote good will and build relationships. The question is how much is small. And this can develop into the bad habit of expecting to receive gifts from suppliers.

#### **Employee Resistance to Changes in Formal and Informal Compensation**

Researchers in organizational behavior argue that it is beneficial to pay informally because informal compensation is more flexible (Greenberg and Scott, 1996). I asked the respondents to report employees' reaction to the changes in formal and informal compensation. From their replies, it seems easier to change informal compensation, and employees do not resist the change in informal pay.



At **Pharma A**, to change the formal compensation practices, one needs to propose the change to the managing partner, explaining the pros and cons of the change. It is rather difficult to change since this will directly affect the expenses.

When asked about employee resistance, the respondent replied, "The change is feasible but not very easy. To some degree, employees resist. ... the business tries to communicate in order to have the majority of employees understand the situation to prevent employees from joining forces to resist the change." The latest changes include

(1) Change the compensation plans for the newly hired employees; (2) Employee performance evaluation is changed yearly to create a pattern of yearly changes; (3) Change a position of an employee (by arguing that the change is based on suitability and employee performance) in order to change the compensation paid to that employee; (4) The business changes the compensation structure every year. This is because the business does not want to its employees to be able to claim that the existing pay is an organizational tradition or custom.

The production manager mentioned that it is much easier to change the informal compensation plan. He needs to do nothing as long as the total amount of the pay is the same. If the production manager wants to increase the total amount, then he needs to ask for the managing partner's authorization. The production manager never reduces the amount of pay. The employees' reactions are positive since they receive more.

To change the formal compensation plan at **Pharma B**, one needs to propose a change to the committee for approval. The committee consists of three members: the personnel manager, one member from administration, and one from finance. In practice, the changes must be approved by the committee, all executives and the personnel department. Usually, it is the personnel manager who proposes the changes. Some employees may resist the change, but usually the problem can be solved in few days by the personnel department through proper communication and explanation. Note that the number of employees is 144 at Pharma B but is 289 at Pharma A. So it appears that employee resistance becomes more problematic as the number of employees increases, and informal compensation seems more useful.

The firm has not experienced employees resisting the changes in informal compensation.

At **Auto Parts**, to change the formal compensation plan, the personnel manager need to consult the administration manager and then propose the change to the CEO (managing director). It takes in total approximately six months to complete rounds of consideration. An employee's reaction seems very important in this Japanese-Thai firm, as the respondent put it.

More than one conference to consult and elicit opinion from employees will be arranged. If the majority of employees disagree, then there will be no change. Any changes in compensation plan will not be undertaken without approval from the majority of employees, since the company wants to avoid labor conflicts.

There has been no employees' resistance, since all the changes are to improve employees' benefits.

At **Hotel**, to change the formal compensation plan, one needs to discuss the change with the general manager, who will then discuss the matter in a management meeting. The general manager then seeks approval from the managing director. The change is not difficult, provided all executives agree. "The personnel department will only object if the change is illegal, or has technical difficulty such as huge data collection." Employees may resist the change, which can be solved by communication.

Since the informal pay used in Hotel includes gifts, it is obviously not difficult to change.

At **Chemical**, to change formal compensation, executives need to propose the change to the board for approval, which is not difficult in practice. However, the change must not be against the law, and it must not make the employees worse off (to avoid employee resistance). Since the changes usually make employees better off, there is no resistance. As to informal compensation, the respondent reported no changes so far.

## Conclusion

This paper describes compensation practices in five Thai companies. It illustrates the nature of non-cash and informal compensation used and the reasons behind each pay. The firms studied pay in terms of goods and services

to exploit a cost advantage, to improve production, to recruit better job candidates, and to enhance employee morale and satisfaction. The firms pay informally to benefit from greater flexibility and to elicit more cooperation and information from the payee.

The findings seem to confirm human resource expert's suggestion that non-cash compensation is important and should be used more and used creatively. It is not just about how much to pay and when to pay (immediate or deferred), but also about the composition of the compensation bundle. Proper compensation design can not only deter shirking, but it also solves other employee misbehaviour problems.

Furthermore, the cases suggest how informal compensation can be used to supplement a formal contract in different ways. It can be used to reward better performance when subjective performance evaluation is used and employers want to avoid labour disputes. It can be paid selectively to individual employees to supplement the standardised formal compensation contract or formal compensation policy. It can be paid to mitigate employee deviant like non-cooperation for the tasks outside formal job description.

In compensation design literature, the optimal contract is usually characterized very much based on the characteristics of the agent (the employee) and of the performance measures available. The only aspects of the principal (the employer) usually considered is her risk preference (i.e., whether she is risk averse or risk neutral). The findings hint that compensation in practice depends much on the characteristics of the organizational leader. Future research on the effects of organizational leadership on compensation practices will contribute to our better understanding in the area.

## **References**

Contact author for the list of references

# Employee Job Satisfaction and Excellence of Total Quality Management

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## Abstract

The management in total quality implies that it's a management approach, not just a narrow quality control or quality assurance function. Total Quality Management (TQM) is a very people oriented and has many implications for the study and application of organizational behavior. Some principles and practices of TQM may differ among firms and industries, but there is unanimous agreement as to the importance of job satisfaction of employees in implementing TQM. Accordingly the objective of the paper was to empirically investigate the impact of employee job satisfaction on the excellence of TQM. This study limited to twenty private sector banks in Sri Lanka. The sample of the study consisted of 180 operational level employees. The researcher used convenience sampling in selecting the subjects. The instrument used in the study was a survey questionnaire. The Correlation analysis explained a positive moderate relationship between employee job satisfaction and excellence of TQM ( $r=0.484$ ,  $p=0.000$ ) That is, employee job satisfaction is positively related to the excellence of TQM. According to the regression analysis, 23.4% of excellence of TQM is accounted for by job satisfaction of employees. Accordingly this study implies that the job satisfaction of employees plays a vital role in implementing and gaining the excellence of TQM. Key words: Total Quality Management, Employee Job satisfaction, Excellence of Total Quality Management, Private Sector Banks in Sri Lanka.

## Introduction

Oakland (1989) argues that after the industrial revolution of the nineteenth century and the computing revolution of the early 1980s "we are now without doubt in the midst of quality revolution" (Wilkinson, *et al*, 1998). Development in the product markets; technology, and legislation have led employers to search for new strategies and structures. Accordingly product and service quality are high on the agenda of both private and public sector organizations with quality certification and Total Quality Management emerging as key concerns. (Wilkinson, 1996). TQM is a management approach of an organization centered on quality based on the participation of all of its members aiming at long term success through customer satisfaction and benefits to all members of the organization and to the society (ISO 8402). Accordingly TQM is an organization wide approach to continuously improving the quality of all the organizations, processes, products and services (Kotler, 2000)

Having discussed what is meant by TQM, we can look in at the two aspects of the TQM namely 'Hard' and 'Soft' aspects.(Wilkinson,1998).The hard aspect reflecting the production orientation of the quality 'gurus' emphasizes systems, data collection and measurement. It involves a range of production techniques including statistical process control, changes in the layout, design processes and procedures of the organization, and use of the seven basic TQM tools used to interpret data. (Process Flow Charting, Tally Charts, Pareto Analysis, Scatter Diagrams, Histograms, Control Charts and Cause and Effect Analysis).The soft side focuses on the management of human resources in the organization and lays particular emphasis on the need to change the culture. TQM thus emphasizes both production oriented and employee relations oriented elements.

Accordingly the management in TQM implies that TQM is a management approach, not just a narrow quality control or quality assurance function .It should be remembered that every one in the organization is involved in TQM not just project head. In other words TQM is a very people oriented and has many implications for the study and application of Organizational Behavior. An extensive review of literature indicates that the leadership, conducive work culture and positive attitudes of employees as the major factors that affect the excellence of TQM.

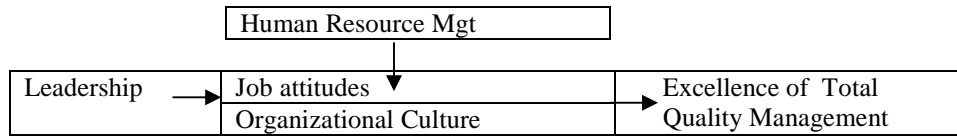


FIG. 1: MAJOR FACTORS WHICH AFFECT THE EXCELLENCE OF TQM

According to Collard (1989, pp.7-11) favorable attitudes of employees towards job satisfaction, job involvement, and commitment are determinants of excellence of TQM of any organization. However the researcher has confined the study only to employee job satisfaction as a determinant of excellence of TQM. Locke(1976,p.1300) gives a comprehensive definition for job satisfaction as involving cognitive , affective and evaluative reactions or attitudes and states it is “a pleasurable or positive emotional state resulting from the appraisal of one’s job or job experience”.

## Dimensions

*Job satisfaction of employees is measured by using 12 item questionnaire. The questionnaire addresses the following six dimensions of the concept of Job satisfaction.*

*Dimension 1 - Work itself*

*Dimension 2 - Pay*

*Dimension 3 - Promotions*

*Dimension 4 - Co-Workers*

*Dimension 5 - Working conditions*

*Dimension 6 - Supervision*

According to the theory TQM success is measured in five main areas of effectiveness, efficiency, productivity, quality, and non quality related measures such defects, error rates, cost of poor quality and deliveries not on time etc(Oakland, 1995, Pp.173-187) For the purpose of the research the researcher has given his own operational definition for the success of TQM. That is TQM success is measured in terms of employee perception of the quality. Accordingly TQM success is the perception of a person to see in the production of the final product that, he should be educated in the process and should be participated with full authority and self control with the intention of being innovative, so that the ultimate product or service to be free of errors in accordance with the current prevailing quality concepts. There are seven dimensions identified for the measurement of success of TQM. They are,

- D<sub>1</sub> - Educative Process
- D<sub>2</sub> - Participative structures (Quality Circles, Action Teams etc.)
- D<sub>3</sub> - Greater autonomy and self control
- D<sub>4</sub> - Decreasing trend of errors towards zero defects
- D<sub>5</sub> - Adherence to quality concepts
- D<sub>6</sub> - Creativeness or innovativeness
- D<sub>7</sub> - Perception of customer satisfaction.

## Objective of the Study

The objective of this paper was to empirically investigate the impact of employee job satisfaction on the excellence of Total Quality Management .Accordingly this paper examined the following research question.

Does the employee job satisfaction have an impact on the excellence of TQM?

## Methodology

### The Sample

The sample of study consisted of 180 operational level employees who are working under functional heads of operations, marketing, human resources, and finance departments. The researcher used convenience sampling in selecting the subjects. The subject community has all the characteristics of the type needed for in-depth study of this topic.

### Instrumentation

The instrument used in the study was a survey questionnaire which consists of 34 questions. Job satisfaction has been measured by a 12 item questionnaire which has been originally devised by the Locke(1976).The success of TQM has been measured by a 15 item questionnaire originally devised by the researcher for this specific study. Of the 34 questions, seven were designed to gather background information of the respondents.

### Data Collection and Analysis

Two hundred questionnaires along with a covering letter were distributed among the selected sample of employees. It explained the purpose of the study and the importance of the participation of the employees in responding to the questionnaires.

The first stage of data analysis involved computing descriptive statistics as frequencies and percentages for analyzing characteristics of the subjects. Second a reliability analysis was done to check whether the questionnaires measure the variables reliably .The alpha values were calculated for the same purpose. If the alpha values are greater than 0.5, the questionnaires measure the variables reliably (job satisfaction questionnaire and excellence of TQM questionnaire). Third a factor analysis was performed to find out the dimensions of each variable, how questions are grouped to dimensions, to find out whether any unwanted questions can be eliminated from the questionnaire. Finally the simple correlation analysis was performed to identify the relationship between job satisfaction and excellences of Total Quality Management.

## Results

### Questionnaire Responses and the Profile of Employees

There were 190 responses from the 200 questionnaires. It is a response rate of 95%, which is at a satisfactory level. However 180 questionnaires were selected for this analysis. It shows that 70% of the respondents were male employees while the rest were female employees. The majority of the employees appear to be within the age group of 36-50(58%).The highest number of respondents having been employees with G C E (A/L) qualification (50%) while rest 30% and 20% of employees were degree qualifications and GCE (O/L) respectively. The respondents have been from majority group having job experience of 6-10 years. There were 76% of married and 24% unmarried employees in the sample.

### Reliability Analysis and Factor Analysis

A reliability analysis was done to check whether each Questionnaire measure the variables reliably. The Chronbach's Alpha value was measured for this purpose .The results reveal that the questionnaires measure the variables reliably.

TABLE 1: SUMMARY OF RELIABILITY ANALYSIS

	Questionnaire	Alpha Value	Comment
01	Job Satisfaction Questionnaire	0.6678	acceptable
02	excellence of TQM Questionnaire	0.6832	acceptable

Factor analysis is a statistical procedure to take a large number of constructs and reduce them to a smaller number of factors that describe this measure. A 'factor' is a combination of questions where shared correlation explains a certain amount of total variance. After rotation, factors are designed to demonstrate underlying similarities between groups of variables.

Three measures were considered for the analysis.

- (1) Kaiser – Meyer – Olkin Measure of Sampling adequacy  
KMO measure is acceptable, (KMO = 0.756) since it is higher than 0.5. Therefore the distribution of data is acceptable for performing the factor analysis.
- (2) Bartlett’s test of sphericity  
Bartlett’s test of sphericity: Significance = 0.000. This result is acceptable since data do not differ significantly from multivariate normal. That is the chance to differ occurs at  $p = 0.000 < 0.05$ .
- (3) Component Matrix  
At the beginning there were two components. But, after extracting, two variables come under one component. Therefore the entire set of questionnaire is one-dimensional. It means that the questionnaire has equally measured all of the variables.

**Descriptives**

The Standard Error of Mean (SEM) is less than 3.5% for all variables and the highest standard Error of mean is for job satisfaction (2.6%). The excellence of TQM has the highest average scores while job satisfaction has the minimum. Overall averages are above 03, and it implies that successfulness of all factors.

The following table shows a summary of the descriptives.

TABLE 2: SUMMARY OF DESCRIPTIVES

	Mean	Standard Deviation	Remarks
Job Satisfaction	3.99	0.246	Lowest dispersion : Points scattered close to the mean
Excellence of TQM	4.15	0.248	Points scattered some what close to the mean.

**Correlation Analysis**

Scatter plots were taken to identify relationship of excellence of TQM with the job satisfaction. The correlation between job satisfaction and excellence of TQM is positive and significant at 1% significance level since  $r = 0.484$  and  $P = 0.000$ .

The results of the scatter plots are commented as follows.

TABLE 3: COMMENT ON SCATTER PLOTS

Variables Involved	Correlation Co-efficient(r).	Comments
Job satisfaction- Excellence of TQM	0.484	A positive correlation The points are much scattered around a straight line

**Regression Employee Job Satisfaction – Excellence of TQM.**

The analysis gives s the following information.

1.  $R = 0.484$ , which means a moderate gradient regression line.
2.  $R^2 = 0.234$ , means 23% of the variance of excellence of TQM was accounted for by employee job satisfaction.
3. Sum of squares figures explain a larger proportion of unexplained variance than explained variance.
4.  $Sig F = 0.000$ , which shows that a particular “F” value could occur by a chance of less than 1 in 1000.

**Test of Hypothesis**

The hypothesis states as follows: “Employee job satisfaction is positively related to the excellence of TQM.”

Correlation analysis explained a positive relationship between job satisfaction and excellence of TQM ( $r = 0.484$ ,  $P = 0.000$ ). Regression analysis also supports this by giving a value, ( $B_3 = 0.234$ ). Hence employee job satisfaction is a predictor of excellence of TQM ( $F = 35.189$ ,  $0.000$ ). Hence the decision is: employee job satisfaction is a predictor of excellence of Total Quality Management.

## Discussion

The empirical investigation on the employees of private sector banks of Sri Lanka reveal that there is a positive significant correlation between job satisfaction and the excellence of TQM at 1% significance level ( $r = 0.484$ ,  $P = 0.000$ ). This was based on 2 – tailed tests. The simple regression analysis describes that JS has a positive impact on excellence of TQM with the strength of  $B = 0.488$  ( $F = 54.479$ ,  $P = 0.000$ ). The level of JS of employees gives a measure of excellence of TQM and it has a 23.4% accuracy of predicting. That is 23.4% of excellence of TQM is accounted for by JS.

The JS of the sample gives a satisfactory level (Mean = 3.9889, Standard Deviation = 0.2462). It explains that they have a favorable level of JS. The standard deviation shows that all employees have a satisfaction concerning their job at plus or minus 0.2462 Standard Deviation level.

## Conclusion

This study mainly focused on employee job satisfaction as a determinant of excellence of TQM. The study reveals that job satisfaction has a positive and moderate correlation with the excellence of TQM. Hence the majority of the employees were satisfied in their job. Accordingly employee job satisfaction is a pre-requisite when creating an atmosphere for enhancing the excellence of TQM of any organization. In fact other variables which were not considered on this study should be the variables that will count for unexplained variance in the excellence of TQM. The researcher believes that the important variables may be leadership, strategy, culture, structure, and process quality.

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## **An Assessment of China's Economic Engagement in Africa**

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### **Abstract**

Once stifled by the Cultural Revolution, China's recent reforms have produced a political, economic, and commercial renaissance that is transforming the global balance of power. China's rapid economic growth, coupled with its large population, have created unprecedented increases in demand for raw materials and capital formation that is constantly increasing living standards to hitherto unimagined levels. To sustain this growth, Chinese economic policy has moved beyond domestic reform to establishing new trading relations with other regions. These relations encompass manufactured exports to developed countries that depend on a growing flow of inputs from the developing world, not the least of which are the natural resource markets in Africa. In this paper, we examine China's growing economic interests in Africa to determine to what extent they can accelerate African economic integration and improve living standards in the continent.

### **Introduction**

For the past twenty years, three factors have shaped the nature of strategic relations between the West, Asia, and Africa. They are: a. The relative stagnation of western economies, whose real per capita growth rates have generally averaged three percent or less<sup>1</sup>; b. A continuing regression in Africa that with few exceptions reflects successive episodes of political instability, deadly inter-ethnic conflicts, inadequate infrastructural investment, and a general loss of export markets deriving from a loss of relative productivity; and c. The extraordinary economic growth of China and several neighboring Asian economies, often at double digit rates, around an export-driven model. All of these conditions have re-shaped the global balance of power.

### **The Changing Balance of Global Power**

Between 1988 and 2005, global population has increased by 19 percent while GDP has increased by 21 percent. At the same time, China's economic growth has made it the fourth largest in the world, with mean per capita GDEP not at U.S.\$1,740, and U.S.\$1,940 if one includes Hong Kong. In contrast, Africa as a whole has only experienced a 1.8 percent increase in per capita GDP over the same time period. As of 2005, some 925 million Africans produced a collective GDP of only U.S.\$1,080 trillion, and which was highly unevenly distributed at that<sup>2</sup>.

TABLE 1: THE CHANGING BALANCE OF GLOBAL ECONOMIC POWER

Population (in millions)				GDP (in current U.S.\$billions)			
	1988	2005	Pct. Change		1988	2005	Pct. Change
China(+Hong Kong)	1,085	1,310	20.7%	United States	\$4,488	\$12,970	189.0%
India	781	1,095	40.2%	Japan	\$1,924	\$4,989	159.3%
United States	244	297	21.7%	Germany	\$882	\$2,852	223.4%
Indonesia	170	221	30.0%	China (+HongKong)	\$354	\$2,560	623.2%
Brazil	140	187	33.6%	United Kingdom	\$587	\$2,264	285.7%
Pakistan	102	156	52.9%	France	\$716	\$2,178	204.2%
Russia	132	143	8.3%	Italy	\$604	\$1,725	185.6%
Bangladesh	102	142	39.2%	Spain	\$233	\$1,100	372.1%
Nigeria	102	132	29.4%	Canada	\$402	\$1,052	161.7%
Japan	122	128	4.9%	India	\$280	\$793	183.2%
Top 10 Countries	2,980	3,811	27.9%	Top 10 Countries	\$10,476	\$32,483	210.1%
of which Asian top 6	2,364	3,052	29.1%	(of which Asian top 3)	\$2,490	\$8,342	235.0%
Africa	720	925	28.5%	Africa	\$600	\$1,080	80.0%
World	5,200	6,200	19.2%	World	\$14,000	\$42,000	200.0%

Source : Atlaseco 2003 and 2007

China's recent and rapid economic growth carries particular implications for the global economy. One clear implication is that to sustain its recent historical rates of growth, China will look increasingly to foreign markets for the raw materials in energy and natural resources. And it also implies increases in the level of foreign investment within China to accelerate the process of technology transfer and absorption. In short, China's growth requires an absolute commitment to expanding globalization through trade and investment, particularly in developing areas such as Africa, much as is likely to be the case with India in the near future<sup>3</sup>.

### The Magnitude of China's Resource Needs

Given the size of China's economy, it already consumes as much coal, steel, cement, and cereals as the United States or the European Union. In fact, according to World Bank estimates, China's consumption in these areas alone is expected to double China's economy in the next several years. And if these trends continue, China's GDP soon will surpass that of Japan, and will progressively approach that of the United States. And for Africa, it means that China's trade with Africa, which stood at U.S.\$10 billion in 2000, has exceeded U.S.\$37 billion in 2005, and it likely to expand proportionately in the next several years<sup>4</sup>. In turn, this has created rising prices for many of the primary commodities on which African economies so strongly depend, be they agricultural or mineral exports. As such, this is seen as a positive development for Africa, even though the cost of primary materials for other parts of the developed world will place rising constraints on their ability to growth.

In terms of primary commodity markets, one already sees signs of a repeat of the exceptional growth of Japan in the 1970s, during which time rising primary commodity prices provided a temporary boom in African exports and income. In terms of energy consumption alone, experts in the Energy Information Administration estimate that between 2003 and 2030, global consumption of energy is expected to increase by one percent per year, but for China and its Asian neighbors, annual growth is likely to exceed 3.7 percent<sup>5</sup>. Given its low reserve to consumption ratios in energy, Chinese policy has been driven by an ever expanding set of initiatives to develop new sources of energy. This effort encompasses some domestic exploration, but also entails an expanding set of contractual relations with mineral rich areas of the world, of which Africa is one major source.

Few political leaders, let alone economists, have correctly foreseen the range and scope of China's energy and natural resource demand in the global economy. Nor have they foreseen the mechanisms that have been brought into play as this process has unfolded<sup>6</sup>.

If there is one basic explanation of this new growth dynamic, it is the fundamental shift in policy brought about by the reforms of Deng Xiao Ping that began in the late 1970s. Deng's recasting of economic reforms as "market socialism" masked the exceptional role that market forces would come to play in the post-Mao Tse Tung era, putting to rest all of the setbacks that had been wrought under the Cultural Revolution of the 1960s. Indeed, China already faces severe resource constraints within its economy, as can be seen by the Three Gorges Dam project, which is designed to overcome a chronic water shortage in the northeast part of the country as economic growth proceeds.

## **The Nature of China-Africa Economic Cooperation**

China's resource constraints have compelled its leaders to seek straightforward commercial ties with other parts of the world. These ties have been driven by an immediate economic need, and typically operate outside the cultural and political domain. It is this singular pre-occupation with economic cooperation that threatens to undermine efforts to improve the status of governance in Africa, let alone address environmental concerns.

From an African perspective, the sheer weight of China's expanding trade and investment flows has created an undoubted stimulus on local economic growth. Whereas African economies experienced stagnant rates of growth for the past thirty years, they now are beginning to see growth rates in excess of five percent, a rate not seen since the mid-1960s.

China's growing presence in Africa is transforming the historical ties to Europe that evolved during the colonial era. Although post-colonial efforts were undertaken to develop joint partnerships between many African countries and their metropolitan centers in London, Paris, Lisbon, or Brussels, many of these efforts foundered during the 1970s and 1980s. Much of the weak growth took place in the presence of the slow pace of economic reforms in Africa and by the continuing role of protectionism in Europe and elsewhere, especially in agriculture and primary commodities on which so many African economies depended. As a result, many African economies were all too ready to embrace Asian foreign trade and investment opportunities, not the least of which was the result of the outward expansion of China in recent years.

One critical factor in the successive expansion of China in Africa was the competitive position of Chinese exports in comparison to their developed country counterparts. Though geographically more distant from Africa than Europe, Chinese firms could offer an increasing range of capital and consumer goods at prices more closely attuned to the purchasing power of African economies. Part of this was due to relatively low costs from a still low income China. However, another aspect has been China's exchange rate, which has been favorable to its exports, particularly in comparison to traded goods from the EU, North America, and other parts of the developed world.

It is this proximity of relative costs that overcomes geographic distance in China's economic ties to Africa. It has resulted in a "win-win" attitude in which there are clear reciprocal gains from trade. As a result, China's foreign investment alone in Africa has already reached U.S. \$5.6 billion dollars, encompassing some 900 infrastructure projects in some 31 countries<sup>7</sup>. And it has also resulted in debt cancellation of some U.S. \$1.33 billion dollars as Chinese firms seek to sustain growing ties to Africa.

Perhaps the most outstanding example of Sino-African ties has been the Tan-Zam railway project, also known as the "Freedom Train". Begun in the last years of Mao's reign, it has operated for over thirty years. Initially it was designed as an anti-racist gesture in defiance of the apartheid regime in South Africa and neighboring ex-Rhodesia under Ian Smith. However, it has taken on a largely economic significance in recent years, and, as the Soviet Aswan dam project served in the 1950s, an example of South-South cooperation for Africa and China's future economic ties<sup>8</sup>.

The mix of Africa's economic ties to Africa is somewhat unequal. First, while China's foreign direct investment in Africa has already surpassed U.S. \$37 billion in 2005, Africa's exports to the rest of the world only amount to 1.6 percent of the global level. Moreover, China's economic ties to Africa also have been geographically concentrated, with 85 percent of Chinese imports from Africa involve only five African countries, and these are primarily those involved with crude oil exports<sup>9</sup>.

Second, China has expanded the range of these commercial ties with a number of diplomatic initiatives designed to strengthen longer-term ties. Among them are technical assistance, infrastructure projects, scholarships for African students to study in Chinese universities, and various business joint ventures. Within this perspective, China's interests remain firmly rooted in commercial opportunity. Thus Chinese overtures do not encompass such questions as good governance, humanitarian aid issues, or involvement with any of the various local ethnic conflicts that have sidelined so many African countries in recent years. In fact, there is only one political priority among the Chinese, namely, that African governments do not grant diplomatic status to Taiwan<sup>10</sup>.

In terms of diplomatic initiatives, Chinese officials inaugurated a Confucius Institute in Nairobi, Kenya in December 2005. This is comparable to the various Goethe Institutes of Germany or the Alliances Françaises of France, the essence of which is the promotion of cultural understanding. As is the case with their European counterparts, Chinese and Kenyan officials have established university partnerships, most recently one between the University of Nairobi and Tianjin University. Such accords will increase the level of student and faculty exchanges between the two countries.

Another diplomatic initiative involves the startup of the first Chinese FM radio station in Africa, once again in Kenya<sup>11</sup>. Like its French RFI and German Deutsche Welle counterparts, China International Radio will broadcast in several languages on current events and cultural news.

In a further initiative, Chinese officials have sent a team of medical experts to Uganda to work on AIDS prevention and treatment programs<sup>12</sup>. The recent visit of Chinese Prime Minister Wen Jiabao gave formal affirmation of this commitment. But China's technical assistance in medicine has not been limited to Uganda. Over the past 38 years, for example, the Chinese province of Heilongjiang has sent more than 1,000 medical technicians in Mauritania to provide assistance to rural communities. And for the first time, in 2006, Chinese doctors have begun training in social psychology to help them improve services in various local communities in Africa.

Beyond these steps, Chinese officials also have worked to improve telecommunications in Africa. They have provided significant upgrades to the telecommunications grid in Ethiopia, and in 2007 China Aerospace is expected to launch a 3B Long March telecommunications satellite, NIGOMSAT-1, for use by Nigeria telecommunications.

Finally, Chinese firms also provide arms sales to various African countries. As with other initiatives, the intent of these sales is less ideological than commercial. The most notable are those distributed by the China North Industry Corporation (NORINCO) and Polytech Industries, which have made sales of fighter aircraft, military transport, and armored vehicles to various countries, notably in Angola<sup>13</sup>.

## **Sino-African Diplomacy**

Since the 1950's, China has espoused what the late Prime Minister Chou En Lai called the "five principles of peaceful co-existence". These principles have served as a reference for Chinese relations with other Asian countries, with Latin American countries, as well as those in Africa, whether or not they were independent or aspiring to political independence at the time. These principles are: mutual respect of national sovereignty and territorial integrity, mutual non-aggression, non-interference in the internal affairs of sovereign states, and equality and reciprocity of benefits from joint relations. These principles of peaceful coexistence were at the center of the 1955 Bandung conference, which involved representatives of some 29 countries from Africa and Asia. For China, it formed the centerpiece of an evolving South-South cooperative framework for political, economic, and cultural relations.

Despite the lofty tone of the Bandung conference, political divisions rapidly emerged. Among them were China's position on several key issues. First was the notion that South Africa was a racist state and therefore unworthy of recognition, that Israel was anti-Arab and should not be recognized, that Taiwan was an historical part of mainland China and should be politically re-integrated, that Hong Kong would revert to Chinese sovereignty on the expiration of the 99 year lease with Great Britain, and that North and South Korea should be peacefully reunited. In each of these areas, China's position has not wavered even as domestic political and economic changes have taken place.

During the Cold War, China and the Soviet Union each sought to lead the developing world in a struggle against Western political and economic domination. China severed all ties with countries that granted diplomatic recognition of Taiwan, even as the latter continued to hold a permanent seat on the UN Security Council. In 1963, Prime Minister Chou En Lai made a visit to ten countries in Africa to strengthen diplomatic ties. Although France granted diplomatic recognition to mainland China in 1964, China continued to present itself as an ideological window in which every success would be viewed as a victory for communism, and thus state-driven policies. For many African countries seeking greater independence from their former colonial masters, this was a seductive formula. Not surprisingly, of the 76 UN votes in favor of mainland China's application to replace Taiwan at the UN Security Council, 25 were by African countries.

The passing of Mao Tse Tung in 1976 marked a turning point in the Cold War. With the United States no longer at war in Vietnam, China began a slow transition away from the political and military diplomacy under Mao to the expansion of market reforms for economic growth. Much of this took place under Deng Xiao Ping, whose emphasis on market socialism was characterized by the phrase: "It makes little difference if the cat is grey or black as long as it can still catch the mouse".

China's first steps in this reform were diplomatic. In addition to the principles of independence, decolonization and non-interference, Deng added the principle of peace through mutual efforts, and that economic development constitutes the centerpiece of non-alignment. As evidence of this new initiative, China's efforts to secure new sources of petroleum explicitly avoided any reference to governance, the environment, or human rights. And African leaders responded in kind in affirming mutual respect in a climate of cultural diversity.

China's approach to economic ties differs from that of the West. Western countries engaged in mineral resource industries, for example, often tie their commitments to environmental quality, to sustainable development, financial transparency, and in general, to good governance<sup>14</sup>. In this context, Western observers have often criticized Chinese initiatives that are relatively expensive, with doubtful utility, or with unrealistic goals. This has been particularly so in reference to Chinese projects that are more or less grants or without any conditions involving the above criteria. As to the Chinese, their own approach has been expressed in a document put forth by President Hu Jintao in Jakarta in April 2005, The New African-Asian Strategic Partnership<sup>15</sup>. While these differences in approach are significant, in the near term at least, as long as African countries enjoy real increases in per capita income, issues of environmental quality, financial transparency, good governance and the like will probably be ignored by African countries<sup>16</sup>. Some have even characterized China's purely commercial policy as a "Chinese safari in the African El Dorado"<sup>17</sup>.

#### **The Economic Significance of Sino-African Economic Cooperation**

Nothing symbolizes more China's interest in Africa than in the energy sector. We have already noted China's growing demand for energy and raw materials, and that Africa is a likely source for major expansion in the future. To appreciate the magnitude of the energy sector, we show in Table 2 below the economic significance of energy to the two zones.

TABLE 2: PRODUCTION AND CONSUMPTION OF PRIMARY ENERGY

<b>Crude Oil production</b> in millions of metric tons		<b>Primary Energy Consumption</b> millions of metric tons of oil equivalent	
Asia and Pacific Asia*	386 (9.9%)		3,954 (35.1%)
of which China	181		1,717
Africa	465 (11.9%)		579 (5.1%)
Europe**	847 (21.6%)		2,008 (17.8%)
North America	624 (15.9%)		2,580 (22.9%)
Middle East	1,232 (31.4%)		504 (4.5%)
<b>Total</b>	<b>3,918</b>	<b>Total</b>	<b>11,276</b>

\* Asia-Pacific: Japan, Australia, New Zealand

\*\* including Eurasia (Kazakhstan and Russia)

Source : ENERDATA, September 2006

What Table 2 does not show is that the imbalances in petroleum are even more acute. Petroleum, along with natural gas, remains far and away the most desirable form of primary energy, the remainder being accounted for mostly by coal, followed by nuclear energy, and renewable sources. China's entry in the global economy as a major source of fossil fuel consumption complicates not just the energy balances of the rest of the world, but also the effects of China's energy consumption on the environment.

Apart from the impact of the Three Gorges dam project that we have already noted, we find that while China's per capita energy consumption still is relatively small, the rate of growth may place considerable demand on global energy supplies for the future. Already China's per capita consumption of 1.32 metric tons of oil equivalent in 2005 exceeds that of India, at .78 metric tons of oil equivalent. And while China's one-child per family policy will undoubtedly slow consumption somewhat, even at present rates, China's population still is expanding by some 9.6 million each year.

## Tracking the Balance of Trade and Investment

In light of China's growing need for primary resources, and of the role that Africa is likely to play in meeting that demand, it is worth taking stock of the magnitudes in question. As of 2005, China's exports of manufactured goods to Africa stood at U.S. \$18.3 billion, while African exports to China were valued at U.S. \$20 billion. This nominal deficit is actually somewhat greater if we take into consideration the net cost of Chinese foreign direct investment and technical assistance to Africa. As to China, Africa's exports represent only 3.6 percent of Chinese imports, and 3.3 percent of its exports. The small deficit that this entails is more than offset by the trade and investment surplus that China enjoys with other parts of the world, most notably to North America and the European Union. And for African countries, this new source of trade and investment is significant in comparison to historical norms<sup>18</sup>.

Chinese expertise in mineral exploration and refinement has resulted in a major role in the development of fields in Angola, Gabon, Zimbabwe, Sudan, Nigeria, and Algeria, among others. Although China's national oil company, CNOOC, undertook an unsuccessful bid to purchase UNOCAL,

In the Sudan, China picked up the trail of oil exploration started by western companies. In a key move, the CNOOC, Petronas, and Talisman began developing the Muglad oil reserve in the southern part of the country. They bypassed American firms who had disapproved of Khartoum's persecution of Christian rebels in the south. The result of this operation is that China now purchases six percent of all of its crude oil from the Sudan. Muglad now produces 500,000 barrels per day and the Chinese-constructed oil refinery can process 2.5 million barrels of crude per year, and which is transported by oil pipeline to the Red Sea export terminal at Lamu. And, in order to secure the flow of crude oil, Chinese guards have been deployed along the lines leading from the oil field to the refinery and thence to the export terminal<sup>19</sup>. While accurate figures are hard to come by, it appears that China is buying up to fifty percent of Sudan's oil production (some 10 million metric tons out of 18.7 produced in 2005). This is a surprising figure, given the classification in 2006 by *Foreign Policy* that the Sudan is one of the most unstable countries in the world<sup>20</sup>.

In Nigeria, which produces some 232 million metric tons of oil equivalent and exports 60 percent of its production, CNOOC now controls 45 percent of the oil consortium, Nigerian South Atlantic Petroleum. Nigeria is the fifth largest oil exporter in the world, with more than 2.5 million barrels of daily production. At the same time, Nigeria is one of the most corrupt countries in the world and its vast oil production takes place against a backdrop of extreme poverty of the local population. This has resulted in guerilla actions by local forces against major oil companies in the Niger Delta, and have discouraged additional foreign capital inflows to develop Nigeria's potential.

Angola had been abandoned by the Chinese in the middle of the 1970s as the Soviet Union worked to develop local oil production. This situation was reversed in the last fifteen years, with China now purchasing thirty percent of Angolese oil exports. In 2006, Angola became the largest source of oil exports to China, and officials in Luanda have begun plans for a Chinese quarter to expand local production, with direct air flights to Beijing<sup>21</sup>. However, as in the case of Nigeria and the Sudan, Angola's oil exports have become subject to routine raids by local groups seeking to de-stabilize the regime, particularly in the area of Cabinda. Angola's oil production, which

reached 60 millions of metric tons of oil equivalent make the country a powerful magnet for Chinese firms. And to secure the flow of crude, Chinese officials have sold armaments to the local military to counter major opposition groups such as UNITA.

In Algeria, the China Petroleum and Chemical Corporation (SINOPEC), undertook an investment of U.S. \$400 million in September 2002 to develop the Zarzaitine, near Hassi Messaoud, as well as the construction of a refinery in Adrar. In 2003, half of the Algeria's total imports came from China. In 2004, Chinese and Algerian officials signed a bilateral cooperation agreement organizing the trade of Algerian petroleum products with Chinese manufactured goods.

## **China's Foreign Direct Investment Flows in Africa**

Foreign Direct Investment (FDI) is an important corollary of bilateral trade relations between China and its various country partners. While China itself is a major recipient of Western FDI, China is providing in turn major flows to the developing world<sup>22</sup>. Typically, FDI in China is undertaken by governmental agencies, firms, or western investors drawn to the double digit growth that the country has enjoyed for the past several years. However, China's FDI abroad differs in some fundamental respects: western investment in China is predominantly privately owned, whereas Chinese FDI abroad is overwhelming undertaken by publicly owned enterprises. Moreover, these public firms make such decisions only under authorization of the Chinese Communist Party, which continues to retain its monopoly over China's political governance.

China has become the most dynamic destination for Africa's external trade. Between 1999 and 2004, the value of African exports to China have increased by 48 percent per year. In turn, the value of African imports from China have increased by 18 percent per year, reaching U.S.\$11 billion in 2005. At current levels, Africa's trade with China is supplanting that of Japan, which for quite some time was the principal Asian competitor to European and North American firms in the region.

China has an incentive structure to expand new capital inflows to the west of the country even as export industries are being developed. In 2004, the number of Chinese firms undertaking FDI abroad was 2,000 and reached 5,000 in 2006. The value of this Chinese FDI is expected to reach U.S.\$25 billion dollars within ten years. As this pattern unfolds, China's embrace of globalization is basically irreversible for the foreseeable future. And for Africa, it means a Chinese major role in uranium exploration in the Central African Republic, railway, public works, lumber, manganese and niobium in Gabon, bauxite and aluminum in Guinée-Conakry, coal chrome and public works in Zimbabwe, public works in Ethiopia, public works, copper, and cobalt in the Democratic Republic of the Congo, and copper and cobalt in Zambia, just to name a few.

China is the largest importer of African timber. In the Congo basin alone, China imports 4 million metric tons of logs each year. The Gabon National Timber company has opened a branch in Shanghai. Chinese firms, working in joint ventures with local firms, have obtained major logging concessions in Africa. This has provoked major debate over deforestation and sustainability of timber harvesting in Africa. Logging in Africa often is undertaken illegally by local poachers, whether for local interests or foreign firms seeking new sources of supply. To the extent that Chinese firms are displacing either Western or local firms, the concern is whether environmental norms are going to be further undermined from their already precarious state.

The extraordinary deployment of Chinese overseas investment is unfolding against a backdrop of concern over sudden interruptions of supply that could undermine China's dramatic rates of growth. As a result, Chinese firms have become particularly aggressive in seeking local contracts for exploration and extraction of primary materials, especially in comparison to Western oil, timber, and mining firms operating in the area.

Data on FDI flows released by the Chinese Ministry of Trade (MOFCOM) list an inflow value of U.S.\$60.3 billion in 2005, rising progressively to U.S.\$72 billion by the end of 2006. At this rate, China is poised to displace Great Britain and the United States as the primary destination of FDI in the world. Such capital inflows to China stimulate the expansion of China's exports, and in turn, China's need to expand its own FDI in primary commodity rich areas such as Africa.

TABLE 3: CHINESE OUTBOUND FOREIGN DIRECT INVESTMENT

	2005 Pct.	2005	2006*	2015*
Asia Pacific	41.9%	\$2,933	\$3,600	\$10,500
European Union	22.8%	\$1,596	\$2,000	\$5,700
Other Europe	10.0%	\$700	\$900	\$2,500
Africa	9.1%	\$637	\$800	\$2,300
North America	7.4%	\$518	\$650	\$1,900
Latin America	6.3%	\$441	\$550	\$1,600
Middle East	2.6%	\$182	\$230	\$600
<b>World</b>		<b>\$7,007</b>	<b>\$8,800</b>	<b>\$25,000</b>

\*Estimate based on growth during 2004 to 2005

\*\*Estimate based on global levels of FDI of \$25 billion in 2015

One factor that underlines China's overseas investment, particularly in minerals, is the political uncertainty in the Middle East. As would any risk averse investor, Chinese firms, like their Western counterparts, are increasingly making efforts to diversify their investments in minerals, for which Africa is a major beneficiary. As this Chinese economic offensive unfolds, we see a web of interrelationships that are flourishing. As African exports, particularly mineral exports, to China expand, what is likely is that Chinese firms, which are essentially para-statal enterprises, will undertake more transformative investments in Africa. Thus far, this has included some 800 Chinese firms in Africa engaged in agribusiness, fishing, mines, exotic timber species, telecommunications, radio stations, and tourism, to mention a few. In fact, Chinese tourism in Africa is taking an ever larger role. And in exchange, China often grants zero tariffs for many African exports as a way of guaranteeing reliability of supply.

### The Downside of Sino-African Economic Relations

Several criticisms have been made of the expanding China-African relationship. Some of them have been posed by foreign observers while others have been made by Africans themselves. We examine briefly the nature of these criticisms and what they portend for the future.

One oft-cited criticism is that when Chinese nationals establish a presence in an African country they do so through a strict system of social and cultural separation. The lack of interpersonal contact is seen as impeding mutual understanding, even though it could simply be a matter of a lack of comprehension of their respective languages of communication. In contrast, Western firm employees typically live in the same areas as their African counterparts, eat in the same restaurants with their counterparts, and hire local Africans for maintenance and household services. From this often flow friendships that are sustained even beyond the terms of an immediate local contract. And it is not that unusual for a Western bachelor to marry an African with whom he or she would have a family.

Chinese contractors typically follow a different pattern. They frequently travel in groups, without their family, and bring Chinese nationals from home to handle such services as health care, household cooks, and the like. They appear rarely to mix with local Africans outside of official diplomatic functions, which reinforces a level of cultural separation. This is particularly so in the context of importing Chinese workers to perform functions that local, and often unemployed, Africans could do. This separatism echoes the criticisms once made of former European colonial powers over "exploitation" of local economies for their natural resources to the benefit of a homeland country.

What makes this image even more problematic is the rising flood of Chinese manufactured goods in African local markets, especially in cotton where recent declines in global prices have severely undermined African production.

Finally, China's commercial interests in Africa take place in a context of efforts to improve local governance, to support the expansion of democratic institutions and the fight against corruption. The rise in financial flows from China create economic opportunity for some, but as long as China's economic policies ignore



the larger political realities of corruption and abuse of human rights, the benefits are seen by many Africans as largely foregone. It is why there has been such vehement criticism of China's economic cooperation in the Sudan in the face of the humanitarian crisis in Darfur, for example.

When faced with these criticisms, Chinese officials often express irritation, and point to their policy of non-interference in the internal affairs of countries with whom they are dealing. They point out that Chinese purchases of petroleum products are well below those of Western firms, particularly those from the United States. Moreover, the Chinese point to the major investments they have made in the infrastructure of several African countries. And Chinese officials consider that criticisms of their policies are simply a cover for Western interests with whom they now are competing for local trade and investment.

## Conclusion

The global economy is in a process of continual evolution. The changes wrought by trade and investment vary substantially from one region to another, and from one time period to another. What makes today's situation unique is the relative stagnation of the West, the chronic problems in Africa, and the dramatic growth in Asia. China is the primary beneficiary of foreign direct investment, and undertakes massive investments in Africa to assure steady flows of the primary natural resources on which its future growth depends. In less than ten years, it has become a major partner in Africa whose comprehensive programs of cooperation in the cultural, financial, economic, and commercial spheres place it in the same ranks as Great Britain, France, Portugal and the United States.

Up till now Sino-African relations have been largely unilateral: the Chinese make major investments in Africa while Africa's presence in China is practically non-existent. While recent declarations by China's Ministry of Foreign Affairs point to a more egalitarian partnership in trade and investment, the very differences in economic and demographic size suggest that this is not likely to take place in the near future. In the present context, one must ask whether Chinese trade and investment in Africa will simply reinforce African economies in their role of producers of primary commodities. Major hurdles to the expansion of higher value-added industry in Africa reinforce this risk. In this regard, many African economists may be right when they look at the growing Chinese presence in Africa as a Faustian bargain.

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Contact the author for a complete list of references

### End Notes

Less than .9 percent for Germany, 1.4 percent for France, 1.8 percent for the United Kingdom, and 2.7 percent for Japan, in 2005. The exception is the United States, which grew at 3.5 percent in the same year.

<sup>2</sup> These estimates are derived from data published by *AtlasEco 2007*, (*Le Nouvel Observateur*), *l'Etat du Monde 2006* (éditions la Découverte), and *l'état de l'Afrique 2006 (Jeune-Afrique)*.

<sup>3</sup> See Harry G. Broadman (2006), *Africa's Silk Road: China and India's New Economic Frontier*. Washington, D.C.: The World Bank, September. Broadman's study points to a major expansion of Chinese and Indian trade and investment in Africa for the foreseeable future.

<sup>4</sup> You Yang, Interview, Agence France Presse, 26 March, 2006.

<sup>5</sup> "International Energy Outlook" (2006). Washington, D.C.: Energy Information Administration, System for the Analysis of Global Energy Markets.

<sup>6</sup> Few Western observers who have examined China's extraordinary economic performance have foreseen the range and scope of this transformation. A sometimes blind confidence in econometric models has led to more modest estimates, perhaps due in no small part to the imprecise quality of data on China's economic indicators as given in its national income and product accounts.

<sup>7</sup> Based on an exchange rate of 100 RMB=U.S.\$12.662.

<sup>8</sup> Wang Qinmei (2006). "Le chemin de fer Tanzanie-Zambie, un monument perpétuel", *ChinAfrique*, août. The decision to build the TanZam railway, a distance of 1,860 kilometers, required the construction of 22 tunnels, 320 bridges, and 93 stations, using some 16,000 Chinese workers, began in September 1965 with an agreement between Mao Tse Tung and Tanzanian President Julius Nyerere. Since its opening, the TanZam railway has carried 40 million travelers and some 30 million tons of merchandise. In recent years, the railway has become somewhat inefficient, due to poor maintenance and required upgrading to meet expanding traffic needs.

<sup>9</sup> IMF, Foreign Trade Statistics.

<sup>10</sup> In October 2005, Senegal and China decided to re-establish diplomatic relations after Senegal declared that "Taiwan is an integral part of Chinese territory and that there is only one China in the world." Etienne Gernelle, *Le Point*, 30 juin 2005.

<sup>11</sup> Séverine Laurent (2006). "La Chine à la conquête de l'Afrique côté médias", *Afrique Diagnostic*, Mars. The article points out that the China Radio and Television (CRTV) project includes not just the installation of equipment, but also the training of African technicians who can maintain the 'loyalty' of Africa.

<sup>12</sup> Xin Wan, cited by the ChinAfrique group, August 2006.

<sup>13</sup> Ludovic Woets (2006). "les enjeux de la puissance chinoise en Afrique", *GEO-K*, janvier.

<sup>14</sup> Non-interference of Chinese officials in authoritarian, dictatorial, and sometimes brutal regimes has become clear in the case of the Sudan. Chinese officials working in the country have refused to criticize the regime in Khartoum in response to the genocide in Darfur that began in July of 2004. China's ambassador on the UN Security Council refused to vote in favor of a resolution condemning events in Darfur, and refused to support an amendment that would embargo arms sales to the Sudan. China also abstained when charges against the Sudanese actions in Darfur were brought before the International Criminal Court in April 2005.

<sup>15</sup> This new partnership is focused on the creation of new economic and commercial strategic ties between Asia and Africa. At the opening of the summit meeting, the President was quoted as saying that “from a glorious past to a bright future: let us build a new type of strategic partnership between Asia and Africa.” The practical import of this meeting was a new emphasis on the building of infrastructure projects in Africa, on the expansion of agricultural productivity, and on the development of human resources in the region.

<sup>16</sup> Since the first Sino-African Cooperation Forum in Beijing in 2000, a consultative mechanism has been established and periodically renewed. At present, Hu Jintao and Wen Jiabao will spearhead the new forces of cooperation between China and Africa.

<sup>17</sup> Drew Thompson (2004), “Economic Growth and Soft Power: China’s African Strategy”, Brief Number 7, December.

<sup>18</sup> Recent visits to Gabon and Egypt by President Hu Jintao and visits by Prime Minister Wen Jiabao between the 17<sup>th</sup> and 24<sup>th</sup> of June 2006 in seven African countries have raised a high level of interest among the various countries. Noteworthy was the celebration of the 50<sup>th</sup> anniversary of diplomatic relations between China and Egypt. In return, various African leaders also have undertaken state visits to China, notably the visit by President Omar Bongo Ondimba of Gabon, who has made eight visits to China in recent years. In an invited visit in August 2006, Benin President Boni Yahi asked the Chinese to undertake oil exploration in his country, “convinced that if the China National Offshore Oil Corporation were to come to Benin, they would most certainly find oil deposits.”

<sup>19</sup> Amnesty International, “soudan: le coût humain du pétrole”, 3 mai 2000.

<sup>20</sup> FDI in the Sudan reached U.S.\$8 billion in 2005. The Greater Nile Petroleum and Oil Corporation (GNPOC) has a concession in two major production zones, Unity Block 1 and Heglig Block 2. In each of these, the China National Petroleum Corporation (CNPC) is the exclusive foreign exploration firm, and which owns some 40 percent of the assets of GNPOC.

<sup>21</sup> Jean-Christophe Servant, “Les ambivalences du commerce sud-sud: La Chine à l’assaut du marché africain”, *Le Monde Diplomatique*, Mai 2005.

<sup>22</sup> FDI Statistics, *China Bulletin*, 2005.

# Chinese Accounting Standards Convergence in Comparison with the U.S. and Japan

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## Abstract

In an international convergence of accounting standards, the International Accounting Standards Board (IASB) reviewed China; which is considered a new economic powerhouse under "BRIC" (Brazil, Russia, India, China). As a result of this, the China Accounting Standards Committee (CASC) and the IASB held a meeting for accounting standards on the 7<sup>th</sup> and 8<sup>th</sup> of November, 2005 in Beijing. Like the United States and Japan, China is committed to convergence with the International Financial Reporting Standards (IFRS). In February 2006, the Ministry of Finance issued a series of new directives and revised Accounting Standards for Business Enterprises (ASBE); which included the revised Basic Standards, twenty-two newly promulgated accounting standards and sixteen revised accounting standards. In this presentation I will analyze contents of the "Beijing Joint Statement" while confirming the Norwalk Agreement and the Tokyo Agreement. Then I will introduce the changed conditions of Chinese accounting standards after the "Beijing Joint Statement". Finally, I will highlight the main points of the convergence in China.

## Introduction

In recent years, with the globalization of corporate management activity the globalization of the capital market advanced rapidly, too, and thus the demand for the ability to compare accounts has risen as well. In an international convergence of accounting standards in September 2002, the "Norwalk Agreement" was committed to by both the IASB (International Accounting Standards Board) and the FASB (Financial Accounting Standards Board). Furthermore, on January 21, 2005, the ASBJ (Accounting Standards Board of Japan) and the IASB announced their agreement to launch a joint project for convergence; it was called the "Tokyo Agreement".

With China emerging as a strong economy as part of "BRIC" (Brazil, Russia, India, China, a term coined by the American firm Goldman Sachs. These four countries are considered to be the most important up and coming in the world economy) the IASB worked with them in order to have them converge to IFRS (International Financial Reporting Standards). As a result of this, the China Accounting Standards Committee (CASC) and the IASB held a meeting for accounting standards on the 7<sup>th</sup> and 8<sup>th</sup> of November, 2005 in Beijing. After the "Beijing Joint", the Chinese accounting standards have been undergoing changes in order to converge to IFRS. The IASB Chairman Sir David Tweedie pointed out that "Like the United States and Japan, China is committed to convergence with IFRS" [Tweedie, (2006); 11]. This is one of the bases for considering China to be a convergence country.

In this presentation I will begin by introducing the process of accounting development in china from 1949 to the present. Then, I will analyze the contents of the "Beijing Joint Statement" while confirming the "Norwalk Agreement" and the "Tokyo Agreement". Furthermore, I will introduce the changed conditions of Chinese accounting standards and auditing standards after the "Beijing Joint Statement". Finally, I will highlight the main points of the convergence in China.

## The Process of Accounting Development in China

In October, 1949, the People's Republic of China was formed. In December 1949, the Department of Administration of Accounting Affairs (DAAA) was charged with the responsibility to institute uniform nation-wide accounting systems and administer the accounting work in the entire country under the Minister of Finance. Two important functions of the DAAA were to unify the accounting systems across different economic units and to use the accounting system to assist for the economic recovery. "These aim led to the promulgation of uniform accounting regulations as a tool of the centralized economy" [Chang, (2004); p.236, 5].

TABLE 1: THE PROCESS OF ACCOUNTING DEVELOPMENT IN CHINA

Policy and Law Background	Phase	Development Stage of Accounts System	
A planned economy and Economic recovery	1949-1952	A postwar recovery and establishment stage of accounting systems	
	1953-1957	An introduction stage of Soviet Union-style accounts	
Great Leap Forward	1958-1960	A foundation maintenance stage of accounting systems	
Adjustment of national economy	1961-1965		
Cultural Revolution	1966-1976		
Preparations for economic revitalization	1977-1978	No accounting development	
Planned Commodity Economy Accounting Law(1985)	1979-1984	The domestic accounting law and rule maintenance	
	1985-1992	The Chinese government begins a harmonization to international accounting standards, and begins to converge to IFRS	The preliminary stage
1993-1996	The foundation stage		
1997-2006	The making of concrete rules		
2007-now	Enforcement of the convergence		
Socialist market economy with Chinese Characteristics(1993) Accounting Standards(1993) Participation to WTO(2001) Beijing Joint statement(2005)			

50 years later, in October 1998, the China Accounting Standards Committee was established under the MOF. The aim of the CASC is to provide advice and recommendations on setting and improving accounting standards in China. TABLE 1 summarizes the process of accounting development from 1949 to the present.

As TABLE 1 indicates, the Chinese government has been beginning to harmonize to international accounting standards since 1985, and has been converged with IFRS since 2003.

In March 2003 CASC was reorganized. The new CASC under the MOF consists of 20 committees and 160 people as the associated person. "The members are engaged by the MOF and are selected from relevant government agencies, the academic circle, accounting professional organizations, intermediaries and the business, and they are highly representative" [CSAC,(2003); p.3, 3]. However, CASC is different from FASB or ABSJ as it serves as an establishment function of accounting standards for the public sector not the private. CASC has played an active role and provided a lot of constructive advice on setting and improving Chinese accounting standards.

## Correspondence to IFRS in China

The number of countries who have already adopted IFRS as their own standard exceeds 100, with the U.S.A., Japan and China as the convergence countries planning to converge with IFRS. Before turning to a closer examination of the "Beijing Joint Statement", a few remarks should be made concerning IASB, the "Norwalk Agreement" and the "Tokyo Agreement".

### IASB

The International Accounting Standards Board was established in 2001 as part of the International Accounting Standards Committee (IASC) Foundation. The objectives of the IASB are "(a) to develop, in the public interest, a single set of high quality, understandable and enforceable global accounting standards that require high quality, transparent and comparable information in financial statements and other financial reporting to help participants in the various capital markets of the world and other users of the information to make economic decisions; (b) to promote the use and rigorous application of those standards; and (c) to work actively with national standard-setters to bring about convergence of national accounting standards and IFRSs to high quality solution" [IASB, (2007); p26, 9].

### **The Norwalk Agreement**

In the United States, The Financial Accounting Standards Board has been the designated organization in the private sector for establishing standards of financial accounting and reporting since 1973.

The IASB and the FASB reached an agreement the US to move to converge with IFRS at a meeting in Norwalk, Connecticut, USA on September 18, 2002. The agreement is known as the “Norwalk Agreement for a Memorandum of Understanding”. In the Norwalk Agreement, what is important is that “[t]he IASB and FASB agree, as a matter of high priority, to a) undertake a short-term project *aimed at removing a variety of individual differences* between U.S.GAAP and International Financial Reporting Standards(IFRSs, with include International Accounting Standards, IASs); b) remove other differences between IFRSs and U.S.GAAP that will remain at January 1, 2005 , though coordination of their future work programs; that is , through the mutual undertaking of discrete, substantial projects which both Boards would address concurrently; c) continue progress on the joint projects that they are currently undertaking; and, d) encourage their respective interpretative bodies to coordinate their activities.”[IASB, (2003); 7].

### **The Tokyo Agreement**

In Japan, The Financial Accounting Standards Foundation (FASF) was established in July 2001. The Accounting Standards Board of Japan is the core organization within the FASF. The ASBJ is “directly responsible for the development and deliberation of accounting standards and the foundation's contributions to the development and improvement of international accounting standards” [ASBJ, (2007) ; 2].

On January 21, 2005, the IASB and the ASBJ held a meeting in Tokyo, Japan. At this meeting both boards agreed and announced their agreement to launch a joint project for convergence with IFRS. In the Tokyo Agreement, it is important that “1. The boards will identify and assess differences in their existing standards on the basis of their respective conceptual frameworks or basic philosophies with *the aim of reducing those differences* where economic substance or market environments such as legal systems are equivalent. 2. The boards will address the differences in their respective conceptual frameworks. This will take place later in the project, as a separate subproject, at a time agreed by the boards. 3. The boards will consider their respective due process requirements in arriving at agreement. 4. [t]he ASBJ will undertake a study to get an overall picture of major difference between Japanese accounting standards and IFRSs and will identify topics to be discussed. 5. The boards will adopt a phased approach to the comparative reviews of differences in individual standards” [IASB, (2005); 8].

### **Beijing Joint Statement**

After the “Norwalk Agreement” and the “Tokyo Agreement”, on November 7th and 8th, 2005, CASC and IASB held a successful convergence meeting on accounting standards in Beijing. It was named the “Beijing Joint Statement”. The meeting was co-chaired by China’s Vice-Minister of Finance and Secretary-General of the CASC Mr. Wang Jun and the IASB Chairman Sir David Tweedie. *Joint Statement of the Secretary-General of the China Accounting Standards Committee and the Chairman of the International Accounting Standards Board* is attached with TABLE 2 [CASC, (2005); 4] to keep contents under control precisely.

In the “Beijing Joint Statement”, there are some points that differ from the “Norwalk Agreement” and the “Tokyo Agreement”. They are (a) China stated that convergence is one of the fundamental goals of their standards-setting program, with the intention that an enterprise applying Accounting Standards for Business Enterprises (ASBE) should produce financial statements that are the same as those of an enterprise that applies IFRS. (b) The IASB delegation acknowledged that convergence with IFRS will take time and how to converge with IFRS is a matter for China to determine (see the TABLE 2).

On February 15, 2006, the Ministry of Finance released a series of new directives and revised Accounting Standards for Business Enterprises; which included the revised Basic Standards, twenty-two newly promulgated accounting standards and sixteen revised accounting standards. The MOF also issued forty-eight Auditing Standards for Certified Public Accountants (ASCPA) in the same release ceremony in Beijing. The ASBE and the ASCPA are applied to listed companies from January 2007. The adoption of the ASBE brings about substantial convergence between the Chinese accounting standards and IFRS. The Chinese government insists that the meaning of convergence is (a) convergence is the future; (b) convergence is not replacement; (c) convergence is a process; (d) convergence is interaction; (e) convergence is the new starting point [Wang, J.(2006); 12].

TABLE 2 : BEIJING JOINT STATEMENT

**Joint Statement of the Secretary-General of the China Accounting Standards Committee and the Chairman of the International Accounting Standards Board**

□ □ □

Both parties agree that establishing and improving a single set of high quality global accounting standards is the logical consequence of the trend of economic globalization. International convergence takes time to happen. It is a goal to which the IASB as well as national accounting standard setters of all jurisdictions in the world should continue to make sustained efforts. China stated that convergence is one of the fundamental goals of their standard-setting programme, with the intention that an enterprise applying CASs should produce financial statements that are the same as those of an enterprise that applies IFRSs. How to convergence with IFRSs is a matter for China to determine.

The IASB notes that, in convergence their national standards with IFRSs, some countries add provisions and implementation guidance not included in IFRSs to reflect the circumstances of those countries. This is a pragmatic and advisable approach with which China agrees.

During the past year, China has issued Exposure Drafts of the Basic Accounting Standards for Business Enterprises and 20 specific standards. China expects to issue two more Exposure Drafts. At the same time, China has also begun a review of its 16 existing CASs. As a result, China's accounting standards system for business enterprises is being developed with a view to achieve convergence of those standards with the equivalent IFRSs. The IASB applauds and expresses admiration for the enormous progress already made toward convergence.

The two parties acknowledged that differences between CASs and IFRSs still exist at the moment on a limited number of matters, including reversal of impairment losses, disclosure of related party relationships and transactions, and accounting for certain government grants. Both parties agreed to work to eliminate those differences as quickly as possible. They noted, however, that there are relatively small matters as compared to matters on which the CASC's recent work has achieved such significant progress toward convergence.

During the discussions, the IASB identified a number of accounting issues for which China. Because of its unique circumstances and environment, could be particularly helpful to the IASB in finding high quality solutions for IFRSs. These include disclosure of related party transactions, fair value measurements and business combinations of entities under common control. The CASC has agreed to assist the IASB in researching and providing recommendations on these issues. Similarly, in reviewing the revisions to the EDs, existing standards, and the implementation guidance, the CASC will get assistance from the IASB as well.

As a result of the success of this joint meeting the CASC and the IASB have agreed to continue to meet periodically and strengthen the exchange and co-operation between the two parties, to achieve convergence of the Chinese Accounting Standards for Business Enterprises with the International Financial Reporting Standards.

Wang Jun  
Secretary-General  
China Accounting Standards Committee

David Tweedie  
Chairman  
International Accounting Standards Board

We may say that the real intention of the "Beijing Joint Statement" was to declare the Chinese accounting strategy and the result through IASB to the world. That is to say: China was authorized by the IASB to become a convergence country; the Chinese government withholds the right to establish accounting rules to their own standards; existing Chinese accounting standards are near the IFRS level; the promulgation and the enforcement of the ASBE has lead to the realization of convergence; China has made contact with the U.S. and Japan as a convergence country in the accounting standards research field.

## Chinese Accounting Standards

Chinese accounting strategy is presented by the ASBE promulgation and enforcement. Convergence to IFRS is not an easy thing by any means. With the enforcement of the ASBE and the application indicators the Chinese corporate accounting has changed greatly.

On February 15, 2006, the new standards mentioned after the "Beijing Joint Statement" were released by the MOF. In October, 2006, the MOF promulgated the application indicators of the thirty-two accounting standards and an appendix (including the title of the accounts and the interpretation) except the No.15-Construction contracts; the No.25-Direct insurance contracts; the No.26-Re-insurance contracts; the No.29-Events occurring after the balance sheet date; the No.36-Related party disclosure of the ASBE. This new accounting standards system is applied to about 1,400 listed companies from January 1, 2007 and is going to apply to medium and large sized companies by 2010. Here are TABLE 3 and TABLE 4 which show the details of the ASBE and auditing standards.

TABLE 3: THE LIST OF THE ACCOUNTING STANDARDS FOR BUSINESS ENTERPRISES

	Name of the ASBE	Revised or New	Refers to IFRS [Wang,J.X.(2006);13, (2007); 14]
1	Accounting Standard for Business Enterprise-Basic Standard	R	Framework for the Preparation and Presentation of Financial Statements
2	Accounting Standard for Business Enterprise No.1-Inventories	R	IAS 2
3	Accounting Standard for Business Enterprise No.2-Long-term equity investments	N	IAS 27 IAS 28 IAS 31 IAS39
4	Accounting Standard for Business Enterprise No.3-Investment properties	N	IAS 40
5	Accounting Standard for Business Enterprise No.4-Fix assets	R	IAS 16
6	Accounting Standard for Business Enterprise No.5-Biological assets	N	IAS 41
7	Accounting Standard for Business Enterprise No.6-Intangible assets	R	IAS 38 IFRS 3
8	Accounting Standard for Business Enterprise No.7-Exchange of non-monetary assets	R	
9	Accounting Standard for Business Enterprise No.8-Impairment of assets	N	IAS 36
10	Accounting Standard for Business Enterprise No.9-Employee compensation	N	IAS 19
11	Accounting Standard for Business Enterprise No.10-Enterprise annuity fund	N	IAS 26
12	Accounting Standard for Business Enterprise No.11-Share-based payment	N	IFRS 2
13	Accounting Standard for Business Enterprise	R	IAS 39



	No.12-Debt restructurings		
14	Accounting Standard for Business Enterprise No.13-Contingencies	R	IAS 37
15	Accounting Standard for Business Enterprise No.14-Revenue	R	IAS 18
16	Accounting Standard for Business Enterprise No.15-Construction contracts	R	IAS 11
17	Accounting Standard for Business Enterprise No.16-Government grants	N	IAS 20
18	Accounting Standard for Business Enterprise No.17-Borrowing costs	R	IAS 23
19	Accounting Standard for Business Enterprise No.18-Income taxes	N	IAS 12
20	Accounting Standard for Business Enterprise No.19-Foreign currency translation	N	IAS 21
21	Accounting Standard for Business Enterprise No.20-Business Combinations	N	IFRS 3
22	Accounting Standard for Business Enterprise No.21-Leases	R	IAS 17
23	Accounting Standard for Business Enterprise No.22-Recognition and measurement of financial instruments	N	IAS 39
24	Accounting Standard for Business Enterprise No.23-Transfer of financial assets	N	IAS 39
25	Accounting Standard for Business Enterprise No.24-Hedging	N	IAS 39
26	Accounting Standard for Business Enterprise No.25-Direct insurance contracts	N	IFRS 4
27	Accounting Standard for Business Enterprise No.26-Re-insurance contracts	N	IFRS 4
28	Accounting Standard for Business Enterprise No.27-Extraction of petroleum and natural gas	N	IFRS 6
29	Accounting Standard for Business Enterprise No.28-Changes in accounting policies and estimates, and correction of errors	R	IAS 8
30	Accounting Standard for Business Enterprise No.29-Events occurring after the balance sheet date	R	IAS 10
31	Accounting Standard for Business Enterprise No.30-Presentation of financial statements	N	IAS 1
32	Accounting Standard for Business Enterprise No.31-Cash flow statements	R	IAS 7
33	Accounting Standard for Business Enterprise No.32-Interim financial reporting	R	IAS 34
34	Accounting Standard for Business Enterprise No.33-Consolidated financial statements	N	IAS 27
35	Accounting Standard for Business Enterprise No.34-Earning per share	N	IAS 33
36	Accounting Standard for Business Enterprise No.35-Segment reporting	N	IAS 14 IFRS 8
37	Accounting Standard for Business Enterprise No.36-Related party disclosure	R	IAS 24
38	Accounting Standard for Business Enterprise No.37-Presentation of financial instruments	N	IAS 32
39	Accounting Standard for Business Enterprise No.38-First time adoption of Accounting Standards for	N	IFRS 1

	Business Enterprises		
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TABLE 4: LIST OF THE AUDITING STANDARDS

	Name of the Auditing Standards	Equivalent International Standards[6]
1	General Standard for Assurance Engagements	ISA120
2	No.1101-Objective and general principles governing an audit of financial statements	ISA200
3	No.1111-Audit engagement letters	ISA210
4	No.1121-Quality control for audits of historical financial statements	ISA220R
5	No.1311-Audit working papers	ISA230R
6	No.1141-Consideration of fraud in an audit of financial statements	ISA240
7	No.1142-Consideration of laws and regulations in an audit of financial statements	ISA250
8	No.1151-Communications with those charged with governance	ISA260
9	No.1152-Communications between predecessor and successor CPAs	
10	No.1201-Planning an audit	ISA300
11	No.1211-Understanding the entity and its environment and assessing the risks of material misstatement	ISA315
12	No.1212-Consideration relating to entities using service organizations	ISA402
13	No.1221-Materiality	ISA320
14	No.1231-Procedures in response to assessed risks of material misstatement	ISA330
15	No.1301-Audit evidence	ISA500
16	No.1311-Supervision of physical inventory count	ISA501PartA
17	No.1312-Confirmations	ISA505
18	No.1313-Analytical procedures	ISA520
19	No.1314-Audit sampling and other means of testing	ISA530
20	No.1321-Audit of accounting estimates	ISA540
21	No.1322-Auditing fair values measurements and disclosures	ISA545
22	No.1323-Related parties	ISA550
23	No.1324-Going concern	ISA570
24	No.1331-Audit of opening balances on initial engagements	ISA510
25	No.1332-Subsequent events	ISA560
26	No.1341-Management representations	ISA580
27	No.1401-Using the work of other CPAs	ISA600
28	No.1411-Considering the work of internal auditing	ISA610
29	No.1421-Using the work of an expert	ISA620
30	No.1501-Auditor's report	ISA700R
31	No.1502-Modified auditor's report	ISA701
32	No.1511-Comparatives	ISA710
33	No.1521-Other information in documents containing audited financial statements	ISA720
34	No.1601- Auditor's report on special purpose audit engagements	ISA800
35	No.1602- Verification of capital contributions	
36	No.1611-Audit of financial statements of commercial banks	IAPS1006
37	No.1612-Inter-bank confirmation procedures	IAPS1000
38	No.1613-Relationship between banking supervisors	IAPS1004
39	No.1621-Special considerations for audit of small entities	IAPS1005
40	No.1631- Consideration of environmental matters in an audit of financial statements	IAPS1010
41	No. 1632-Auditing derivative financial instruments	IAPS1012
42	No. 1633-Effect of electronic commerce on the audit of financial statements	IAPS1013
43	No. 2101- Engagements to review financial statements	ISAE2400
44	No. 3101-Assurance engagements other than audits or reviews of historical financial information	ISAE3000R

45	No.3111-Examination of prospective financial information	ISAE3400
46	No.4101- Engagements to perform agreed-upon procedures regarding financial information	ISRS4400
47	No.4111-Compilation of financial information	ISRS4410
48	No.5101-Quality Control for professional work	ISQC1
Abbreviation IAS-International Standards on Auditing IAPS-International Auditing Practice Statement ISRE- International Standards on Review Engagements ISAE-International Standards on Assurance Engagements ISRS-International Standards on Relates on Services		

## **New Chinese Accounting Standards System**

In China, the maintenance of the domestic accounting rules has been continued with the international harmonization of the accounting standards from the middle of the 1980's. As a result, show in the lower left of [FIG 1] "The pyramid type accounts rules" consisted of five classes: (a) Accounting Law; (b) Financial and Accounting Reporting Regulations for Business Enterprises; (c) Accounting Standards for Business Enterprises - Basics Standard; (d) Individual accounting standards; (e) Accounting rules according to the type of Business.

After the "Beijing Joint Statement", the Chinese MOF promulgated the ASBE and the application indicators. The new system of Chinese accounting standards was formed. The listed companies stopped using the "Accounting rules according to the type of Business" by switching to the new standards as of January 1, 2007; which has caused great change in the Chinese accounting system.

The Chinese accounting rules structure has begun to evolve into two levels with the Accounting Law and the ASBE from 2007. The accounting regulations or accounting rules are gathered by the accounting standards. The standards of corresponding to the global economy and the national economy are established according to the Accounting Law. Because Article 8 of the Accounting law states: "The State shall exercise a uniform accounting system. The uniform accounting system of the State shall be formulated and promulgated by the financial department of the State Council in accordance with this law"[Accounting Law 1]. In other words, the included accounting standards unified in the accounting system must be established based on the Accounting Law. Unlike the U.S. and Japan, the companies must make financial reporting based on the ASBE in China.

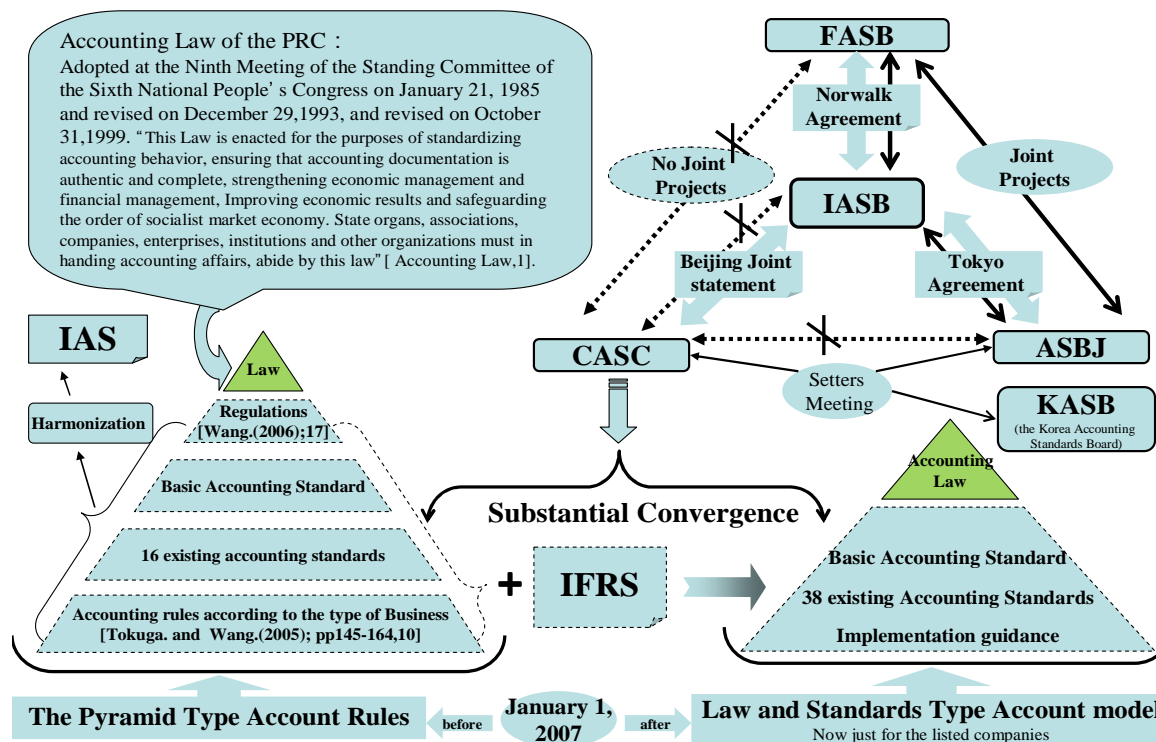


FIG 1: NEW CHINESE ACCOUNTING STANDARDS SYSTEM

## Concluding Remarks

As [FIG 1] above shows, the Chinese government was able to use parts of IFRS in addition to their current standards in the context of the current accounting rules structure. Furthermore, in relation to the establishment, revision and abolition of accounting standards, the IASB will allow China to control them independently. It may be said that this is Chinese accounting strategic success in convergence to IFRS.

The aim of the Chinese accounting standards was changed with the "Beijing Joint Statement" from an international harmonization to an international convergence. In preparation to enter the global economy China has assumed a higher quality of account standards. As is generally known, the U.S., Japan and China have international economic relations. It is certain that the economic relations of these three countries will remain close in the future.

There are, however, some concerns. Although China has joined the WTO, the U.S. and the EU do not recognize it as "a market economy country". Because China is not recognized as a market economy, when it exports products the U.S. and the EU charge high tariffs. One of the causes for the discrepancy in cost is the usage of different accounting standards and is exacerbated by a lack of trained personnel.

As the top right of [FIG 1] shows, the U.S., Japan, and China, as the convergence countries, should cooperate in "developing global accounting standards of a high quality that can be easily understood" with the IASB. The IASB, the FASB and the ASBJ currently carry out many joint projects or periodical discussions, Although China has had meetings with the IASB or the ASBJ, China has yet to do any joint projects with any of the boards. The financial reports that Chinese companies are using for the 2007 fiscal year, based on the new IASB convergence standard, will not be available until March 2008.

The points of convergence in China I want to make is that (a) CASB has to start the joint projects with IASB, or FASB, or ASBJ for proceeding to convergence to the IFRS; (b) to train the accounting personnel who can work in the global economy to come close to the international level; (c) China should strengthen overseas

interchange in accounts study and should introduce the accounts present Chinese accounting conditions in detail; and (d) Not only the convergence of Accounting Standards but also the corporate governance of the companies, business custom of the companies should come up at the international level too.

In November 2006, the IASB trustees appointed Zhang-WeiGuo (Chief Accountant and Director General of the Department of International Affairs of the China Securities Regulatory Commission). He will join the IASB as a full time member on the first of July, 2007 for a five year renewable term. Dr Zhang becomes the second IASB member from Asia. China is expected to make accounting standards of high quality and to maintain the trust of domestic and international investors as well as overcome the handicap of being labeled a “non-market economy country”.

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# A Comparative Study of Job Search Behavioral Model between Japan and Korea

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## Abstract

Using 347 university student samples from Japan and Korea, we attempted to test the relationships among multiple forms of self-efficacies and job search behaviors. In particular, we hypothesized the mediating effects of job search self-efficacy (JSSE) on the relationships between generalized self-efficacy (GSE) and job search behaviors, based on the Saks and Ashforth's (2002) conceptualization of job search. Results of our path analyses for a Japanese sample supported the hypothesized sequential effects initiating from GSE, JSSE, to various job search behaviors. On the other hand, results for our Korean sample negated our hypotheses in that GSE variables were found directly influencing career planning. In the discussion, a revision to our hypothesized model was, therefore, made to better explain Korean students' job search behaviors based on the notion of theory of planned behaviors (Ajzen, 1985). Cross-cultural differences in the concept of job search and career planning between two East Asian countries were discussed.

## Introduction

It is well known that self-efficacy has now become a crucially important concept that was found in the past to have strong relationships with various psychological constructs, including personality traits, core self-evaluation (Judge et al., 2003), cultural values (Xie et al., 2006), and so forth. The concept of self-efficacy refers to a person's beliefs about his/her abilities. In the area of career development studies, especially those focusing on adolescents, many scholars have argued and examined positive relationships among generalized self-evaluations, expectancies, and job search and career maturity-related concepts (Kanfer, Wanberge, & Kantrowiz, 2001).

It is known, however, that there are a number of issues that call for further explorations and examinations by adding new findings to extant literatures on self-efficacy and job search. Among others, one important aspect overlooked by the previous studies is an examination of the interrelationships between multiple forms of self-efficacy constructs and various job search behaviors among university students. Specifically, prior work of this field tended to regard as relatively independent ones each of the various self-efficacy concepts, including 'career decision making self-efficacy' (CDMSE: Taylor and Betz, 1983), 'job search self-efficacy' (JSSE: Caplan et al., 1989), and 'generalized self-efficacy' (GSE: Saks & Ashforth, 2000). In such an assumption, most of the extant studies have only examined direct and straightforward effects of one type of self-efficacies on job search and career-related attitudes and behaviors. However, it is reasonably conceivable that there would be a sequence or causality among multiple forms of self-efficacy for the prediction of a person's job search: namely, an impact of job and career-related self-efficacy on job search would be in a direct manner, while that of generalized self-efficacy on job search would be in an indirect or conditional manner.

Moreover, the situation where job search activities have become an important meaning of people's work lives is true not only to the Western countries, but also to the Asian societies. In particular, many Asian countries experienced the financial crisis at the end of 90's, which led many companies in Asia to considering organizational restructuring and downsizing and to changing the nature of work for their human resources. Furthermore, employment practices have shifted from, so called, lifetime employment to short or midterm one in order to reduce personnel expenses within companies and to encourage their employees to develop more individualized and autonomous careers in many Asian countries, including Japan and Korea. Since the end of 90's, millions of people in Japan and Korea have engaged in finding their jobs in each year, as a result of an increased number of involuntary job loss, reentry in the workforce, and/or new career opportunities brought by some emerging ventures (Japanese

Institute for Labour Policy and Training, 2004; Korean Statistics Bureau, 2005). However, studies that focused on examining the psychological and attitudinal processes of successful job search have little been conducted to date in many Asian countries.

Guided by the aforementioned backgrounds, our study sheds light on testing the relationships among multiple forms of self-efficacies and various job search behaviors using 347 university student samples from two different nations in East Asia: namely, from Japan and Korea. Specifically, following a conceptualization of job search by the Saks and Ashforth's (2002) work, we attempt to examine the mediation model where job search self-efficacy would mediate the relationship between generalized self-efficacy and job search behaviors, including career planning and preparatory and active job search behaviors. Cross-cultural validity of the mediating hypotheses between Japanese and Korean samples will also be examined in this study.

We believe that a conformation of the proposed mediating model will provide extant job search studies with the evidence of sequential effects that different types of self-efficacy may have on a person's job search in East Asian contexts. Sequential effects of multiple self-efficacy concepts and job search behaviors have not been well-studied even in the Western culture. In practical terms, findings of the study will provide guidelines for career counselors/consultants to understand how they are able to elicit job seekers' motivation to enhance their career maturity during their job search periods.

## **Literature Review and Hypotheses**

### **Saks and Ashforth's (2002) Model of Job Search**

In their studies of examining the relationship between job search behaviors and employment quality of new graduates, Saks and Ashforth (2002) have conceptualized 'job search' as having the following four dimensions: namely, (1) active job search behaviors, (2) preparatory job search behaviors, (3) job search intensity, and (4) career planning. Preparatory job search behaviors involve gathering job search information and identifying potential leads, while active job search behaviors involve the actual job search and choice process, such as sending out resumes and interviewing with potential employers (Saks & Ashforth, 2002). Job search intensity may mean frequency and scope of specific job search behaviors made by job seekers in their attempt to find their jobs (Blau, 1993). Finally, career planning refers to setting career goals and formulating strategies for realizing those goals (Saks & Ashforth, 2002).

It should be noted that the aforementioned Saks and Ashforth's fourfold job search conceptualization regards 'career planning' as one type of job search. In Saks and Ashforth's (2002) work, they followed Blau's (1994) notion of job search, including the first three dimensions in their job search model; that is, preparatory and active job search behaviors and job search intensity. They added to the above three concepts the career planning, following the job search definition by Kanfer et al. (2001) who emphasized the aspect of a goal-directed behavior in job search. In fact, Kanfer et al. (2001) pointed out that most assessments for job search have focused only on the aspect of job search intensity and effort (e.g., Barber, Daly, Giannantonio, & Phillips, 1994). In other words, many of the previous studies tended to focus more on the extent to which job seekers devote themselves to job search activities (intensity) than on the extent to which they can realize their goal-directed behavior (career planning). However, the Saks and Ashforth's work is distinctively different from most job search studies in that it involves a career planning aspect as an important constituent of job search. The study also found that job seeker's career planning during his/her pre-entry period increased his/her perceptions of person-environment fit after their organizational entry.

Importantly, Saks and Ashforth (2002) assumed no clear causalities among all four dimensions of job search, including preparatory and active job search behaviors, search intensity, and career planning. Their job search model that aligns all four dimensions in a row may indicate that career planning is neither an antecedent nor consequence of other job search components, especially preparatory and/or active job search behaviors. This notion is supported by the Krumboltz's theory of planned happenstance (Krumboltz & Levin, 2004; Mitchell, Levin, & Krumboltz, 1999). The essence of this theory is that chance or unplanned events do have a place in the career planning process, inferring no explicit causalities between career planning and job search behaviors.

### **Generalized Self-Efficacy (GSE)**

It is now accepted that the concept of self-efficacy takes various forms. The concept of self-efficacy reflects the core belief that one has the capability to produce desired effects (Bandura & Locke, 2003). Bandura (1977) defined self-efficacy as “the beliefs in one’s capabilities to organize and execute the course of action required producing given attainments” (p.3). However, the Bandura’s original self-efficacy concept has become diversified in many ways, especially with the evolution of self-efficacy and related research in the West, yielding a number of different self-efficacy concepts in which researchers added the situational and contextual meanings to the original self-efficacy concept.

The concept of GSE originated from the notion of a self-efficacy generality, which was developed based on Bandura’s (1997) social cognitive theory. However, GSE is distinguishable from other forms of self-efficacy since most of self efficacy concepts are known as task specific beliefs and has relatively a changeable aspect, whereas GSE is considered as relatively a stable trait like generalized competence beliefs (Chen et al., 2000; Chen, Gully, & Eden, 2001; Eden & Kinnar, 1991). Saks and Ashforth (2001) treated GSE as a dispositional factor promoting work adjustments due to its stable nature. In their meta analytic study of job search, Kanfer et al. (2001) reported that self-esteem including GSE was positively related to job search behaviors based on the 3,887 samples of already published reports ( $r=.25$ ,  $p<.05$ ). To the best of our knowledge, however, there has been no evidence to date that reported that GSE remained a strong predictor of job search even after other forms self-efficacy variables including JSSE were controlled.

#### **Job Search Self-Efficacy (JSSE)**

A seminal work of Kanfer and Hulin (1985) have introduced the concept of JSSE, applying to the job seekers’ contexts a general notion of self-efficacy theorized by Bandura. JSSE can be defined as a self-reported, perceptual competence at specific tasks related to job search skills. In addition, it is well known that how a person views his or her job search skills is influenced strongly by person and environment factors (Caska, 1998; Van Ryn & Vinokur, 1992). What makes JSSE different from GSE can be seen in its nature of changeability and learnability: GSE is more dispositional and unchangeable whereas JSSE is more skill-based and can be learned through a person’s acquisition of skills needed for the job search related activities (e.g., Chen et al., 2000; Kanfer & Hulin, 1985). As such, GSE, as part of overall self-esteem, can be the important foundation for job search seekers to acquire sufficient JSSE in their job search activities, and thereby a dispositional characteristic of GSE would naturally lead to an increase in self-reported, perceptual competence on their skills of job search.

Moreover, self-esteem and GSE have been used alternatively in numerous literatures because they have a very high correlation ( $r=.85$ ,  $p<.001$ ) (Bono & Judge, 2001, 2003). Eden and Aviram (1993) have also argued that either GSE or self-esteem can be used to test for the behavioral plasticity hypothesis since it is difficult to distinguish between GSE and self-esteem operationally. As such, GSE defined as overall beliefs or confidences would be directly influencing JSSE, which then affects actual job search among university students.

In sum, adding the Saks and Ashforth’s job search concepts to the expected causalities between GSE and JSSE, we predict that GSE would first affect JSSE positively, which in turn would influence each job search dimension, including preparatory and active job search behaviors and career planning positively. Hence, we can make the following three hypotheses:

*Hypothesis 1: Job search self-efficacy (JSSE) mediates the positive relationship between generalized self-efficacy (GSE) and active job search behavior.*

*Hypothesis 2: Job search self-efficacy (JSSE) mediates the positive relationship between generalized self-efficacy (GSE) and preparatory job search behavior.*

*Hypothesis 3: Job search self-efficacy (JSSE) mediates the positive relationship between generalized self-efficacy (GSE) and career planning.*



The analytical model of this study is depicted in FIG. 1.

## Method

### Participants and Procedures

The participants of this study were undergraduate students who all majored business administration in two private universities in Japan and Korea. Due to the nature of job search and career planning surveys, we eliminated freshmen year students from the potential sample of our studies, and thus students that fall into the second, third, and fourth years were targeted. We distributed the survey questionnaires during classes in each university, asking them to give responses to all the questions in the questionnaires. Before starting surveys, we explained that any responses given from each student have nothing to do with his/her academic performance at each course. In total, we collected 175 responses from 182 (96.2%) participating students in Japan, and 172 out of 209 (82.2%) in Korea. The frequency distributions of second, third, and fourth years in Japanese data were found to be 68 (38.9%), 80 (45.7%), and 27 (15.4%) respectively, while those in Korean data were 69 (40.1%), 57 (33.1%), and 46 (26.7%). Moreover, the percentages of female respondents to the total ones are 33.7% in Japan and 37.8% in Korea. These results indicate that the demographic compositions of Japanese and Korean respondents in this study are comparable to a large extent.

### Measures

*Generalized self-efficacy.* We used the 12-item version of Sherer et al.'s (1982) GSE measures which was reported in Bosscher and Smit's (1998) work. This global measures is known to subsume three sub-dimensions, including initiative (e.g. When trying something new, I soon give up if I am not initially successful), effort (e.g. When I decide to do something, I go right to work on it), and persistence (e.g. When unexpected problems occur, I don't handle them very well). All items of GSE construct were measured on a 7-point scale (1=strongly disagree, to 7=strongly agree). Coefficient alphas for initiative, effort, and persistence scales were found to be .71, .61, and .64, respectively.

*Job search self-efficacy.* job search self-efficacy was assessed by the six items taken from Vinokur, Price, and Caplan (1991). These six items were designed to measure various skills needed for successful job search and employment ( e.g. How confident do you feel about persuading potential employers ). In fact, we removed two items from the scale construction due to the low factor ratio for these items. All items of this job search self-efficacy construct were measured on a 7-point scale (1=very low, to 7=very high). Coefficient alpha this scale achieved was .91.

*Job search behaviors.* For measuring preparatory and active job search behaviors, we used a 12-item measure developed by Blau (1994). However, two items out of them were not used in this study since they were considered to be applied only for reentry job seekers' subjects. We, therefore, used the rest of 10 items, with which

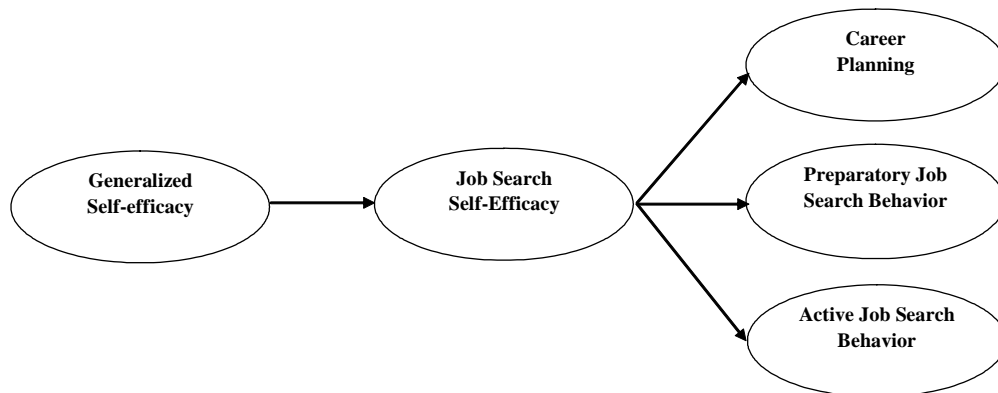


FIG. 1: JOB SEARCH MODEL BASED ON THE SAKS AND ASHFORTH'S CONCEPTUALIZATION

we asked respondents to indicate to what extent they have engaged in preparatory (e.g. Talk with friends or relatives about possible job leads) and active (e.g. Sent out resumes to potential employers) job search behaviors. Participants were asked to respond on a scale ranging from 1(never) to 7(very frequently). Reliability coefficients of preparatory and active job search behaviors were .83 and .83 respectively.

In addition, the career planning of each respondent was measured by the nine items taken from King (1999), Gould (1979), and Coachline's career development needs survey. We asked respondents to give perceptual information about the existence of their career planning and goals as well as an importance of career planning in their career development processes (e.g. I have a strategy for achieving my career goals). All items of this career planning scale were measured on a 7-point scale (1=strongly disagree, to 7=strongly agree). Reliability coefficient for this nine-item measure was .92.

*Control variables.* When running regressions, we controlled for the following four background variables: (1) nationality dummy (1=Japan, 0=Korea), (2) gender dummy (0=male, 1=female), (3) age, and (4) school year.

## Results

### Hypotheses Testing Based on an Overall Sample

We tested a series of mediation hypotheses (Hypotheses 1 to 3) using hierarchical multiple regression analysis. As can be seen in model 1 of Table 1, two out of three variables of GSE, effort and persistence, were found to have significant and positive effects on JSSE ( $\beta=.20$ ,  $p<.001$  and  $\beta=.37$ ,  $p<.001$ , respectively). This indicates that except for an initiative dimension, GSE directly influences JSSE among Korean and Japanese samples as a whole. Moreover, results of models 2a and 3a showed that JSSE has significant and positive effects on preparatory ( $\beta=.37$ ,  $p<.001$ ) and active ( $\beta=.29$ ,  $p<.001$ ) job search behaviors. Interestingly, when the JSSE variable was added to all the control and GSE variables and entered into the third step regression equations of models 2a and 3a, none of GSE variables showed statistically significant for both preparatory and active job search behaviors. This clearly indicates that JSSE mediates the relationships between GSE and job search behaviors positively, providing strong support for Hypotheses 1 and 2 of the study. However, the result of career planning, as shown in model 4a of Table 1, did not give sufficient evidence to support Hypothesis 3 that stated that JSSE would mediate the relationship between GSE and career planning.

TABLE 1: RESULTS OF HIERACHCAL REGRESSION ANALYSES FOR THE SAKS AND ASHFORTH'S MODEL OF JOB SEARCH

Variables	Job search self-efficacy			Preparatory job search behavior						Active job search behavior						Career planning								
	Model 1-a		Model 1-b		Model 1-c		Model 2-a		Model 2-b		Model 2-c		Model 3-a		Model 3-b		Model 3-c		Model 4-a		Model 4-b		Model 4-c	
	Overall		Japanese		Korean		Overall		Japanese		Korean		Overall		Japanese		Korean		Overall		Japanese		Korean	
	$\beta$	t	$\beta$	t	$\beta$	t	$\beta$	t	$\beta$	t	$\beta$	t	$\beta$	t	$\beta$	t	$\beta$	t	$\beta$	t	$\beta$	t	$\beta$	t
<i>Step 1: Control variables</i>																								
Nationality	-.10	-	-	-	.12	-	-	.04	-	-	.06	-	-	.06	-	-	.06	-	-	.06	-	-		
Age	.08	.16	.03	.03	.11	.10	.18	.12	-.03	.30 **	.12	.10	.02											
Gender	-.06	-.09 *	-.06	-.06	.11 *	.06	.19 *	.15 **	.14 *	.22 **	.00	.04	-.08											
School year	.06	-.01	.11	.11	.15 *	.13	.12	.31 ***	.42 ***	.15	.01	-.09	.16											
$R^2_1$	.109 ***	.048 *	.032	.032	.077 ***	.071 ***	.101 ***	.200 ***	.204 ***	.189 ***	.069 ***	.027	.073 **											
<i>Step 2: GSE</i>																								
Initiative	.10	.10	.10	.10	-.07	.01	-.16	.00	.01	-.01	.10	.08	.13											
Effort	.20 ***	.18 **	.27 ***	.27 ***	.09	.15	.03	.01	.11	-.13	.13 **	.13	.14											
Persistence	.37 ***	.42 ***	.26 **	.26 **	.01	.01	.00	.02	.06	-.01	.15 **	.12	.16 *											
$R^2_2$	.363 ***	.338 **	.288 ***	.288 ***	.127 ***	.157 ***	.125 **	.226 ***	.274 ***	.195 ***	.300 ***	.260 ***	.315 ***											
$\Delta R^2_{(1-2)}$	.254 ***	.290 ***	.255 ***	.255 ***	.050 ***	.086 **	.024	.026 **	.070 **	.006	.231 ***	.233 ***	.242 ***											
<i>Step 3: JSSE</i>																								
Job serach self-efficacy					.37 ***	.32 ***	.38 ***	.29 ***	.26 **	.33 ***	.40 ***	.46 ***	.31 ***											
$R^2_3$					.212 ***	.226 ***	.228 ***	.279 ***	.319 ***	.271 ***	.403 ***	.398 ***	.384 ***											
$\Delta R^2_{(2-3)}$					.085 ***	.069 ***	.103 ***	.053 ***	.044 **	.076 ***	.104 ***	.138 ***	.069 ***											

Notes:

Standardized regression coefficients are presented.

\*p<.05, \*\* p<.01, \*\*\*p<.001.

### Cross-cultural Comparison between Japan and Korea

The regression results of models 1b, 2b, 3b, and 4b in Table 1 represent those of a Japanese sample, while those of models 1c, 2c, 3c, and 4c show Korean sample ones. As shown in regression results of a Japanese sample (i.e., model 1b), two variables of GSE, effort and persistence, were found to have significant and positive effects on JSSE as hypothesized ( $\beta=.18$ ,  $p<.01$  and  $\beta=.42$ ,  $p<.001$ , respectively). Moreover, regression results in models 2b, 3b, and 4c all indicated that JSSE influence all the aspects of job search behaviors including preparatory and active job search behaviors and career planning. Furthermore, no direct and significant effects of GSE on all the three job search variables were found in Japan, as shown in regression models 2b, 3b, and 4b. These findings clearly indicate that for our Japanese sample, JSSE mediates the relationships between GSE and types of job search behaviors, providing strong support to Hypotheses 1 to 3 of the study. It appears that Saks and Ashforth's (2002) conceptualization of job search model may reasonably account for job search behaviors among Japanese respondents.

Similar findings were seen in the regression results of a Korean sample, as shown in models 1c, 2c, 3c, and 4c. As can be seen in models 2c and 3c, no significant effects of GSE variables on both preparatory and active job search behaviors were observed when the JSSE was entered into the third step regression equation. This provides a consistent support to Hypotheses 1 and 2 even for the Korean respondents. However, the results of model 4c of Table 1 showed that one variable of GSE, persistence, had a direct positive impact on career planning ( $\beta=.16$ ,  $p<.05$ ) even when JSSE was added up to the third step equation of model 4c. As such, Hypothesis 3 was not supported in a Korean sample.

In sum, Hypotheses 1 and 2 were generally supported both in Japanese and Korean samples, whereas Hypothesis 2 that focused on a mediator role of JSSE played on the GSE and career planning relation was only supported in Japan and not in Korea. This calls for an additional analysis by modifying our hypothesized mediation model so as to capture more accurate processes of self-efficacy and job search relations.

## Discussion

### Test of a Revised Mediation Model

A series of hypotheses tests using a regression analysis let us identify that a revision is needed on our hypothesized model tested above. In particular, the results showed that career planning is influenced directly by GSE variables, while two other job search variables (active and preparatory ones) are indirectly by GSE. These findings may suggest that rather than following Saks and Ashforth's (2002) model of job search and taking career planning as part of job search variables, it might be better to consider that career planning plays a mediator role on the relationship between GSE and job search behaviors. Our revised model can be displayed in Figure 2.

Our additional regression analyses for testing the revised model, as shown in Table 2, did clearly indicate that career planning mediated the relationship between all three GSE variables and preparatory job search behavior in overall samples. Moreover, such a tendency is found to be clearer in Korean sample; career planning mediated the relationships between GSE and both preparatory and active job search behaviors. For Japanese sample, however, career planning was found not influencing either preparatory or active job search behaviors, failing to support the revised model. Overall, findings suggest that our original model that relied on Saks and Ashforth's (2002) conceptualization of job search was found tenable in Japanese sample, while the revised model seemed more suitable for the explanation of Korean sample.

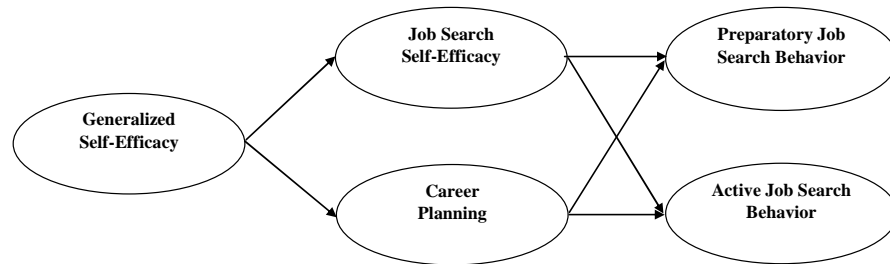


FIG. 2: REVISED JOB SEARCH MODEL

TABLE 2: RESULTS OF HIERACHICAL REGRESSION ANALYSES FOR THE REVISED MODEL OF JOB SEARCH

Variables	Job search self-efficacy			Career planning			Preparatory job search behavior			Active job search behavior														
	Model 1-a		Model 1-b		Model 1-c		Model 2-a		Model 2-b		Model 2-c		Model 3-a		Model 3-b		Model 3-c		Model 4-a		Model 4-b		Model 4-c	
	Overall		Japanese		Korean		Overall		Japanese		Korean		Overall		Japanese		Korean		Overall		Japanese		Korean	
	$\beta$	t	$\beta$	t	$\beta$	t	$\beta$	t	$\beta$	t	$\beta$	t	$\beta$	t	$\beta$	t	$\beta$	t	$\beta$	t	$\beta$	t	$\beta$	t
<i>Step 1: Control variables</i>																								
Nationality	-.10	?		?		.02		?		?		.12		?		?		.04		?		?		
Age	.08		.16		.03		.15		.17 *		.03		.10		.10		.18		.12		-.02		.30 **	
Gender	-.06		-.09 *		-.06		-.03		.00		-.10		.11 *		.06		.21 *		.15 **		.15 *		.23 **	
School year	.06		-.01		.11		.03		-.09		.20 *		.15 *		.13		.08		.31 ***		.41 ***		.12	
$R^2_1$	.109 ***		.048 *		.032		.069 ***		.027		.073 **		.077 ***		.071 **		.101 ***		.200 ***		.204 ***		.189 ***	
<i>Step 2: GSE</i>																								
Initiative	.10		.10		.10		.13 *		.13		.16		-.09		.00		-.19 *		-.01		.02		-.03	
Effort	.20 ***		.18 **		.27 ***		.21 ***		.21 **		.22 **		.08		.14		.00		.01		.12		-.15	
Persistence	.37 ***		.42 ***		.26 **		.30 ***		.31 ***		.24 **		-.01		.00		-.03		.02		.07		-.04	
$R^2_2$	.363 ***		.338 **		.288 ***		.300 ***		.260 ***		.315 ***		.127 ***		.157 ***		.125 ***		.226 ***		.274 ***		.195 ***	
$\Delta R^2_{(1,2)}$	.254 ***		.290 ***		.256 ***		.231 ***		.233 ***		.242 ***		.050 ***		.086 **		.024		.027 **		.070 **		.006	
<i>Step 3: JSSE</i>																								
Job search self-efficacy													.31 ***		.28 **		.31 ***		.28 ***		.30 ***		.27 **	
Career planning													.14 *		.08		.23 **		.00		-.09		.17 *	
$R^2_3$													.223 ***		.230 ***		.260 ***		.279 ***		.324 ***		.289 ***	
$\Delta R^2_{(2,3)}$													.096 ***		.073 **		.134 ***		.052 ***		.050 **		.094 ***	

Notes:

Standardized regression coefficients are presented.

\*p<.05, \*\* p<.01, \*\*\*p<.001.

**Overall Evaluation**

The present study aimed to examine the interrelationships among generalized and job search self-efficacies and various job search behaviors, including preparatory and active job search behaviors and career planning. In particular, in framing the job search model to be tested in the study, we relied on the Saks and Ashforth's (2002) job search conceptualization where both actual job search behaviors (both preparatory and active job search) and goal-directed behavior (career planning) as a set are considered as an integral part of job search. The hypothesized mediating effects of JSSE on the relationships between GSE variables and job search behaviors were tested for overall, Japanese, and Korean samples. Findings indicated that all three hypotheses formulated in this study were supported only in the Japanese sample, while Hypothesis 3 that predicted the mediating effects of JSSE on GSE-career planning links was not supported in overall and Korean samples. Therefore, we conducted a post hoc analysis by generating a revised model in which 'career planning' as well as JSSE would play a mediating role between GSE and other job search behaviors including preparatory and active job search ones. The additional analyses on the revised model were found supported in both overall and Korean samples, while not supported in the Japanese sample. As such, our original model that relied on Saks and Ashforth's (2002) conceptualization of job search was found tenable in Japanese sample, while the revised model seemed more suitable for the explanation of Korean sample. These findings can be discussed and evaluated as follows.

First, our findings of this study suggest the existence of cross-cultural differences in job search processes between the two East Asian countries: Japan and Korea. Specifically, an empirical support for the job search model in Figure 1 among Japanese students may mean that career planning is a job seeker's outcome and/or objective that can be generated by his/her job search self-efficacy, which was found supported by the broader concept of generalized self-efficacy. On the other hand, Korean students are more likely to consider their career planning to be the 'readiness' to start their actual job search behaviors, given the fact that the revised mediating model of career planning was supported among the Korean respondents. In other words, career planning can be regarded as part of

the job search behaviors among Japanese young job seekers, while it is taken as a necessary precondition for the specific, actual job search behaviors to happen among Korean counterparts.

Such a difference in job search and career planning relations between Japan and Korea seems to be largely attributable to the differences in Japanese and Korean firms' human resource (HR) practices and their implicit messages to the university students who seek their jobs. Employment practices of Japanese firms have long been known as 'lifetime employment' under which career orientations of employees become more 'intra-organizational' (i.e., within an organization). Moreover, the practices of seniority-based wage system and multiple skill-based training 'within' an organization by many of the Japanese firms drive both potential and existing employees to form intra-organizational career orientations in Japan. Although the traditional HR practices in Japan seem to have recently been reconsidered by some progressive Japanese firms to a varying degree, the dominance of such an internally-oriented HR system by Japanese firms are still in common. For Japanese young job applicants, especially fresh graduates, the massive importance is placed on at which firm they can get employed since their career success depends largely on the future of the company they join. As such, career planning of most of the Japanese university students is strongly tied to how successfully they can find promising jobs at reputed companies. Therefore, it seems natural that career planning is part of actual job search behaviors among Japanese university students.

On the other hand, HR practices of Korean firms are more externally-oriented, and so both potential and existing employees in Korea tend to form 'inter-organizational' career orientations. Especially, employment relations in Korea have dramatically changed from long-term to mid- or short-term ones since the Asia's financial crisis in 1997 which brought about severe economic and employment damages to many Korean firms. As such, career orientations among Korean young generations in particular have become more diverse, and externally-oriented. Thus, career goals and/or orientations of Korean students are less tied to the company they initially join than those of Japanese students are. It is, therefore, inferred from the above arguments that career planning may be more independent from actual job search behaviors among Korean university students. More precisely, there should be a clear distinction between career planning and actual job search among them, and thus planning follows behavior in their job search processes in Korea.

Second, findings of the study could offer several contributions to vocational behavior studies in existence. First, our original model that was developed from Saks and Ashforth's conceptualization of job search was empirically supported in Japanese samples. Most of the job search studies, especially those focusing on the job search processes, have little been accumulated in Japan as well as in Asia in general. Moreover, our comparative study may enable researchers to assess the validity of the job search mediation model between the two East Asian societies.

Theoretically, we provided to the existing job search literatures new empirical evidence that JSSE mediated the GSE and actual job search behaviors, including both preparatory and active ones. In Japan, JSSE was found also mediating the GSE and career planning. This indicates that having dispositional traits of self-efficacy (i.e., GSE) may not be a sufficient condition to enhance students' career maturity and job search behaviors. Increasing a student's capacity or capability of his/her acquiring job search self-efficacy would derive him/her to be more involved in job search activities.

Another theoretical contribution of this study is that we prove that the revised model of job search could explain the particular group of samples in our study: i.e., the Korean student sample. The revised model assumed a causal flow initiating from GSE, JSSE and career planning, to actual job search behaviors. This causal order replicates, to some extent, the notion of 'theory of planned behavior' (TPB: Ajzen, 1985) in that the revised model involves an aspect of planned behavior: namely, career planning-job search behavior links. Some recent research has investigated the psychological process of job seeking with an application of a TPB notion, using unemployed and student samples (e.g., Caska, 1998; Van Ran & Vinokur, 1992). Van Hooft et al. (2003, 2004) have examined the job search process based on TPB, attempting to clarifying the relationships among job search attitudes, subjective norms, perceived behavioral control, and job search-related variables. They found that attitudes, subjective norm, and perceived behavioral control all directly and positively affected job search intention, which then had a direct and positive influence on job search behaviors. Although these findings are not fully comparable to those obtained in our study, our results that the Korean group of our present samples supports the revised model which involves a notion

of TPB may be useful for future studies that attempt to theorize a job search model in general as well as a job search model in the Asia Pacific in particular.

Finally, our study demonstrated that there existed a national difference in job search model and processes even between two geographically and culturally less distant countries in East Asia. We also found that such a difference resides in how job seekers in a particular society see their career planning within their overall job search activities. The view that each applicant sees his/her careers seems to be not only influenced by psychological factors like multiple self-efficacies but also by an employment system in a given country and its implicit messages conveyed to potential employees and applicants. Future studies of this sort are, therefore, encouraged to include more socio-economic factors like employment opportunity, labor market conditions, and so forth as predictors of career planning and job search behaviors.

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## Evaluation of National R&D Programs using DEA

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### Abstract

National R&D programs have to be evaluated so that limited resources can be allocated to promising programs and poor programs can be improved. However, very few attempts have been made at the program level since that various R&D programs have their own primary objectives. This study measures and compares performance of national R&D programs using data envelopment analysis (DEA). Since DEA allows each DMU to choose the optimal weights of inputs and outputs which maximize its efficiency, it can mirror R&D programs' unique characteristics by assigning relatively high weights to the variables in which each program has strength. Every project in every R&D program is evaluated together by DEA. Kruskal-Wallis test is then run to compare performance of R&D programs. The performance comparison results help national R&D policy-makers to formulate and implement effective national R&D programs. **Keywords:** R&D evaluation, R&D performance, national R&D program, data envelopment analysis.

### Introduction

As R&D has been considered as a driving force for national competitive advantage, many countries have been raising R&D investments through various national R&D programs [Lee et al., 1996]. Since R&D investment is one of the most crucial elements in promoting scientific and technological progress [Wang and Huang, 2007], Only a country that makes use of the limited R&D resources effectively can benefit from formulation and implementation of national R&D programs. Thus, evaluations on R&D outcomes need to be made so that limited resources are allocated to promising R&D programs and poor R&D programs can be improved.

Although a number of studies have attempted to evaluate R&D performance at various levels, few attempts have been made at the program level. What makes it difficult to evaluate R&D programs is the heterogeneity of R&D programs; Various R&D programs have their own primary objective such as publishing academic papers for basic scientific research, registering patents and developing new product prototypes for applied research, and providing funds with researchers for R&D human resource development.

Thus, two main approaches to R&D evaluation, peer review and bibliometric data, do not work well for program-level evaluation. The peer review method, which is based on perceptions of well-informed experts about various quality dimensions of R&D, are inherently subjective and likely to be biased depending on interests, experience, and knowledge of the evaluators [Brinn et al., 1996]. The bibliometric data are considered relatively objective, but the results highly depend on the measurement method. To incorporate several types of bibliometric data, in particular, the relative importance of bibliometric variables need to be determined and fixed. However, it does not make sense that the same set of weights is employed for all of the R&D programs with different objectives.

To address these limitations, we measure and compare performance of various national R&D programs with bibliometric data using data envelopment analysis (DEA). DEA is a linear programming model for measuring the relative efficiency of decision making units (DMUs) with multiple inputs and outputs [Cooper et al., 2000]. Since DEA allows each DMU to choose the optimal weights of inputs and outputs which maximize its efficiency, it is capable of mirroring R&D programs' unique characteristics by assigning high weights to the variables in which each program has strength. All projects in every R&D program are evaluated together by DEA. Kruskal-Wallis test



is then run to compare performance of R&D programs. A case study on six national R&D programs is presented for the purpose of illustration.

The rest of this paper is organized as follows. Section 2 deals with DEA for R&D performance evaluation. The analysis method is briefly introduced in Section 3. The proposed approach is explained and illustrated with a case study in Section 4. The paper ends with conclusions in Section 5.

## DEA for R&D Performance Evaluation

DEA is a linear programming model for measuring the relative efficiency of decision making units (DMUs) with multiple inputs and outputs. DEA is a non-parametric approach that does not require any assumptions about the functional form of a production function and *a priori* information on importance of inputs and outputs. The relative efficiency of a DMU is measured by estimating the ratio of weighted outputs to weighted inputs and comparing it with other DMUs. DEA allows each DMU to choose the weights of inputs and outputs which maximize its efficiency. The DMUs that achieve 100% efficiency are considered efficient while other DMUs with efficiency scores below 100% are inefficient. The first DEA model proposed by Charnes et al. [1978] is the CCR model that assumes that production exhibits constant returns to scale. Banker et al. [1984] extended it to the BCC model for the case of variable returns to scale. DEA models are also distinguished by the objective of a model: maximize outputs or minimize inputs. For the detailed explanations of a variety of DEA models, see the text by Cooper et al. [2000].

DEA has also weaknesses due its methodological nature. The flexibility in the selection of weights in DEA can be advantageous where there is no information on the relative importance of inputs and outputs. When prior knowledge or accepted views exist, on the other hand, DEA cannot produce realistic efficiency scores [Allen et al., 1997]. Thus, restrictions on weights need to be placed on weights in DEA [Dyson and Thanassoulis, 1988]. The use of weight restrictions makes it possible to mirror preference in a real world. A large diversity of weights restriction methods have been developed and the most common one is the assurance regions model proposed by Thompson et al. [1990]. The assurance regions of type 1 (AR1) is to impose restrictions on the upper and lower bound of a ratio of two inputs or outputs as the following:

$$L_{ij} \leq \frac{u_i}{u_j} \leq U_{ij} . \quad (1)$$

DEA has some advantages in evaluation of R&D performance [Wang and Huang, 2007]. First, DEA can be utilized even in the situation where *a priori* information on preference about variables. This is exactly the context of R&D evaluation in which there is no universally agreed view on importance of R&D inputs and outputs. DEA solves this problem by automatically deriving the weights that represent a relative value system for each DMU [Allen et al., 1997]. This nature of DEA plays an even more crucial role for program-level evaluation than project-level evaluation. When it comes to R&D project evaluation, there may be an accepted view of preference on R&D outputs since all the projects belong to the single R&D program. Due to the heterogeneity of ultimate goals of R&D programs, on the other hand, importance of R&D outputs differ across R&D programs. A published paper in an international journal could be more or less important than a granted patent. The complete flexibility in the selection of weights in DEA not only makes it possible to compare performance of R&D programs with different objectives, but also take away an opportunity for excuse of inefficient R&D program managers because inefficient R&D programs are under-performing even by putting their own weights solely on “self esteem”. Second, DEA is useful for the cases where relationships of functions between inputs and outputs cannot be defined. As mentioned before, since DEA does not require any assumptions about the functional form of a production function, it fits R&D activities whose production functions have not been specified. Third, DEA deals with multiple inputs and outputs simultaneously, which are problem of using standard parametric method. These characteristics of DEA opened the possibility of applying DEA to R&D performance evaluation for various DMU types such as nations [Wang and Huang, 2007; Kocher et al., 2006; Lee and Park, 2005], universities [Cherchye and Vanden, 2005; Feng et al., 2004; Korhonen et al., 2001], projects [Eliat et al., 2006; Swink et al., 2006; Garg et al., 2005], and project teams [Paradi et al., 2002].

## Methods

### Data and Variables

A case study was conducted on six R&D national programs managed by a government foundation for science and technology in Korea. Each program has its own objectives and projects, as shown in Table 1. All projects in Program A started in 2002 or in 2003 and finished in 2005, and all projects in the other programs were finished or in progress in 2005. The primary goal of Program A is to develop outstanding human resources for research while what is at the core of Program B is to create new business with innovative technologies. Program C and D focus on basic research on science and engineering, respectively. Program E deals with R&D projects for bioengineering and clinical medicine. Program F is aimed at developing national core science and technology competitiveness.

TABLE 1: R&D PROGRAMS

Program	No. of Projects	Objective
A	539	Supporting researchers to work in creative research activities individually or collaboratively in the fields of basic sciences emphasizing interdisciplinary research, and encouraging to develop outstanding human resources for research
B	56	Increasing competence in creative innovation, securing national core technologies which will enable to create new businesses
C	27	Supporting creative basic research to ensure exploration of basic theory and knowledge that may lead to outstanding papers and the development of advanced technologies
D	36	Supporting mainly in basic engineering research with the potential for industrial advancement, while encouraging interdisciplinary collaborations between industry and academia and enhancing the international competitiveness of national industries
E	18	Supporting large-scale, long-term R&D activities, the outputs of which are to be used both in bioengineering and clinical medicine, and playing a key role in cultivating human resources in basic medical sciences
F	4	Supporting research centers that are considered capable of creating world-class knowledge and competitiveness in core science and technology fields that require strategic incubation for national interests

Among a variety of inputs and outputs of R&D mentioned in Section 2, three inputs and ten outputs were selected for this study, as shown in Table 2. The amounts of funds given to a project and the number of researchers on a project were selected as proxy of capital input and labor input, respectively. These are typical inputs in this kind of study [Serrano-Cinca et al., 2005]. Since the time length to conduct R&D project execution differs across projects, project duration was also considered as an input. The four variables related with papers were included to the set of output variables. The academic papers published in journals have been considered as the major output of research and widely used to evaluate performance of researchers [OECD, 2001]. Patents were also selected as outputs since patents have most frequently used as direct output of R&D activities [Zhang et al., 2003]. The variables about patents are also categorized into the four types. Finally, outputs incorporate the perspective of human resource development of R&D with two variables, graduate students with master's degree and doctoral degree since it is one of the main objectives of governmental R&D programs [Garg et al., 2005].

TABLE 2: VARIABLES

Type	Variable	Description
Input	Project duration	Years to conduct a project
	Funds	Total amounts of funds given to a project
	Researchers	No. of Ph.D. researchers on a project
Output	Domestic SCI papers	No. of domestic scientific and technical articles published in journals listed on SCI
	Domestic non-SCI papers	No. of domestic scientific and technical articles published in journals not listed on SCI
	International SCI papers	No. of international scientific and technical articles published in journals listed on SCI
	International non-SCI papers	No. of international scientific and technical articles published in journals not listed on SCI
	Domestic applied patents	No. of patents applied in domestic patent offices
	Domestic granted patents	No. of patents registered in domestic patent offices
	Foreign applied patents	No. of patents applied in foreign patent offices
	Foreign granted patents	No. of patents registered in foreign patent offices
	Master's degree students	No. of students graduated with master's degree
	Doctoral degree students	No. of students graduated with doctoral degree

The data were obtained from the foundations' database and arranged for analysis. The whole data set is not presented in this paper due to the space limit. As an example, the data for all projects in Program D is shown in Appendix A.

#### Analysis Methods

Although findings from previous studies on R&D returns to scale are somewhat mixed, most suggested R&D exhibits constant returns to scale [Graves and Langowitz, 1996; Scherer, 1983; Bound et al., 1984]. It is implicitly assumed that the objective of R&D lies in increasing outputs rather than decreasing inputs. Therefore, the output-oriented CCR model (CCR-O model) is used in this study and expressed by the following linear programming model:

$$\begin{aligned}
 & \min \sum_{i=1}^m v_i x_{ik} \\
 & \text{s.t.} \quad \sum_{r=1}^s u_r y_{rk} = 1, \\
 & \quad \sum_{r=1}^s u_r y_{rj} - \sum_{i=1}^m v_i x_{ij} \leq 0, \quad j = 1, \dots, n \\
 & \quad u_r \geq 0, \quad r = 1, \dots, s \\
 & \quad v_i \geq 0, \quad i = 1, \dots, m
 \end{aligned} \tag{2}$$

where  $x_{ij}$  is the amount of the  $i$ -th input,  $y_{ij}$  is the amount of the  $r$ -th output,  $v_j$  is the weight given to the  $i$ -th input,  $u_r$  is the weight given to the  $r$ -th output, and  $k$  is the DMU being measured.

The analysis process of this study is divided into two parts. The first part deals with project-level evaluations for each R&D program. All the R&D projects in a R&D program are evaluated together by DEA. In the second phase, program-level comparisons are conducted. Basically, the performance of a R&D program is measured based on the performance of projects belonging to the program. Thus, DEA is carried out for the whole set of 680 R&D projects in every six R&D program at the same time. Kruskal-Wallis test is then run to compare performance of R&D programs because the derived efficiency scores are nonparametric data. Kruskal-Wallis test is a

nonparametric method that compares between the medians of two or more samples to determine if the samples have come from different populations.

## Results and Discussions

### Project Level Evaluation

Project level evaluation is aimed at measuring performance of individual projects. Only the projects belonging to the same program are evaluated together by DEA. Thus, DEA was conducted six times for each program. TABLE 3 summarized the results, but the whole set of efficiency scores of individual projects is omitted due to the space limit. As an example, the efficiency scores of the projects in Program D can be found in TABLE 6.

In terms of both the average efficiency score and the portion of efficient projects, Program A has the lowest (0.3898, 6.12%) while Program F ranks the first (1, 100%). However, this does not mean anything about program performance. What makes this happen is the number of projects included as DMUs in each program. When the number of DMUs is relatively small compared to the number of inputs and outputs, a large portion of the DMUs will be identified as efficient so the efficiency discrimination is lost [Cooper et al., 2000]. The rule of thumb is that the number of DMUs should be at least three times larger than the combined number of inputs and outputs [Banker et al., 1989] or more than the product of the numbers of inputs and outputs [Boussofiane, 1991]. Since the DEA model includes three inputs and ten outputs, none of the programs complies with the rule except Program A and Program B. It is shown that the more projects included, the higher the average efficiency score and the percentage of efficient projects. The extreme case is found in Program F where all of the four projects are found to be efficient. To conclude, it is meaningless to judge performance of R&D programs with the results in TABLE 3 since DEA was conducted independently for each program with the different number of DMUs. The only thing implicative here is the efficiency scores of projects in each program themselves.

TABLE 3: RESULTS OF PROJECT LEVEL EVALUATION

Programs	No. of projects	Average efficiency score	No. of efficient projects (Percentage)
A	539	0.3898	33 (6.12%)
B	56	0.8718	24 (42.86%)
C	27	0.8161	13 (48.15%)
D	36	0.8352	19 (52.78%)
E	18	0.9373	15 (83.33%)
F	4	1	4 (100%)

### Program Level Evaluation and Comparison

In order for comparison to be made among R&D programs, every project in every program is evaluated together with DEA. The performance of R&D programs is then evaluated by their projects' performance. DEA was run for the whole set of 680 R&D projects. As a result, 54 projects (7.94%) were found to be efficient and average efficiency scores was 0.3939.

TABLE 4 summarized average efficiency scores of the projects for each program. Program D has the highest average score while Program F ranks the lowest. Since all the projects are evaluated together, it makes sense to compare the performance of R&D program based on the average score of projects belonging to programs. The ranking based on average score is D>C>B>E>A>F in order.

However, simple comparison based on average efficiency scores does not have statistical validity since efficiency scores are derived from DEA that is a nonparametric method. It is found that there exist statistically significant differences among efficiency scores of the six R&D programs. What is of interesting is a rank reversal between Program A and Program F. The final ranking of the six R&D programs is D>C>B>E>F>A in order.

TABLE 4: MEAN EFFICIENCY SCORE AND MEAN OF RANK OF PROGRAM LEVEL

Programs	No. of projects	Arithmetic mean		Kruskal-Wallis test	
		Average efficiency score	Rank	Mean rank	Rank
A	539	0.3373	5	303.46	6
B	56	0.5810	3	461.22	3
C	27	0.6333	2	500.28	2
D	36	0.8060	1	593.33	1
E	18	0.3415	4	334.06	4
F	4	0.3144	6	316.25	5

$$\chi^2 = 117.956, df = 5, p=0.000$$

### Incorporating Importance of Variables

As mentioned before, DEA is advantageous for R&D program evaluation and comparison due to the flexibility of weights selection. Each project is allowed to select its own weights so that its strengths in some variables are mirrored in evaluation. However, when universal agreements exist on the relative importance among variables for any program, the complete flexibility does not make sense. For example, it is obvious that a paper published in an international journal listed on SCI is more valuable than a paper published in a domestic journal not listed on SCI. Two alternatives can be employed for this problem. The first one is to integrate output variables. The 10 output variables can be categorized into three types: papers, patents, and human resources. Where the relative importance exists is not among different types of variables, but among variables in the same type. Thus, the importance of each variable is captured by integrating the same types of variables with fixed weights. The weights can be derived from relative comparisons. The pairwise comparison method was employed to derive weights of variables in each output type, as shown in TABLE 5. Then, the value of an integrated output is the weighted sum of observed values of each variable. It is meaningless to compare the absolute size of weights of variables included in different types of integrated outputs since the weights are obtained from the comparison within the same type of output. Regardless of integration of output variables, the weight flexibility still works among integrated outputs so that the advantage of DEA for R&D program evaluation holds true. To illustrate the difference in results, TABLE 6 shows the efficiency scores of the projects in Program D.

TABLE 5: INTEGRATION OF OUTPUT VARIABLES

Integrated outputs	Output variables	Weight
Papers	Domestic SCI papers	0.27
	Domestic non-SCI papers	0.07
	International SCI papers	0.52
	International non-SCI papers	0.14
Patents	Domestic applied patents	0.06
	Domestic granted patents	0.26
	Foreign applied patents	0.12
Human resources	Foreign granted patents	0.56
	Master's degree students	0.25
	Doctoral degree students	0.75

The other alternative is to apply the AR model for weights restriction. Restrictions are also placed only for the relationships between the same types of variables. The upper and lower bound of a ratio of two outputs can be determined based on experts' judgments. We added the following relationships as constraints to the DEA model. In

the presence of weights restriction, infeasible solutions occur for the DMUs that have the observed value of 0 in output variables.

$$1 \leq \text{Domestic SCI papers} / \text{Domestic non-SCI papers} \leq 5$$

$$1 \leq \text{Interanational SCI papers} / \text{Interational non-SCI papers} \leq 5$$

$$1 \leq \text{Interanational SCI papers} / \text{Domestic SCI papers} \leq 3$$

$$1 \leq \text{Domestic granted patents} / \text{Domestic applied patents} \leq 5$$

$$1 \leq \text{Foreign granted patents} / \text{Foreign applied patents} \leq 5$$

$$1 \leq \text{Doctoral degree students} / \text{Master's degree students} \leq 5$$

TABLE 6 compares the efficiency scores of 36 projects in Program D for the three cases. There exist significant differences in the efficiency scores. What is prominent is falls of scores of the DMU who are efficient in the basic model, such as Project 15, Project 20, and Project 28. The discriminatory power also increases from 52.78% to 40.91% (AR) and 19.44% (Output integration). The remarkable increase of the discriminatory power in output integration comes from the reduction of the number of outputs from ten to three. It is concluded that two alternatives can produce more realistic results by mirroring the relative importance of output variables in the reality.

TABLE 6: EFFICIENCY SCORES OF 36 PROJECTS IN PROGRAM D FOR THREE CASES

Projects	Basic		AR		Output integration	
	Efficiency score	Rank	Efficiency score	Rank	Efficiency score	Rank
1	1.0000	1	1.0000	1	0.8118	13
2	1.0000	1	1.0000	1	1.0000	1
3	1.0000	1	-	-	1.0000	1
4	1.0000	1	-	-	1.0000	1
5	1.0000	1	-	-	0.7884	16
6	1.0000	1	1.0000	1	1.0000	1
7	1.0000	1	1.0000	1	1.0000	1
8	0.4754	35	-	-	0.4252	28
9	1.0000	1	-	-	0.7398	17
10	1.0000	1	1.0000	1	0.8656	10
11	1.0000	1	-	-	0.8538	11
12	1.0000	1	-	-	0.8375	12
13	1.0000	1	1.0000	1	1.0000	1
14	0.6084	30	0.6546	12	0.5908	22
15	1.0000	1	0.5721	17	0.3976	31
16	0.7540	23	0.6041	14	0.4553	25
17	0.6953	28	-	-	0.4089	30
18	0.7356	24	0.6365	13	0.6029	21
19	0.5359	33	0.4066	22	0.3445	35
20	1.0000	1	0.9011	10	0.4983	23
21	1.0000	1	-	-	0.7910	14
22	0.8215	20	0.8246	11	0.7890	15
23	0.5794	31	0.5217	18	0.3951	32
24	1.0000	1	1.0000	1	0.9472	8
25	1.0000	1	1.0000	1	0.9399	9
26	0.7023	27	-	-	0.6257	19
27	0.7313	25	0.6023	15	0.4139	29
28	1.0000	1	0.5963	16	0.4515	26
29	0.6787	29	0.4291	20	0.3808	33
30	0.5549	32	-	-	0.4269	27
31	1.0000	1	1.0000	1	1.0000	1
32	0.4089	36	-	-	0.2673	36
33	0.8104	21	-	-	0.6102	20
34	0.7203	26	-	-	0.6796	18
35	0.4934	34	0.4086	21	0.3597	34
36	0.7598	22	-	-	0.4770	24
No. of efficient projects (Percentage)	19 (52.78%)		9 (40.91%)		7 (19.44%)	

## Conclusions

We measured and compared performance of the six national R&D programs with bibliometric data using DEA. Every project in every program was evaluated together and Kruskal-Wallis test is then run to compare performance of R&D programs. The two alternative approaches to incorporating importance of variables were also considered and illustrated.

The main contribution of this study is to open possibilities of comparing performance among heterogeneous R&D programs. Since DEA allows each DMU to choose the optimal weights of inputs and outputs which maximize its efficiency, it is capable of mirroring R&D programs' unique characteristics or strengths by assigning relatively high weights to the variables in which each program has strength. The derived performance comparison results help national R&D policy-makers to formulate and implement effective national R&D programs with the limited resources. R&D programs doing well deserve more investments while poor programs have to be improved or terminated.

However, this study is subject to a limitation that the results cannot provide information on how to improve a poor program. Although each project can be provided with the way of improving efficiency from DEA results since it offers the way of benchmarking for inefficient DMUs, it is not easy to aggregate project level implications into the program level. This will be dealt with future research. Another fruitful avenue for future research is to compare program performance based on the efficiency scores under two alternative approaches, AR model and output integration. This paper only introduces the concepts and presents the results at the project level. It will be another worthwhile area for future research to employ the super-efficiency approach to increase the discriminatory power of DEA and compare the results can be employed such as super-efficiency.

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## Appendix

Appendix A: DEA Data of Program D

Project	Input1	Input 2	Input 3	Output 1	Output 2	Output3	Output 4	Output 5	Output 6	Output 7	Output 8	Output 9	Output 10
1	9	8,104	18	11	144	245	29	93	27	33	21	262	98
2	9	7,413	12	16	82	272	4	135	71	69	17	312	70
3	9	9,233	19	39	574	529	113	27	43	0	5	368	83
4	9	7,624	7	1	305	371	41	0	0	0	0	339	73
5	9	8,745	12	49	496	352	16	9	24	1	0	270	50
6	9	8,511	22	67	161	897	24	71	50	17	21	284	106
7	9	7,446	21	1	423	129	8	11	31	3	5	376	81
8	7	6,626	11	4	48	183	6	25	19	6	2	92	24
9	7	7,323	7	21	99	117	0	36	14	6	3	197	23
10	7	6,246	8	28	277	179	13	21	30	3	2	230	41
11	7	6,686	18	0	155	331	140	41	46	22	16	107	45
12	7	6,371	13	0	177	162	40	32	24	7	6	224	72
13	7	7,443	17	48	58	477	7	106	41	29	9	262	54
14	7	7,378	14	10	90	342	16	19	9	2	2	114	22
15	6	5,556	6	19	59	81	31	7	12	2	2	72	16
16	6	5,956	17	26	154	234	30	34	18	5	4	96	10
17	6	5,957	14	15	31	91	0	63	6	11	0	100	16
18	6	5,925	21	12	46	128	6	55	35	2	9	97	29
19	6	5,936	18	23	8	182	3	35	11	6	1	75	12
20	6	5,348	17	7	230	221	11	79	21	4	1	82	23
21	6	5,842	17	2	40	141	0	83	32	15	15	107	51
22	6	6,447	15	33	108	464	22	35	11	5	6	72	12
23	6	5,640	16	4	89	110	9	15	8	4	1	91	39
24	6	6,129	17	17	43	576	59	35	13	12	1	185	35
25	5	4,842	8	14	17	223	2	51	39	19	7	130	57
26	5	4,654	11	0	78	47	0	34	14	11	6	127	10
27	5	4,638	17	4	41	82	4	54	17	11	2	55	9
28	5	4,784	7	17	44	67	1	24	12	13	7	61	15
29	4	3,569	12	7	93	55	2	11	3	1	4	60	17
30	4	3,569	19	1	98	60	0	10	5	2	1	68	20
31	4	3,569	15	10	12	209	2	53	42	4	8	154	43
32	4	3,939	18	1	23	102	11	11	3	7	0	35	13
33	4	3,866	17	2	162	141	37	5	10	1	0	93	29
34	4	3,212	10	1	57	207	2	18	1	2	0	84	11
35	3	2,379	15	5	9	59	1	19	5	1	2	36	7
36	3	2,423	6	7	34	56	3	28	6	1	0	51	12

Input 1: Project duration(year)	Input 2:Funds(million won)	Input 3: Researchers	Output4: International non-SCI papers
Output1: Domestic SCI papers	Output2: Domestic non-SCI papers	Output3: International SCI papers	Output8: Foreign granted patents
Output5: Domestic applied patents	Output6: Domestic granted patents	Output7: Foreign applied patents	
Output9: Master's degree students	Output10:Doctoral degree students		



## **Section 2: Global Financial Markets, Banking & Accounting Issues**

## Strategies for Economic Growth: The Role of Financial Depth

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### Abstract

Commonly economic development is measured by the performance of economic growth. Several factors had been identified as the causes of economic growth. Among these factors, the role of financial markets in the growth process has received significant attention. Therefore, the aim of this paper is to investigate the importance of financial depth to the economic development in selected Asia Pacific countries. These countries were selected based on the differences between the well-developed financial market and under-developed financial market as well as the middle-developed financial market. By taking into account the individuality of cross sectional unit and time series, it allows us to capture the differences within these units. Therefore a panel data set for the period of 1960-2003 is tested using the panel unit root tests and generalized least square panel estimation technique. Two proxies have been selected to represent the financial depth in those countries. Those proxies cover both the money and capital markets, whereas control variables consist of government expenditure and openness to international trade. The empirical results provide clear support for the hypothesis that there exist positive significant relationship between financial depth and economic growth.

### Introduction

Generally, a nation's economic growth can be defined as the changes in production of goods and services produced by all sectors in the economy. If the production level at time  $t$  is greater than the production level at time  $t-1$ , then we can conclude that the nation has grown positively. Commonly, the economic growth can be measured through the Gross Domestic Product (GDP).

In the determination of economic growth, several factors have been identified as the main causes of economic growth. Among these factors, the role of financial markets in the growth process has received significant attention. In this framework, financial development is considered by many economists to be an important factor for output growth.

According to the classical school of thought in the neutrality of money doctrine, an increase in money stock will increase the price level without affecting the real output. They conclude that money, as the financial variable will not affect the real economy variables. In contrast to the classical view, the Keynesian and Monetarist schools of thought believe that the financial indicators will affect the real sector. The development in the financial market will increase the financial aggregate and make the loan interest rate (lending rate) decrease. Therefore the fall in the interest rate will increase the real sectors through the rise in the domestic investment, domestic consumption and government expenditure.

While the empirical works among others by Gurley and Shaw (1955), Modigliani and Miller (1958), Goldsmith (1969), McKinnon (1973), Shaw (1973), Smith (1991), Levine (1991), King and Levine (1993a), Gertler and Rose (1992), Allen and Ndikumana (1998) and Levine et al. (2000) show that financial development is a significant variable in influencing the economic growth. According to Ansari (2000) financial development includes financial deepening, financial broadening and financial liberalization that take into account the number and the role of financial institutions, financial instruments, deregulation of interest rates, free movement of foreign capital and removal of other restrictive practices. Generally, financial development has predictive power for future economic growth.

Furthermore, the panel studies by Khan and Senhadji (2000) and Rioja and Valev (2002) show that the relationship between financial development and economic growth varies according to the level of financial

development of the country. The positive relationship is reported for the middle and high level of financial development and ambiguous effect in countries with low financial development.

Based on the findings produced by Khan and Senhadji (2000) and Rioja and Valev (2002) that financial development varies between countries, hence, by selecting different countries in Asia-Pacific, we can capture the different level of financial development. We can conclude that the well-organized financial intermediaries are essential for economic growth. And the roles of financial intermediaries could be derived in providing financial services that become the important financial indicators to economic growth. However, the lack of financial institutions in some Asia-Pacific countries is simply a manifestation of the lack of demand for their services. In addition, there are very few papers that have investigated this relationship in less sophisticated financial market, and then compared this finding over a number of countries that are quite sophisticated financially. Furthermore, the measurement of financial development is essential because it has significantly different implications for the development policy (bank-based vs. market-based). However, this measurement remains unclear. This paper employs several financial measures and new data to gain insight into this issue.

This paper is organized as follows; Section 2 discusses the underlying theoretical background. Section 3 illustrates the method of the study including the data and three measures of financial development in order to respond to discussions of financial development. The analysis is discussed in section 4. Section 5 concludes the paper.

## Literature Review

Financial development has taken a prominent role in recent research in several different areas of the literature, such as economic growth, financial stability and international financial integration. In the determination of economic growth, frequently financial development is defined as the improvement in quantity, quality and efficiency of financial intermediary services. Among others, Schumpeter (1911), Gurley and Shaw (1955), Goldsmith (1969) and McKinnon (1973) mentioned the importance of financial intermediaries to the economic growth.

Since Schumpeter (1911), McKinnon (1973) and Shaw (1973), and more recently King and Levine (1993a) and Levine et al. (2000), the relationship between financial development and economic growth has been extensively studied<sup>1</sup>. In the beginning, the traditional view, like McKinnon (1973) and Shaw (1973), offered detailed arguments and evidence on the role of organized financial structure of an economy to accelerate economic growth and improve economic performance. They believe that the surplus funds would be channeled efficiently to deficit units to stimulate the economy. In their view, differences in the quality and quantity of services provided by financial intermediations are the main reasons for different economic growth of every country. Greenwood and Jovanovic (1990) also found evidence that as income level rises, financial structure becomes more extensive, economic growth becomes more rapid.

McKinnon (1973) and Shaw (1973) also stressed on the reform of financial markets that seems to be the optimal strategy to generate both faster and steadier growth in real output by increasing saving propensities and the quality of capital formation. Here, a deliberate creation of financial institutions and markets increases the supply of financial services and thus leads to economic growth. However, these traditional views only focus on the components of financial liabilities like money supply (which includes M1, M2 and M3) through savings or deposits in the financial intermediaries in generating more economic growth.

In contrast, during the 1980s and 1990s (during the financial liberalization), many researchers have concentrated on financial assets in order to indicate the linkages between financial intermediary and economic growth. Williamson (1987) and Gertler (1992) provided the evidence of positive correlation between output and the quantity of intermediated credit (as financial assets). He also found that credit leads output in the sense of Granger causation. However, other models showed that financial assets other than credits (loans) also can be used to prove the greater impact of financial system on economic growth. For example, Levin and Zervos (1998) tried to investigate the relationship between stock markets and also bank credit with economic growth. They found that the rapid growth of capital market plays a crucial role in allocating fund to entrepreneur and thus ultimately influence the decision to invest.

Further more, King and Levine (1993b) not only discussed the relationship between financial development and economic growth but also the role of entrepreneur in generating economic growth. They found that an efficient allocation fund from intermediaries to entrepreneurs was able to lower the cost of investing in productivity enhancement and stimulates economic growth. The reason is that the financial intermediaries can influence the decision to invest in productivity enhancing activities through their ability to evaluate and monitor the prospective entrepreneur<sup>2</sup>, and provide fund to potential entrepreneur.

In 2000, the panel studies done by Khan & Senhadji showed that the relationship between financial development and economic growth varies according to the level of financial development of that country. The positive relationship is reported for the middle and high level of financial development. However ambiguous effect is found in countries with low financial development.

By employing three approaches, the one-step panel estimator, the two-step estimator and recent GMM techniques, Levine and Beck (2002) examined the impact of stock markets and banks on economic growth of 40 countries for the period of 1976-98. Their findings were in line with the theories that stressed on the important positive role for financial development in the process of economic growth. In conducting a study on 69 developing countries by using a cross sectional regression, Trabelsi (2002) found that the influence of financial development on economic growth was significant only in long run. He also pointed out that both financial development and private sector development are important in improving the economic growth. This is because financial sector stimulated economic growth via investment.

In a study done by Abd, Ghafar and Nur Azura (2003), they reported that as income level rise, financial structure becomes more extensive, economic growth becomes more rapid and income inequality across the rich and poor widens. By selecting 45 Islamic countries and using the data of 1970-2001, they constructed four indicators of the level of financial sector development. They are the ratio of broad money (M2) to GDP, the ratio of credits provided by banking system to the private sector to GDP, the ratio of banking system assets to banking system assets plus central bank assets and the proportion of total assets of financial institutions to GDP. They then concluded that the positive impact of the financial development on economic growth is high in countries with high and middle level of financial development and the effect in countries with low level of financial development is vague. According to White (1995), M2/GDP is not a good proxy for financial development. This is because changes in M2/GDP might be caused by the changes of the level of development. For instance, M2/GDP might change when an economy evolves from barter system to a more sophisticated system.

## Methodology

### Estimation Technique

In this section, the pooled cross-section and time series estimations are utilized to measure the long run relationship between financial development and economic growth for each country. We compiled the data from the International Financial Statistics Yearbook from the year 1970-2002. After the screening process from the total of 18 Asia-Pacific countries, we selected 12 countries due to the complete data for the analysis and estimation.

Based on the theory of financial development and economic growth, specifically, the regression model can be specifying as follows:

$$GGDP_{it} = \alpha_{0i} + \alpha_1 FD_{it} + \alpha_2 GP_{it} + v_i + u_{it} \quad (1)$$

Where GGDP is the growth of GDP, FD is financial depth variables that covers the ratio between M2 to GDP (M2/GDP), the ratio of credits provided by banking system to the private sector to GDP (CREDIT/GDP), deposit banks relative to the central bank in allocating domestic credit (BSA), and the ratio between the total assets of financial institutions divided by GDP (TA/GDP). While GP is government policy that is represented by the ratio of openness of international trade to GDP (O/GDP) and the ratio of government expenditure over GDP (GOV/GDP). In this specification  $v_i$  denotes country and time specific effects. The cross-section and period specific may be handled using fixed or random effects methods.

Since panel data relate to individual country, there is bound to be heterogeneity in these units. In order to take into account the heterogeneity explicitly in the estimation procedure, several assumptions have to be made to the

intercept value and the error term. Therefore by including the fixed effects and the random effects to the estimation model, heterogeneity in the model was accounted for.

A pooled combination of cross sectional and time series model that incorporates fixed effect, random effect for both time and specific correlation are applied. The techniques used will be the Ordinary Least Squares (OLS) as well as the Generalized Least Squares (GLS) and panel data regression technique. Under both techniques, the GDP is regressed against the explanatory variables. The purpose of this regression is to identify the relationship between financial development and economic growth (with the government policy variables as the control variables) and to look at the coefficients to be consistent with the theory or not.

The Generalized Least Square pooled time-series cross sectional method are utilized due to the normality distributions of the data. Furthermore, the Generalized Least Square pooled time-series cross sectional specification assumes that all countries have the same behaviors. In other words, it assumed that the slope and intercept of countries are constant across individuals and time. These assumptions of uniform behavior deny any form of heterogeneity, which is in practice very likely to prevail. Therefore, in order to incorporate the individuality of each country for each cross-sectional unit is to include the fixed and random effects in our model.

More specifically, as well as the Generalized Least Square, the estimation technique utilize the cross-sectional weights for correcting cross sectional heteroscedasticity. While the white (diagonal) coefficient covariance robust method is utilize to compute the coefficient standard error (robust coefficient covariance) since the white method is robust to observation specific heretoscedasticity in the disturbances. Therefore the estimator is robust to different error variances in each cross-section.

#### **Unit Root Panel Test**

According to Gujarati (2003), panel data is similar to the pooled data with other names such as combination of time series and cross-section data, micropanel data, longitudinal data and cohort analysis. By referring to Green (2002), pooled data refer to the data with relatively few cross-sections. While panel data correspond to data with large number of cross-sections. This study included 18 countries with the period spanning from 1970 to 2003. Therefore, due to the period observations of more than 30 years for each country, the unit root panel test is needed to test the stationarity of the data.

Unit root test is conducted on the variables in the form that they will be regressed, for example, growth GDP for GDP. Unit root test is conducted to test for the non-stationarity of the data. The econometric software, EVIEWS 5.1 allows 5 methods of panel unit root test, that are Levin-Lin and Chu (LLC); Breitung; Im, Pesaran and Shin (IPS), ADF types of test, as well as Hadri Test. All five-unit root tests are employed, however only the LLC and ADF Fisher test results are reported in the analysis. The choice of panel unit root test follows Cosar (2002), who claims "*LLC test is preferred because of its large potential power gains. Besides, LLC test is widely used in empirical researches.*" Given that the assumptions of individual unit root process, this study considers ADF Fisher panel data unit root test as well.

## **Findings**

#### **Panel Estimation Results**

This section provides empirical evidence on the relationship between financial development and economic growth based on the sub-sample countries and pooled sample. The investigation reported here consists of the panel unit root test and the panel estimation results.

In order to take into account the stationarity of the data, we utilize the panel unit root test in order to determine the null hypothesis of unit root for each variable. Table 1 reported the results of panel unit root test based on the Levin, Lin & Chu (LLC) test that assumes common unit root process and the ADF-Fisher chi square test that assumes individual unit root process. Both (common and individual test) have a null of a unit root. The results of GGDP, M2/GDP, BSA, and O/GDP indicate that the LLC and ADF-Fisher tests fail to reject the null of a unit root at level. For the most part, the data is stationary at 1<sup>st</sup> difference.

TABLE 1: PANEL UNIT ROOT TEST

Unit Root Test	Levin, Lin & Chu <i>Individual Effects</i>		ADF-Fisher Chi Square <i>Individual Effects</i>	
	Level	1 <sup>st</sup> Difference	Level	1 <sup>st</sup> Difference
GGDP	-0.4731	-27.4373*	98.0390*	434.8010*
M2/GDP	-0.3082	-27.3392*	121.044*	713.8150*
CREDIT/GDP	-51.2882*	-	112.1570*	-
BSA	1.3544	9.0199*	228.994*	728.2550*
TA/GDP	-1996.06	-	93.7881*	-
O/GDP	-0.9922	-28.4848*	119.9580*	733.0420*
GOV/GDP	-3.8871*	-	142.2500*	-

\*Significant at 1% level

To run the regression model, we utilize the Generalized Least Square (GLS) method to test the estimation model (equation (1)). The Generalized Least Square method with the White test was able to correct for both the heteroskedasticity and contemporaneous correlation in the estimation model. Table 2 reported the GLS regression results for all sample cross-section time-series with fixed effects and the random effects.

The regression is estimated using robust covariance method procedure pooling Asia-Pacific countries level. Dependent variable is GDP growth (GGDP). The t-test values are given in parentheses.



TABLE 2: UNBALANCED PANEL ESTIMATION RESULTS FOR ALL COUNTRIES

Variable	Fixed Effects	Random Effects
C	5.8895 (34.7154)***	7.4443 (17.3983)***
M2/GDP	0.9563 (11.6604)***	0.5902 (2.7715)***
CREDIT/GDP	0.8999 (8.3657)***	-0.5851 (2.3978)**
BSA	-0.0006 (0.5715)	-0.0014 (1.1514)
TA/GDP	0.1347 (6.8933)***	0.1548 (4.6815)***
O/GDP	1.1384 (6.5136)***	-0.0591 (0.1748)
GOV/GDP	0.9252 (5.4660)***	0.5778 (5.0136)***
R <sup>2</sup>	0.9811	0.1112
Adj. R <sup>2</sup>	0.9807	0.1059
DW	0.2491	0.1661
F	255.2548*	20.8823*
Hausman Test	302.7004*	-
Cross-Section	37	37
N	1008	1008

\*\*\*Significant at 1% level

\*\*Significant at 5% level

\*Significant at 10% level

In order to test the appropriate model with the hypothesis that the individual effects are uncorrelated with the other regressors in the model, the Hausman test are utilized. The results of Hausman test, as shown in Table 3 indicated that the results of generalized least square with fixed effect explained better relative to the random effects on the relationship of the related variables both for the sub sample country and pooled sub sample country estimations. The results implied that the Hausman test allowed the null hypothesis of the absence of correlation between individual effects and the explanatory variables to be rejected in all cases, the GLS estimator of the random effects being inconsistent. Therefore further explanation on the relationship between financial development and economic growth is based on the fixed effects results.

Table 2 showed that all the significant exogenous variables explain the endogenous variables with the consistent effect. Based on the estimation results of the fixed effects, the adjusted R<sup>2</sup> for equation (1), which is the common measure of the goodness of fit, stood at 0.9807. That is 98.07 percent variation in GGDP is explained by the independent variables. For each specification models, the problem of heteroscedasticity is corrected using the White procedure automatically.

For equation (1), the first and the second financial depth variable, M2/GDP and CREDIT/GDP are significant in influencing the GGDP for the fixed effects regression model. The result implies that an increase in the M2/GDP or CREDIT/GDP increases the GGDP. Contrary to other studies, the result shows that BSA is influenced GGDP negatively. But the t test fails to reject the null hypothesis of no correlation between the BSA and economic growth. For TA/GDP, the regression result showed that a positive significant relationship between TA/GDP and the endogenous variable at 1 percent level.

For both the government policy variables, the relationship between O/GDP and GOV/GDP to GGDP were positively significant at 1 percent significant level respectively. This finding showed that an increase in government expenditure and the openness to international trade will increase the economic growth.

## Conclusion

The lack of financial institutions in some Asia Pacific countries is simply a manifestation of the lack of demand for their services. Furthermore, the measurement of financial development is essential because it has significantly different implications for the development policy (bank-based vs market-based). However, this measurement remains unclear. This research employs several financial measures and new data to gain insight into this issue. Therefore, the aim of this research was to determine the relationship between financial development and economic growth.

In order to identify different financial measures of financial development, this research utilized four indicators for financial development that covers the development of financial sector/intermediary, development of financial services, the development of deposit banks relative to the central bank in allocating domestic credit and the development of financial institutions asset.

The empirical results reported in section 4 fulfill the objectives of this research. The unbalanced panel regressions with the GLS method as well as the White coefficient covariance robust method were utilized to investigate the relationship between financial development indicators to economic growth. The empirical results from this study are mixed. Before categorizing the countries, with ceteris paribus, M2 over GDP, bank credit and the total assets of financial institutions has very strong and positive impact on economic growth for all countries. Yet, the importance of bank deposits relative to the central bank in allocating domestic credit that is proxied by BSA is unclear with ambiguous sign.

Based on this simple research it is quite hard to suggest the appropriate policies. However, in order to stimulate economic growth in those low-income countries, the governments could take several moves especially in bank supervision and regulation. Hence, in addition to financial reform, legal and accounting reforms are needed to strengthen the banks rights, contract enforcement, and accounting practices. The strengthening of these elements can boost financial development and accelerate economic growth. They also conversely support the evidence that the countries that have no reform in legal and accounting systems weaken the banks' rights, contract enforcement, and accounting practices. For instance, transparent rules and encouragement should be given.

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### **End Notes**

See, Levine (1997) among others, for a comprehensive view.

<sup>2</sup> Holmstrom and Tirole (1997) advocated the function of intermediaries is to monitor firms and thereby alleviate the moral hazard problem.

# The Finance-Growth Nexus and Financial Opening: The Empirical Relationship

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## Abstract

This paper reexamines the empirical relationship between financial development and economic growth, considering the role of financial opening and foreign investment. We use cross-country and panel empirical regressions for as many as 100 countries from the period of 1970 to 2002. We examine the growth effect of financial development in the long and short run, and study how the finance-growth nexus changes conditional on financial opening and liberalization. Our results of cross-sectional regression analysis demonstrate that there is a long-run significant positive, though non-linear, relationship between financial development and economic growth. The positive finance-growth relationship becomes stronger in more recent periods after 1990, when countries liberalized and opened their financial markets further. The relationship between financial development and growth is also affected by other conditions including macroeconomic stability and financial opening. No significant finance-growth relationship is found in dynamic panel analysis, although the finance-growth nexus becomes positive and significant in the post-1990 period even in the panel regression.

**Keywords:** financial development, economic growth, empirical relationship, world

**JEL Classification:** E44, G10, O40

## Introduction

The relationship between finance and growth has been an important research topic to be studied extensively for long by economists. Many scholars have argued that financial development encourages economic growth as the development of the financial sector increases investment and its efficiency altogether (Levine, 1997). On this issue, empirical studies have been developed recently and most findings generally support this argument. A number of empirical researches have introduced cross-country regressions and report that financial development measured by monetary indicators and credit plays a significant role in economic growth (King and Levine, 1993a,b ; La porta et al., 1998; Levine et al., 2000; Rioja and Valev, 2004).

However, although there is seemingly a strong relationship between finance and growth in theory and empirics, there is still skepticism too. Some point to possibilities that the direction runs the opposite way, that is, financial development follows economic growth. Several studies question the growth effect of financial development using time-series analyses (Arestis and Demetriades, 1996; Shan et al., 2001; Graff, 2002). More recent studies, using the panel approach, have demonstrated that the relationship between finance and growth may be weak (Khan and Senhadji, 2000; Trabelsi, 2002 ; Favara, 2003 ).

Given the circumstances, we attempt to reexamine the finance-growth relationship empirically in this paper, using various methods. First, we study whether financial development spurs economic growth using standard cross-country regressions and panel regressions. Hence, our study shows both the long-term and short-term effect of financial development on economic growth. It also covers more countries and periods than current studies to our knowledge, and thus contributes to the current debate. Second, we examine possible preconditions including, most of all, financial opening and foreign investment. As many emphasize, the benefit of financial development could be increased when financial markets are open and foreign investment is active, which could change the financial market much more efficient. Thus, we try to understand the interaction effect of financial development and opening altogether on economic growth.

We find that financial development plays an important role in economic growth in cross-country regressions though the finance-growth relationship is non-linear. In panel regressions, we do not find the shorter-term benefit of financial development to growth, while the longer-term effect is much more significant. Concerning preconditions, there is hardly evidence that commonly mentioned preconditions including macroeconomic stability

help finance to spur growth further. Besides, more financial opening and foreign investment are not contexts in which financial development encourages growth further.

The paper consists of 6 parts. Section II reviews current empirical studies on financial development and economic growth, and indicates that though most studies support the positive impact of financial development on growth recent studies report rather mixed results. Section III presents data and specifications for our empirical research. Section IV discusses results of cross-country regressions and panel regressions following current studies. Section V reports the finding of the role of preconditions to the growth effect of financial development. Section VI concludes.

## **Current Empirical Studies**

There are many empirical studies to examine the relationship between finance and growth, mostly about the effect of financial development on economic growth. The most popular studies apply standard cross-country growth regressions using financial development variables as an independent variable after controlling other variables. King and Levine (1993b) (henceforth KL) study growth over a 30-year horizon (1960-1989) for 77 countries and find long run significant positive relation between finance and growth. In order to address possible endogeneity problem in cross-sectional analysis, KL examine initial financial development indicators obtain highly significant results after controlling for initial conditions and several combinations of institutional indexes as well as regional dummy variables for Sub-Saharan African and Latin American countries.

In order to avoid simultaneity bias in the finance-growth relationship, recent researchers have conducted studies using instrumental variables to extract the exogenous component of financial development. Levine (1998, 1999) and Levine, Loayza, and Beck (2000) (henceforth LLB) use the La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998) (henceforth LLSV) measures of legal origin as instrumental variables and indicate the positive relationship between the exogenous component of financial development and economic growth.

In light of the problems associated with purely cross-country growth regressions, LLB use a GMM (General Method of Moment) estimator developed for panel data (Arellano and Bond, 1991, Blundell and Bond, 1998). LLB construct a panel that consists of data for 71 countries over the period 1960-95 and find a positive relationship between the financial development and economic growth, productivity growth, and capital accumulation. They find that regressions pass the standard specification tests and the estimates of coefficients of the panel regressions are very similar to those obtained using cross-country studies.

Khan and Senhadji (2000) employ both cross-country and panel regression for different samples and demonstrate strong positive impact of financial development on growth in cross-country analysis. The size of the effect varies with different indicators, estimation method, and functional form of the relationship, and some indicators are insignificant in panel regressions. Favara (2003) also uses both cross-country and panel analysis over 83 countries from 1960-1998 and find mixed results, though using similar variables used in KL. Although the relation between finance and growth is positive in cross-country but when financial indicators are instrumentalized by legal origin the result is opposite to LLB with the finance variable losing its significance. Using the GMM panel, he does not find significant results in general.

Rioja and Valev (2004) examine 74 countries from 1966-95 and find financial development has greater positive impact on growth in countries with middle region, lower positive impact on high region and uncertain impact on low region of financial development, using cross-country and panel regressions. Demetriades and Law (2004) apply cross-country and panel analysis over 72 countries from 1978-2000 and find financial development has larger effects on growth in countries with sound institutions.

Recently Rousseau and Wachtel (2005) reported that the finance-growth relationship has become weaker after the 1990s. They use the data of 84 countries from 1960 to 2003 and perform panel regressions, using parsimonious specification and instrumental variables for financial depth. Their finding is that the finance-growth nexus has become weaker after 1990 in comparison with the former period. Also, they find that the growth effect of financial development disappears when they introduce country specific effects and it is significant for only middle income countries.

Concerning possible preconditions for financial development to be successful in spurring growth, there are only a few empirical studies. One may argue that when the financial market is more efficient due to more financial opening and foreign investment the growth effect of financial development on growth can become stronger<sup>1</sup>. Though there is hardly any report on the conditional growth-effect of financial development, Alfaro et al.(2004) finds that foreign direct investment could encourage growth when financial market is more developed and this is empirically supported by Hermes and Lensink (2003), too. From a different perspective, Chinn and Ito (2005) report that the financial development as such is interrelated with capital account liberalization depending on institutional development.

Thus, the empirical literature to date provides a general support on the finance-growth nexus, however studies using panel regressions report mixed results. In fact, there are many time-series empirical studies that are against the conventional argument ( Arestis and Demetriades ,1997; Ram,1999; Shan et al., 2001; Graff, 2002; Arestis et al., 2004). There are not many studies on preconditions for financial development to spur growth, but we may think that the interaction of financial opening and financial development could be important.

## Empirical Strategy and Data

### Data for Regressions

In this study, we take the approach of standard growth regressions including the cross-country regressions and panel regressions. We use the dataset that is larger than that of other studies to our knowledge and that covers longer time periods. Our data include 100 countries and the period from 1970 to 2002 from the World Development Indicators 2004 from World Bank, and also include financial opening indicator and the variable of institutional development.

As an index of financial development, we use commonly used three alternative financial development indicators, such as, Private Credit/GDP (=PC/GDP), Broad Money/GDP (=M2/GDP), and Liquid Liabilities/GDP (=M3/GDP). Though we try to incorporate maximum number of countries (100 countries) in our study, due to availability of M2 and M3 data for some countries included in our sample we have used 86 observations for them. We report the regression results using the index of private credit for 100 countries in our texts, because this is the most significant indicator in many studies.

Regarding control variables in cross-country regressions, we use the initial level of GDP, initial attainment of education, government consumption, inflation and trade openness. Besides we add GADP as the institutional variable, and regional dummies DS, DL and DE for Sub-Saharan African, Latin American and East Asian countries respectively. According to the procedure prescribed by Hall and Jones (1995), the composite GADP (Government Anti-Diversion Policy) index is used, constructed from several different institutional indicators by Political Risk services (PRS) group<sup>2</sup>.

We are interested in not only the growth effect as such of financial development, but also in preconditions that may be important. One can argue that finance would promote growth in more developed countries, under a certain level of financial development, and under more stable macroeconomic condition. Also the growth effect of financial development can differ depending on financial opening and foreign investment. We use several indexes for financial opening and foreign capital stocks from other studies. These include the IMF dummy variable for capital account liberalization from Mody and Murshid (2002), and more developed capital account liberalization indicator by Chinn and Ito (2005) using the IMF reports, more sophisticated index for capital account opening developed by Lee and Jayadev (2005), and foreign assets and liability data from Lane and Milesi-Ferreti (2006). We test this argument by using interaction terms of this condition variable and the financial development variable in growth regressions.

### Cross-Country Model

In a pure cross-sectional analysis we use data averaged for 100 countries over 1970-2002, such that there is one observation per country. The basic regression takes the following form:

$$G_i = \beta_0 + \beta_1 FD_i + \beta_2 X_i + u_i \quad (1)$$

Where, G is the average growth rate of per capita real GDP for the period from 1970 to 2002<sup>3</sup>; Financial Development Indicators (FD) use M2= Broad Money/GDP or, M3= Liquid Liability /GDP or, PC= Private Credit

/GDP for robustness check; Control Variables(X) include IG= Log of Initial (1970) Real GDP Per Capita; ISEC= Log of Initial (1970) Secondary School Enrollment Ratio; GV= Final Government Consumption Expenditure/GDP ; INF = Inflation Rate; OP = Trade Openness = (Export +Import)/GDP; GADP = Composite GADP Index; DS= Dummy for Sub-Saharan African Countries; DL= Dummy for Latin American Countries and DE= Dummy for East Asian Countries. The white noise error term is indicated by “ $u$ ”. The subscript “ $i$ ” (with different variables) denotes a particular country.

In this general specification, the interaction term is added when we examine the role of preconditions. For example, if we are to test the role of financial opening as a precondition the specification is as followings.

$$G_i = \beta_0 + \beta_1 FD_i + \beta_2 X_i + \beta_3 FD_i * FO_i + \beta_4 * FO_i + u_i \quad (2)$$

Where, FO is the index for financial opening for each country.

#### **Dynamic Panel Model**

In the case of panel data analysis, we use 5-year averaged unbalanced panel data consisting of 100 countries' observation over the period from 1970 to 2002. The data are averaged over non-overlapping 5-year periods (except the final 3-year average from 2000 to 2002), so that there could be 7 observations per country from 1970-2002 (1970-74, 75-79, 80-84, 85-89, 90-94, 95-99 and 2000-2002). The panel regression model is as followings.

$$y_{i,t} - y_{i,t-1} = (\alpha - 1)y_{i,t-1} + \beta x_{it} + \eta_i + \varepsilon_{it} \quad (3)$$

Where,  $y_{i,t}$  is the logarithm of real per capita GDP;  $y_{i,t} - y_{i,t-1}$  is the growth rate of real per capita GDP;  $x_{i,t}$  is a set of explanatory variables(other than lagged per capita real GDP) including measures of financial development,  $\eta_i$  captures the unobserved country-specific effects, and  $\varepsilon_{i,t}$  is the error term. The subscripts (with variables) “ $i$ ” and “ $t$ ” represent country and time period, respectively. Also, it includes time dummies in order to account for time-specific effects which are not reported in the regression results. Now we can rewrite the above equation (3) as :  $y_{it} = \alpha y_{i,t-1} + \beta x_{it} + \eta_i + \varepsilon_{it}$  (4)

The standard Generalized Method of Moments (GMM) approach due to Arellano and Bond (1991) starts with first differencing equation (4) in order to eliminate the country-specific fixed effects. The transformed model takes the following form:

$$\Delta y_{it} = \alpha \Delta y_{i,t-1} + \beta \Delta x_{it} + \Delta \varepsilon_{it} \quad (5)$$

Where,  $\Delta$  is the first difference operator? Since the new error term  $\Delta \varepsilon_{it}$  is by definition correlated with the lagged dependent variable,  $\Delta y_{i,t-1}$ , one should use instrumental variables. The GMM approach uses all available lags of the dependent and the exogenous variables to form an optimal instrumental variable matrix.

Thus dynamic panel GMM technique could address potential endogeneity in the data. Since persistent in the explanatory variables may adversely affect the small sample and asymptotic properties of the difference estimator (Blundell and Bond, 1988; Bond et al., 2001), the difference estimator is further combined with an estimator in levels to produce a system GMM estimator. For GMM estimation of both 2-Step 1<sup>st</sup> difference and system, DPD (package version 1.21) for Ox (version 3.40) is used (Arellano et al., 1997).

## **The Empirical Result of Finance-Growth Nexus**

### **Cross-country and Panel Regressions**

Table 1 demonstrates the basic result of cross-country regressions using the ratio of private credit to GDP as an index for financial development. The dependent variable is the average real per capita GDP growth rate from 1970 to 2002. When we use average values, all of our alternative financial development indicators are significant in almost all growth regressions<sup>4</sup>.

TABLE 1: FINANCIAL DEVELOPMENT AND GROWTH (1970-2002)

Independent 5 Variables	Financial Development Indicator : PC= Private Credit/GDP			
	Equation(1)	Equation(2)	Equation(3)	Equation(4)
IG	-0.695*** (-4.40)	-0.887*** (-5.402)	-1.194*** (-7.516)	-1.23*** (-7.99)
ISEC	0.570** (2.40)	0.981*** (3.937)	0.862*** (3.856)	0.353 (1.521)
GV		0.864 (0.610)	-1.376 (-1.027)	-0.203 (-0.161)
INF		-0.239*** (-3.606)	-0.169*** (-2.778)	-0.158*** (-2.863)
OP		0.0098 (0.051)	0.136 (0.790)	0.160 (1.036)
GADP			0.118*** (4.961)	0.139*** (6.151)
DS				-0.663*** (-3.564)
DL				0.112 (0.738)
DE				0.434* (1.806)
PC	1.49*** (5.66)	1.198*** (4.797)	0.743*** (3.091)	0.516** (2.098)
C	1.34*** (3.64)	1.446*** (4.193)	1.472*** (4.791)	2.027*** (5.032)
$R^2$	0.364	0.478	0.590	0.679
Obs.	100	98	98	98
Tech.	OLS	OLS	OLS	OLS

Figures in parentheses ( ) are t-values significant at 1% Level (\*\*\*) or, 5% Level (\*\*) or, 10% Level (\*)

When we use initial values of financial development to avoid serious endogeneity problems (Arestis and Demetriades, 1996; Arestis et al., 2004) still the result is very robust and the result does not change with inclusion of more control variables. However, when we use the legal origin variable as an instrument variable for financial development, the result becomes insignificant. This result opposes the finding of LLB, while it supports Favara's (2003) result<sup>6</sup>. Thus, we find mixed results to support that argument that the argument that financial development causes long-run economic growth in cross-country regression.

Next, we establish a panel regression model using similar specification and 5-year average values for each country. Concerning the empirical method, we use both fixed effects model called Least Square Dummy Variable (LSDV), and General Method of Moment (GMM) that can address endogeneity problem much better.



TABLE 2: FINANCIAL DEVELOPMENT AND GROWTH (5-YEAR AVERAGED DYNAMIC PANEL ANALYSIS: 1970-02)

Reg.	Baseline7			Extended8			Extended + Institutional Variable 9		
	LSD V	1 <sup>st</sup> Diff. GMM(2)	System GMM(2)	LSDV	1 <sup>st</sup> Diff. GMM(2)	System GMM(2)	LSDV	1 <sup>st</sup> Diff. GMM(2)	System GMM(2)
IG	-0.208*** (-8.582)	-0.544*** (8.351)	-1.034*** (-33.25)	-0.227*** (-9.509)	-0.581*** (-8.971)	-1.010*** (-52.712)	-0.323*** (-8.462)	-0.517*** (5.972)	-0.998*** (46.421)
ISEC	-0.023 (-1.299)	-0.020 (-0.873)	0.113* (0.051)	-0.036 (-1.517)	-0.034 (-1.372)	0.212*** (3.305)	0.0004 (0.016)	-0.032 (-1.173)	0.167*** (3.195)
GV				0.031 (0.497)	-0.047 (-0.457)	-0.408*** (-2.653)	0.013 (0.158)	0.142 (0.966)	-0.424** (-2.215)
INF				-0.002*** (-3.889)	-0.001*** (-4.523)	-0.003*** (-2.709)	-0.001** (-2.269)	-0.001*** (-4.184)	-0.002*** (-2.805)
OP				0.073*** (4.756)	0.082*** (5.151)	0.052** (2.074)	0.067*** (3.624)	0.077*** (5.193)	0.038** (2.074)
GADP							0.002*** (3.060)	0.001*** (2.695)	0.004*** (2.078)
PC	0.031 (1.323)	0.028 (1.572)	-0.028 (-1.134)	0.015 (1.217)	0.026 (1.576)	-0.048 (-1.532)	0.010 (0.693)	0.028 (1.576)	-0.037 (-1.612)
C	0.758*** (9.202)	-0.007 (-1.44)	-0.226*** (-3.375)	0.802*** (9.477)	-0.006 (-1.225)	-0.261*** (-3.395)	1.037*** (8.080)	0.015*** (2.824)	-0.001 (-0.193)
$R^2$	0.597			0.661			0.758		
Wald (Joint)		154.42*** [0.000]	3984.52** *[0.000]		178.61*** [0.000]	7918.01*** [0.000]		142.02*** [0.000]	1.334e+004*** [0.000]
Wald (Time)		54.06*** [0.000]	56.40*** [0.000]		27.30*** [0.000]	42.19*** [0.000]		22.50*** [0.000]	19.72*** [0.001]
Sargan Test		19.57** [0.034]	63.502 [0.258]		25.68** [0.028]	84.50 [0.464]		30.42*** [0.001]	88.13 [0.929]
m1 Test		0.346 [0.729]	-3.033*** [0.002]		-0.108 [0.914]	-2.376** [0.017]		0.352 [0.725]	-1.877 [0.060]*
m2 Test		-1.595 [0.111]	-2.814*** [0.005]		-2.181 [0.029]	-2.529** [0.011]		-3.226*** [0.001]	-2.634*** [0.008]

Figures in parentheses ( ) are t-values significant at 1% Level (\*\*\*) or, 5% Level (\*\*) or, 10% Level (\*) and Figures in parentheses [ ] are p-values indicating significance level at 1% [\*\*\*] or, 5% [\*\*] or, 10% [\*]

First, Table 2 reports the basic specification for economic growth employing 5-year average values, using private credit. The coefficients of control variables including initial GDP, educational attainment and institutions are with correct signs and high significance. We find that the benefit of financial development is not significant in general as the coefficient is not significant in most equations. Our result suggests that financial development does

not have short-term benefits to economic growth, even if it may promote growth in the long-run. This is consistent with other studies using the similar method such as Favara (2003), Khan and Senhadji (2000), Trabelsi (2002), although different from Beck, Levine and Loayza (2000).

This result is understandable taking into account the fact that it may take a long time for financial development to exert a beneficial effect on economic growth. The commonly used 5-year average may capture the short-run relationship only, sometimes affected by economic cycles. When we focus on the longer-run effect of financial development, using 10-year average values in panel regressions, we find that the coefficient of financial development is statistically significant as the following Table 3 demonstrates<sup>10</sup>. Not only using the regression considering the private credit variable, but also using M2 and M3 measures demonstrate the same result. Hence, there is rather a long-run relationship between financial development and economic growth.

TABLE 3: FINANCIAL DEVELOPMENT AND GROWTH (10-YEAR AVERAGED DYNAMIC PANEL ANALYSIS)  
(1970-02)

Reg.	Baseline			Extended			Extended + Institutional Variable		
	Random Effect	LSDV	1 <sup>st</sup> Diff. GMM(2)	Random Effect	LSDV	1 <sup>st</sup> Diff. GMM(2)	Random Effect	LSDV	1 <sup>st</sup> Diff. GMM(2)
IG	-0.065*** (-3.262)	-0.514*** (-5.429)	-0.061*** (4.261)	-0.078*** (-3.941)	-0.535*** (-5.410)	-0.105*** (-3.811)	-0.101*** (-4.994)	-0.540*** (-5.395)	-0.066*** (-3.485)
ISEC	0.106*** (2.886)	0.026 (0.319)	0.075 (0.981)	0.139*** (3.905)	0.066 (0.712)	0.113 (1.432)	0.173*** (4.857)	0.066 (0.715)	0.118 (1.182)
GV				0.059 (0.438)	0.427* (1.736)	0.464* (1.792)	-0.018 (-0.143)	0.401 (1.578)	0.413 (1.482)
INF				-0.009*** (-4.408)	-0.006** (-2.233)	-0.005* (-1.721)	-0.009*** (-4.348)	-0.006** (-2.221)	-0.005* (-1.862)
OP				0.016 (0.809)	0.081** (1.720)	0.877** (2.179)	0.027 (1.424)	0.083* (1.744)	0.092* (1.742)
GADP							0.003*** (3.289)	0.001* (1.745)	0.002* (1.865)
PC	0.125*** (4.451)	0.157*** (3.089)	0.246*** (5.152)	0.100*** (3.735)	0.128** (2.464)	0.201*** (4.582)	0.111*** (4.252)	0.121** (2.256)	0.194*** (3.842)
C	0.037 (0.751)	1.666*** (5.186)	0.027* (1.741)	0.021 (0.466)	1.546*** (4.537)	0.014 (0.857)	0.016 (0.386)	1.577*** (4.513)	0.003 (0.137)
$R^2$	0.139	0.853		0.226	0.871		0.273	0.872	
Wald (Joint)			59.67*** [0.000]			73.286*** [0.000]			79.192*** [0.000]
Wald (Time)			2.699*** [0.001]			0.735*** [0.002]			0.018*** [0.001]
Obs.	189	189	89	177	177	79	177	177	79

Figures in parentheses ( ) are t-values significant at 1% Level (\*\*\*) or, 5% Level (\*\*) or, 10% Level (\*) and  
Figures in parentheses [ ] are p-values indicating significance level at 1% [\*\*\*] or, 5% [\*\*] or, 10% [\*]

#### The Difference across Periods

Recently, Rousseau and Wachtel (2005) report that the finance-growth relationship has become weaker after the 1990s because financial depth may have had greater value as a shock absorber in the former period and careless financial liberalization brought about negative impacts in many developing countries. We test the different effect of financial development on growth across periods by dividing time periods by 10 years simply using initial values of

independent variables in cross-country regression. We find that financial development is more significant to economic growth in the latter period after 1980 in the following Table 4.

This result suggests that financial depth encourages long-run economic growth further in the more recent period probably along with the more development of financial markets in many countries. This cross-country result is involved in rather long-run effects, different from Rousseau and Wachtel's study based on panel regressions. When we use 2SLS using initial values of independent variables as instrumental variables following Rousseau and Wachtel (2005), the result does not change as long as we use 10-year average data.

TABLE 4: DIFFERENCE OF THE GROWTH EFFECT OF INITIAL FINANCIAL DEVELOPMENT ACROSS PERIODS

Independent Variable	Initial Financial Development Indicator : IPC= Initial Private Credit/GDP					
	Baseline Model			Extended Model		
Regression	1970s	1980s	1990s	1970s	1980s	1990s
IG	-0.577* (-1.683)	-0.347 (-1.263)	-0.216 (-0.937)	-0.707* (-1.853)	-0.042 (-0.128)	-0.108 (-0.413)
ISEC	0.857* (1.769)	0.684 (1.404)	0.860* (1.787)	0.988* (1.834)	0.653 (1.126)	0.702 (1.323)
IGV				0.018 (0.593)	-0.010 (-0.514)	-0.010 (-0.610)
IINF				-0.003 (-0.539)	-0.0009 (-0.155)	1.15E-05 (0.138)
IOP				0.007 (1.117)	0.002 (0.660)	0.0003 (0.111)
IPC	0.014 (1.580)	0.016* (1.927)	0.005* (1.870)	0.011 (1.293)	0.009* (1.680)	0.006* (1.715)
C	1.288* (1.834)	-0.182 (-0.286)	-0.351 (-0.688)	1.058 (1.305)	-0.856 (-1.196)	-0.335 (-0.604)
$R^2$	0.101	0.146	0.123	0.145	0.140	0.126
Obs.	76	90	94	64	77	89
Tech.	OLS	OLS	OLS	OLS	OLS	OLS

Figures in parentheses ( ) are t-values significant at 1% Level (\*\*\*) or, 5% Level (\*\*) or, 10% Level (\*)

Moreover, the result using panel regression is also consistent with our finding in cross-country regression. When we compare the period before and after 1990 using panel regressions, the finance-growth nexus has been stronger in the more recent period as Table 5 demonstrates.

TABLE 5: PRE AND POST 1990S FINANCIAL DEVELOPMENT AND GROWTH  
(5-YEAR AVERAGED DYNAMIC PANEL ANALYSIS: 1970-2002)

Reg.	Baseline				Extended			
	Pre 1990s (1970-1989)		Post 1990s (1990-2002)		Pre 1990s (1970-1989)		Post 1990s (1990-2002)	
	LSDV	1 <sup>st</sup> Diff. GMM(2)	LSDV	1 <sup>st</sup> Diff. GMM(2)	LSDV	1 <sup>st</sup> Diff. GMM(2)	LSDV	1 <sup>st</sup> Diff. GMM(2)
IG	-0.245*** (-4.726)	-0.071* (-1.707)	-0.577*** (-6.428)	-0.014* (1.736)	-0.308*** (-6.132)	-0.580** (2.483)	-0.620*** (-6.687)	-0.120* (1.715)
ISEC	-0.015 (-0.507)	0.010 (0.217)	-0.043 (-0.769)	0.008 (0.124)	-0.034 (-0.941)	-0.023 (-0.662)	-0.069 (-1.067)	-0.052 (-0.770)
GV					-0.227* (-1.863)	-0.268* (-1.832)	0.112 (0.500)	0.238 (1.145)
INF					-0.001 (-1.054)	-0.0005 (-0.487)	-0.025 (-1.476)	-0.026** (-2.104)
OP					0.166*** (4.434)	0.138*** (3.204)	0.048* (1.655)	0.067* (1.672)
PC	0.030 (0.992)	0.042 (0.074)	0.040* (1.825)	0.060** (2.267)	0.031 (1.030)	0.017 (0.533)	0.036* (1.696)	0.047* (1.892)
C	0.860*** (4.853)	0.021 (0.731)	2.088*** (6.811)	0.024*** (5.052)	1.043*** (5.681)	-0.006 (-0.479)	2.224*** (7.042)	0.018*** (3.112)
$R^2$	0.754		0.908		0.815		0.918	
Obs.	275	178	180	80	248	156	174	76

This finding suggests that the finance-growth nexus in the recent period becomes stronger even after considering rather short-run relationship and unobserved country-specific effects, opposite to the finding of Rousseau and Wachtel (2005). This implicates that we may expect more benefits from financial development recently along with the further development of financial markets and financial opening, especially in developing countries.

### Preconditions for the Finance-Growth Nexus

This section discusses possible preconditions that financial development can encourage economic growth. First of all, we test whether there is a non-linear effect of financial development on economic growth. Some may think that financial development becomes more helpful to growth as countries develop from the serious financial underdevelopment, however the benefit grows less in highly financially developed countries due to a decrease of marginal benefit. Then, there might be the inverted “U” relationship between financial development and economic growth.

We find this relationship using the quadratic term of private credit in Table 6 and this is robust to the inclusion of other control variables. When we divide samples into 3 groups according to the level of financial development we also find that the benefit of financial development is clearer in countries with the middle development of finance, which is similar to the finding of Rioja and Valev (2004). Since we do not find a similar result using other indexes M2/GDP and M3/GDP there seems to be the inverted U relationship in the case of private credit only.

TABLE 6: NON-LINEAR EFFECT OF FINANCIAL DEVELOPMENT ON GROWTH (1970-2002)

Independent Variables	Financial Development Indicator : PC= Private Credit/GDP			
	Equation(1)	Equation(2)	Equation(3)	Equation(4)
IG	-0.759*** (-4.995)	-0.873*** (-5.463)	-1.175*** (-7.615)	-1.204*** (-7.798)
ISEC	0.368 (1.569)	0.758*** (2.926)	0.657*** (2.844)	0.303 (1.296)
GV		-0.0578 (-0.040)	-2.186 (-1.632)	-0.691 (-0.529)
INF		-0.222*** (-3.428)	-0.155** (-2.613)	-0.152*** (-2.750)
OP		-0.037 (-0.201)	0.089 (0.533)	0.133 (0.854)
GADP			0.116*** (5.004)	0.136*** (5.981)
DS				-0.585*** (-3.015)
DL				0.099 (0.656)
DE				0.448* (1.872)
PC	3.623*** (5.094)	2.881*** (3.962)	2.312*** (3.525)	1.331** (2.058)
PC <sup>2</sup>	-1.433*** (-3.203)	-1.099** (-2.456)	-1.018** (-2.559)	-0.533 (-1.361)
C	1.330*** (3.780)	1.475*** (4.393)	1.499*** (5.024)	1.938*** (4.770)
R <sup>2</sup>	0.426	0.511	0.618	0.686
Obs.	100	98	98	98
Tech.	OLS	OLS	OLS	OLS

One may also argue that the finance-growth nexus as such varies across several contexts and preconditions. For instance, financial development can spur economic growth more in countries where other markets are more developed or institutional quality is higher with better financial regulation. In addition, macroeconomic stability such as lower inflation and government consumption could be important conditions for financial development to stimulate growth more. We add interaction terms of the financial development index and other condition variables including the institutional variable, the level of GDP, and also inflation and government consumption so as to test this hypothesis. The following Table 7 demonstrates results using the average value of private credit and various condition variables respectively, which appears to be somewhat opposite to conventional wisdom.

TABLE 7: CONDITIONALITY IN FINANCIAL DEVELOPMENT AND GROWTH

Condition variable	Financial Development Indicator : PC= Private Credit/GDP					
	Equation(1)	Equation(2)	Equation(3)	Equation(4)	Equation(5)	Equation(6)
IG	-0.721*** (-3.415)	-1.111*** (-7.047)	-1.134*** (-7.158)	-1.182*** (-7.468)	-1.203*** (-7.594)	-1.098*** (-7.189)
ISEC	0.587** (2.560)	1.090*** (4.642)	0.905*** (4.109)	0.836*** (3.745)	0.911*** (4.034)	0.585** (2.587)
GV	-1.626 (-1.271)	-1.290 (-0.991)	2.423 (1.080)	-1.729 (-1.272)	-0.777 (0.549)	-2.436* (-1.867)
INF	-0.162*** (-2.806)	-0.166*** (-2.813)	-0.162*** (-2.710)	-0.239*** (-3.012)	-0.180*** (-2.950)	-0.127** (-2.150)
OP	0.078 (0.472)	0.060 (0.356)	0.073 (0.426)	0.168 (0.971)	-0.283 (-0.770)	0.090 (0.554)
GADP	0.126*** (5.526)	0.123*** (5.315)	0.115*** (4.915)	0.119*** (5.005)	0.114*** (4.777)	0.198*** (6.115)
PC	3.639*** (3.907)	3.265*** (3.203)	1.991*** (3.104)	0.731*** (3.052)	0.374 (1.001)	3.058*** (4.287)
PC*IG	-0.800*** (-3.207)					
PC* ISEC		-1.473** (-2.541)				
PC*GV			-8.322** (-2.091)			
PC*INF				0.465 (1.369)		
PC*OP					0.579 (1.288)	
PC*GADP						-0.142*** (-3.423)
C	0.281 (0.595)	0.789* (1.964)	0.791* (1.782)	1.488*** (4.864)	1.648*** (4.916)	0.632* (1.663)
R <sup>2</sup>	0.633	0.618	0.610	0.599	0.598	0.638
DW	1.900	1.894	1.809	1.816	1.735	1.895
Obs.	98	98	98	98	98	98
Tech.	OLS	OLS	OLS	OLS	OLS	OLS

Figures in parentheses ( ) are t-values significant at 1% Level (\*\*\*) or, 5% Level (\*\*) or, 10% Level (\*)

The coefficients of interaction terms are significantly negative when the initial level of growth, educational attainment, and institutional variables are used as condition variables. This implicates that the contribution of financial development to economic growth becomes less in countries where institutions are more developed and the GDP level is higher. It may be understandable if the growth impact of finance is larger in developing countries and it becomes smaller in already developed countries. When we divide countries into 3 subgroups according to the income level, again we find that the benefit of financial development is larger in the least developed countries. Inflation and trade openness are not relevant as conditions, while more government spending appears to be bad to the growth effect of financial development, which supports the importance of macroeconomic stability partly. In sum, our result lends a support for the stronger finance-growth nexus in countries with lower level of income and

institutional development and lower government consumption, where financial intermediation is essential to economic growth in the long-term.

Finally, we test the role of financial opening and foreign investment as preconditions to enhance the growth effect of financial development. We use several variables for financial opening policy including the original IMF index for capital account openness, Chinn and Ito (2005) index, and Lee and Jayadev (2005) index. Table 8 reports the result of our regression. We find that the interaction terms of financial development and financial opening are significantly negative in general though the financial opening index is statistically significant independently. This result is robust to the inclusion of regional dummy variables. In the case of international financial integration using foreign asset and liability altogether and foreign direct investment liability from Lane and Milesi-Ferreti (2006), we do not find that they are preconditions for financial development to spur growth more either because the interaction term is not significant. Using the different foreign direct investment data does not change the result. This is different from current studies such as Alfaro et al.(2004) and Hermes and Lensink (2003).

TABLE 8: FINANCIAL OPENING, FINANCIAL DEVELOPMENT AND GROWTH

Condition variable	FO: Financial Opening Index or Foreign Capital				
	IMF dummy	Chinn and Ito	Lee and Jayadev	Foreign Direct Investment	Int'l Financial Integration
IG	-1.183*** (-6.459)	-1.135*** (-6.160)	-1.198*** (-6.061)	-1.235*** (-7.571)	-1.203*** (-7.173)
ISEC	0.756*** (3.190)	0.747*** (3.176)	0.790*** (3.366)	0.944*** (3.954)	0.950*** (3.945)
GV	-1.525 (-1.110)	-1.499 (-1.106)	-1.438 (-1.057)	-0.965 (-0.662)	-0.863 (-0.584)
INF	-0.165*** (-2.763)	-0.168*** (-2.841)	-0.155** (-2.567)	-0.126 (-1.406)	-0.183*** (-2.948)
OP	0.044 (0.229)	-0.017 (-0.090)	0.003 (0.017)	0.127 (0.572)	0.317 (1.308)
GADP	0.119*** (4.939)	0.118*** (4.990)	0.120*** (5.069)	0.107*** (4.327)	0.104*** (4.154)
PC	1.366*** (4.146)	0.956*** (3.836)	1.952*** (4.040)	0.801*** (3.003)	0.757** (2.261)
FO	0.756** (2.180)	0.186* (1.874)	0.328** (2.248)	0.006 (0.765)	-0.000 (-0.222)
PC*FO	-1.341*** (-2.829)	-0.358*** (-2.891)	-0.528*** (-2.898)	-0.005 (-0.745)	-0.000 (-0.174)
C	1.393*** (4.304)	1.549*** (3.949)	1.005*** (2.780)	1.524*** (4.808)	1.460*** (4.381)
$R^2$	0.622	0.625	0.624	0.569	0.607
Obs.	97	97	97	93	93
Tech.	OLS	OLS	OLS	OLS	OLS

Figures in parentheses ( ) are t-values significant at 1% Level (\*\*\*) or, 5% Level (\*\*) or, 10% Level (\*)

This is opposite to the common argument that financial development can spur economic growth when the financial sector is more open and hence is more efficient. However, financial opening as such does neither guarantee the increase of economic efficiency and does nor bring about economic growth as many studies and historical experiences demonstrate (Kose et al., 2006). Because financial globalization sometimes just led to more economic instability, the joint effect with financial development may not be beneficial to economic growth. Moreover, our result is consistent with the finding that financial opening encourages growth more in poorer countries with lower institutional development since those countries usually have relatively lower level of financial opening. In sum,

there is no evidence in support of the argument that financial development exerts a larger effect on economic growth where financial markets are more open and there are more foreign capital flows.

We also test these hypotheses about the importance of preconditions using panel regressions. However, we do not find significant results in panel regressions in general. Neither the inverted-U relationship between financial development and growth nor the importance of any precondition variable is found. Hence, we can conclude that there is the conditional relationship between finance and growth depending on several preconditions only in the long run.

## Conclusions

This paper has attempted to reexamine the empirical relationship between financial development and economic growth considering several preconditions and using various methods and data. Our finding confirms that in general there exists rather the long-run, if not short-run, positive and significant relationship between them in cross-country and panel regressions, though the result is not totally free from the endogeneity problem. It is interesting that our results demonstrate that the effect of financial development on economic growth has become stronger in the more recent period in both the cross-country and panel regressions.

We have also examined several preconditions relevant to the growth effect of financial development in cross-country regressions. We find that there is an inverted “U” relationship between finance and growth using private credit. This suggests that the benefit of financial development is larger in countries with middle financial development in comparison with financially underdeveloped and highly developed countries. Concerning several preconditions, financial development promotes economic growth further in poorer countries where the level institutional development is lower. We find that the lesser government consumption is the larger the benefit of financial development is. Finally, cross-country regressions exhibit that financial development spurs economic growth more in countries where financial opening is less developed.

Panel regressions give us insignificant results in most cases. Different from the cross-country regression, financial development is not significant in growth regression using 5-year averaged panel method. Also there is no evidence for the relevance of preconditions. It is not unusual to have such results using the panel method considering that it takes time for finance to encourage growth in many developing countries. Indeed we find that the panel result becomes significant when we conduct 10-year averaged panel regressions, considering longer term effect of financial development.

In conclusion, our empirical evidence suggests a long-run positive relationship between financial development and economic growth, especially in poorer countries and in the more recent period. The relationship depends on several preconditions including the level of financial development, the level of income and financial market opening. Such positive relationship disappears in panel regressions, but it is significant when using longer-run data, and in the more recent period.

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## Endnotes

Kose et al.(2006) report that the direct effect of financial opening and globalization as such on economic growth is not clear. However, they argue that there could be indirect and collateral effects of financial globalization, including via the development of financial market.

<sup>2</sup> We construct a new GADP index, different from that used in many studies up to now, because the category of protection for investment has been changed after the late 1990s. We use an equally weighted average of the index for corruption, law and order, bureaucratic quality, and investment risk.

<sup>3</sup> It is calculated as (Log of real per capita GDP in 2002-Log of real per capita GDP in 1970)/32.

<sup>4</sup> Only the result using private credit/GDP is reported here. The results using other financial indicators, M2/GDP and M3/GDP will be provided on request to authors.

<sup>5</sup> Independent Variables: IG=Log of Initial Real GDP Per Capita, ISEC=Log of initial Secondary School Enrollment Ratio, GV=Government Final Consumption/GDP, INF=Inflation, OP=Openness, GADP=Composite GADP, DS, DL and DE are the Dummy for Sub-Saharan African, Latin American and East Asian Countries respectively and PC=Private Credit/GDP. Rationale for using control variables are-initial level of per capita real GDP controls for the convergence effect; initial secondary school enrollment ratio is an educational variable which controls for the level of human capital development; government consumption, inflation and openness control for policy issues and GADP controls for institutional development in the country.

<sup>6</sup> The results using M2/GDP and M3/GDP produce similar results but not reported.

<sup>7</sup> For Baseline Equation, 2 Step 1<sup>st</sup> diff. GMM instruments are : Time dummies (not reported),G(-3), SEC(-3), PC(-3) and all of their next lags ; Again for system GMM, additional instruments used for level equations are  $\Delta G(-1)$ ,  $\Delta SEC$  &  $\Delta PC$ .

<sup>8</sup> For Extended Equation, Time dummies (not reported),G(-3), SEC(-3),GV(-3), INF(-3), OP(-3), PC(-3) and all of their next lags are the instruments for 2 Step 1<sup>st</sup> difference; in addition that,  $\Delta G(-1)$ ,  $\Delta SEC$ ,  $\Delta GV$ ,  $\Delta INF$ ,  $\Delta OP$  &  $\Delta PC$  for 2 Step system GMM.

<sup>9</sup> For Institutions, Time dummies (not reported),  $G(-3)$ ,  $SEC(-3)$ ,  $GV(-3)$ ,  $INF(-3)$ ,  $OP(-3)$ ,  $GADP(-3)$ ,  $PC(-3)$  and all of their next lags are the instruments for 2 Step 1<sup>st</sup> difference; in addition that,  $\Delta G(-1)$ ,  $\Delta SEC$ ,  $\Delta GV$ ,  $\Delta INF$ ,  $\Delta OP$ ,  $\Delta GADP$  &  $\Delta PC$  for 2 Step system GMM.

<sup>10</sup> The Wald (Joint) test is a test of joint significance of the estimated coefficients asymptotically distributed as Chi-Square under the null hypothesis of “No Relationship”.

<sup>11</sup> The Wald (Time) test is a test of joint significance of time dummy variables asymptotically distributed as Chi-Square under the null hypothesis of “No Relationship”.

<sup>12</sup> The Sargan test of over-identifying restrictions is asymptotically distributed as Chi-Square under the null hypothesis of instrument validity i.e. “the instruments used in the model are not correlated with the residuals”.

<sup>13</sup> The m1 test is the test for first order autocorrelation of residuals distributed as  $N(0,1)$ , where the null hypothesis is that the residuals or error terms in the 1<sup>st</sup> differenced regression exhibit no first order serial correlation.

<sup>14</sup> The m2 test is a test for second order autocorrelation of residuals distributed as  $N(0,1)$ , where the null hypothesis is that the residuals or error terms in the 1<sup>st</sup> differenced regression exhibit no second order serial correlation.

<sup>15</sup> When we use 10-year averages we cannot use the system GMM method because the number of observation is not enough. Instead we add the result of the random effect model.

<sup>16</sup> Insufficient Observations for running 2-Step System GMM as well as Sargan Test, m1 & m2 Test.

<sup>17</sup> In fact, the result of Russeau and Wachtel (2005) holds only when they use the OLS method for panel regressions. Many studies already report that panel results considering country-specific effects do not support the growth effect of financial development. Therefore, it is more valuable to examine the longer-run effect using cross-country regression for the different time period. When we use average values of independent variables, not initial ones, the result is much more significant.

<sup>18</sup> 1970s indicates time dimension from 1970 to 1979, 1980s indicates time dimension from 1980 to 1989 and 1990s indicates time dimension from 1990 to 2002

<sup>19</sup> Initial time period in 1970s is 1970, initial time period in 1980s is 1980, and initial time period in 1990s is 1990

<sup>20</sup> Insufficient Observations for running 2-Step System GMM as well as Sargan Test, m1 & m2 Test.

<sup>21</sup> The result for each group of countries is provided on request.

<sup>22</sup> The result is almost same when we use other financial development indicators such as  $M2/GDP$  and  $M3/GDP$ .

<sup>23</sup> When we use the initial value of private credit, the result becomes insignificant except for institutional development as the precondition at 10% level of significance.

<sup>24</sup> IMF dummy is for capital account opening from 1970 to 2000, from Mody and Murshid (2002).

<sup>25</sup> Chinn and Ito index is from 1980 to 2002, from Chinn and Ito (2005).

<sup>26</sup> Lee and Jayadev index is from 1976 to 1995, from Lee and Jayadev (2005).

<sup>27</sup> Foreign Direct Investment is foreign direct investment liability / GDP, from Lane and Milesi-Ferreti (2006).

<sup>28</sup> International Financial Integration is (foreign assets + foreign liability) / GDP, from Lane and Milesi-Ferreti (2006).

<sup>29</sup> We also find that financial development encourages growth mainly through the channel of more investment, rather than the increase of productivity, though not reported. The efficiency of financial markets could be more related with the productivity channel if any. But the investment channel, which is more significant, is much more important in poorer countries.

# Increasing Use of Leverage Finance in European Infrastructure Sector Transactions

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## Abstract

The article is analysing the recent popularity of highly leveraged transactions in the infrastructure sectors of airports, ports and toll-roads. It analyses how specialised infrastructure investors contributed to the highly leveraged deal structures and substantial increase in infrastructure sector asset class valuations in recent time. The article also tries to predict the use and development of highly leveraged transactions in the Central and Eastern European region, where strong pipeline of transactions in this asset class exists, albeit the banking markets have not yet caught up with the Western European benchmarks in facing this challenge.

## Recent Phenomena behind the Increased Activity

The recent activity in the infrastructure sector can be attributed to two main phenomena which surfaced over the last few years. The first one is the advent of specialised class of investors – Infrastructure Funds that have exhibited predatory behaviour in search for transaction pipeline and have aggressively pursued almost every investment opportunity available. The second phenomena is the oversupply of liquidity on the banking market, making specialised asset-backed debt instruments widely available for M&A activity and project finance at very competitive rates.

These two factors have contributed to the fact that most of the sell-side processes of the infrastructure assets have been organised as competitive auctions with price as the main criterion. Substantial demand from specialised infrastructure investors coupled with pre-packaged debt available from selling vendor banks, which have increased the valuations and competitiveness in any sale process.

### **The Advent of Infrastructure Investors**

The emergence of infrastructure investors is an increasingly important topic given the growth in this sector over the last few years, with the market showing no signs of slowing. Infrastructure investors typically target equity returns in the low-to-mid teens and are focused on assets which offer highly predictable cash flows and earnings – long-term investment horizon, large scale assets, ability to support leverage, IRR and yield driven, and targeting regulated businesses in particular

Sectors of particular interest are utilities and transport (in particular airports, ports and toll roads), however the growth in demand for investments has meant that virtually any infrastructure class is considered. The growth in infrastructure investment has direct consequences for market participants as it represents a fundamental change in the face of the infrastructure markets, in particular:

- represents a potential new source of long-term funding/partnerships
- opportunity to divest non-core infrastructure assets for conglomerates
- aggressive competing bidders in acquisition processes

The market now consists of a large number of well capitalised investors, who can be categorised into four types:

- direct infrastructure owner and operator: have internal management capabilities to operate infrastructure
- infrastructure investment managers/arrangers: arrange investments on behalf of other investors, including managing listed infrastructure funds
- direct investors: take sizeable positions in assets with board representation

- passive investors: hold infrastructure as part of a broad portfolio

Examples of specialised infrastructure fund that have raised capital from investors in the recent years include:

- Macquarie Infrastructure Fund Partnership (MAp)
- Deutsche Bank’s €2bn Infrastructure SPV – Deutsche Bank’s SCM Group established in September 2006 an investment vehicle and secured commitments of €2bn to invest in infrastructure assets across Europe
- SPARK A\$1.8bn Australian Infrastructure Fund - A\$ 1.8bn capital raising and IPO of SPARK Infrastructure on Australian Stock Exchange
- RREEF’s €556m first closing of RREEF Pan-European Infrastructure Fund
- Deutsche Bank in cooperation with Abraaj Capital and Ithmaar Bank is raising Infrastructure and Growth Capital Fund , US\$ 2bn Shari’a Compliant Alternative Asset Fund
- Babcock & Brown –US\$300m
- Hastings Fund Management – Joint underwriter to Australian Infrastructure Fund, managed by Hastings Fund Management, on a A\$225m renounceable entitlement offer to fund a share of acquisitions of stakes in a number of airports
- Lion Global Infrastructure Fund – Deutsche Bank with its partner Lion Capital is in process of raising US\$0.5bn – 10bn for this global infrastructure fund

Profile	Comments	Examples
Infrastructure funds	<ul style="list-style-type: none"> <li>■ Strong global demand for infrastructure assets</li> <li>■ Macquarie is largest investor in airports</li> <li>■ Driven by long-term equity returns (10% – 12% IRR) and cash yield</li> <li>■ Strong interest from pension funds eg Canadians</li> <li>■ Significant new funds raised (&gt;US\$8bn)</li> <li>■ Traditional sponsors entering the space eg Carlyle</li> </ul>	
Strategic	<ul style="list-style-type: none"> <li>■ Diversifying from construction into concessions</li> <li>■ Active bidders in recent processes</li> <li>■ Spanish particularly active driven by tax breaks</li> <li>■ Often bid in partnerships with financial investors</li> </ul>	

FIG. 1: KEY INFRASTRUCTURE INVESTOR CATEGORIES

Figure 1 summarises the key infrastructure investor categories and their characteristics. The main players among the funds are also listed with most of the funds setting up presence in this asset class already.

**Oversupply of Liquidity**

Another recent phenomenon is the buoyant debt markets in which abundant liquidity pushes banks to explore new ways to get exposure to hard assets class of investments.

Financing institutions have become more accustomed to lending across the holding structure in the infrastructure deals (i.e. even debt at HoldCo which is serviced by dividend flow from Opco is now a common feature). Moreover, the role of key financing bank/consortium of underwriters has become more important than ever. These institutions usually underwrite the whole financing on an infrastructure transaction and “slice” the debt package to include various debt subordination levels, in order to make these slices more attractive for potential syndicate partners.

However, the key fact that supports the boom in infrastructure financing is the oversupply of liquidity in the banking markets combined with low interest rate costs which incentivises and enables investors to load in yet more debt onto a transaction or OpCo/HoldCo structure.

## **Infrastructure Assets Lend Themselves to Highly Levered Structures**

The characteristics of infrastructure assets support substantial levels of debt by the virtue of their asset characteristics with stable and strong cashflow generation, regulatory environment allowing/guaranteeing specified returns of the so-called regulated asset bases etc.

Infrastructure assets have stable cash flow and earnings over long-term investment horizons, with relatively low risk providing an opportunity to maximise returns through financial engineering.

### **Stable Earnings**

Assets of an essential nature are preferred, in particular those with high barriers to entry and/or high replacement costs, as they typically offer relatively predictable earnings streams.

Other factors include:

- natural barriers, planning or environmental restrictions, or limited availability of land leading to high costs of competing development
- may have long-term exclusive concessions and customer contracts
- demand for such products or services is generally stable and often grows with underlying economic or demographic growth

### **Duration**

Infrastructure assets typically have a lengthy maturity given the very high upfront investment required.

Similarly, contracted assets generally operate under long term concessions/agreements – eg airport leases may be for 99 years. This attracts pension funds and other investors with long term horizons – in particular under mark-to-market accounting standards long duration assets will result in smoother annual investment returns.

### **Diversification**

Many infrastructure projects provide a unique product or service, therefore offer an exposure that is difficult to replicate. This results in low correlation with traditional asset classes such as equity, property or fixed interest, reducing portfolio risk. In addition, an infrastructure portfolio may offer diversification with regard to currencies, infrastructure sectors and geography.

### **Structuring**

Operational stability allows significant financial engineering to optimise post tax returns. In addition, tax incentives may be available. Typically assets have a high cash generation given strong earnings and limited reinvestment opportunities, resulting in a target dividend yield of between 5.0% – 10.0% – regulated assets and assets with low growth will tend to have higher yield inter alia than higher growth assets.

### **Attractive Returns**

Returns accrue from both:

- annual income stream – high cash yield
- long term capital appreciation – seen as providing a natural inflation hedge

## Infrastructure Asset Themes

### Recent Airport Sector Themes

Airport sector has been characterised by extremely favourable environment - earnings growth driven by increase in traffic and economic conditions and growth of low cost carriers. The sector has experienced a period of unprecedented activity in last few months:

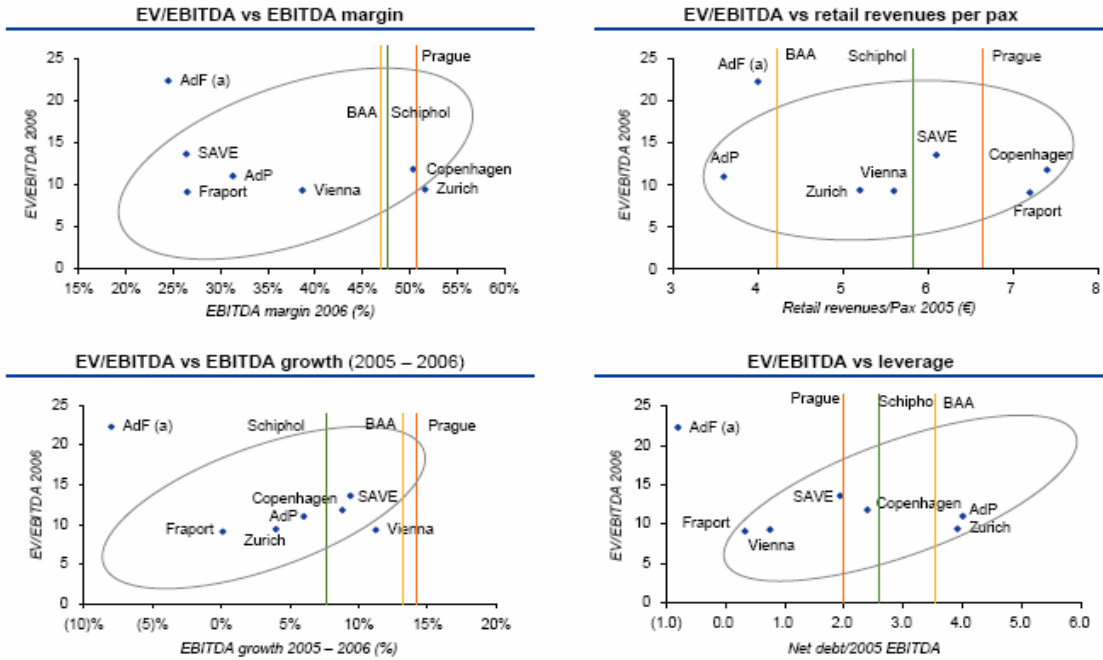
- Ferrovial's €23.6 billion acquisition of BAA
- success of ADP's IPO – proceeds of €503.4 million
- AIG/CS/GE consortium's £750 million acquisition of London City Airport
- Hochtief's likely purchase of Budapest Airport

Sector re-rating has driven valuations higher in public markets and M&A transactions, based chiefly on:

- low risk asset class offering stable long-term returns
- availability of debt financing on favourable terms
- strong competition for assets

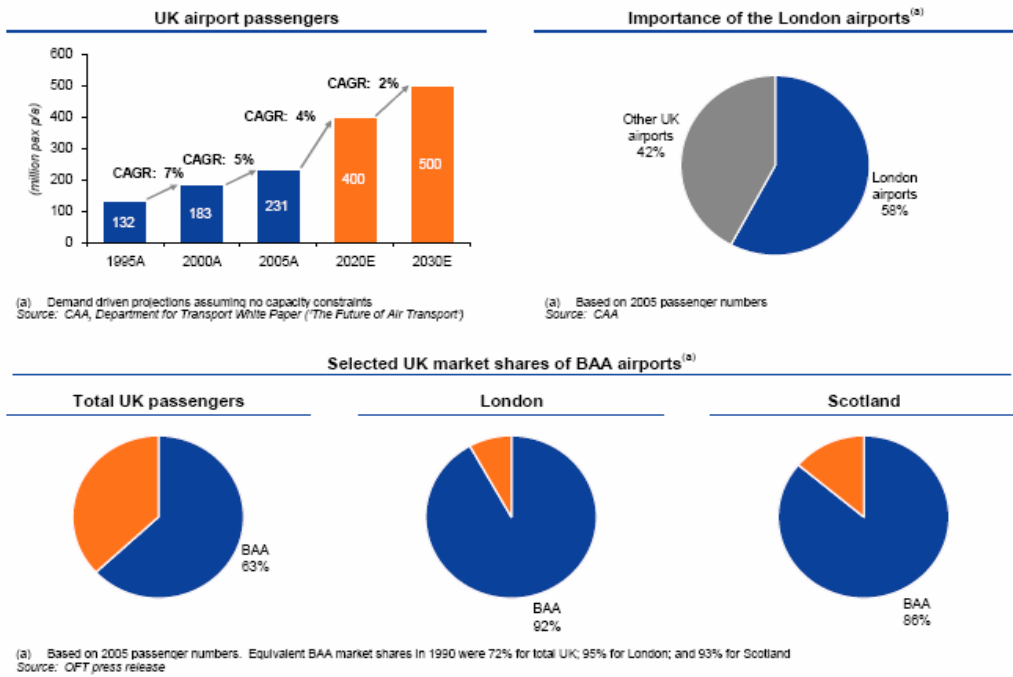
Large cash inflows to infrastructure funds have also contributed to high interest in any competitive sale processes or auctions – put simply too much money is currently chasing too few deals. However, the reminder of sector risks remains with the terrorist threat in the UK. Ferrovial market value has fallen down by €224.4 million (between 8 August 2006 and 11 August 2006). Further pipeline of airport sector deals exists as vendors are likely to make use of the favourable conditions and tap into the strong demand. The transaction pipeline will continue to be driven by privatisation plans (e.g. Schiphol, ANA, French regionals, Prague, Leeds/Bradford) and secondary sales (e.g. possible break-up of BAA)

Figure 2 below shows how capital market rewards higher profitability, growth, value added revenues and more importantly – an optimal capital structure. The increased use of leverage levels in sector transactions has been partly reflected also in public companies, while a number of public airport operators have re-capitalised their capital structures, partly to take advantage of the favourable debt markets but also as a defence mechanism against possible takeover (incentivised by potential capital structure inefficiencies).



Note: Prague and Schiphol metrics based on latest financials  
 (a) Forecasted reduction in EBITDA due to 2.5 month closure of the airport for runway maintenance  
 Source: Broker reports, Datastream, Company data

FIG.2: EUROPEAN AIRPORTS BENCHMARKING



(a) Based on 2005 passenger numbers. Equivalent BAA market shares in 1990 were 72% for total UK; 95% for London; and 93% for Scotland  
 Source: OFT press release

FIG. 3: UK AIRPORT SECTOR CHARACTERISTICS – MONOPOLISTIC CHARACTERISTICS

Figure 3 above demonstrates the monopolistic characteristics of the infrastructure asset class (airports in this case). Its monopolistic market positioning coupled with benign regulation is a significant factor why lending banks can become comfortable with providing generous debt at various levels of corporate structure in any M&A transaction or recapitalisation.

#### Recent Port Sector Themes

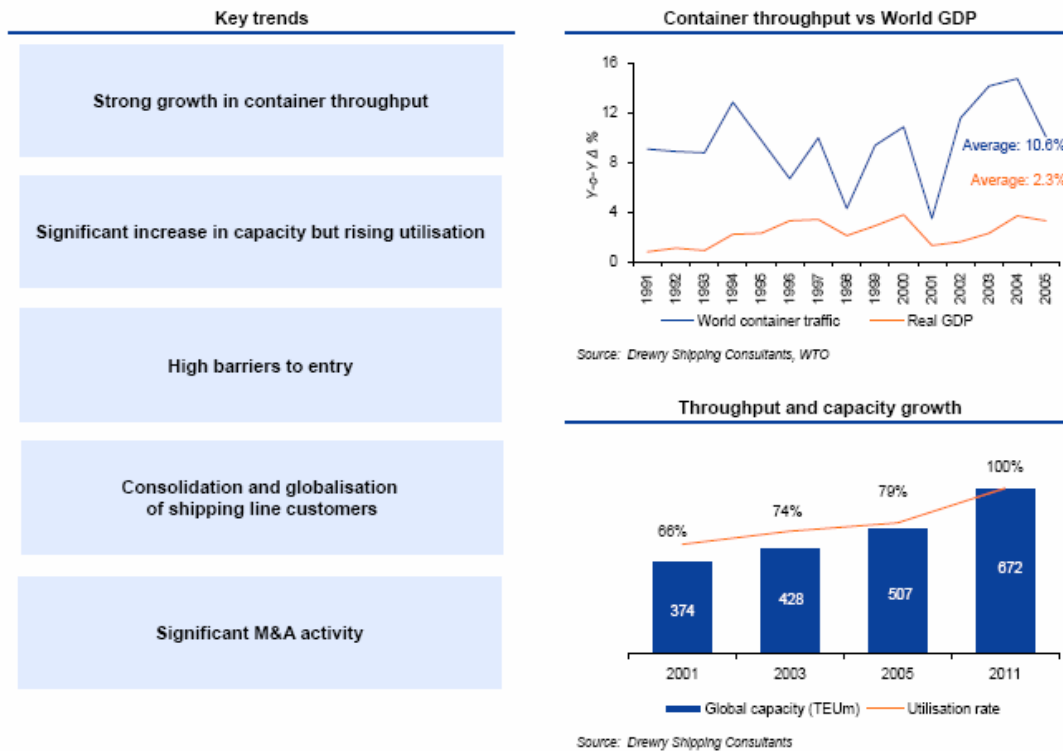


FIG. 4: KEY TRENDS IN PORTS SECTOR

Figure 4 above shows graphically the key trends in ports sector. As trade volumes grow, container ports have experienced a significant increase in demand for their services. Traffic volume is projected to grow faster than port capacity. As competition and consolidation among shipping lines intensifies, terminal operators have also consolidated.

The industry overall is experiencing an increase in demand for port services. Traffic volume is growing faster than port capacity can handle. Customer consolidation is driving operator consolidation. Recent M&A activity has significantly consolidated the ports sector in Europe

- DP world's acquisition of P&O
- Goldman's acquisition of ASP

#### Recent Toll Roads Sector Themes

Availability of assets has sparked consolidation as demand for stronger profitability is achieved by increasing network scale. Vinci ranks as No 1 player, pending the Autostrade/Abertis deal which increasingly looks like a thing of the past. Competition for toll road assets has attracted strategic and financial investors, while market for new assets remains highly competitive.



## Recent Corporate Activity in the Infrastructure Sector

Overall economic growth and favourable debt markets have contributed to the attractiveness of the infrastructure space for investors. The corporate M&A activity in the sector has been characterised by:

- Sector re-rating and unprecedented corporate activity have driven valuations to record heights
- Large cash inflows to infrastructure funds – too much money chasing too few assets
- Highly favourable debt market with increasing leverage at lower cost
- Nevertheless there are opportunities of significant scale

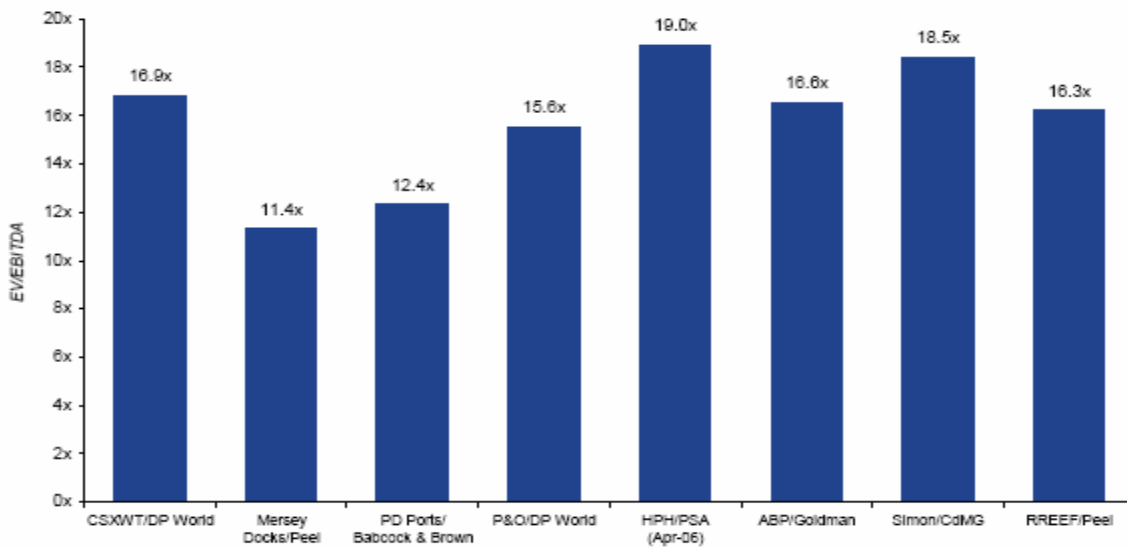
Figures 5-7 below show major transactions in each sub-sectors and the respective valuations achieved in chronological order. The uplift in valuations is visible even over a very short period of time as shown in the Figures below.

Acquiror(s)	Target	Close date	Deal value <sup>(a)</sup>	Trailing EV/EBITDA
		Pending	£24.4bn	13.5x
		May-06	US\$16.7bn	12.4x
 		Apr-06	€10.6bn	12.3x
    		Apr-06	€9.3bn	12.5x

(a) Pro forma 100% EV where change of control is resulted

Source: Deutsche Bank

FIG.5: RECENT TOLL ROADS SECTOR TRANSACTIONS AND EV/EBITDA VALUATIONS ACHIEVED



Enterprise value (US\$m)	1,150	1,817	988	8,525	4,668	6,515	331	n/a
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Source: Deutsche Bank

FIG.6: RECENT PORTS SECTOR TRANSACTIONS AND EV/EBITDA VALUATIONS ACHIEVED

Acquiror(s)	Target	Close date	Deal value <sup>(a)</sup>	Trailing EV/EBITDA
  		Pending	£750m	27.5x
  		Jul-06	£16.2bn	16.1x
		Dec-05	€1.9bn	26.6x
		Dec-05	€2.2bn <sup>(a)</sup>	10.3x
 		Feb-05	£677m	14.6x

(a) Pro forma 100% EV where change of control is resulted

Source: Deutsche Bank

FIG.7: RECENT AIRPORT SECTOR TRANSACTIONS AND EV/EBITDA VALUATIONS ACHIEVED

## Infrastructure Financing Structures and Their Impact on Deal Characteristics

Infrastructure deals have been strongly influenced by the increasing proportions of debt being put onto the transactions. Increased leverage levels coupled with its low costs have pushed transaction valuations to extreme levels, which is seen mainly in the airports sector space. For example valuations of both transactions of London City airport (EV/EBITDA of 27.5x) and Budapest airport (EV/EBITDA of 28.6x) were driven by aggressive debt packages behind, which enabled the investor to minimize the equity cheque and bid-up the purchase price while still maintaining required IRRs.

The Figure 8 below demonstrates the way infrastructure investors approach projects in this asset class. The suggested structure allows flexibility to run various traffic, regulatory, operational and financing scenarios. It demonstrates the flexibility in financing solutions a typical investor would require:

- Multilayer financing structures – i.e. at Operating company and at the Holding company
- Dividend and cash flow services debt at higher levels in the structure
- Pricing adapts to complexity of transactions

The financing structures bring certain value added to the target company:

- Financial engineering and optimisation of capital structure of target on acquisition and thereafter
- Management incentivisation plans put into place
- Crystallisation of value of the asset through M&A or recapitalisation

Return requirements for infrastructure investors in connection with such a typical M&A deal:

- Typically in the range of 10% – 15%
- Strongly dependent on ongoing yield – dividend discount model

Typical leverage includes aggressive use of debt in capital structure along the whole structure (OpCo and HoldCo) and also various types of leverage, e.g. Project finance leverage, RAB-based debt, Asset-backed debt etc. Dividend policy has to be put in place in most case, as returns for financial investors are achieved partly through dividend distribution - excess cashflow (post debt service) is distributed to shareholders.

Another feature of infrastructure deals, mainly if involving specialised infrastructure funds are the Shareholders agreements:

- Always required for consortia members, rollover equity or management equity holders
- Governing major business decision making, investment and financing considerations
- Covering exit plans via tag-along or drag-along and first refusal rights

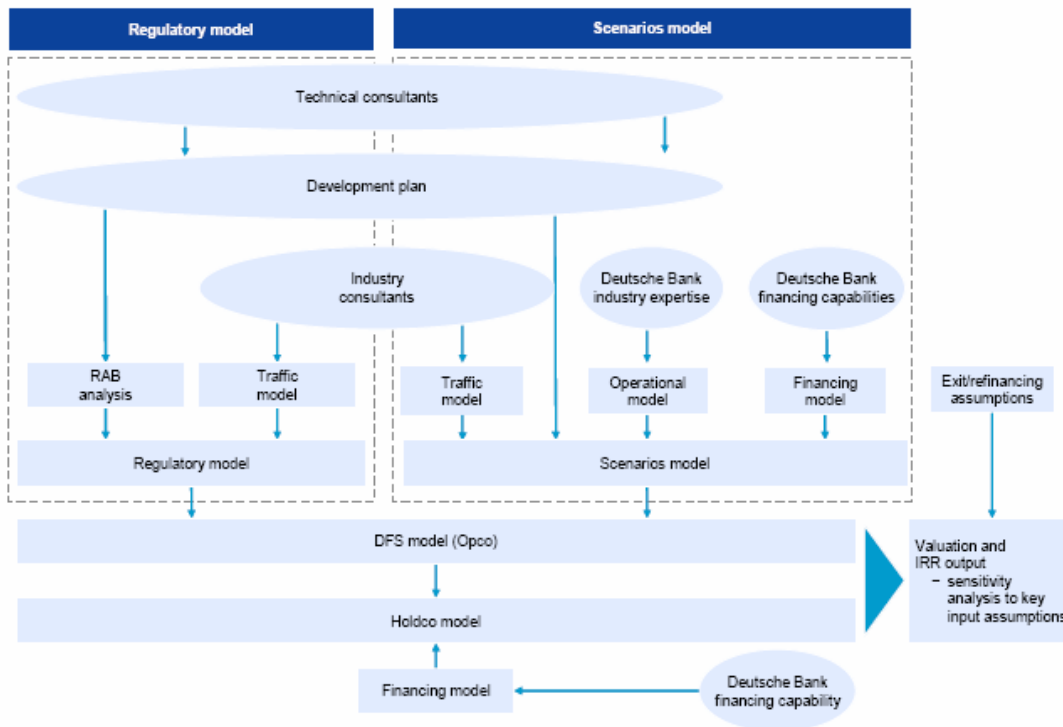


FIG. 8: INFRASTRUCTURE TRANSACTION FINANCING STRUCTURES

### Typical Financing Considerations in Infrastructure Sector

In providing structured debt, the banks take into account several considerations, in particular:

- Location of airport and competitive positioning relative to other airports in the region - primary or secondary hub, tariffs (passenger & landing charges) charged relative to competing airports, proximity to key business/tourist centres, passenger processing times relative to nearby airports.
- Access to follow-on transport (rail and road) connections (both existing and under development)
- Macro-economic outlook for the region, demand/air-traffic projections
- Regulatory framework with respect to tariffs/returns generated (price caps), asset ownership (or just administered), status of concession agreement (when/if does it expire)#
- Traffic mix – how stable is existing passenger base and potential for future growth, passenger vs. freight traffic, aeronautical vs. non-aeronautical revenues (retail, parking etc.), long-haul versus short-haul traffic
- Historical stability of revenues and cashflow generation, resilience to recession. In this regard mix of revenues by business/tourism and cyclicity of revenue segments
- Diversification of customer base (exposure to major carriers as % of revenues), rating/credit of customer base, length and nature of contracts, supply/sub-contractor risk
- Labour relations/agreements, environmental risks (eg. noise pollution constraints, where close to inhabited areas)
- Capex requirements (both maintenance and strategic) and Capacity utilisation - investments in recent past and requirements in foreseeable future.
- How much additional capacity can be handled using existing infrastructure and how capacity utilisation/excess capacity compares to competing airports in the region

- Analyzing the proportion of fixed and variable costs (primarily labour)
- Assets owned by the operating company, their estimated valuation and implied net loan-to-value
- Level of contractual revenues (long term/medium term/short term), breakdown of cargo revenues (bulk vs containerised)
- Competition from other ports/airports etc.
- Is the port critical to the ‘hub & spoke’ network for the distribution of goods?
- Availability of alternative routes
- Presence of any unique infrastructure or customer investment (eg chemical plants for oil) that ‘lock-in’ any revenue source?
- Diversification of revenue stream by service provided (conservancy, docs, logistics, rental etc)
- Are any of the revenue sources cyclical in nature and dependent on external factors (eg grain volumes depend on harvest, commodities can be impacted by world commodity prices, strength of € will have an influence on export volumes, overseas economic environment)?
- Customer concentration (rating/credit of customer base, length and nature of contracts)
- Pension and other third party liabilities

The characteristics of most infrastructure assets are considered to lend themselves to a fairly high degree of leverage. The debt structures for these regulated assets are usually tied in some way to the so-called Regulated Asset Base (RAB), i.e. the regulator’s main measure for determining the allowed level of profitability.

Hence, when structuring the debt at Opco level, the financing banks take into account the current gross debt/RAB, in order for it not to exceed 100% (including any off-balance sheet financing, e.g. capitalised leases).

The debt capacity of Holdco is also possible, however dividend distribution policy must be clearly defined. If dividend distribution concern is addressed and given the high degree of certainty over cashflows, it would be possible to structure additional leverage at Holdco level. Any such debt would be subordinate (legally and structurally) to the debt at Opco with no enforcement rights, it would get serviced via dividends up-streamed from the operating entity. Typical maturity is circa 7 – 10 years and it may be possible to get this debt rated. This might be beneficial if it gets rated in the ‘BBB’ or ‘BB’ area as the pricing for rated instruments is more competitive than unrated debt

## **Infrastructure Sector Financing Structures in Central and Eastern Europe**

Due to the underlying growth potential and utilizing leverage structure similar to other regional airport deals (eg Budapest), infrastructure investors could achieve attractive returns in this region even at relatively high valuations. The capital structures in Fig 9 and Fig 10 below depict financing structure for an airport sector transaction in Czech Republic and port sector deal in Estonia. Their complexity, terms, pricing, quantum and maturity can almost match the levels of similar deals in Western Europe – Fig 11 and Fig 12 below. In some terms (e.g. as the underlying traffic growth is expected higher, the CEE debt multiples might even surpass the Western European ones).

Capital structure assumptions	
<ul style="list-style-type: none"> <li>■ OpCo debt at 14x EBITDA</li> <li>- principal repayment holiday for seven years (interest only)</li> <li>- refinanced afterwards with full cash sweep</li> </ul>	100bps over PRIBOR
<ul style="list-style-type: none"> <li>■ OpCo capex facility of CZK8bn (€280m)</li> <li>- drawn 2007 – 2010</li> <li>- repaid with full cash sweep afterwards</li> </ul>	125bps over PRIBOR
<ul style="list-style-type: none"> <li>■ HoldCo debt at 3x EBITDA</li> <li>- repaid from OpCo dividend stream</li> <li>- full cash sweep after allowing for 5% cash yield to HoldCo shareholders</li> </ul>	350bps over PRIBOR

Source: Deutsche Bank  
 FIG. 9: EXAMPLE OF AIRPORT FINANCING IN CZECH REPUBLIC

Capital structure assumptions	
<ul style="list-style-type: none"> <li>■ Senior debt: 7.5x EBITDA, 100 bps over LIBOR</li> <li>- range of 6.5x – 7.5x EBITDA</li> <li>- principal repayment holiday for 5 years (interest only)</li> <li>- refinanced with 20-year amortised debt</li> </ul>	
<ul style="list-style-type: none"> <li>■ Junior debt: 1.0x EBITDA, 350 bps over LIBOR</li> <li>- range of 1.0x – 1.5x EBITDA</li> <li>- principal repayment holiday for 5 years (interest only)</li> <li>- refinanced with 20-year amortised debt</li> </ul>	
<ul style="list-style-type: none"> <li>■ Target EBITDA – capex DSCR of</li> <li>- 1.5x for senior tranche</li> <li>- 1.25x for senior and junior tranche</li> </ul>	

Source: Deutsche Bank  
 FIG. 10: EXAMPLE OF PORT SECTOR FINANCING IN ESTONIA

	Leverage (EBITDA x)	Maturity	Weighted spread
AdR (1999)	6.5x	30 years	97 bps over Euribor
London City (1999)	8.3x	22 years	275 bps spread over GILTS
Brussels (2004)	7.5 – 8x	7 to 10 years	150bps over Euribor
Budapest Airport (2005)	20x	7 years	85 bps over Euribor
BAA (2005)	7.6x	5 to 7 years	180 bps over Libor

Source: Deutsche Bank estimates

FIG. 11: EXAMPLES OF RECENT AIRPORT SECTOR TRANSACTIONS DEBT LEVELS

	Leverage (EBITDA x)	Maturity	Weighted spread
THPA (2001)	8.7x	30 years	208 bps over Libor
Mersey (2005)	9.5x	3 years	125bps over Libor, stepping up to 150 after 12 months
ABP (2006)	9.5x	5 to 7 years	n/a

Source: Deutsche Bank estimates

FIG. 12: EXAMPLES OF RECENT PORT SECTOR TRANSACTIONS DEBT LEVELS

The situation in the entire Central and Eastern Europe has changed dramatically. Nevertheless, the general fact remains that with the privatisation of most of the regional banks into multinational banking groups, the sophistication of the entire banking industry has grown rapidly. There are now active leverage finance banking teams of major investment banks dedicated solely to the region operating from Prague, Vienna and London. The accession of the CEE countries into the EU in 2004 has also put the region on the radar screen of large multinational leverage finance providers in London, Frankfurt, New York etc. This all results in increased utilisation of leverage finance products in infrastructure transaction in the region nowadays. In fact now, after the EU accession of CEE countries, most infrastructure funds bidding in any sizeable auction are actively approached by leverage finance debt providers with pre-packaged financing offers in the level of Western European multiples of the underlying asset

Another important phenomenon will surface in the coming months. According to recent private equity publications <sup>[9]</sup>, corporate sphere in the region started shifting their debt portfolios into Euros, trying to hedge their currency risk associated with the expected wide-scale adoption of Euro in most of the region. The planned European Monetary Union convergence of the CEE countries should therefore have the same effect on infrastructure / buyout transactions. In the near future, large parts of the debt in infrastructure transactions will be arranged in Euros, rather than in local currencies. The companies and infrastructure funds can actually help this way diversify currency risks away from the transactions. By the time they will exit their investment, they will most probably receive the proceeds in Euros anyway (as the local currencies will have ceased existing).

All in all, the infrastructure sector in the CEE has already started catching up with Western Europe and it will inevitably continue doing so. In few years (or may be rather months) time, there won't be any differences in sophistication, valuation or the extent of leverage between transaction in Western Europe and one in Central and Eastern Europe. We will be increasingly seeing more structured transactions, with several layers of debt of various subordination, maturities and risks being attached to the CEE transactions just like in Western Europe. The development of larger debt markets will spur the CEE buy-out activity, much as the availability of debt (mezzanine and junk bonds) was instrumental to the growth of Western European infrastructure industry and in particular the buy-out markets.

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## **A Dollar Crisis Theory in Age of Turbulence -With Apologies to Alan Greenspan of “Age of Turbulence”**

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### **Abstract**

A dollar crisis theory has always been popular. Curiously enough, this theory is now set to be in the state of a grey silence despite the expanding world imbalance. This state reminds me of a famous phrase by Alan Greenspan, that is to say, ‘a conundrum’. My article will explain why US current account deficit cannot be a factor to cause a dollar crisis and why it can be a positive aspect, reflecting a powerful proceeding of the capital globalization led by US economy. US giant companies are accelerating their business operation towards the globalization. Optimum allocation of management resources are not limited in domestic level, being extended to cover the rest of the world, whose consequence is that production facilities are being transferred overseas, to cause a huge deficit of current account as well as to produce increased profits, clearly endorsed in the recent stock prices -surge.

### **Introduction-A Dollar Crisis Fading into a Mirage in the Globalizing Capitalism**

Recently abnormal weather condition has been almost always widely reported, but here it is to be emphasized that similar unusual case can be evidenced in the world financial markets. That is to say, a dollar crisis cry, which has been always very popular among the economists of international finance studies. Curiously enough, this theory is now set to be in the state of a grey silence despite the expanding world imbalance, which should be a supporting factor to a crying wolf. This state reminds me of a very famous phrase produced by Alan Greenspan (Ex Chairman of FRB), that is to say, ‘a conundrum’.

It is to be remembered that many leading economist have predicted a coming of a dollar crisis and that they have acted as a crying wolf. For instance, some of them have maintained that, when US current account deficit was near to share 3% of US GDP, the world economy could be on the brink of a serious dollar crisis. The inconvenient truth is that such a mantra has proved to be an oracle, a groundless message. Nowadays, that rate has exceeded well over 5%, almost certain to reach 7% of US GDP. Even so, there is no sign to be detected to justify such an oracle.

According to the theory of the dollar crisis, this element of expanding deficit should be a powerful supporting evidence to show that a wolf is coming just around the corner to attack sheep. Contrary to their expectations, no shade of wolf could be seen, much less its cry not audible recently. I am afraid that this wolf appears to go instinct because of unfavorable climate in the international financial markets. Since late 2006, New York Dow Jones Averages had kept climbing to have reached a historic record. On May.18, 2007, it has hit a peak of \$1,3556.53 . A relative stability of US economic condition does mean to reduce the home for a wolf of a dollar crisis and in the face of such a situation, economic priests of the dollar crisis should feel puzzled, not being able to solve a conundrum mentioned above.

An expanding US current account deficit may cause a dollar crisis in the near future? Reader with a good memory can know that such a theory can be just a new version of arguments set by S. Marris (<Marris1985>138-41), which has enjoyed much attention, because of Black Monday turmoil in October 1997 in New York Stock Exchange. But since then, what fate has dollar experienced? Neo- Marris theory has never been realized, since US economy has attained unprecedented economic prosperity, especially in a decade of 1990s, while in that period US current account has never stopped expanding.

According to *Wall Street Journal*(Feb.28,2007), Greenspan is going to publish a book, “Age of Turbulence”, due to be released on Sept.17, 2007(not on Sept.11), so right now it is a good coincidence to tell a story of a dollar crisis theory of “Age of Turbulence”.

## **US Economy in State of Resilience - Conundrum of Increasing Confidence in Dollar amid the Exploding World Global Imbalance**

US giant companies are accelerating their business operation towards the globalization. In doing so, optimum allocation of management resources are not limited in domestic level, being extended to cover the rest of the world. Economic resources including production, R&A, collection and delivery, finance management as well as personal ones are set to be well aware of the optimum allocation on the world-wide level. So it is quite natural that production facilities are being transferred overseas very actively. In one sense, such a transfer means a domestic de-industrialization in US economy, but it does not mean a decline of US industries as a whole. A good proof for this is an overwhelming earning power of US companies compared to those of the rest of the world, as market capitalization of US corporations as a total shares more than two-thirds of the world.

There is little sign to show that consumption of US people will be in a big decline, while investment activities are still strong to be in no downward-direction. Inflation pressure is well contained since oil price surge has been now stopped. So there stands no big hurdle to US business activities. It is true that a grave problem of sub prime housing loan is emerging, which may be a destabilizing factor in the financial markets to cause a big fall in equities, but so far, not so many economists will predict housing loan problem can cause a great depression on US business activities.

It is often reported that, at G5 conference, a measure is discussed to reduce US current account deficit so that the world economy will not see the world imbalance exploding any more. At G5, US has been every time asked to reduce State budget deficit so as to reduce the world imbalance. But is there anyone to prove a close relationship between these two deficits? If one can show clearly a closer correlation between the twin deficits, he can be a leading candidate for a Nobel Prize in the economic studies. So what use is it to ask US government to reduce the budget deficit just in order to reduce the current account deficit. Budget issue is only US' one, which no other countries can intervene, and current account deficit (the world imbalance) is not solved by bilateral negotiation between US and each country of the rest of the world. Here it is enough to point out that in the decade of 1990s US current account deficit kept rising, while US budget deficit could turn to be in surplus. Both trends have just reflected the higher business activities of unprecedented economic prosperities (so called 'New Economy'), which means that current account deficit can be no problem as long as it is reflecting a positive aspect of US higher business cycle-upturn. So that can be a clue to resolving a conundrum of increasing confidence in dollar amid the exploding world global imbalance.

## **The Expanding Current Account Deficit does not mean that US is a Debtor Country**

### **US Companies and Household in Healthy Condition, no Depending on Foreign Lender such as Shylock**

US companies as a whole have recently enjoyed an amazing price rise in equities, so that their market capitalization is valued to be as much as \$18.5trillion (valued at Feb.20,2007). This means the market capitalization has doubled from Oct.2002, the lowest level because of the burst of the bubble. On the other hand, US individuals have \$40trillion of financial assets, of which stock shares and subscriptions occupy a third (*Nikkei*, Feb. 21, 2007).

US companies have been deeply globalized, so even when their profits in the domestic market should get down, those gained overseas could cover the domestic losses. So, it is quite natural that US can remain to be the richest country in the world. Net assets in USA amount to \$40trillion (the top) and those of Japan is \$20trillion (the second), while, in respect of annual income calculated per a head, Japan stands at the top (\$180thousand), US being the next (\$140 thousand, *Nikkei*, Dec.8,2006:Jan.1,2007).

### **No more Talk on the Relation between Dollar External Value and the World Imbalance**

Recently little attention is paid to the situation of US current account deficit itself. For instance, G7 held on Feb. 10, 2007, has not talked about it much. It is rather a depreciating yen that EU (excluding Britain) has tried to talk about, while US would not do so, which means that US deficit cannot be a big issue at G5. In the eyes of a dollar crisis theory people, such a situation can be inconvenient. US current account deficit amounts to \$856.655bn in 2006, mainly because of oil imports increasing. This being a historic record showing no tendency to stop. On the contrary, this deficit has kept expanding these five years in a row to 2006, occupying 6.5% of US GDP. A revaluation of 2% in Chinese currency (RMB) in summer 2005 could not stop US trade deficit against China expanding at all. This deficit has also continued five years continuously to go over \$200 bn against China (*Nikkei*, Feb.12, 14, Mar.15, 2007). In spite of such a big increase in deficit, US dollar has remained very stable.

It is here good to reconfirm that US current account deficit is in itself no problem, as long as a domestic purchasing power of a dollar is stably maintained, reflecting US economic strength. US does not necessarily borrow money from overseas to fill this deficit. In substance, US is by no means a debtor country. It is true that US economy has kept drawing much money from foreign countries. However, that does not mean that US has declined his world position to be a hopeless, heavy debtor to the rest of the world. If an expanding current account deficit were to show that US is a heavy debtor, is it possible to find unwise world investors who keep lending to a hopeless debtor country, which has little prospects to pay back the borrowed money? In this point, a so called IS Balance theory lacks a sense of balance. Foreign capital inflow into US reflects a promising element of US economy, as world money would tend to find a place, where a good and safe return is expected. In this respect, there can be no good candidate in the world other than US. That is why even Euro cannot be challenging US dollar as a key currency status.

There is no tendency that net capital inflow into US will be exhausted. In evaluating this capital inflow, Bernanke and Greenspan are very wise. Bernanke, just as did Greenspan, has pointed out that a more restriction on a cross border movement of labour and capital is no effective. His intention is to give a caution to a growing protectionism in US Parliaments. In his view, protection measure will reduce US economic vitality, so lowering life-standard of US people. This view is shared by ex-Treasury Secretary, John Snow, who said that a sign of protectionism could be a leading Achilles tendon to US economy. A higher tariff on Chinese goods can be a fiasco to US economy, giving no solution to stop the widening gap in trade with China. What is worrying to Bernanke is a Medicare problem or a social insurance one, which can be a heavy burden to US budget, while he shows little fear to the current account deficit (*Nikkei*, Feb. 1, 7; FT, Jan.19; WSJ, Feb.7, 2007).

Why is US current account deficit no problem to the world position of the dollar? It is true that this element can be a potential for a dollar downfall, but it is remembered that there exists a huge dollar demand in the world economy just because of the important position of the dollar, which fact can be offsetting a dollar-sell off pressure coming from current account deficit. For instance, world petrol trade between the third party countries, having nothing to do with trade with US, is almost exclusively invoiced, denominated and conducted in US dollar. So expansion of world trade for commodities like petrol are sure to cause huge demand for US dollars, which is far larger than US annual current account deficit.

Here one point is to be added. IS Balance theory is no more effective to evaluate the condition of the world imbalance, since this theory is just a by-product of IMF, whose analysis point is concentrated just on the current account side, paying no attention to the significance of expanding capital movements. IMF was established, only when the transaction in goods and services was a main player, with capital one acting as a minor player, but the situation has changed remarkably from early 1960s, when the amount of capital transaction has begun to far exceed that of current account transaction. In this sense, IMF has long been out of date to catch up with the change of the currents.

#### **US Financial Markets Centre of World Capital Transaction - Two 'Conundrums'**

US financial markets are acting as a heart where world money are constantly flowing in and from to sustain the smooth-working of the world economy, which mechanism can ensure a stable huge dollar demand from any direction in the world. So there will be no worry about a probability of sharp downfall in a dollar value. Thus US is firmly assured of a huge capital inflow. A typical case is an effect of oil price surge on the fate of a dollar. Whether oil price is down or not, each way can be favorable to the dollar position. A surge in oil price will cause a huge demand for US dollar on world wide scale. For instance, Japan and China, the biggest trade surplus nations with US, have to increase oil imports from Middle East, when oil price is rising sharply, which means both two nations have to find enough dollar exchanges just to purchase petrol. In the reverse case, that is to say, oil price decline will exert effects to reduce US current account deficit, which, in turn, is favorable to US economy, containing inflation pressure. Oil-exporting countries can get huge dollar exchanges from Japan and China, which proceeds are sure to be in US financial markets just for expecting higher returns. So anyway oil transaction invoiced in US dollar can always create huge demand for US dollar.

An estimated oil-related export of Oil producing countries (2006) is around \$ 1 trillion, which is three times larger than that in 2003. Much of the exports proceeds are flowing directly or indirectly into US financial markets, which can assure US affluent money so as to contain a rise in long term interest rate even if short term one is rising. So a conundrum put forward by Greenspan can be solved in this context to some extent. In February 2005, he has called an unusual case a conundrum, where a long term interest rate is going down, even though a short term one is rising. In 2006, net purchase of US stocks and bonds by foreigners has exceeded \$ 1 trillion as in 2005. This huge inflow reflects a stable condition in US economy and oil price rise can be a favorable element for capital inflow in US, meaning that a huge demand for a dollar is well ensured (*Nikkei*, Jan. 10, 16 (*evening*), 23, 2007).

It must not be forgotten that there is another conundrum. US, a debtor country according to IS Balance theory, has been in fact a recipient country in respect of international income account. A debtor country should have been paying interests, but the case of US has been quite the opposite until 2004 **1**). Here it could be better for us to recollect Aesop's Fables, which tells a story of a working hard ant and a lazy, always singing cricket, doing no work in summer. In this point, British and American crickets, current account deficit countries, cannot be one described in Aesop's, since Anglo American crickets are singing in summer as well as in winter, enjoying their daily life even in winter, feeling no difficulty, while they are no begging to ants at all. This is quite the opposite of those described in original Aesop's. In this point as well, there must be something wrong with a dollar crisis theory.

### **Which a Determining Factor to fix Dollar's External Value, Current Account or Capital Account - Now in Age of Capital Movements**

Recently a Japanese yen carry trade has been a strong factor to support the external value of the dollar. In this trade, investors, borrowing money in yen with very low interest rate, can invest it in a much higher interest currency like dollar and enjoy high returns, just by taking advantage of the wide difference in the interest rates. In doing so, yen is sold and dollar is purchased, which means a rise in dollar exchange rate. However, such a trade can be risky if money trader should judge the dollar to be in the direction of sharp fall. As they think quite the opposite, so they are very active to be deeply engaged in yen trade, to have enjoyed high returns. That implies that they do not think the dollar crisis is a real issue and that capital account element is more crucial than current account one in fixing the external value of the dollar.

By observing yen-dollar exchange rates these years, a recent tendency of less volatile fluctuation can be noticed. For instance, in the case of 2006, the range for that rate is within 11 yen. This also means that a capital account moment is much stronger than trade account one in fixing yen-dollar rate. A mere consideration on the state that even though US current account is still expanding, a dollar demand from Japanese side is very strong can convince one that capital account element is a dominating factor in the world foreign exchanges markets.

It is now time to consider being free from a conventional theory on balance of payments. When talking about the international payments account, it would be more proper to talk about it in terms of changes in the capital account rather than in the current one. Recently the capital account has played as the prime mover of the dollar external value, and adjustment in the disequilibrium in the domain of current account has for a long period proved to be hard. When talking about disequilibrium or about the world imbalance correction, it is necessary from now on to regard capital-account transfers as initiating forces and correcting forces, since, nowadays, capital movements are the prime determinants of exchange rates.

According to Scammell, "Economist now over the age of almost seventy were brought up on the view that current account transactions dominated the balance of payments, while capital-account balance was regarded just as subsidiary to the prime moving balance of trade" (<Scammell 1987>104 ). Surprisingly enough, his view was put forward as early as late 1980s. So these economists alluded by Scammell, if alive, should be near one hundred years. Nowadays no one would deny that the amount of capital transaction are far exceeding that of trade and service in the world foreign exchange markets (<Scammell1987>45, 84-5,104), so it can be safe to say that capital movements dominate the balance of payments, and in this respect, US has been dealing with very well so far, because she has enjoyed a constant capital inflow from the rest of the world.

Here also can be a good proof cited to show that capital account transaction can be a strong pillar for US dollar. When the dollar should fall while the oil price is expected to rise, what will oil importing companies do? Forward rate of dollar is to fall also and oil importers can find a good chance to purchase forward dollar at a lower price, with which they can also purchase oil, thus offsetting the rising cost for getting petrol. And this behavior can give US dollar a helping hand. Dollar demand coming from forward purchase for oil is very huge, amounting to several \$100 bn in lump for demand several months ahead. This can be a good offsetting factor against dollar sale pressure coming from US annual current account deficit expanding to be as much as 600bn.

There is an enormous dollar demand in the world exchange markets. In case of London market, enjoying the privileged status of the biggest exchange market in the world, did deal as much as \$75.3 bn in one day in average in April 2004 (49 %increase than in 2001). A total amount dealt in the world foreign exchange markets is now around at \$2 trillion, of which dollar connected one occupies as much as 90 % (total be 200 %, Euro' percentage be around 38%). What is more, in the case of OTC transaction, one day deal amounts to be \$1.22trillion **2**). On the other hand, according to BIS, the scale of derivative transaction (including futures, options) in 2005 is in the range of \$ 300trillion, setting dollar, Euro, yen together, while a share of dollar is exceeding 70% **3**). There is no change for a dominating position of US dollar since 2002.

## **The World Imbalance being a Positive Effect of Globalization in the Case of Trade Relation between US and China**

### **A Consequence of 2% Appreciation in RMB in summer of 2005—A Smart Joke**

China is now, with its history of more than five thousand years, one of the world super-powers, whose market oriented socialism system has started from 1992 immediately after the collapse of the Soviet regime in 1991. China has succeeded in that policy for the moment to have gone through the long-period slump and is now enjoying the position of the world factory.

In the near future, its GDP is forecast to be Nr.3 in the world, just next to USA and Japan. Recently China has proved to be not only a world factory, but also a world financial products-factory, whose good evidence is that a sharp fall in equities in Shanghai on Feb.27, Tuesday, 2007 (fortunately not Black Monday in Oct.1987), has triggered a world wide equities plunge, so it could be safe to say that China can make and export everything, not limited to consumption goods. For that reason, China is now having a strong criticism that it has caused a serious problem of the world imbalance. Of course, China has responded to it by a 2% revaluation of Renminbi in summer 2005.

“A 2 per cent change in the (foreign exchange) market is nothing”. This view should have been displayed in summer 2005. This is quoted from Mr. Eisuke Sakakibara, being famous as “Mr Yen” (*FT*, Mar.3& 4, 2007). He says, “When I was the vice-finance minister, that kind of adjustment took place every week.” In that period, yen was notoriously volatile.

‘A 2 percent revaluation’s aim is very clear (according to Li Rugou, China people Bank ,deputy governor)4; to improve its exchange rate mechanism and to adjust its rate to be in harmony with the current domestic economic situation; to hold restriction on the cross-border capital transaction to be removed only gradually; not to set capital transfer in the direction of the full convertibility (of the exchange) to the full extent in the near future. So the reforms in RMB are to go just in tandem with the Chinese specific economic condition, considering the macro-economic surroundings; the ability to absorb the external shock coming from RMB revaluation (especially in the export industry sector); progress in the banking sector being haunted with huge bad loan problem. And big upward-adjustment in RMB is not to be considered, since it can be no solution to reduce the expanding external imbalances (especially huge trade surplus with USA).

People assembling at G5 summit must be well aware of this. Although RMB issue is always a popular topic in G5, no concrete proposal for RMB revaluation has been reported. Since summer of 2005, there has been no big appreciation in RMB, while the trade imbalance with USA expanding continuously currently. Chinese trade surplus in this February 2007 has recorded a big increase (ten times larger) compared to that of last year (*Nikkei*, Mar.13, 2007).

Actually the world imbalance problem can be no concern to US economy as well as to the rest of the world. Little concrete news are reported in the news papers that Chinese exports have damaged US economy. Complaints over Chinese trade surplus with US have raised only in the US Parliament members. Even if China continues attaining a huge trade surplus with US, that can be no threats to the position of the dollar enjoying the status of the key currency in the world, as China will not de-link US dollar at all. There is so far no indication that China will introduce the currency basket system showing a de-dollarization, since foreign exchange reserves held by Chinese currency authorities are almost composed of US dollars. It could be safe to say that China still keep the dollar-peg system instead of adopting a currency basket system.

### **2 Percent Appreciation in RMB be no Solution to Reduce the World Imbalance**

In solving the trade imbalance problem, USA has shown a strong tendency to find a scapegoat exclusively in his counterpart. In mid 1980s Japan is set to be a good outlet for US complaints, nowadays the situation has changed, and whose consequence is that China is set to be a scapegoat. It is undeniable that the trade imbalance between USA and China has been expanding, but here it must be pointed out clearly that China exports have caused no serious unemployment problem on US side. As the history shows, the above imbalance between USA and Japan has been increasing in mid 1980s, accompanied with the US leading industry sector falling in plight just because of Japanese rising Sun momentum in the high-technique sector. And during that period, yen has been appreciated very sharply, producing no reduction in trade imbalance, on the contrary, huge expansion of imbalance accrued. In the case of China, is there good evidence that can prove that Chinese imported goods have caused much damage to US economy? Indeed in mid-1980s such evidence was available in US that Japanese high-technique industries (especially semiconductor sector) were threatening to ruin the US ones (Nowadays remarkable recovery. Wintel brand emerging).

In early 2005 the rapid increase in Chinese textile exports to USA and the trade surplus with USA has exceeded \$160bn. However this cannot be a serious problem to USA, since US companies have enjoyed cheap goods from China so as to increase

their earnings. The uninterrupted expansion of Chinese exports to USA is just reflecting a deep co-dependence relationship between the two economic powers. For instance, in the case of Walmart, RMB appreciation can cause a rise in import-price, introducing much distress not only in Wal-Mart customers, but also in China export industries.

Some are insisting that a higher revaluation of RMB can be very effective to reduce trade conflicts. But such a view is apt to be one-sided one. It would rather cause much inconvenience to US industry and consumer, just because of imports-cost rising. Wal-Mart, which employs 1.4mn people just for selling Chinese goods of \$18 bn, so a rise in import-cost to this company can cause restructuring the number of the employee in Wal-Mart.

Some are also complaining that China is manipulating RMB, just so as to stimulate exports to US, but a real situation will not warrant such arguments, since the export boom in China is rising not only because of an artificial depreciation of RMB, but also because of the huge increase of FDI especially from US, which can be a strong factor for broadening the production capacities for exports. Annual FDI in China is more than \$600bn. The share of foreign companies for exports from China is now more than half. There are not so many Chinese brands. Much of goods manufactured in China is only to be sold under the foreign-originated brand. In this sense, China is just donating the export sites for foreign companies, much profit exclusively in the pockets of foreign companies. So in the context of the US-led world globalization, China can be the newest westward state of US, just as a good proof that US westward movement is not only limited by the West Coast, but also extending to Hawaii so as to go through Japan, and finally to reach the East coast of China. Anyway China is now incorporated into the world global economy led by US.

So Chinese trade surplus with US cannot be a serious issue to US economy, and here it is to be noticed that some of US side are showing much understanding to RMB issue as well as to China huge trade surplus. For example, ex-chairman of FRB(Greenspan), who has asked for a wider fluctuations in RMB instead of the fixed rate, has however strongly been opposing to the introduction of retaliation-tariffs, just because tariff retaliation can lower the life standard in USA and in the rest of the world, giving no solution to the trade imbalance. In his view, tariff increase may reduce imports from China, but may increase imports from somewhere else, so no warranting USA domestic employment increase by introducing a tariff measure against China. According to his view, US, enjoying the benefits deriving from the world globalization to the full extent, by enjoying cheap-high quality goods from China, must be prepared to accept the necessary structuring reforms.

What is more, many leading US companies claim the huge benefits deriving from the trade between the two nations. Some even have dismissed the blame that Chinese imports goods should deprive US society of many chances of employment, just criticizing it as being 'unbalanced arguments'. In a sense, growing imbalance between the two can be regarded as the blessings of the advancement of the world-globalization led by US.

A whole structure of US employment shows that China cannot be any evil to US economy. A number of people engaged in manufacturing sectors has decreased by 18 % since 2000 until recently (3.15mn decrease), while service sector enjoying 7 % increase (7.6mn). Is it possible to imagine the situation that Chinese service sector can intrude aggressively into US service ones? It could be safe to say that there exists no co-relation between Chinese exports to US and the US domestic employment situation.

Since US employment structure is now changing to be a service economy or a knowledgeable one, Chinese exports cannot be a menace to US employees at all. For instance, employment share of manufacturing sectors is to be in permanent fall to be 10% recently from 28 % in 1960s mainly because of a growing tendency to transfer factory facilities overseas (the so-called outsourcing), while that of service sectors (including governmental sectors) is going up to be 84 % in recent years from 65 %t in 1960 (*Nikkei*, Feb. 17, 2007). It could be too early to imagine that these service sectors should have been eroded by Chinese ones.

#### **The World Imbalance to be Reset in Multilateral Relation instead of in Bilateral One**

In a genuine economic theory, it is groundless to claim that RMB rise can reduce US trade deficit. Exchange rate for one country cannot be fixed just by the bilateral relation with one other foreign country but be fixed by the multilateral relation with all the other countries. Dollar rate cannot be fixed in bilateral terms, but exclusively in multilateral terms, so, that are the leading reason why dollar remains firm despite the expanding current account deficit. This multilateral relation can cover not only trade between third countries other than US, but also capital transaction on a world scale (something like financial derivative ones). Just have a quick consideration on the oil price huge rise, which can induce China to buy more dollar exchange to import petrol, since oil producing countries export oil invoiced in dollars, so this situation can cause huge dollar demands from China as well as from the rest of the world other than US. This means that dollar can be stable even if US is to face an expanding current account deficit, as there exists a huge dollar demand, having nothing to do with US trade balance itself.

Chinese strong demand for petrol imports can be a strong pillar to support the dollar position. Paradoxically enough, China, being regarded to be a potential rival to US, is in fact a strong pillar for the world dollar system. In this sense, Communist China is a guardian angel for the dollar system. And China has shown little fear of having huge dollar reserves so far. China has kept increasing dollar reserves even after 2 % revaluation of RMB, just to be the largest holder in the world, its amount exceeding \$ 1 trillion. Does it mean that Chinese Currency Authorities resort to currency manipulation (something like a dirty float)?

And what is remarkable is that profits produced in China are not always in the pocket of Chinese companies, instead, many of them have a tendency to flow into the pocket of US ones. China is exclusively strong only at processing, assembly division (labour intensive ones), which is low value added one. On the other hand, high -technique goods produced in China and imported from there, are almost taken care of by the foreign companies (90%), which means only foreign companies (especially US ones) can enjoy high added values. China is, in fact, highly dependent on imports of high-tech -facilities.

In this respect, China can be defined as 'world workhouse', rather than 'world factory'. Exports goods are very low value added ones. For instance, one shirt produces only 0.35dollar profits, so as many as 0.8 bn shirts exports can scarcely be equal to just a US Air Bus. Here is a good story for this to be cited. A Cargo boat leaving China bound for USA, carrying goods to the full extent, can or may be just coming back with goods loaded just half of the load capacity, or , in an extreme case, with loading nothing (According to Chinese Professor, *Nikkei*, May23,2006). That condition tells revealingly that there is a stark difference between material economy (China) and knowledge economy (US) in respect of international trade balance. Still now, China remains to be export transit base for foreign advanced countries. Chinese trade surplus is mainly due to process- trade, importing assembly and parts just to export finished goods from China, which suggests that generally speaking, China produces only low-value added goods. A huge trade surplus cannot always bring in corresponding profits at all. In an economic sense, China is incorporated into the world vertical production system, being situated at low end, while advancing countries standing at high one <Yonekura2007> 218-20.

#### **USA, Japan and China - Triangle Relation**

There has always been a rapid Chinese economic progress. In a total trade (exports and imports both), China stands at 4<sup>th</sup> (2003, 1<sup>st</sup> =USA, 2<sup>nd</sup> =Japan, 3<sup>rd</sup> = Germany ), but the share of foreign companies engaged in both exports and imports of Chinese trade is more than half and US related companies' share is high as well. Trade between USA and China is conducted mainly through US intra-companies. China trade surplus is the strongest moment for US current account deficit. This is no hindrance, just implying the on-going of the global co-dependency between the two. Directly or indirectly US imports have contributed to the rapid economic growth in Asia. China is a most visible symbol of this growth. US recession can hit countries with huge trade surplus with US the hardest .In this point, which is serious, US recession or dollar decline?

Now it is time to confirm that the world imbalance is no hurdle to the world economy, just reflecting a positive effect. Just look at a triangle trade system composed by US, China and Japan. In 2003, Japanese exports to China occupies two-thirds of the increase of exports. Above all, capital goods, IT related goods are the top-increase. From Japan, China imports electronics related goods (parts, components, intermediate materials), these being processed in China and from there to be exported all over the world. And much of the trade in processed goods are taken care of by foreign companies, especially by US related ones. Share of exports dealt by US companies can be reduced to be US intra-company trade. So China does not feel responsible for the increase of US trade deficit, which is just for the benefits of US companies. US imports electricity or IT related goods from China and this trade is to be in a rise. However this also brings much benefits to USA ,because these imports can reduce the cost of parts, intermediated goods, so that finished goods produced in US can ensure high-added values as well as producing a by-product effect, that is to say, import price being lowered to set the US domestic inflation-rate lower. US trade deficit (2004) amounts to be \$ 770 bn, while China trade surplus with the rest of the world is\$ 100 bn and China occupies a third of US trade deficit. But this surplus can be offset to some extent by the imports from the other East Asian countries (especially from Japan), which suggests the triangle trade structure in the deepening global economy. In this trio game, unlike zero-sum game, all can be a winner.

So, the imbalance problem between USA and China has to be reset in the context of the globalization led by USA. Positive attitude of China Communist Regime to introduce capitalist factors into the socialist regime has caused remarkable change in the world economy. Since China was set to be in the capitalist trade network, the world has enjoyed cheap, quality labour amply from China. Due to this network, China has emerged to be a world factory, supplying labour- intensive products to the rest of the world, bringing in positive effects in reducing the world inflation rate by supplying lower priced goods worldwide. Chinese price level can be a standard for the world, especially when combined with IT technique to create higher productivity, just because of mobilizing China as a world factory to the full extent.

So in a sense of mutual benefits, there exists no conflict between USA and China in respect of trade balance. The imbalance between the two is indeed huge in absolute amounts, but there is little possibility to cause a sharp dispute like that between USA and Japan in the 1980s. At the peak, trade deficit of US with Japan was as much as two-thirds (1991) in the total USA trade deficit, while the current Chinese surplus with USA is at most one-fifth of the total USA one. What is more, main Chinese exports to USA are labour-intensive goods like textiles, not those with high-technique goods, and in this sense, the trade between the two can be co-dependent. In sharp contrast to this, 1980s saw the acute conflict between USA and Japan, because US high-technique and car industries were invaded by Japanese competition, having caused much outcry from US side.

So far we have observed that China is deeply incorporated into USA global economy network and China currency authorities have got sufficient foreign exchange reserves mainly in dollars. However, China feels no fear in accumulating dollar reserves. Sufficient reserves are very good to maintain external solvency, effective to deal with currency crisis something like Asian currency crisis in 1997. Also effective to promote RMB confidence externally and to show a good proof of strength of China economy in general.

A dollar sharp fall does not necessarily mean huge loss for Chinese foreign exchange reserves. Many countries having strong dollar linkage place much value in increasing dollar reserves. For instance, China has to import oil exclusively in dollar, which means huge reserves indispensable to Chinese sustainable economic growth. Population with more than 1.4 billion need stable food supply from overseas, trade for which are all conducted, invoiced and denominated in dollars. Ample dollar reserves are also effective to fill the loss in domestic bad loans. Having a stable economic relationship with USA is enough for China. It is easy to remember that Japanese yen has appreciated to be currently 110 yen against the dollar from 360 yen since mid 1971. Even so, no substantial exchange reserve loss having been reported in the financial world, much less little plight among Japanese export sectors. In the days of the oil-crisis in mid-1970s, Japan was at a serious risk of dollar supply shortage in spite of the huge accumulation of the dollars before early 1970s.

It is often reported in the economic journal and newspapers that China is to some extent showing a will to diversify the component of foreign exchange reserves, but actually no substantial shift from the dollar to other currencies is realized. Indeed sometimes some conversion into other currencies is reported, but this is just temporary act to be back to the dollar holding (in other words to increase the amount of the reserves in terms of dollar unit, sell \$ high, buy \$ cheap). After 2% revaluation, China is reported to be favoring currency basket system, which does not mean a policy of off-the-dollar holdings. On the contrary, dollar holdings have never stopped increasing. Even so, the excessive dollar holdings are reported very often in the financial news. Generally speaking, there has been no de-dollarization in Asia coming true. The role played by the dollar is still significant and dominant in Asia. The share of yen invoiced transaction by Japan currently has become lower both exports and imports. Even between Japanese homeland company and foreign branches in Asia, intra-company transaction is conducted in dollar in many cases. As finished goods are processed and produced in Asia, much of which finally goes to USA, it is quite natural consequence that these goods are essentially invoiced and traded in dollars. Intra-regional economic integration in Asia led by USA global economic network can claim its natural consequence being dollar - invoiced transaction. Is there any substantial reason why Asian countries are to opt for de-dollarization despite the heavy dependence on US imports? So we have to be free from an illusion of a call for de-dollarization in Asia.

#### **Influential Economists tend to draw a Rosy and a Grey Picture, always in Wonderland**

It is appropriate to call an East Asian common currency idea just a delusion (mumbo-jumbo). Historically speaking, economists are always praying something like 'dollar crisis' mantra, which is always to end in oracle. Currency crisis in 1997 has nothing to do with the close dollar linkage dependency in East Asia. Strangely enough, a proposed Asian Monetary Fund (whose objective being just to tide over the next currency crisis) is exclusively to be composed of dollars. Why such a proposal can be opting for de-dollarization?

Exchange rate manipulation can be no medicine to cure the world imbalances as shown in the history. No mere change of rates on the trading room board can produce trade equilibrium. There is more effective way to solve the trade imbalance between China and USA. Just lift the ban on the arms-exports to China. In doing so, US can reduce huge trade deficit just through sales of a dozen of missiles and fighter jets to China. In this point, Western people are well experienced, whose most typical example is that around mid 19<sup>th</sup> century the Scottish merchants (not English as is often told) are selling something like hemp (opium), who can claim to be called British Empire men, which trade has produced a remarkable result to reverse the British trade deficit with China into a big surplus (Yonekura 2007: 234-7).

A design for common currency in Asia could rather be a good seed to cause conflicts among Asian nations. China and South Korea being heavily dependent on the dollar system have always been in a very intricate political relation with Japan, while



these three have been enjoying good economic relations each other. An increasing debate on a common currency will cause a hegemonic issue, intensifying political tensions among the three nations. A realization of a common currency in Asia is judged to impose a rigid budget principle (sound equilibrium budget one). Just imagine the serious economic condition set on in Germany and France where the flexible business cycle policy is not possible because of a tight budget principle just for creation of Euro. Especially such a principle is suitable for Communist China? French riots in Fall of 2005, when being spread into China, will cause a second and even a third Mao Tsetung.

Dr.Kawai (deputy governor of Asian Development Bank) has drawn a rosy picture for Asian common currency. However, he has predicted the followings(<Kawai1992>65-66): USA current account deficits nearing 3% of GDP would enforce its people to be satisfied with much lower standard of daily life just because US has to pay the expanding external debt (profits, dividends, interest payments externally in increase). Currently contrary to his oracle, American people have enjoyed much higher life level these more than ten years, even though the current account deficit has now exceeded 6% of GDP. According to Kawai mantra, US must be in deficit in income balance on international account. Actually the international balance of that country is telling quite the opposite .What counter reason is available in his mantra?

Many economists have shown a strong tendency to put much more value on Euro, neglecting a positive side of US dollar. And the present situation has entirely betrayed their expectations. Euro Area has been far left behind, while the economic growth rate for US and Britain has been much higher, which means non-Euro area economic performances have been much better. In this point, Britain has proved right to stand off Euro. So it would be impossible to imagine the polarization of the world currency system (something like the split into the dollar and the Euro). The world economic growth axis towards Pacific Rim ensures a stable dollar system in the entire Asia. All Asian countries find main exports markets in US. Euro area can be no challenge to the rapid growing economic area of the Pacific Rim. Parallel with 2008 Pecking Olympic, the GDP gold, silver and bronze medalist can be lined in the Pacific Rim countries.

When commenting on the unstoppable US current account deficit expanding and by judging this situation to be abnormal as a debtor country, Marxist economist, professor Baba maintains “Currently it is no wonder that a sharp fall of the dollar should break out and to set US economy and the world one into a chaos...”, and he has no choice but to confess , “such a scenario is by no means realized”, and according to him, “which situation is unprecedented in the history, and I cannot find any clues to explaining such a thing.”□<Baba2005>388). I could say that he is a very honest scholar, because he has made a confession that he could see no reason why he could see no dollar crisis coming true at all. But there remains much for him to do before making a confession that his theory is no use in analyzing the international finance situation.

In this point, Susan Strange is quite right in saying that many Marxist economists have not been well trained for understanding the intricate mechanism of Euro Currency markets as well as foreign exchange markets, and that they have shown little interest in these markets(<Strange1986>84). Just as she has pointed above, Japanese Marxist economists cannot be well trained in the analysis of international finance issues.

It is no fair to limit my critical view only to one dollar crisis man, so here my straightforward comment extends to another prominent Japanese economist, Dr. Yoshitomi, who feels three “abnormal” things in the world imbalance in current account level. One is that dollar has remained very stable despite the expanding current account deficit to be near 7 per cent of US GDP. That rate was around 3.5 per cent at the time of Plaza Accord, causing a heavy decline of the dollar. From 1985 to 1987, the dollar against yen has fallen from 250 yen to 120 yen, quite a sharp fall indeed. But nowadays there is little possibility that a heavy decline of dollar should arise, although the deficit rate of GDP is coming near 7 per cent in 2005. In his view, a situation, where huge US current account deficit expanding seems to be “sustainable”, could be “abnormal.” A second abnormal is, in his view, which world capital supply is taken care of by periphery countries, while in late 19<sup>th</sup> century, a core country has taken care of it. A third is that US interest rate remains low, despite the expanding US current account deficit. According to him, a higher current account deficit can cause a higher interest rate, but the fact is that US interest rate has remained very low. An orthodox economic theory tells that the expansion of a deficit in the households as well as in the Governmental budget will cause a rise in interest rate (<Yoshitomi2006>16). The points those Japanese economist have failed to notice are the situation that nowadays capital movements are the prime determinants of exchange rates, just as Scammel has pointed out. <Scammel1987>. Anyway here it is confirmed that many prominent Japanese scholars have not been successful in understanding a real position of US dollar.

## **Greenspan as a Guardian of World Dollar - Greenspan backs Greenbacks, still Deserving a Title of Maestro**

Instead of being blind to the capital movements, Greenspan has got sharp eyes on the prime determinants of exchange rates. The power of Greenspan's remarks is still now influential. But his style is simple indeed, giving caution to excessive optimistic view, while easing a pessimistic one, although his expression seems to be very round about. Anyway his remarks can work as an effective crystal ball of economic forecasts for the global financial markets. The good proof for this is the consequence of his remarks on Monday (Feb.26) in Hong Kong ,where he has told, that a US recession was possible but his initial intention is not accurately interpreted by the world stock markets people. His real intention was something like that, "When you get this far away from a recession, invariably forces build up for the next recession, and indeed we are beginning to see that again", and according to Dow Jones Newswires, what he said is, "For example, in the U.S. profit margins ...have begun to stabilize, which is an early sign we are in the later stages of a cycle". So actually he didn't say that a recession was likely. His comments seemed to be rather questioning how long this time-expansion can last, while the last two business expansion lasted a decade. The expansion of this time has continued for five years so far, so how much space remains for the rest of the expansion period, which is a point he has made a notice. However, his remarks were interpreted quite the other way to produce, "MR.GREENSPAN SAYS A RECESSION IS LIKELY. Whether he liked or not, Greenspan helped fuel a global sell-off in equities. But it is not his fault that investors should pay excessive attention to his remarks. It is rather Greenspan that is most surprised at the impact of his remarks and he is perplexed with the mere misunderstanding on his intentions. In any way, Greenspan is now going to publish a book, "Age of Turbulence" and in the context of this scheme, it is good to say that the turmoil in equities of late February is just a rehearsal for "Age of Turbulence". But it is also necessary to point out that what he has emphasized so far is to tell that the US and global economies nowadays are far more resilient to economic and financial shocks than before (*WSJ*, Feb.28, *Nikkei*, Mar. 9, 2007), especially because of the stabilizing role of world capital movements to deal with the world imbalance.

### **Conclusion – Farewell to a Dollar Crisis Trauma**

What is needed is not a transcendent theory having little connection with the world financial history, but a live analysis to describe the currently developing historic process. However, many professors in Universities are very strong at presenting a transcendent oracle. It is good time to summarize grave defects of a dollar crisis theory and to prove that oracle can be just oracle, no miracle. People crying for the dollar crisis have been too much occupied with learning very grey formula of economics by heart (for instance, IS Balance Theory), instead of observing real economic movements (world capital flow). US Dollar has been in a substantial stability these more than twenty years.

According to the established dollar crisis theory, the external value of the dollar should plummet in the face of the expanding current account deficit. What this theory has missed is a huge demand for US dollar, because of its conduit role between the third nations and of the pivot of the capital global movements. This unexhausting huge demand can keep the dollar in very stable conditions despite an exploding world imbalance, so it is high time to categorize a dollar crying wolf as an endangered species in the world financial markets. Singers reciting a dollar crisis with tenor shall have to check the medical condition of their throats to change into falsetto with golden silence. Here it could be safe to say that a dollar crisis theory can be no expression of economic movements , but an abstract, empty principle.

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## The Impact of Ringgit Depegging on Malaysian Capital Market

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### Abstract

The sudden announcement on July 21 2005 by the Central Bank of Malaysia to depeg Malaysian ringgit against US Dollar caused a stir in the Malaysian financial market. This announcement motivates us to measure statistically its impact on Malaysian market, economic sectors and international stock markets. Malaysian interest rate and exchange rate are tested to determine their relationship with the market return. Single Index Market Model and cointegration techniques are used. We find that the investors responded favorably to the depegging policy resulting in positive raw and adjusted returns of 1.93% and 2.31% respectively. The most beneficial sector is finance sector which recorded positive raw and adjusted returns of 2.12% and 0.56% respectively while plantation sector recorded negative raw and adjusted return of -0.5% and -2.05% respectively. Our result shows that Malaysian stock market is less vulnerable to S&P 500, Singapore, Hong Kong, Jakarta, Philippine and Bangkok during the pegging period.

### Introduction

Rapid changes in the global business and financial landscape demand regulators and managers to discard traditional business practices for new, innovative outlook, policies and strategies. Creativity and innovation these days do not only occur in product designs, technology, promotions but cut across a wider spectrum of activities including management, leadership styles and lately in monetary policies.

This paper presents the Malaysian experience of innovative and bold move to discard its fixed exchange rate policy it adopted for the last 7 years to a “managed” floating exchange rate system for its Ringgit. The policy change was announced on July 21, 2005 with immediate effect. The swift, unexpected announcement shortly after China announced a floating rate for its Yuan caught the financial market by surprise. This was the second time the market was taken by surprise. The first time of such a ‘surprise’ was when Malaysia announced to peg its Ringgit to only one currency that is US Dollar at RM3.80/USD instead of pegging it to basket of currencies on September 1, 1998. Selected capital controls were also introduced. This pegging was implemented amidst loud criticisms from the financial advisors abroad and locally as being too restrictive. However, Malaysia maintained its stance for 6 years and 10 months (to be exact) and proved that the fixed exchange rate was an effective monetary policy as Malaysia successfully steered its economy from the adverse effects of the 1997 Asian Financial Crisis. Hence, the announcement to dismantle the pegging of Ringgit against USD and replaced by a managed float system based on a basket of currencies marks another bold strategy to remain competitive in the global business. A managed float implies that the value of Ringgit will be determined by economic fundamentals and market forces. The announcement made just before the Bursa Malaysia (the Malaysian stock exchange) closed managed to curb uncertainties and speculative activities on the Ringgit from unscrupulous currency traders and market operators. Nonetheless, the announcement again received mixed reactions from the financial community and investment fraternity. These mixed reactions provide strong motivation for us to analyze further the impact of the liberalization of the fixed exchange rate on the Malaysian capital market, economic sectors and its trading partners. The objectives of the study are as follows.

- i. To measure statistically the announcement impact of depegging of Ringgit exchange rate on USD.
- ii. To extend the investigation of the depegging on the various sectors of the economy and accordingly, to identify the sectors most significantly affected by the change from the Ringgit fixed rate to floating rate system.

- iii. To make comparison between the Malaysian market's reaction to the announcement and other international stock markets such as the stock markets of its trading partners.
- iv. To investigate the relationship between interest rate of Malaysian financial system relative to its main trading partners.
- v. To assess whether large companies with large foreign debts or USD denominated exports benefit or otherwise from the depegging of ringgit at RM3.80 against USD.

Malaysia dismantled its Ringgit exchange rate peg against a single currency USD and replaced it by a managed floating exchange rate against a band of currencies. Although depegging of Ringgit represents a strategic change in monetary policy in the Malaysian financial system, empirical study on depegging is hardly available. We contribute in the following ways; providing feedback to the policy makers on effectiveness of depegging relating to market reactions and Malaysian trading partners. The affected sectors would also be identified. This study would also be one of the earliest documented evidence on the relationship between interest rates and stock market indices of Asian and US stock markets during 1990-2007 periods. What differentiates this study from other reports is that firstly, it addresses the current issue that will continue to be debatable for sometime in the future. Secondly, the empirical findings from this study would substantiate these arguments. The fixed exchange rate policy has provided 'shield' or protection to our Malaysian imports/export and international trade against fluctuations in foreign exchange rates and foreign exchange and liquidity risk. With the value of Ringgit based on floating exchanged rate of a band of currencies, Ringgit will find its fair value. This study provides illustration of the strengthening of Ringgit following the monetary policy change.

This study also contributes to the public greater information and understanding of the monetary policy change and its effectiveness. It appears that Malaysia has taken the appropriate strategy because the Ringgit continues to strengthen at RM3.4410/USD (April 14, 2007 Starbiz). In addition event studies on regulatory announcements are few in emerging economies. This study would add to the existing literature in this area. This paper is divided into 5 sections. Section 2 discusses the issues and Section 3 presents the review of the literature related to the study. Section 4 describes the methodology followed by analysis of findings in Section 5. Section 6 concludes the paper.

## Issues

The immediate reaction from the market on the announcement appeared very positive. The steep increase in the Kuala Lumpur Composite Index, which recorded the highest level of 939.69 points in five years on Friday 22, 2005, suggests a very favorable market response towards the new exchange rate regime. Financial news reported high volume of Ringgit traded in the foreign exchange and money markets (Star 30, 2005). Ringgit was seen to strengthen against the USD1 at RM3.77-RM3.79 and later stabilized at 3.70-75 level. Although much has been said about the immediate benefits of the depegging of Ringgit, serious efforts need to be done to scientifically measure its impact on the overall Malaysian capital market and the economy. Efficient market theory postulates that stock prices in its semi-strong form, adjust rapidly to the release of all public information and stock market is a barometer of economic performance. Hence, any abnormal return occurred from security price and index differentials would reflect how market (investors) reacts to the information and the test of significance of this abnormal return would indicate the magnitude of the impact of such announcement. To date, we yet to find any reports on scientific investigation of depegging of Ringgit although it is a very important monetary policy change taken by the Malaysian government.

Several security analysts reports the impact of Ringgit revaluation on various sectors (BCB Special Economic Issue, 2005; Tee, Business Star, 22 August, 2005). Nonetheless, these are analyses of anticipated performance of each sector in light of the new Ringgit rate. Further studies to identify which sector is significantly affected by the announcement are not currently available, whereas these inputs are useful for firms and investors' investment decisions especially in sectors whose trade activities and trade finance involve Malaysian trading partners.

Another aspect of study is the impact of Ringgit depegging on the exchange rate that is, is the floating rate enhances the value of Ringgit against USD and its basket of currencies?. By using the "managed" floating rate,

could Ringgit find its true or fair value? A major concern among the market players during the fixed rate regime was the possibility of Ringgit being traded below its fair value relative to its regional trade partners.

## Literature Review

Bank Negara Malaysia has announced implementation of prudential measures of continued monetary restraint (BNM Press Release, 28 March, 1997). These measures include selective capital controls and the fixed exchange rate of RM3.80 to USD1 for foreign currency transactions, effective September 2, 1998. There were also other announcements of interest rate reduction and several lending guidelines on credit facilities extended to borrower. Further measures were introduced including new exchange control rules. These measures were introduced to safeguard Malaysia from the risks associated to the contagion effects of global financial markets (Abu Hassan, A., 1998). Subsequent to the announcement, Money Changing Act, 1998 was implemented effective October 1, 1998. Under this act, only licensed individuals under Exchange Control Act, 1998 are allowed to trade in foreign currencies. A new foreign exchange procedure called the Selective Exchange Control Rules was established when the pegging was announced. Among others, the new procedure prohibits the transfer of funds in the external accounts so that no Ringgit can be borrowed by foreigners for speculative activities in overseas markets, a fixed exchange rate for the conversion of Ringgit to USD and the introduction of a 12-month rule to prevent excessive short-term capital outflows. The objective of the peg was to create stability and certainty of key economic parameters to support international trade and investments. The immediate impact of the fixed exchange rate was stability in the foreign exchange market. Another important impact is some financial stability was restored following the Ringgit peg.

Awang Adek (1999) and Munir (1998) reported that the IMF have agreed to accept the decision that under certain circumstances, capital controls are short-term respites from external pressures. Phylaktis (1999) examines the capital market integration between the financial markets of Pasific Basin countries (Singapore, Korea, Malaysia, Hong Kong and Taiwan) and the financial markets of US and China. They find that US and Japanese interest rates drive interest rate in Hong Kong, Singapore, Malaysia and Korea. He also finds that there are close links in interest rate relationships between Japan and Malaysia and between Japan and Hong Kong as the direction of is a two way one in each case. Yong, Kolari and Min (2003) look at the stock markets integration of US, Japan and ten Asian countries. They find that Malaysia is less integrated to other countries during post-crisis period from July 1, 1999 to May 15, 2001. This post-crisis period, by the way is a subset of the pegging period and that could explain why there is less integration between Malaysia and other countries.

Ariff (2005) suggested that one compelling reasons for the depegging is that the dollar would likely to depreciate more in the near future. Many analysts forecast that the US government would like to see the USD depreciate by another 30% by 2008 so that the US current account deficit can be brought down to a sustainable level of 3% of GDP. This means that if ringgit were to remain peg to the USD till 2008 Malaysian export competitiveness will suffer, with the costs of import increase sharply, giving severe impact on inflation. Ariff (2005b) also suggested that a free float of the ringgit will be a very risky option to follow in view of high exchange rate volatility and speculative pressures in the forex market. A managed float with central bank intervention, at its own discretion to iron up short-term fluctuation, would be a practical proposition. Baljeet Grewal (2005) analysed the impact of depegging of ringgit and reported that the move towards managed float system is positive amid healthy economic growth, strong external position and a sound banking system. The benefits of a ringgit revaluation are lower cost of capital expenditures, stronger purchasing power and lower import costs, improvement in government fiscal positions as US denominated debt will be reduced and enhancement in investor confidence which would facilitate the inflows of FDI.

Ang (2005) reported that big caps blue chip companies recorded a sharp rise in their share prices one day after the announcement of the depegging. Meanwhile, OSK Research reported that there would still be a net capital outflows in the medium term. On sectoral basis, the companies in sectors that deal with high raw materials imports for domestic sales (such as consumer, motor, media and airline stocks) will benefit the most from the depegging, whilst companies that are export driven are worst hit. Yeow (2005) reported that top ten index-linked stocks such as

Telekom Malaysia, Tenaga Nasional, Malayan Banking Bhd, MISC, Public Bank among others recorded price increase following the BNM's announcement of the Ringgit depeg. However, the weak market due to lack of buying orders pushed prices down again.

Contrary to the action by BNM to depeg Ringgit, Mendell (2005) suggests that the Ringgit should remained pegged to the USD. His rationale was that it is important for Malaysia to keep its Ringgit value stable. Kamiso (2005) reported that Ringgit has started strengthening against currencies of its major trading partners a week before the announcement of the depegging of the fixed exchange rate. According to analysts, more short-term inflow of hot money to Malaysia is expected to take advantage of the appreciation on Ringgit. However trade surplus may be reduced due to the lack of competitiveness in export and increase in capital goods' import. Analysis of the impact on businesses revealed that companies with foreign currency revenue and foreign currency material cost will have minimal impact due to appreciation of ringgit. However companies with foreign currency revenue but local currency material cost would be mostly affected depending on the degree of ringgit appreciation. Further, companies with foreign currency debts would tend to benefit most.

RAM July 2005 opines that any short-term appreciation of ringgit would not exceed 5%. This is because RAM believes that central bank would most likely intervene to correct any excessive swing in order to ensure stability. It expects that major beneficiaries of depegging would be companies with ringgit denominated revenue but which have substantial imported cost components and/or large debt in foreign currencies. Key beneficiaries include food and beverage sectors, power, media and health care. Companies expected to be negatively affected by appreciation of the ringgit following the depegged include organizations involve in semiconductors (MPI, Hong Leong Industries), timber (Lingui), plantation (IOI Corporation), glove manufacturing (Supermax) and air freight (Transmile). Based on RAM analysis companies in construction sector such as Gamuda are expected to experience higher foreign exchange risk with the depegging of ringgit since these companies are having growing exposure to foreign revenue. Margins would be tightened further. Companies producing consumer products such as Nestle are expected to enjoy approximately 5% increased in gross profit assuming 5% appreciation in ringgit. RAM forecasted that plantation companies, in particular IOI Corporation, would experience slightly negative impact on net profit. However the negative effect of revenue is expected to be offset by lower fertilizer cost and higher interest saving from its foreign currency denominated debts.

Hwang-DBS Vickers Research (2005) suggests that the trade-weighted managed float for the ringgit would pave the way for an immediate appreciation of the ringgit by 2-3% to RM3.68-RM3.72 per USD. It forecasted that the direct impact on market earning is modestly positive. However the market is expected to be temporarily volatile with the outflows of hot money. The research company also forecasted that beneficiaries of ringgit depegging by importance are food and beverages, media, auto, steel and utilities sectors and companies with large foreign debt exposure like Tenaga, Telekom and Public Bank while plantation, timber, oil and gas and manufacturing expected to be the losers.

## **Methodology**

All data comprising share prices of 956 companies, EMAS Index, Composite Index, sectoral indices and the Malaysian trading partners stock market indices are collected from Datastream statistical package. This data involving share prices of all stocks listed both on the Main Board and the Second Board, comprised adjusted daily share prices of the 956 companies. The data has been collected for the 3-month trading period beginning from July 1, 2005 to end of September 2005. Since the announcement of depegging took place on 21 July 2005 ('the event date'), careful attention was given to the price and market reactions on the event date and the surrounding dates to measure statistically the announcement impact of the lifting of the pegging of Ringgit on USD. Data indices of various sectors enabled us to find out the impact of the announcement on various sectors of the economy in Malaysia and to identify the sector most significantly affected by the monetary policy change. The sectors are plantation, finance, construction, consumer, property, infrastructure, industrial, trading and technology. Data on companies listed on MESDAQ was also taken as part of the observations of the depegging impact on technology driven companies.

Another type of data that has been collected are stock market indices of Malaysia's major trading partners such as S&P 500 (the United States), STI (Singapore), Hang Seng Index (Hong Kong), Nikkei 225 (Japan), Jakarta Index, Philippine Index, Seoul Composite (Korea) and Thailand Index. This data is processed to examine if the stock market return in Malaysia changes because of the announcement or because of changes in the international markets. Pegging allowed Malaysia to manage her interest rates without worrying about their impact on the currency. Therefore interest rates of Malaysia are compared to selected countries' interest rates to investigate if interest rates in Malaysia are less correlated to these countries' as a consequence of pegging. Malaysian microeconomic data such as Gross Domestic Product (GDP) and Consumer Price Index (CPI) from 1991 to 2006 were collected to determine if pegging has any significant impact on the interest rates.

Financial data of 99 large companies constituting the KLCI such as Tenaga, Telekom, Petronas and others were collected. Financial data comprises foreign debts, exports, sales figures and foreign exchange exposure. These figures were extracted from the respective companies' annual reports. The purpose is to study the impact of depegging on these companies since they have large foreign exposure and hence, susceptible to changes in interest rate and foreign exchange rate.

#### **Research Design**

We employed several statistical techniques to answer the research objectives. Market adjusted return, single index market model and correlations were used to address the impact of depegging announcement. Correlation and cointegration technique were used to address the effects of pegging on interest rates. Further to that, ordinary least square regression also used to test whether the announcement effect is more pronounced to the companies with large foreign exchange exposure and whether pegging reduced Malaysian market returns dependency on the US market returns.

#### **Market Adjusted Return and Single Index Market Model**

We started by processing the data according to three important trading days namely July 21, 2005, July 22, 2005 and July 25, 2005. To measure the effects of depegging, an event study approach was adopted. Abnormal returns of indices and companies were estimated using market adjusted return as shown in equation (1). The indices of interest are the indices of the different sectors.

$$ER_{it} = R_{it} - R_{mt} \quad (1)$$

where

$ER_{it}$  : Abnormal return associated with depegging for index  $i$  on event day  $t$ .

$R_{it}$  : Actual return of index  $i$  on event day  $t$ .

$R_{mt}$  : Market return on event day  $t$ .

We hypothesized that some sectors will be more affected by the move of ringgit depegging than other sectors. Furthermore we also hypothesized that the move would affect firms in the main board and second board differently. Therefore we compared the return of second board and main board to assess the effect of depegging on these boards.

To assess the effect of depegging on Malaysian market as compared to other regional markets, returns of Composite and EMAS were compared against the returns of stock markets in those regions starting from July 20, 2005 to July 29, 2005. If depegging is good for the economy, we hypothesize that the returns of Composite and EMAS should be larger than the regional indices. To assess the effect of depegging on Malaysian market, single index market model of the following form was also employed.

$$ER_{it} = R_{it} - E(R_{it}) \quad (2)$$

where

$ER_{it}$  : Excess return of index  $i$  on event day  $t$  and  $t = 0$  on July 22, 2005.

$R_{it}$  : Actual return of index  $i$  on event day  $t$ .

$E(R_{it})$  : Expected return of index  $i$  on event day  $t$  if the event had not occurred.

$E(R_{it})$  would be estimated by the market model as follows:

$$R_{it} = \alpha_i + \beta_i * R_{mt} + e_{it} \quad (3)$$

where  $R_{it}$  is the return on Malaysian market,  $R_{mt}$  is the return of a global index (MSCI World Index), and  $e_{it}$  is the error term.  $\alpha_i$  and  $\beta_i$  were estimated based on returns over a-200 day period ending on July 21, 2005. The estimated parameters were then used to compute the  $E(R_{it})$  in the window period. The window period is from two days before the announcement to two days after the announcement



### Correlation and Cointegration Technique

Pegging removes one aspect of uncertainty, i.e Ringgit fluctuations to USD. Since USD is widely used in international trade, we expect that a firm's performance and subsequently its stock performance to be less affected by movements in the currency market during the pegging period. To test this hypothesis, we look at the correlations between returns on Malaysian stock market to returns of stock markets in this region. Pegging also affects the interest rates as Malaysia does not have to worry about managing its interest rate to make ringgit steadier. Therefore we would also look at the correlations between interest rates in Malaysia to selected countries in this region and we would also be looking at the effects of US interest rates on Malaysian interest rates through cointegration method.

### Ordinary Least Square Regression

To assess the impacts of US and Japanese returns on KLCI returns, we estimate the following model:

$$R_t = \beta_0 + \beta_1 \text{S\&P500}_t + \beta_2 \text{lagS\&P500}_t + \beta_3 \text{Nikkei}_t + \beta_4 \text{D4AFC}_t + \beta_5 \text{D4PEG}_t + \beta_6 \text{D4DEPEG}_t + \beta_7 \text{D4PEG}_t * \text{lagS\&P500}_t \quad (4)$$

where

$R_t$  : Returns on KLCI

S&P500 : Returns on S&P500

lagS&P500 : Lag of S&P500

Nikkei : Returns on Nikkei 225

D4AFC : Dummy variable which equals to one for Asian financial crisis (from July 1, 1997 to September 1, 1998) and zero otherwise.

D4PEG : Dummy variable which equals to one for the pegging period (September 2, 1998 to July 21, 2005) and zero otherwise

D4DEPEG : Dummy variable which equals to one for the depegging period (July 22, 2005 to March 30, 2007) and zero otherwise.

PEGXLUS : The interaction between D4PEG & lagS&P500.

We put PEGXLUS since we hypothesized that during the pegging period, Malaysia is more insulated to movements in US market. Therefore the sign of this variable should be negative. To assess the impact of foreign exchange exposures to depegging announcement, the following regression model is estimated:

$$R_i = \beta_0 + \beta_1 \text{LN(ABSGAIN}_i) + \beta_2 \text{LN(MV}_i) + e_i \quad (5)$$

where

$R_i$  : the return of firm  $i$  on July 22, 2005

$\text{LN(ABSGAIN}_i)$  : the natural logarithm of absolute value of gains plus absolute value of losses due to foreign exchange in the fiscal year prior to the depegging announcement.

$\text{LN(MV}_i)$  : the natural logarithm on the firm's market value on July 21, 2005.

We expect that  $\beta_1$  should be positive as the greater is the exposure to foreign exchange, the higher is the gain if ringgit is really undervalued as claimed by the forex traders. The event date in this study is July 22, 2005 since the announcement was made on July 21, 2005 after the close of Bursa Malaysia. However, we would also look at the returns on July 21, 2005 since the Yuan was revalued on that day and many economic analysts in Malaysia had predicted that Malaysia could hold on to the pegging system as long as China does not revalue its Yuan and once China revalues its Yuan, Malaysia has no choice but to follow in its footsteps. Therefore, the event dates of interest are July 21 and July 22, 2005.

### Analysis of Findings

Table 1 shows the results of two types of abnormal returns arising from the announcement of depegging; the raw return and the market adjusted returns (EMAS Adjusted Returns–EAR and Kuala Lumpur Composite Index–KLCIAR) across industries. The results show that companies of all sectors listed both on the main board and the second board (construction all, finance all, consumer all, industrial all, trading all, properties all, plantation all, infrastructure all) with the exception of technology companies, recorded negative returns, both in terms of raw returns and market adjusted returns on the 21 July, 2005 prior to the announcement. There was no abnormal return as yet because the announcement of the depegging was made after the market was closed. The actual impact of the announcement could be seen on the next day, 22 July, 2005 where companies of 7 sectors (except for plantation) recorded positive abnormal returns.

Table 1 also highlights the impact of the event on the sectors. From the results, we observe that the sector most affected by the depegging is the finance sector, which recorded positive mean abnormal returns of 0.02117 or 2%. The EMAS index adjusted return for finance sector yields 0.00563 whilst adjusted return based on Kuala Lumpur Composite Index is 0.000192. The positive adjusted return shows that the depegging is seen as benefiting the companies listed under finance sector. The result is as expected as financial institutions are the organizations that are extensively involved in USD dominated transactions such as their trade finance activities, money market operations, foreign exchange transactions, international lending and hedging instruments such as currency swaps and others. The move to depeg the Ringgit is going to increase the volatility of the foreign exchange market and consequently, will increase the hedging needs of firms with large foreign exchange exposure.

Given that the move to depegging might be more favorable to larger firms, we test whether there is any significant difference in means returns between the Main Board and Second Board on 22 July, 2005. Firms in Main Board are larger and more well known than those in Second Board. We find that there is no significant difference in either raw or adjusted return. This suggests that the announcement of the depegging has equal impact on both boards of the Malaysian equity market. The positive and significant returns by most sectors provide evidence that Malaysian investors favored the action by the Central Bank to uplift the fixed exchanged rate of RM3.80 to USD1. Hence, this finding fulfills the first objective of the study.

Table 2 shows the difference in mean returns between industries. It is noted that finance sector yields statistically significant higher returns compared to construction, consumer, industrial, plantation, technology and firms in the MESDAQ. Both parametric test (as shown in the upper diagonal) and the non-parametric test (indicated by Mann-Whitney test) give a basically the same result. Hence, both tests confirm that finance sector benefits the most from the depegging. Plantation sector yields return of -0.5%. The rationale for this could be that the prices of the plantation crops are quoted in USD for exports. Since the market perceived that the Ringgit is undervalued, the depegging move would lead to an appreciation in the Ringgit value and consequently lower the revenues for plantation sector. The above finding meets the second objective of the study by identifying that the finance sector is the most favorably affected sector while the plantation sector is the most adversely affected sector.

Table 3 shows that on the announcement date of depegging six out of nine bourses recorded positive returns. There are Shanghai (2.52%), Jakarta (1.27%), Hong Kong (1.14%), Kuala Lumpur (1.93%), Singapore (0.35%) and United State ((0.54%). Nikkei, Seoul and Taiwan recorded negative growth of -0.78%, -0.04% and -0.21% respectively. It appears that Shanghai and Kuala Lumpur experienced the highest returns. The growth in Shanghai index was contributed by the announcement made by the China government to revalue its Yuan while for Kuala Lumpur it is a direct consequent of the depegging announcement. There was no other significant economic news on that day (NST, Business Times Section, July 23, 2005).

Table 4 shows the abnormal returns of certain Malaysian indices using market model on the days surrounding July 22, 2005. We use four indices and they are MSCI Malaysian in RM, MSCI Malaysia in USD, Composite Index and EMAS Index. The results show that the abnormal returns range from 1.48% to 2.31% on July 22, 2005 depending on the measure of index. All variables are significant at 1% level. As for the other dates, they are not significant.

The upper diagonal of Table 5 shows correlation between world indices starting from January 1990 to March 2007, while the lower diagonal shows the correlation between world indices before the start of Asia financial crisis (January 1990 to June 1997). The upper diagonal of Table 6 shows correlation between indices during the pegging period (September 2, 1998 to July 21, 2005) while the lower diagonal shows the correlation after Malaysia depegs its currency to US dollar (July 22, 2005 to March 30, 2007). Given that the economic performance in US and Japan influences Malaysian economy, we are interested to look at the correlations of returns of these countries to KLCI returns. Furthermore given the different time period between New York and Kuala Lumpur, and our assumption that US returns influenced KLCI returns, then we are interested to test for the correlation between the lag of one day of US returns (lagS&P500) to KLCI returns.

Tables 5 and 6 show that for all four periods, correlations among US returns and KLCI are higher if we used one day lag of S&P500 than using the same day returns. The correlations between KLCI and all other markets except for Korea decreased during the pegging period. This result shows that pegging to some extent insulated Malaysia from movements in other markets. This result is more significant given that the most of the correlations

among markets increased during the pegging period compared to the period before the crisis. This means that the markets are more integrated after September 1998 except for Malaysia. The reductions in correlations are in tandem with the Malaysian government policy to stabilize Ringgit and to curb speculation in the Malaysian market. Based on the result in Table 6 we find that the Malaysian stock market is more exposed to the movement of other markets and world economy following the depegging. We find that correlations between Malaysia and other markets increased after the depegging except for Singapore.

Table 7 summarizes the findings of model (4). We find that lagS&P500 and Nikkei 225 are significant in explaining KLCI returns. The coefficient of lagS&P500 is about three times larger than the coefficient of Nikkei 225. This shows that US has a greater influence on Malaysia than Japan. This finding is consistent with the results of Yang, Kolari & Min (2003) where, by using impulse response function, they find that the US stock market has more influenced on Malaysia stock market compared to Japan's. PEGXLUS is negative as expected and significant. This shows that Malaysian market is less influenced by the US market during the pegging period. Therefore, pegging insulated Malaysia stock market to movements in US market.

Table 8 presents the correlations between interest rates in Malaysia and selected countries. Before the AFC, it seems that Malaysian interest rate is not highly correlated with other countries. In fact interest rates in Malaysia are negatively correlated with five out of nine countries with the correlation to China and US interest rates being the lowest at -0.5295 and -0.4641 respectively. During the pegging period Malaysian interest rates are positively correlated with other countries including the US. However our correlation with the US is again the lowest. We expect that given that Malaysia has already pegged her exchange rate to the US, the correlation between interest rate of Malaysia and other countries should be low. However this is not a case. A possible explanation is that the interest rates of other countries reached their lowest level during this period, and given that pegging is advantageous during period of high interest rate and the Malaysian government desire to lower its interest rate, the decision of Malaysia to lower its interest rate coincides with the general downward movement in interest rate. Therefore the correlation is positive. Meanwhile during the depegging period, Malaysian interest rate is positively correlated with all countries, except Philippine, and our correlation with the US is the highest at 0.9483. The relationship between US and Malaysian interest rates and exchange rates is shown in Figure 1.

Table 9 shows the cointegration result using Autoregressive Distributed Lag approach (ARDL) between Malaysian interest rate and other variables such as GDP, inflation, money supply, effective exchange rate and US interest rate. We also include pegging period as the dummy variable in this study. From the table we can conclude that since F statistic for the equation; 1.4563 is below the lower bound of the critical value band (between 2.649-3.805), we cannot reject the null hypothesis of no long run relationship between Malaysian interest rate (DLINTM) and the independent variables i.e US interest rate (LINTUS), GDP (LRGDP), inflation (LCPI), money supply (LM3) and effective exchange rate (LEXRATE). One possible explanation is that interest rates in Malaysia are regulated. Therefore outside pressures do not exert any influence on them.

## Conclusion

This study aims to investigate the impact of ringgit depegging on the Malaysian capital market. Specifically this main objective is decomposed into five research questions. Below are the summary of our findings to those research questions.

We find that the investors and overall market responded favorably to the move by the Malaysian government to untie the pegging of RM3.80 to USD1. The announcement of depegging on 22<sup>nd</sup> July 2005 resulted in positive raw return of 1.93% based on KLCI. The positive impact of the announcement is also evident from the result of Single Index Market Model. Statistically the impact yields positive abnormal return of 2.31% based on regressing MCSI Malaysia denominated in US dollar against MSCI World Index.

As to our second objective, we find that the sector that is most effected by the depegging is the finance sector. This sector recorded positive raw and adjusted returns of 2.12% and 0.56% respectively. The possible reason for this positive impact is that investors expect an increase in the volume of finance related activities resulting from market based regime. In contrast plantation sector recorded negative raw and adjusted return of -0.5% and -2.05%

respectively. This could be due to fact that the prices of the plantation crops in the contracts are quoted in USD. Since the market perceived that the Ringgit is undervalued, the depegging move would lead to an appreciation in the Ringgit value and consequently lower the revenues for plantation sector

Our findings also show that Malaysian stock market is less vulnerable to movement of other stock markets such as S&P 500, Singapore, Hong Kong, Jakarta, Philippine and Bangkok during the pegging period. The reductions in correlations are in tandem with the Malaysian government policy to stabilize Ringgit and to curb speculation in the Malaysian market.

We investigated the relationship between interest rate of Malaysian financial system relative to its main trading partners. Our findings indicate that before the pegging, Malaysian interest rate is not highly correlated with other countries. In fact the interest rate in Malaysia is negatively correlated with five out of nine countries with the correlation to US interest rate being the lowest at -0.4641. However, during the depegging period, Malaysian interest rates are positively correlated with other countries including the US. We further investigate the relationship between Malaysian interest rate and its trading partners using cointegration analysis. The result shows that the Malaysian interest rate is not influenced by the US over 1990 to 2005 periods.

Our regression results show that even though foreign exchange exposure positively influenced stock return, it is not statistically significant. This result is based on 99 large companies listed on the Main Board of Bursa Malaysia. Nonetheless, the strong support of the investors reflect that depegging is a good monetary policy decision to move from fixed exchange rate regime to a managed floating rate regime. This bold and innovative strategy has increased international trade for Malaysia and stimulated its Composite Index to 1,322.91 point, the highest since AFC backed by strong exchange rate of RM3.4390 to 1USD (April 17, 2007, Starbiz)

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## Appendix

TABLE 1: RETURNS BASED ON INDUSTRIES AND BOARDS AS AT JULY 21, 2005 AND JULY 22, 2005

MEAN	RR 7/21/2005	RR 7/22/2005	EAR 7/21/2005	EAR 7/22/2005	KLCIAR 7/21/2005	KLCIAR 7/22/2005
Construction: all	-0.00498	0.00334	-0.00280	-0.01221	-0.00274	-0.01592
Construction: main	-0.00350	0.00647	-0.00133	-0.00907	-0.00126	-0.01278
Construction: second	-0.00951	-0.00630	-0.00733	-0.02184	-0.00727	-0.02555
Finance: all	-0.00487	0.02117	-0.00270	0.00563	-0.00263	0.00192
Consumer: all	-0.00325	0.00495	-0.00108	-0.01059	-0.00101	-0.01430
Consumer: main	-0.00489	0.00724	-0.00271	-0.00830	-0.00265	-0.01201
Consumer: second	-0.00089	0.00164	0.00129	-0.01391	0.00135	-0.01762
Industrial: all	-0.00592	0.00513	-0.00375	-0.01041	-0.00368	-0.01413
Industrial: main	-0.00282	0.00344	-0.00065	-0.01210	-0.00058	-0.01581
Industrial: second	-0.00941	0.00703	-0.00724	-0.00852	-0.00717	-0.01223
Trading: all	-0.00728	0.01493	-0.00510	-0.00061	-0.00504	-0.00432
Trading: main	-0.00377	0.00838	-0.00160	-0.00716	-0.00153	-0.01087
Trading: second	-0.01665	0.03244	-0.01448	0.01690	-0.01441	0.01319
Technology: all	0.01230	0.00009	0.01448	-0.01545	0.01454	-0.01916
Technology: main	0.02021	-0.01600	0.02238	-0.03154	0.02245	-0.03525
Technology: second	-0.00576	0.03687	-0.00359	0.02133	-0.00352	0.01762
Properties: all	-0.00587	0.01458	-0.00369	-0.00097	-0.00363	-0.00468
Properties: main	-0.00576	0.01465	-0.00359	-0.00089	-0.00352	-0.00460
Properties: second	-0.01087	0.01111	-0.00869	-0.00443	-0.00863	-0.00814
Plantation: all	-0.00316	-0.00495	-0.00098	-0.02049	-0.00092	-0.02420
Plantation: main	-0.00348	-0.00656	-0.00131	-0.02210	-0.00124	-0.02581
Plantation: second	-0.00007	0.01031	0.00210	-0.00524	0.00217	-0.00895
Infrastructure: all main	0.00703	0.01766	0.00920	0.00212	0.00927	-0.00159
MESDAQ	-0.00434	0.00554	-0.00217	-0.01000	-0.00210	-0.01371

RR : Raw Return, EAR : EMAS Adjusted Return, KLCIAR : Kuala Lumpur Composite Index Adjusted Return

TABLE 2: DIFFERENCES IN MEANS BETWEEN INDUSTRIES AS AT JULY 22, 2005

INDUSTRY	Construction	Consumer	Finance	Industrial	I/Structure	Plantation	Properties	Technology	Trading	MESDAQ
Construction		0.838	0.036	0.818	0.189	0.288	0.161	0.772	0.169	0.794
Consumer	0.410		0.003	0.968	0.130	0.025	0.042	0.599	0.065	0.915
Finance	0.007	0.000		0.003	0.461	0.000	0.235	0.035	0.309	0.013
Industrial	0.247	0.611	0.000		0.130	0.016	0.036	0.581	0.060	0.938
I/Structure	0.206	0.053	0.804	0.039		0.008	0.870	0.142	0.916	0.181
Plantation	0.018	0.033	0.000	0.057	0.005		0.000	0.581	0.000	0.050
Properties	0.114	0.002	0.175	0.000	0.558	0.000		0.126	0.949	0.109
Technology	0.525	0.770	0.015	0.874	0.178	0.427	0.093		0.130	0.575
Trading	0.659	0.063	0.002	0.008	0.189	0.000	0.097	0.276		0.130
MESDAQ	0.283	0.584	0.000	0.837	0.023	0.104	0.002	0.987	0.037	

Upper diagonal is the p-value of the differences in means between the two industries.

Lower diagonal is the p-value of Mann-Whitney test of differences between the two industries.

TABLE 3: COMPARISON OF RETURNS BETWEEN WORLD INDICES (DAILY)

Date	Shanghai	JSE	HKong	KLCI	Nikkei	Singapore	Seoul	Taiwan	S&P 500
29-Jul-05	-0.00324	-0.00363	0.004568	0.003221	0.003482	0.002715	0.005947	-0.00998	-0.00767
28-Jul-05	-0.00308	0.007215	0.000774	0.002586	0.001963	0.005386	0.010695	0.007648	0.005603
27-Jul-05	0.015939	9.34E-05	0.002162	-0.00403	0.008274	0.005104	0.002228	-0.00611	0.004573
26-Jul-05	0.02622	0.007053	-0.00163	-0.00436	-0.0021	0.005265	0.000826	-0.00846	0.001733
25-Jul-05	-0.00088	-0.00212	0.000512	0.00016	0.00578	-0.0042	0.01441	0.006225	-0.00377
<b>22-Jul-05</b>	<b>0.025171</b>	<b>0.012726</b>	<b>0.011376</b>	<b>0.019253</b>	<b>-0.00778</b>	<b>0.003548</b>	<b>-0.0004</b>	<b>-0.00208</b>	<b>0.005411</b>
21-Jul-05	-0.00041	0.014772	0.001194	-0.00224	-0.00022	0.000814	0.000233	-0.00464	-0.00661
20-Jul-05	0.008843	0.010829	0.002451	0.009759	0.002608	0.027187	0.011267	0.002062	0.011522

TABLE 4: ABNORMAL RETURNS ASSOCIATED WITH DEPEGGING ANNOUNCEMENT

	7/20/05	7/21/05	7/22/05	7/25/05	7/26/05
MSCI MAL RM	0.70% (1.27)	-0.17% (-0.31)	1.78% (3.21)	0.24% (0.44)	-0.49% (-0.88)
MSCI MAL US\$	0.70% (1.27)	-0.17% (-0.31)	2.31% (4.16)	1.01% (1.83)	-0.45% (-0.81)
CI	0.69% (1.26)	-0.18% (-0.33)	1.82% (3.33)	0.01% (0.02)	-0.49% (-0.89)
EMAS	0.66% (1.32)	-0.16% (-0.33)	1.48% (2.65)	0.01% (0.03)	-0.45% (-0.90)

t statistic in parentheses

TABLE 5: CORRELATION BETWEEN WORLD INDICES (WHOLE PERIOD AND BEFORE AFC PERIOD)

	SEOUL	S&P 500	SPORE	HANG SENG	NIKKEI 225	JAKARTA	PHILIPPINE	BANGKOK	KLCI	Lag S&P500
SEOUL	1.0000	0.0921	0.3153	0.2957	0.2536	0.1795	0.1644	0.2510	0.1873	0.2493
S&P 500	0.0682	1.0000	0.1376	0.1167	0.1176	0.0074	0.0476	0.0632	0.0231	-0.0051
SINGAPORE	0.1331	0.1428	1.0000	0.6035	0.3631	0.3679	0.3406	0.4139	0.4554	0.3485
HANG SENG	0.0767	0.0970	0.5038	1.0000	0.3661	0.3053	0.2794	0.3407	0.3681	0.3697
NIKKEI 225	0.0478	0.1277	0.3190	0.2507	1.0000	0.1762	0.1537	0.1984	0.2242	0.2980
JAKARTA	0.0140	0.0000	0.2217	0.1725	0.0603	1.0000	0.2630	0.2769	0.2492	0.1904
PHILIPPINE	0.0533	0.0612	0.2659	0.1999	0.0825	0.1882	1.0000	0.2537	0.2139	0.2404
BANGKOK	0.1410	0.0698	0.3905	0.3104	0.1483	0.1578	0.2113	1.0000	0.3252	0.2023
KLCI	0.1144	0.1252	0.6688	0.4530	0.2576	0.2088	0.2385	0.3734	1.0000	0.2366
LagS&P500	0.0937	0.0565	0.3399	0.3255	0.2213	0.1295	0.2162	0.2292	0.2647	1.0000

Upper diagonal is correlation of indexes from January, 3 1990 to March, 30 2007 (Whole Period)

Lower diagonal is correlation of indexes from January, 3 1990 to June, 30 1997 (Before AFC)

TABLE 6: CORRELATION BETWEEN WORLD INDICES (PEGGING PERIOD AND DEPEGGING PERIOD)

	SEOUL	S&P 500	SPORE	HANG SENG	NIKKEI 225	JAKARTA	PHILIPPINE	BANGKOK	KLCI	Lag S&P500
SEOUL	1.0000	0.0941	0.4570	0.5000	0.4232	0.2467	0.2277	0.3192	0.1829	0.3347
S&P 500	0.1126	1.0000	0.1507	0.1085	0.1157	0.0072	0.0220	0.0506	0.0373	-0.0211
SINGAPORE	0.5658	0.1082	1.0000	0.6061	0.4133	0.3256	0.2849	0.4193	0.2750	0.3458
HANG SENG	0.6150	0.1530	0.6855	1.0000	0.4766	0.2915	0.2525	0.3641	0.2572	0.4183
NIKKEI 225	0.6296	0.1083	0.5695	0.5773	1.0000	0.2086	0.1865	0.2459	0.2156	0.3573
JAKARTA	0.4350	0.0390	0.5687	0.5505	0.4030	1.0000	0.2392	0.2907	0.1689	0.1796
PHILIPPINE	0.3158	-0.0130	0.4335	0.3366	0.3126	0.3155	1.0000	0.2412	0.1075	0.2344
BANGKOK	0.2738	0.0550	0.3546	0.3138	0.2279	0.3218	0.1981	1.0000	0.2564	0.1836
KLCI	0.3148	0.1082	0.5726	0.4415	0.3448	0.4071	0.4213	0.2917	1.0000	0.1965
LagS&P500	0.3702	-0.0102	0.4978	0.4390	0.3919	0.4015	0.5156	0.2361	0.3727	1.0000

Upper diagonal is correlation of indexes from Sept, 2 1998 to July 21, 2005 (Pegging Period)

Lower diagonal is correlation of indexes from July 22, 2005 to March, 30 2007 (De-Pegging Period)

TABLE 7 : REGRESSION RESULT OF FACTORS INFLUENCING KLCI RETURN

klci	Newey-West					
	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
sp500	.0041074	.037218	0.11	0.912	-.0688582	.077073
lagsp500	.4664919	.0684148	6.82	0.000	.3323653	.6006186
nikkei225	.1704164	.022794	7.48	0.000	.125729	.2151039
d4afc	-.0046862	.0017046	-2.75	0.006	-.0080281	-.0013443
d4peg	.0005353	.0004214	1.27	0.204	-.0002908	.0013614
d4depeg	.000228	.0003814	0.60	0.550	-.0005198	.0009757
pegxlus	-.2986245	.0760237	-3.93	0.000	-.4476683	-.1495806
_cons	.0001579	.000251	0.63	0.529	-.0003341	.0006499

TABLE 8: CORRELATION BETWEEN MALAYSIAN INTEREST RATE AND OTHER COUNTRIES INTEREST RATES FOR DIFFERENT PERIODS

COUNTRIES	Whole (Jan 90 - Mar 07)	Before AFC (Jan 90 - Jun 97)	Pegging (Sep 98 - July 05)	De-Pegging (July 05 - Mar 07)
THAILAND	0.8722	0.1126	0.8710	0.8816
KOREA	0.8760	0.1748	0.6490	0.8929
CHINA	0.8213	-0.5295	0.8257	0.7606
JAPAN	0.4478	-0.0211	0.5994	0.7519
TAIWAN	0.6922	-0.2931	0.5957	0.8914
PHILIPPINE	0.6618	0.0004	0.7018	-0.4246
SINGAPORE	0.5387	-0.3734	0.4489	0.8612
INDONESIA	0.5546	0.4427	0.9254	0.3727
USA	0.3614	-0.4641	0.3971	0.9483

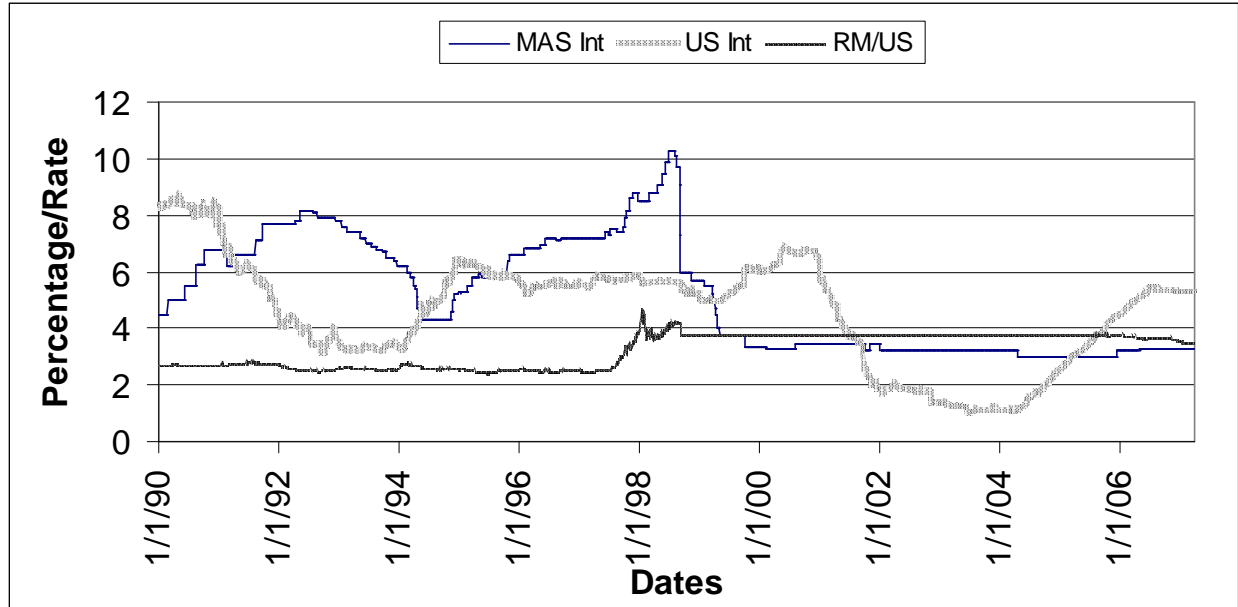


FIGURE 1: RELATIONSHIP BETWEEN MALAYSIAN AND US INTEREST RATES AND RM/USD



TABLE 9: COINTEGRATION MALAYSIAN INTEREST RATE

Dependent Variable : DLINTM

Periods : 1992Q2 – 2005Q2 (53 observations)

Regressor	Coefficient	T-Ratio
CONSTANT	-2.3367	-0.3470
DLINTUS (-1)	-0.0908	-0.8039
DLINTUS (-2)	-0.1029	-0.9534
DLINTUS (-3)	-0.0232	-0.1963
DLINTUS (-4)	0.1148	0.8420
DLRGDP (-1)	0.6044	1.0698
DLRGDP (-2)	0.4588	0.7746
DLRGDP (-3)	0.1509	0.2971
DLRGDP (-4)	0.1711	0.3639
DLCPI (-1)	2.2388	0.4069
DLCPI (-2)	-3.2819	-0.6256
DLCPI (-3)	-2.6399	-0.5479
DLCPI (-4)	-3.0042	-0.6685
DLM3 (-1)	-1.6217	-1.7385
DLM3 (-2)	-1.9658	-1.8456
DLM3 (-3)	0.3415	0.3325
DLM3 (-4)	-0.6232	-0.7534
DLEXRATE (-1)	1.3734	2.3629
DLEXRATE (-2)	-0.4022	-0.6249
DLEXRATE (-3)	1.3177	2.4042
DLEXRATE (-4)	-0.4090	-0.8325
DMPEG	-0.3193	-1.7495
LINTUS	-0.0041	-0.0882
LRGDP	0.4988	1.1071
LCPI	0.0775	0.0286
LMM3	-0.1426	-0.2283
LEXRATE	-0.3238	-0.6026
<b>F Statistic</b>	<b>1.4653 ((0.238))</b>	

DLINTM = Difference in natural log of Malaysian interest rate

DLINTUS = Difference in natural log of US interest rate

DLRGDP = Difference in natural log of real GDP

DLCPI = Difference in natural log of Consumer Price Index

DLM3 = Difference in natural log of money supply

DLEXRATE = Difference in natural log of Malaysian effective exchange rate

DMPEG = Dummy of pegging period

## **Business Financing for Small and Medium Enterprise (SMEs): How to Strike?**

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### **Abstract**

Small and medium enterprises (SMEs) constitute an important part of the business system in Malaysia. Although their role in the Malaysian national economy has been one of distinction and contribution, but SMEs possess a lack of financial to expand their business. Thus, the purpose of this research is to investigate the factors considered by banks in providing the financing to Small and Medium Enterprise (SMEs) in Malaysia. This study is focused on question: “*Business financing for Small and Medium Enterprise (SMEs): How to strike?*” To answer the research problem, this research employs the convergent interview with the commercial banks including SME Bank around Malaysia. This research have been used a cross case analysis technique to analyzed data. From this analysis, the result suggested that have 15 factors classified as a success factors in getting the business financing for SMEs.

### **Introduction**

Bank lending has played an important role as the major source of funds and liquidity for the private sector in Malaysia (Public Bank Economic Review, 2002). As the main mobilized of funds in the economy, the banking sector was able to support the increasing lending requirements to business activities.

Reflecting that, Bank Negara Malaysia (2004) stated that demand for new financing by businesses was higher in 2004. Loan applications received from businesses were increased by 20% in 2004, a turnaround from the decline of 7.7% in 2003. The increase was driven by higher applications received from the manufacturing, construction and the wholesale and retail trade sectors, amounting to RM76.2 billion. In tandem with higher loan applications, new loans approved to businesses were increased by 9.8% to RM84.9 billion, accounting for 48.9% of total new loans approved by the banking system. Nearly 51% or RM43.2 billion of new loans approved to businesses were channeled to the construction, manufacturing and the wholesale and retail trade sectors.

Banks lending objective is to improve the private sector business activity to enhance their contribution to economic growth. One of the key sectors identified for further development in many economies is the small medium enterprise (SMEs) sector because of its importance to the development of local entrepreneurial capabilities and industry linkages and their high multiplier effects on economic (Rajandram, 2004).

Studies done by Udell (2004) using the data in the United State, found that nearly half of small business (SMEs) financing comes from externally provided debt, and realized that SMEs continued to receive strong support from the banking sector. In 2004, the banking system approved RM31.6 billion of new loans to more than 92,000 SME accounts which shown a significant increase of 21.9% from 2003. Loan disbursements grew strongly by 15.3% to RM100.4 billion, while outstanding loans to SMEs expanded by 7.7% to RM88.3 billion (Bank Negara Malaysia, 2004).

Small business (SMEs) sector plays a vital role in contributing to the overall economic performance of economies. But some studied have identified the main problem facing off by SMEs is getting the financing. For example, in the survey conducted by Daniels (2003) stated that 58 percent of the businesses in their sample have a problem of getting the investment funds while 35 percent have a problem in getting the operating funds.

Banks also are more particular in approving the financing for SMEs, as they do not consider them as attractive and profitable undertakings (Hossain, 1998; Bhattacharya, 2000; and Sia, 2003). A study by Hall and Fang (2004) also found that the lending to SMEs generally more risky than larger firms. Therefore, it has been found that most of the financial institution and non-financial institution required collateral in the form of land or buildings. The

value of the real-estate security is usually set at twice the amount of loan (Bhattacharya, 2000), which many enterprises fail to provide as collateral. SMEs also regarded as high risk borrowers because of their low capitalization, insufficient assets, and high mortality rates (Sia, 2003) and consequently, they are not offered any attractive deals in terms of loans and interest rate.

Previous researchers have examined a variety of issues related to SME lending including the role and nature of relationship lending (Boot, 2002), the importance of small bank lending to economic growth (Berger, Hassan & Klapper, 2004), the impact of technology on small business lending (Petersen & Rajan, 2002), and the nature of non-bank commercial lending (Carey, Post & Sharpe, 1998).

Many studies also have been done to support the argument or contend about difficulty of SMEs in getting financing from the financial institution. In Malaysia, the non-availability of finance has been the most frequently cited problem encountered by the SMEs, and it is also crucial issues to many of them (MITI, 1990). Chee (1986) noted that majority of SMEs indicated inadequate working capital and lack of access to commercial lending as their major problem. Diah, (1985 & Shahadan et al, 1990) also identified inability to raise capital and limited access to institutional credit as the two typical problems of SMEs. Hassan (1992) pointed that SMEs are not able to gain access and utilize available funding due to interrelated factors such as inadequate collateral and lack of performance record to convince the financial institutions into providing them the loans. Other studies in developed countries like United States of America and United Kingdom also suggested that SMEs operating in these countries faced financial problems. Broom & Longenecker (1975) indicated that one problem of major significance to many small businesses is lack of capital and credit. Most bankers associate loans to SMEs with low returns and high risk. Thus, SMEs businesses are not only having problems in obtaining bank finance, but they also claim that the costs are too high. Lee (1998) in his study stated that the bankers who appeared to view any small business loan application as a potential portfolio of non-performing loans. This viewpoint may be attributed to what the bankers perceived as inefficiency in small loan processing and biases in assessing credit worthiness of small business customers. Furthermore, previous studies have found out that SMEs were deprived of funds due to the lack of understanding on the part of bankers and the SMEs owners (Rosli Mahmood, 2000; Deakins & Hussain, 1994; Wyant & Hatch, 1990). The financial institutions that provide a financing for their customer will make sure that the borrower have a good and effective credit management. This is to make sure the borrowers will not default in repayment. So, to assure that will not happen, the bankers must do a proper credit evaluation. Thus, the research question for this study is; *“Business Financing for Small and Medium Enterprise (SMEs): How to Strike?”*

## Literature Review

To initiate the discussion for this financing decision, the literature measuring about the success factors of business financing is explored.

### **Success Factors for the Conventional Business Financing**

Business loan also known as commercial and industrial loan (C&I): There are many purposes of business borrowing such as to finance day-to-day activities, and longer- term needs, and for other business purposes (Rose, 1999). Before banks make a decision to provide a loan, they must evaluate imperfect information about prospective borrowers to determine if they are creditworthy. The information provided to the banks must be sufficient to make a credit decision.

For the business financing evaluation, *12 success factors* have been identified that synthesizing the literature. Seven references literature have been raised to be a platform for this disclaimer, as shown in table 1.

TABLE 1: SUCCESS FACTORS FOR THE CONVENTIONAL BUSINESS FINANCING

No.	The success factors	A	B	C	D	E	F	G	Total	Selected for this study
1	Financial statement (audited)	√	√						2	√
2	Sources of repayment		√	√		√			3	√
3	Purpose			√	√				2	√
4	Business ability/product				√				1	√
5	Knowledge				√				1	√
6	Third-party opinion				√				1	√
7	Size of business				√				1	√
8	Capacity					√	√	√	3	√
9	Character			√		√	√	√	4	√
10	Economic condition					√	√	√	3	√
11	Collateral					√	√	√	4	√
12	Capital						√	√	2	√
	Total	1	2	3	5	5	5	5		12

Key to table:

A – Peter S. Rose \* (1999)

B – Harry P. Guenther \*(1999)

C – Bala Shanmugam\*, Craig Turton, and George Hempel (1992)

D – Aidan Berry\*\*, Sue Faulkner\*, Mark Hughes\* and Robin Jarvis\*\* (1984)

E – Edward W. Reed \*\* and Edward K. Gill\* (1989)

F – Shamsudin Ismail\*\*, Shamsheer Mohamad\*\* and Annuar Mohd Nasir\*\*(1988)

G – Arthur G. Pulis, III (1991)

Note: \* =Academician

\*\* =Practitioner

Source: developed for this study

The first factor considered by banks when evaluate the business loan is *financial statement (audited)* (row 1 in table 1). The financial statement used is the audited financial statement for the incorporate company because this financial statement contain both qualitative information (e.g. the auditors' report and chairman's statement), and quantitative information (e.g. balance sheet) of the business (Berry et al, (1993). For sole proprietor and Partnership Company 3 years' unaudited account are required. Analysis of financial statement typically includes four key areas: liquidity, profitability, gearing and operational performance and usually banks will use the last three, four, or five years audited financial statement (Rose, 1999). Information from balance sheets and income statements is typically supplemented for financial ratio analysis. The ratios commonly used by the bankers are; operating efficiency, coverage ratio, liquidity ratio, profitability ratio, and leverage ratio. The cash flow is referred to as the sources and uses of income. Two of the seven authors in table 1 included this factors which shown that this factor is one of the most important. Thus, this factor will be included in this study.

The second factor is *repayment* (row 2 in table 1) which is often considered as the first line of defense. This factor allow the banker know the source of income for the repayment. This factor is important to evaluate the ability of owners to earn a sufficient amount to repay the loan. Three of the authors in table 1 included this factor as success factor for business financing. Thus, this factor one of the most important factors and will be include in this study.

The third factor is *purpose* of the loan (row 3 in table 1). Purpose is the use of loan funds. The purpose of the loan is a significant variable in the lending decision because the loan is raised will be influential in assessing the potential risk involved in the lending decision (Berry et al, 1993). An understanding of the loan's intended use helps the analyst to understand whether the loan request is reasonable and acceptable. Two of the authors in table 1 included this factor. Thus, this factor one of the most important factors and will be include in this study.

The next factor is *business risk/product* (row 4 in table 1). Some businesses, by their nature, are likely to be riskier than others. In finance theory this type of risk is normally referred to as business risk. Business risk is reflected through the volatility of profits (Berry et al, 1993). The business risk also can relate with the product produced by the business, because once the business produce a product which is cannot enter into the market or the business produce a product which is cannot expand it will make a business is risk. The business ability also is referring to the ability of applicant to generate enough cash, in the form of cash flow, to repay the loan. Generally, the borrowers have only three sources to draw upon to repay their loan: cash flow generate from sales or income, the sale or liquidity of assets or fund raised by issuing debt or equity securities. Only one author in table 1 included this factor. Thus, this factor will be included in this study.

Then, next factor as a success factor in business financing is *knowledge* (row 5 in table 1). Knowledge here is referring to the information gather by the bankers in the applicant's business. This knowledge will greatly help a banker in assessing the risk associated with a lending proposal. This knowledge can be derived through past records and bank's own internal records. Also for this factor, only one author out of eight authors from table 1 included this factor as a success factor for business financing. Thus, this factor will be included in this study.

The sixth factor is the *third-party opinion* (row 6 in table 1). Third-party opinion is the information acquired by asking the other parties involved with the applicant's business such as supplier, customers, others bankers, and etc. In particular, if the third party has previously been a source of good introductions presumably the banker will have greater confidence in this third-party's opinion and introductions. Although the information from third parties can play an important part in the banker's assessment of risk, but only one author in table 1 included this factor. Thus, this factor will be included in this study.

Next is the *size of business* (row 7 in table 1). The size of the applicant's business will be extremely influential in a lending decision because it will effect on the banker's perception of risk. In terms of liquidations small firms go into liquidation than larger counterparts. This factor also included only by one author in table 1. Thus, this factor will be included in this study.

The next factor is *capacity* (row 8 in table 1). Capacity is defined as the legal status of the borrower to enter into contract (Reed & Gill, 1989), whether a borrower has the authority to borrow on behalf of his firm or business because if the borrower lacks such as authority, banks may find difficult to collect their loans. Capacity may also refer to the repayment capability of the borrower (Shamsudin et al, 1988), which is measured by the expected cash flow of the borrower's business. Three of the authors in table 1 are included this factor. Thus, this factor one of the most important factors and will be include in this study.

The other factor is *character* (row 9 in table 1). Character assessment is performed to determine the willingness and desire of borrowers to repay the debt (Shamsudin et al, 1988). The borrower's attitude such as honesty, integrity, industry and morality are considered in character assessment. This factor included by the four author out of eight author in the table 1 which means this factor are most important factors in business financing. Thus, this factor will be included in this study.

The next factor is *economic condition* (row 10 in table 1). Bankers need to know how changes in competitive economic conditions, technology, and the demand for products and distributions methods affect the borrower's business. Economic conditions affect the ability of the borrower to repay financial obligations but are beyond the control of the borrower and the lender. Three of the authors in table 1 included this factor. Thus, this factor is important and will be included in this study.

The second last factor is *collateral* (row 11 in table 1). Collateral refers to any asset which the borrower may have to charge or pledge as security against the loan. The range of assets can be pledged to the bank as security. The collateral is important because to reduced the credit risk. For this factor, three of the authors in table 1 included this factor as a success factor. Thus, this factor is one of the most important factors and will be included on this study.

The last factor as a success factor in business financing is a *capital* (row 12 in table 1). Capital represents the borrower's money that he puts into a project. It's indicates the financial worth of the borrower and also reflects the accumulated wealth of the borrower and to some degree as an indication of past success. Two of the authors in table 2.1 included this factor as a success factor in business financing. Thus, this factor is one of the most important factors and will be included on this study.

As a conclusion, based on previous literature on the success factor in conventional business financing, our study will consider the above list of factors as shown in table 1 as the starting point for this study.

**Success Factor in SMEs: Business Financing.**

After we have identified the best success factors used in conventional business financing, now we will explore the success factor for SMEs lending.

The bankers have traditionally taken their knowledge of the borrower and their business market and combined this knowledge with limited financial information provided by borrower to make lending decisions. According to Justas (1982) stated that the success of the small business depends on the management skills and expertise of the owner.

Thus, we will explore the success factors in getting business financing for SMEs based on the synthesis of six references, as shown in table 2. With synthesis of the literature, there are additional of 7 factors apart of 12 factors identified in conventional business financing to be included as a success factors in getting the business financing for SMEs (12 factors have been discussed before in success factors for the conventional business financing).

So, here we only briefly discuss the new seven factors could be included in the success factors in getting business financing for SMEs, as shown in table 2.

The first factor is *competence management* (row 13 in table 2). It's usually is a management skills to manage the business. In reality the success or failure of business is depend upon the skills of the management team. So, banks must have confidence that the firm has good management before a loan is granted. This factor included as a success factor for SMEs financing by one author only in table 2. Thus, this factor will be included in this study.

Second factor is the *financial projection* (row 14 in table 2), or also known as a pro forma financial statement. Pro forma financial statement is a projected statement based on the forecast. The forecast is important to develop internal budgets for the functional department of the business. The lenders seek this financial statement because they want to make sure that the applicant's business will generate enough profit to pay back both the principal and interest on the loan. Only one author in table 2 included this factor as a success factor for SMEs financing. Thus, this factor will be included in this study.

Then, the third factor is *geographical risk* (row 15 in table 2). Geographical risk is the geographical location of SMEs. Some banks limit their exposure to residential property in certain areas because the value and marketability of residential property differs substantially between urban centers and small rural areas. Only one author in table 2 included this factor as a success factor for SMEs financing. Thus, this factor will be included in this study.

The fourth factor included is *market involved* (Row 16 in table 2). The market involved means how far the products that produce by the borrower can establish and also can compete with others product in the markets. Also one author in table 2 mentioned this factor as a success factor for SMEs financing. Thus this factor will be included in this study.

The next factor is the *industry risk* (row 17 in table 2). Risk is a term that is based on the uncertainty of future outcomes. Banks place great emphasis on conditions in the industry and the applicant's competitive position and relative stability. Industry risk also looked at the trends of industry including technological changes, new process, and changes in customer demands. Only one author in table 2 included this factor as a success factor for SMEs financing. Thus this factor will be included in this study.

TABLE 2: SUCCESS FACTORS FOR SMES BUSINESS FINANCING

No.	The success factors	A	B	C	D	E	F	G	Total	Selected for this study
1	Financial statement	√	√		√				3	√
2	Sources of repayment	√							1	√
3	Purpose	√		√					2	√
4	Business ability/product	√	√		√	√			4	√
5	Knowledge	√							1	√
6	Third-party opinion	√							1	√
7	Size of business	√							1	√
8	Capacity	√							1	√
9	Character	√	√		√	√		√	5	√
10	Economic condition	√							4	√
11	Collateral	√	√	√	√	√	√		6	√
12	Capital	√							1	√
13	<b>Competence management</b>			√		√		√	3	√
14	<b>Financial projection</b>						√		1	√
15	<b>Geographical risk</b>							√	1	√
16	<b>Market involved</b>				√				1	√
17	<b>Industry risk</b>							√	1	√
18	<b>Experience/track record</b>				√			√	2	√
19	<b>Strategic planning</b>				√		√		2	√
	Total	12	4	3	7	4	3	5		19

Key to table:

A – Success factors for business from literature.

B – Len Fertuck (1982)

C –Sunday I Owualah (1988)

D – Jankowichz, A.D and Hisrich, R.D (1987)

E – Larry Wynant and James Hatch (1991)

F – Howard E Van Auken, and Richard B Carter (1989)

G – Review of bank lending practice (2003)

Sources: develop for this study

Then, next factor is the *trading experience* or track record (row 18 in table 2). Track record is the past experience of the borrower’s business and it’s concerned with relevant past experience such as the number of years spent in the industry, other commercial experience, training etc. The past track records have been used by the banker to assist them in doing the judgment on the forecast information. The past track record could include the assessment of the management’s ability to meet the objective, to manage staff and to manage their finance. Two authors in table 2 included this as a success factor to getting business financing. Thus, this factor also becomes one of the important factors. So, this factor will be included in thus study.

The last factor is *planning* (row 19 in table 2). This factor is a systematic process that takes from some current state to some future desire state. But when we talk about business planning, it should be related to the strategic planning. Strategic planning is a long-term plan for a business and involves establishing an overall plan for the business. Strategic planning concern with establishing company priorities and also it’s allocates resources and takes the steps necessary to meet the strategic goals. This factor considered by two authors out in table 2. Thus, this factor will be included in this study.

In conclusion, 19 factors has been found which is could be used as a based to evaluate the SMEs financing application by the commercial banks. So, after this we will confirm isn’t all these factors are consider by the commercial banks in Malaysia as a success factors in evaluating a financing application by the SMEs.

## Conceptual Framework

Figure 1 shows that, two categories have been identified to determine the success factor for SMEs financing in Malaysia, firstly are 'financial factor' and secondly are 'non-financial factor'. Both categories will be used as a basis for this study about the success factors for SMEs financing.

With the result from previous literature and discussion about the success factors for conventional business financing and SMEs financing, we can make a conclusion that there are four factors under 'financial factors' category. The factors are; financial statement, sources of repayment, capital, and financial projection.

While, under the 'non-financial factors' category, we found 15 factors. The factors are; capacity, character, economic condition, collateral, purpose, knowledge, business ability, geographical risk, industry risk, third party opinion, size of business, experience, strategic planning, competence management, and market involved.

The arrow that connected between the 'financial factors' and 'non-financial factors', shows that each element under the both groups are related with each others and also built a strong relationship. This relationship will determine the success factors for SMEs financing.

## Methodology

The research methodology use in this study is a qualitative method. Qualitative research methodologies were used for this research for three reasons. The first reason is related to the objectives of the research. This research seeks to explore the little-researched area of what are the successes factors in getting the business financing for SMEs? That is, this research is theory building rather than theory testing. Qualitative methods address theory building rather than the theory testing that is used by quantitative methods. In the early stage of theory development like this research, where phenomenon are not known, qualitative research methods could be used because prematurely used quantitative research methods can lead to inconclusive findings.

Interview data is a major source of information for many qualitative researchers (Carson et al, 2001). Interviews can be categorized as highly structured or highly unstructured, these two points being the poles of a continuum (Sekaran et al, 2001). The range from unstructured interviews designed to discover in-depth insights and understanding, and more structured interviewing focusing on a technique called *convergent interviewing*, an approach particularly useful in business research (Carson et al, 2001).



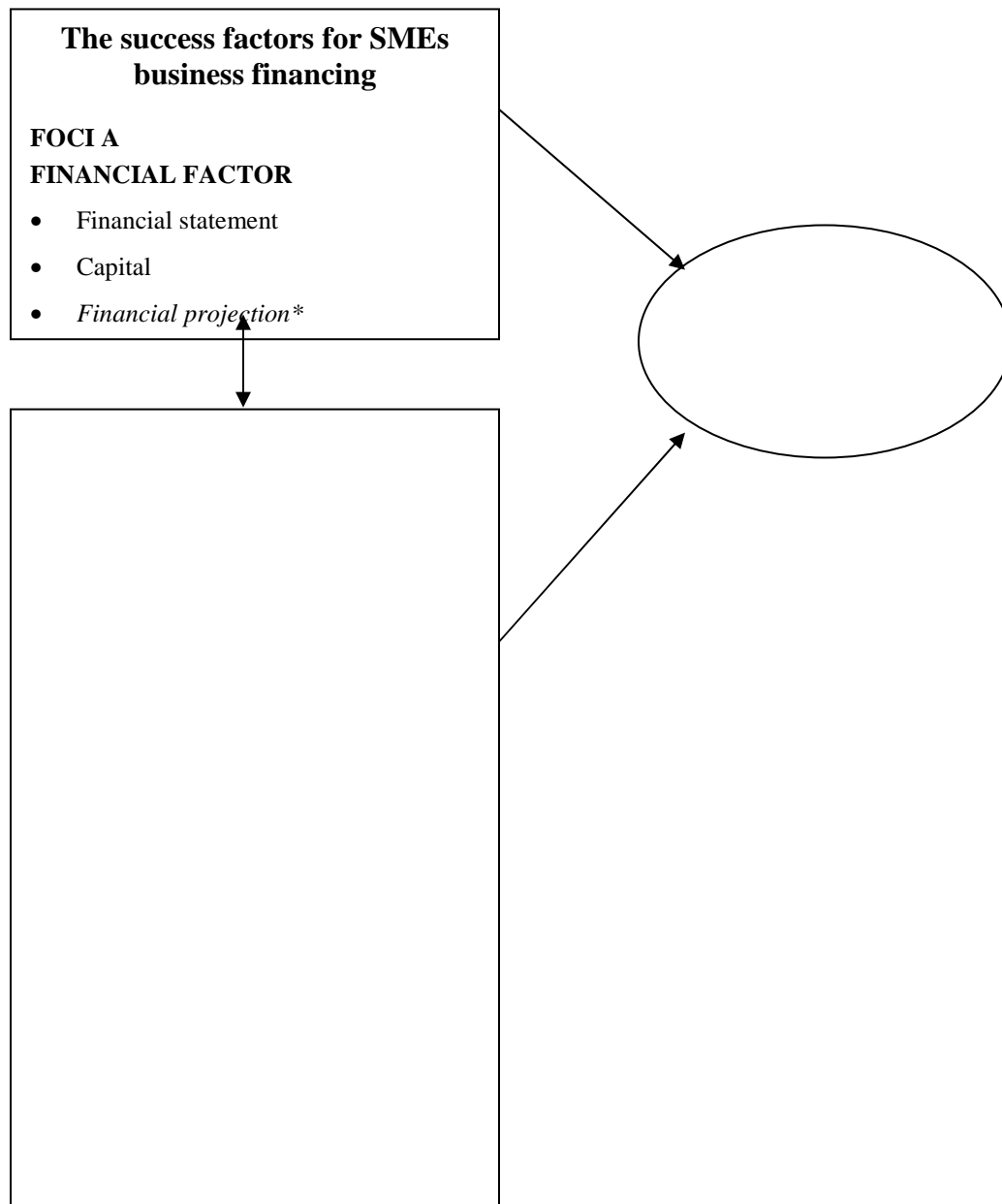


FIG.1: THE SUCCESS FACTORS FOR SMES BUSINESS FINANCING

For this study, the convergent interview is used in the session of collecting data. According to the Carson et al. (2001 a) cited that the convergent interview is a methodology that allows a relatively structured approach to sorting out what needs to be done in a research project in the early stages. It also a technique for collecting, analyzing and interpreting qualitative information about people’s attitudes, beliefs, knowledge and opinions through

the use of a limited number of interviews with experts that converge on the most important issues within a topic area.

Figure 2 shows there have five steps to conduct convergent interview in the process getting the information or data about the success factors in getting the business financing for SMEs. Each step is consequence, but at the step four and five, it must be repeated to each different respondent.

### *Sampling*

All the information required for this study came from primary data and most of the data gathered derived during process of conducting convergent interview. All tens major banks are selected for the purpose of this research because there are the largest and important group of financial institutions in Malaysia. Moreover, for most local businesses, banks are often the major source of credit (Rose, 1999). However, out of ten major banks in Malaysia, researcher managed to conduct interview with only seven banks and these seven banks are actively involved in lending to SMEs in Malaysia. The banks selected are: Alliance Bank Malaysia Bhd, Bumiputra-Commerce Bank Bhd, EON Bank Bhd, Malayan Banking Bhd, Public Bank Bhd, RHB Bank Bhd, Malayan Banking Bhd (Maybank), and SME Bank.

### **Method of Interpretation Data**

Previously, we have discussed the method of collecting the data of this research. Now, the procedure used for analyzing and interpreting the convergent interviewing data is discussed. Firstly, after each individual interview, the taped interview was listened to in order to clarify and expand the key issues into summary notes. Each interview was transcribed within a day of the interview. Secondly, a progressive interpretation report was written by comparing the summary notes of the first two interviews. This progressive report was then compared to each subsequent interview's summary notes and added to, and/or modified according to new issues that emerged after each interview.

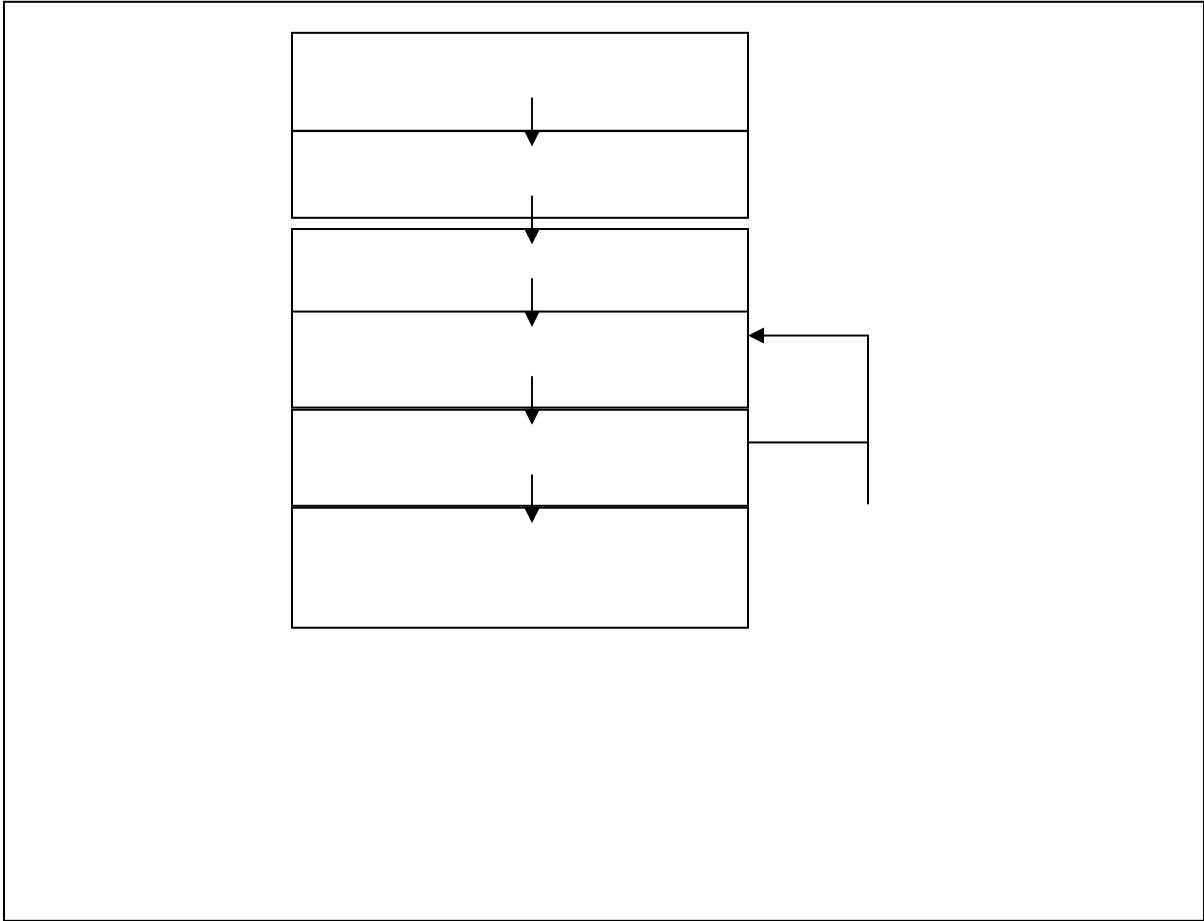
### **Cross Case Analysis.**

The methodology going to be used in interpretation data for this study is a cross-case analysis. This method have been done by making an in-depth analysis with each respondents for considering the success factors in getting the business financing for SMEs. The findings in this study was gathered from the similarity existed in the analysis have been done with each respondents (Denzin, 1983). The cross-case analysis enabled the comparison of different cases against predefined categories (*i.e.* commitment process drivers and the assumptions identified in commitment model analysis).

This method have been chosen because the cross case analysis enables the comparison of multiple cases in many divergent ways, which would not be possible within a single case analysis. The case comparison can be made against predefined categories, in search of similarities and differences, or by classifying the data according to data sources. This method also will give more accurate result due to increase in the generalization (Denzin 1983; Miles & Huberman 1994). Besides, this anlysis can increse the understanding and explanation (Glaser & Strauss 1967; Glaser & Strauss 1970) about the issues studied (Denzin 1983). This is because, when have many different situation in the same time the research will get clearly picture and in-depth view about the studied will be done. The researcher will predict the probability of the event or finding will happen or not.

## **Discussions and Findings**

In the convergent interview, the probe questions were developed, so that an assessment could be made of the framework of the success factors in getting business financing for SMEs. The study tended to confirm the conceptual framework developed. Tables 3 constitute all the questions and also answers gathered from the convergent interview.



Source: adapted from Amy Azhar (2001)

FIG 2: STEPS IN CONDUCTING CONVERGENT INTERVIEW

The first question asked of each interviewee (Question 1) was a broad and general question developed to establish rapport, as shown in table 3. The question probes the respondent to tell the interviewer the story of their experiences in banking sector and also their experience in SMEs industry. This question was asked to know about the interviewee experience in banking and SMEs sector, how long they involved in credit. Respond from the respondent shown that most of the respondents are involved in credit since their first start working in banking sector. So, most of the credit officer started their job in credit area since they enter in banking sector which shown that they have a lot of experience in credit. From the seven respondents only two (row 1 in table 3) did not tell about their experience in banking sector because of the time is limited and maybe they think that is not too important for them to answer it.

Questions 2 were asked “how your bank defined SMEs industry?” This question was built to know whether exist the differences between the commercial bank at Malaysia in define the SMEs sector. The definition of SMEs is not consistent across the process of interview with the bank. But for the purposed of this study, we have not attempted to apply a rigid criterion to define SMEs.

TABLE 3: DATA FROM INTERVIEW

Soalan	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	Bank 6	Bank 7
1. Can you tell about your experience in banking and also in SMEs sector?	-start in loan at MIDF in 2001 -2004 enter RHB also in loan	**	-1993 start in credit at Kuan Yik Bank -2001 resign, enter EON bank Group also in commercial credit until now.	**	-5 yrs experience in SME bank and just 3 yrs transfer to Kedah branch	-14 yrs	- 10 yrs in credit
2. How your bank defined the SME industry?	-Employee <150	-networth or shareholders' fund <10m	Small - Employee< 50 - sales turnover < 10m Medium - employee 51-150 -sales turnover 10-25m	-Employee < 250 -Sales turnover<25m	<b>Manufacturing</b> # medium -sales turnover >10m -employee 51-150 (full time) # small -sales turnover 0.25m - 10m -employee 5-50 (full time) # micro -sales turnover <0.25m employee < 5 (full time) <b>services</b> # medium -sales turnover 1m-5m -employee 20-50 (full time) # small -sales turnover 0.2m -1m -employee 5-19 (full time) # micro -sales turnover < .2m employee < 5 (full time)	<b>Manufacturing</b> -sales between 0.25m - 25m -employee <150 <b>agriculture/ construction/ services</b> -sales between 0.2m - 5m -employess <50	-paid-up capital <RM5 million.
3. Can you explain about the process of giving the financing to this sector?	-application form - once qualify required doc. - evaluation	**	-marketing -request basic document=audited acc (co sdn bhd), unaudited acc.3 yrs.(partnership), bank statement 6 mth, -discuss abt collateral	-application -request document -interview borrower	Depend on the customer whether 1) walk-in 2) by email 3)by letter or call 1st:interview to see whether the customer is qualify or not 2nd once qualify require to submit working paper or business plan	Classify the borrower -the business must operation at least 2 yrs. -required doc - interview and site visit	-marketing i) officer go to search the borrower ii) existing customer-enhance the facilities iii) walk-in customer -request basic doc
4. can you justify what is the factors looking by your bank in giving the credit to the SME business.	-management - capability dlm business. - industry -financial -product	-5C's-capital character capacity condition collateral - industry -produk -financial statement	- financial account (networth) - loan track record -conduct of current account - industry risk -integrity of borrower -scriss report	-financial statement 3 yrs - networth/capital -character -purpose -track record -guarantor /collateral -business plan	Look at 2 criteria 1) starting business - proposal -market - management -financial -knowledge of borrower 2) old business - past record - mgmt acc. - market -purpose of the loan - financial statement	-Already have business to look their financial -purpose of the loan -capacity to repay -character -condition -collateral -knowledge of borrower -business	- vaibility of business -management -conduct of current account -security/ collateral -track record -market -financial statement
5. From the all these factors, which factors is the success factors in getting the business financing for SME.	-operation dr segi management, produk, scriss -financial -market of business	-Character of borrower -produk -opportunity in market -industry -conduct of current account.	- financial account (networth) - loan track record -conduct of current account - industry of business	-financial statement 3 yrs - networth/capital -purpose -track record -business plan	- market involve -financial / past record - management	-character - capacity to repay -business plan -business ability cashflow	-management -track record -vaibility of business -market
6. what is actually the factors will make the loan application from SME will reject by your bank?	-industry -availability of business -management -produk	-ratio yg rendah dr industry -industry -business/product -poor financial statement	- poor conduct of current account -poor financial statement -request not justify -exposure=amt given against collateral	-poor track record -poor financial statement	Because of 5Cs - character - capital -condition -capacity -collateral	-financial -business itself -capacity to repay	-Capability of repayment -poor management

\* the question which asked arise from the previous interview

\*\* the question is not answered

Source: develop for this study

The synthesization of the answer given by the respondents, the researcher found that, most of bank classified the SMEs based on the employees and annual sales turnover (row 2 in table 3). The average number of employees used by these banks (respondent 1, 3, 4, and 5 in table 4.1) to consider as SMEs business is less than 50 employees for small business and less than 150 employees for medium enterprise, while, the average amount annual sales turnover is less than RM10 million for small business and less than RM25 million for medium enterprise. Thus, this definition is aligning with the SMEs definition used in Malaysia.

Respondent 2 (column 2 in table 3) didn't used an employees and annual sales turnover to define SMEs but used a network or shareholders fund. The average amount shareholders fund is less than RM10 million, no differences for small or medium enterprise. Thus, this definition closely suited with the SMEs definition used in Malaysia. Respondent 7 (column 8 in table 3) mentioned their bank used a paid-up capital in define the business is SMEs or not. The amount of paid-up capital for classify SMEs is less than RM5 million.

In question 3 the respondent was asked "how the process of giving the financing to the SMEs sector?" From this question, we can know how these banks process the SMEs loan application, what is the steps before getting the financing and what the customer must do to apply the business financing from these banks. From the seven respondents, only one didn't answer this question (row 2, column 3 in table 3). The answer from the six respondents is quite similar. That is all the banks used the same process in providing the financing to the customer. Thus, it will support the research issues.

The conclusion we can make with the answers given by the respondents that are normally have four steps in loan processing as shown in figure 3. The first step is to identify the borrower which mean the bank do a marketing to find potential borrower. Respondent 7 (row 3, column 8 in table 3) stated that the marketing is done whether the officer will go out to search a potential borrower or the bank enhances the facility of existing customers or walk-in customers. The answer by respondent 5 also supports this statement given by respondent 7. The second step after they classify the potential borrowers, the bankers will request basic document such as 3 years financial statement, bank statement and also for respondent 5 they will request a business plan. Then, the bankers will arrange an interview with the potential borrower to know better about the customer. The last step is making an evaluation with the information gathered from the borrowers as a process to identify whether that customer is eligible or not for financing.

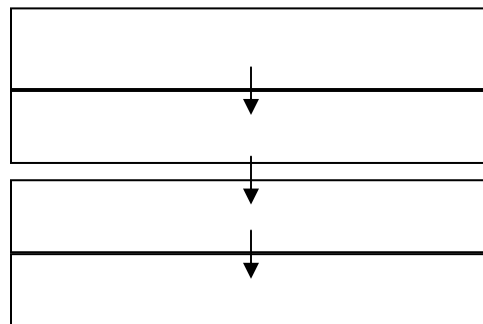


FIG 3: STEPS IN LOAN PROCESSING FOR SMES FINANCING

The question 4 was asked to identify the factors are looking by banks in giving the financing to entrepreneur who involved in the SMEs sector. This question was built is to answer the main research problems of this research. Table 4 analyzed and identified which factors considered by banks in providing the business financing for SMEs.

TABLE 4: THE FACTORS CONSIDERED BY THE BANK FOR SMES BUSINESS FINANCING

No.	The success factors (cited in literature)	A	B	C	D	E	F	G	Total
1	Financial statement	√	√	√	√	√	√	√	7
2	Sources of repayment	x	x	x	x	x	x	x	0
3	Purpose	x	x	x	√	√	√	x	3
4	Business ability/product	√	√	x	x	x	√	√	4
5	Knowledge	x	x	x	x	√	√	x	2
6	Third-party opinion	x	x	x	x	x	x	x	0
7	Size of business	x	x	x	x	x	X	x	0
8	Capacity	x	√	x	x	x	√	x	2
9	Character	√	√	√	√	x	√	x	5
10	Economic condition	x	√	x	x	x	√	x	2
11	Collateral	x	√	x	√	x	√	√	4
12	Capital	x	√	x	√	x	x	x	2
13	Competence management	√	x	x	x	√	x	√	3
14	Financial projection	x	x	x	x	x	x	x	0
15	Geographical risk	x	x	x	x	x	x	x	0
16	Market involved	√	√	x	x	√	x	√	4
17	Industry risk	√	√	√	x	x	x	x	3
18	Experience/track record	x	x	√	√	√	x	√	4
19	Strategic planning	x	x	x	√	√	√	x	3
20	<i>Conduct of current account (new contribute)</i>	√	√	√	x	x	x	√	4

Key to table:

A – Respondent 1

B – Respondent 2

C – Respondent 3

D – Respondent 4

E – Respondent 5

F – Respondent 6

G – Respondent 7

x – Factors not used by the banks

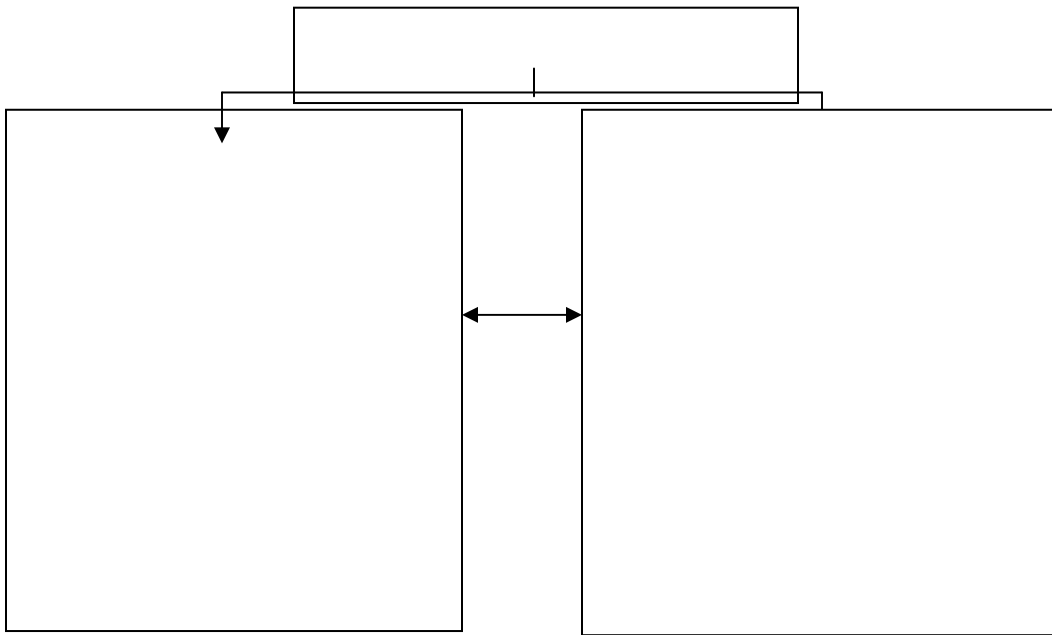
√ - Factors used by the banks

Source: develop for this study

In summary, of the 19 factors listed based on literature used by the banks in providing the business financing for SMEs, only 15 factors were identified from the synthesization of the convergent interview as factors used by the banks in getting business financing for SMEs including 1 new factor. All these 15 factors are; financial statement, purpose, business ability, knowledge, capacity, character, economic condition, collateral, capital, competence management, market involved, industry risk, experience, strategic planning, and *conduct of current account*. In addition, 5 factors which are sources of repayment, third-party opinion, size of business, financial projection and market involved are not considered by the respondents as a factor used by the banks in providing the business financing for SMEs.

Then, question 5 asked “from these all factors which factors is considered as a success factor in getting business financing for SMEs?” This question was built to confirm the question no. 4.

The synthesization from the convergent interview with the seven respondents, we found only 7 apart of 15 factors considered by the bank as a success factors in getting the business financing for SMEs. These 7 factors then categorized as ‘core factors’. Beside that, the other 8 factors have been listed as ‘supplement factors’. Then all these factors also have been categorized as ‘financial factors’ and “non-financial factors”, as shown in figure 4.



Source: developed for this study

FIG 4: THE SUCCESS FACTORS FOR SMES BUSINESS FINANCING

Question 6 was asked is to know what are factors will cause the application from SMEs is rejecting by the bank. This question was asked is to identify the exactly reason why bankers rejected the financing application. The answer from this question also maybe can be used by the applicant as a guideline in future when they want to apply the business financing. Considered of answers given by all the seven respondents found that poor presentation in financial statement becomes one of the factors for the banks to reject the application of business financing. The respondent which mentioned it are respondent 2, 3, 4, and respondent 6. They mentioned, if the financial statement submitted by the applicant not present a good performance of the business will make a difficulty in evaluation process because and not achieve the target and the bankers also not confident with the capability of the business to repay back the financing. The other factor is *business* itself will effect the application of financing. Respondents 1, 2, and 6 agreed with this factor because when banks do an evaluation at the business to identify whether the businesses have an ability to generate income with the product and services provided by them. If banks not satisfied and they think the business cannot go on, they will reject the application.

Then, the other factor is a *capacity* to repay the loan. Three of respondents which are respondent 5, 6, and 7 agreed that the capacity of repayment is important in financing. So, in the evaluation process if the bankers not satisfied with the capacity of applicant to repay the loan, the application will reject by the banks. The *management* also one of the factor will cause the financing is rejected by the banks. These are agreed by the respondent 1 and respondent 7. If the banker found the poor management they will not provide the financing because the management team is important as a backbone in determine the success or failure of business.

Two of the respondents which are respondent 1 and 2 mentioned the other factor affect the rejecting of financing is *industry*. This happen because the banks is not finance all the business in industry. For example nowadays most of banks not already interested to finance the property development industry because this sector is high risk. So, if the banker found the applicant is involved in the risky industry, they will reject the application. The other two respondents which is respondent 3 and 5 mention the *collateral* becomes one of the factor the financing

maybe reject by the banks because sometimes bank will request the borrower to prepare a suitable security for financing, so if the borrower failed, they can't provide the financing.

From the convergent interview, one respondent considered the purpose, experience/track record, conduct of current account, character, capital and economic condition as a factors will affect the rejected of financing. Respondent 3 cited the *purpose* of the loan because sometimes the applicant states the purpose of loan is not justify with their business. That why the application is rejected. Respondent 4 was stated the *experience* of owner have a big impact in application of financing. Also respondent 3 stated that the poor conducted of *current account* will make the application is rejected by the bank because it show the applicant is don't know how to manage and use the facilities provide by the banks. Respondent 5 considered *character, capacity, and economic condition* becomes a factors can make a financing failed. That is because character wills influent the business, if the bank found the applicant character is not good they also don't want take a risk by giving the financing to that person. While, the capacity is bank will identify whether the borrower also put their money into the business or all comes from the bank.

In conclusion, based on the conversation during the convergent interview as discussed, 12 factors have been considered by the banks to reject the business financing application. All these 12 factors are; poor financial statement, inability of business, less confident in capacity to repay, poor management, high risk industry, lack of collateral, purpose is not justify, no experience, poor conduct of current account, bad character, lack of capital and bad economic condition. In addition, this research has also analyzed the findings from the convergent interview. From the analysis, we found the following matters:

- Only 15 factors considered as a success factors in getting the business financing for SMEs in Malaysia.
- 7 factors were identified under the core factors based on the number of respond by the respondents during the convergent interview.
- Also 8 factors were identified under the supplement factors based on the number of respond by the respondents during the convergent interview.

## Conclusion

To answer the research problem as stated which are “what are the success factors in getting the business financing for SMEs?”, two models have been designed. Model 1 is listing the 15 factors used by the banks in evaluating the providing of financing for SMEs in Malaysia, as shown in table 4. To provide in-depth findings from this research, model 2 has been designed to list the success factors for SMEs business financing that can be used by entrepreneur in getting the business financing, as shown in figure 4. This model listed the 15 success factors comprised of 3 factors as ‘financial factors’ and 12 factors as ‘non-financial factors’. Moreover, the factors were categorized into two categories: core and supplement factors. From the 15 factor listed, 7 factors were included in core factor and others 8 factors were included in supplement factor. This research finding could be used to other place that have the same settings as this research used, that is, may be could be applied to all developing might as well to developed countries.

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# Financial Development and FDI in China: An Empirical Investigation with Granger Causality Tests

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## Abstract

The Toda–Yamamoto version of the Granger non-causality methodology was employed to test the direction of causality between foreign direct investment (FDI) and financial development in China over the period 1980–2004. Our empirical findings seem to suggest that financial development proxies cause FDI. Specifically, both the savings rate and banking credit to the private sector have been found to Granger-cause FDI inflows, while the existence of bi-directional causality between the interest rate spread and FDI has been evidenced. These findings do not confirm the conventional view, which holds that the direction of causality runs from FDI to economic growth via financial development. Consequently, what is proposed is further marketization of interest rates and promotion of financial development in order to keep up the current pace of FDI and maintain economic growth and employment creation.

## Introduction

The consensus in the literature is that financial development promotes economic growth by increasing the level and efficiency of capital and investments (see Levine (2003) for a review). Economic growth is thus dependent on investment, and a significant fraction of all investment flows through financial institutions (Hellmann and Murdock, 1998). Naturally, the performance and effectiveness of financial institutions are important considerations for policy-makers concerned about economic growth. Promotion of the financial sector results either directly, from deliberate policies aimed at changing its course, or indirectly, via a broad institutional setting and externalities. One such externality is spread via foreign direct investment (FDI) flows. While the empirical literature has moved us from assumptions of a passive foreign capital mechanism to explicit linkages between FDI and growth, the role of capital inflows in general, and FDI in particular, on the financial development process has not been emphasized.

The endogenous-growth literature linking domestic financial development and economic growth postulates that the effects of FDI on economic growth depend on the level of development of the host country's financial intermediation (see Levine, 1997; Alfaro et al., 2004). For instance, Aghion et al. (2006) show that in relatively poor countries, catching up requires the involvement of a foreign investor who is familiar with the frontier technology, together with steps taken by a local bank to directly monitor local projects to which the technology must be adapted. In such a context, the extent of local savings is important for innovation, and therefore growth, because it allows the domestic bank to co-finance projects and thus to attract foreign investment.

Regardless of the various channels through which FDI can influence economic growth, FDI inflows should manifest in the form of a greater volume of financial transactions and be rewarded by a greater level of financial development. Increases in capital inflows and financial transactions suggest a positive effect on savings, while increases in FDI into the financial sector are thought to improve efficiency. Furthermore, foreign entry into developing economies reduces the monopolistic excesses of domestic banks, since, as a result of development priorities, the local banking system is often used as a tool for providing directed credit to politically favored constituents or favored but loss-generating sectors of the economy (Goldberg, 2004). Blomstrom (1991) argues that foreign investment could enhance the efficiency of the host country's financial sector, through adoption of more efficient methods or investment in human and/or physical capital. By facilitating the transfer of managerial and technological know-how, FDI is seen as adding to the depth and breadth of the domestic financial market (Bosworth et al., 1999).

Recently, many countries whose economies are in transition have adopted policies aimed at attracting FDI. For instance, three decades after opening itself up to trade and investment, China has become the top recipient of

FDI among developing countries. Between 1979 and 1999, total aggregate inflows of FDI to China amounted to about 10 per cent of world FDI flows, and about 30 per cent of FDI received by all developing countries combined (OECD, 2000). These FDI flows are thought to be one of the major determinants of economic growth in China (Lardy, 1995). Alongside its growing FDI, China has experienced a tremendous increase in its financial development, with financial deepening (M2/GDP) rocketing to 120%. Furthermore, China has long had a practice of imposing interest rates from above, so the ability of commercial banks to price their products tends to be weak; hence, any policy or external shock (such as FDI) that affects the cost of financial intermediation and the resulting level of profitability could ultimately impact the course of development in the financial sector.

One question that immediately arises is, To what extent has FDI been able to causally affect China's financial development? Another, perhaps more important, question is whether causality has occurred in the opposite direction. We have investigated whether there is a causal relationship between FDI inflows into China and its financial development proxies, namely, financial deepness, the savings rate, banking credit to the private sector, and the cost of intermediation. We used the Granger non-causality test procedure, developed by Toda and Yamamoto (1995), in a bi-variate vector auto-regression (VAR) model.

The approach reported here differs in a number of ways from methods used by other researchers who have analyzed issues of this type. First, most studies focus on FDI in the financial sector. However, the present study considers the overall FDI inflows, apart from any sectoral disaggregation. In addition, the impact of FDI on economic growth and development has been discussed extensively, but there has been relatively little in the way of direct discussion of a causal link between FDI and financial development, particularly in the context of China.

The interrelationships between FDI and financial development in China are of considerable interest for analytical reasons, as well as for understanding the implications for other countries whose economies are developing or in transition. In this paper, we lay out some facts about FDI and financial development in China. In our statistical analysis, we compute the integration order of the pertinent variables and we apply several procedures to test for causality.

## **Facts about FDI in China and the Chinese Financial Sector**

For three decades now, China has been involved in reforming its financial sector—and with remarkable adeptness, resulting in a 9% rate of economic growth on average during that period. Since 1978, when China first opened its doors to foreign trade and investment, China's liberalization policies have transformed the country from a centrally planned economy to a more market-oriented one. In recent years, the ratio of broad money to GDP has reached 190%, which is high by any standard (Roubin and Setser, 2005); in addition, China has achieved substantial financial depth (as measured by the ratio of domestic credit to GDP, which has been in the 160% range). China has one of the highest savings rates in the world, at over 40% of GDP. However, due to the underdeveloped nature of the capital markets in China, most of the savings resides in bank deposits, which account for about 70% of investors' financial assets. Only 10% is in the form of bonds and equities, and the remaining 20% is in cash (Kang et al., 2002). At the end of 2004, the level of bank lending stood at about 140% of GDP, and the bank deposit base was 185% of GDP. Bond market capitalization was about 20% of GDP, and equity market capitalization amounted to about \$150 billion, less than 10% of GDP (Hericourt and Poncet, 2007).

Government interference has created distortions that have forced private Chinese firms to look for foreign investors in order to bypass both the financial and legal obstacles that they face at home (Huang, 2003). Between 1979 and 1997, for example, more than 50% of FDI in China was invested in equity joint ventures (Bai et al., 2004). Moreover, because the capital market in China is still in its infancy, Chinese enterprises rely heavily on bank loans, leading to a relatively high financial leverage and a concentration of loan risks in the banking sector.

The banking system in China consists of a number of institutions, most of which are owned by governmental entities at various levels of government. The Big Four state-owned commercial banks (SOBs) dominate the system, accounting for 55% of bank assets. They include the Bank of China (BOC), the China Construction Bank (CCB), the Industrial and Commercial Bank of China (ICBC) and the Agricultural Bank of China (ABC). Their missions differ according to the sectors of the economy (agriculture, versus the major industrial

and infrastructure sectors) to which they extend loans. With the exception of the ABC, close linkages developed between the SOBs and the State Owned Enterprises (SOEs).

China's banking system, though dominant, is generally regarded as weak in terms of solvency, since the levels of non-performing loans are still reported to be high. Under central planning, direct investment from the national treasury has played an important role, but this role has been diminishing (Bai, 2006). It follows that, in general, the SOEs benefit the most from investment made by the SOBs. As the fiscal deficit grew, however, the central government have been forcing the SOEs to meet their financial requirements with bank loans (Dobson, 2006), and since 1995 the government has increasingly introduced institutional and regulatory reforms to impose both efficiency in financial intermediation and a reduction in bad loans.

As part of its gradual transition process from a centrally planned economy to a market economy, China's state-owned enterprises and banks are being restructured, financial markets are being developed, and capital accounts are being further liberalized to allow capital inflows from a wider range of sources. As a result, an increasing number of regions have been opened to FDI. Capital that arises from certain categories of investment is intermediated through the financial system, including portfolio investment via the capital market and deposits and loans made by domestic as well as foreign banks.

Although the most important source of capital flows, namely FDI, is not intermediated through the financial system, that source of investment has not been immune from the effects of interest rate policies and reforms. The Chinese government caps the rates that banks can offer depositors and sets a minimum interest rate on bank loans, guaranteeing the banks a substantial spread so long as their loans perform (Brad, 2006). The Chinese government has been reluctant to raise the basic lending rate, in part because that would jeopardize the health of certain state enterprises. The available evidence suggests that most firms continue to borrow at a rate close to the reference rate (Setser, 2006). In their attempts to maintain overall macroeconomic stability via a policy of controlled interest rates, the Chinese authorities have prevented banks from pricing their offerings on the basis of risk, thereby implicitly forcing them to continue funding the state-owned enterprises.

Moreover, to safeguard banks' profitability, the Chinese authority has imposed caps on various deposit rates and floors on different lending rates, guaranteeing a large interest rate spread. The cap on the benchmark one-year deposit rate in 2006, for instance, was 2.52%, while the floor for the one-year lending rate was slightly over 6%, allowing banks and those institutions that loan money a 3.5% interest spread (Forbes, 2006). The wide interest rate spread gave commercial banks greater incentive to lend. However, since 2004, interest rates on loans (excluding those for household mortgages) have been determined by borrowers and lenders through negotiation. Therefore, the deposit rate ceiling policy also causes funds to be steered into the capital market, which promotes capital market development (PBOC, 2005).

There is a widespread view that China has benefited substantially from FDI inflows, and that FDI accounts largely for its economic growth (Lardy, 1995). As previously noted, China's higher savings rate suggests that the country does not need FDI to finance its domestic capital accumulation. However, FDI inflows are needed because of their contribution in terms of technology, management skills transfer, and spillover effects in all industrial sectors, including the financial sector. Leigh and Podpiera (2006) argue that while institutional inefficiencies account in part for FDI, active policies of the Chinese government designed to yield "know-how transfer" from foreign companies might also be responsible.

Entry of foreign banks into the domestic market can be expected to gradually drive down the cost structure in the domestic banking sector as state-of-the-art technology and best practices are introduced. However, Leigh and Podpiera (2006) argue that, in most other countries, foreign bank entry has taken the form of direct takeover or majority shareholding, whereas foreign investments in China's banks have been minority shareholdings with very limited management involvement. China has managed to accommodate several aspects of a market-based system while still retaining its communist underpinnings.

During the 1980s, FDI inflows grew steadily but remained relatively low, and were largely confined to joint ventures with Chinese SOEs. FDI inflows peaked at over US\$45 billion a year in 1997–98. A further surge in FDI preceded and accompanied China's accession to the World Trade Organization (WTO) in December 2001, promoting China to the highest position as an FDI destination since 2003 (Leigh and Podpiera, 2006). Upon joining the World Trade Organization in 2001, China pledged to give foreign banks full access by December 2006. Foreign

banks in China have started accepting deposits in yuan from individuals for the first time in April 2007, a milestone that marks a significant opening of the country's financial system which was formally introduced in December 2006.

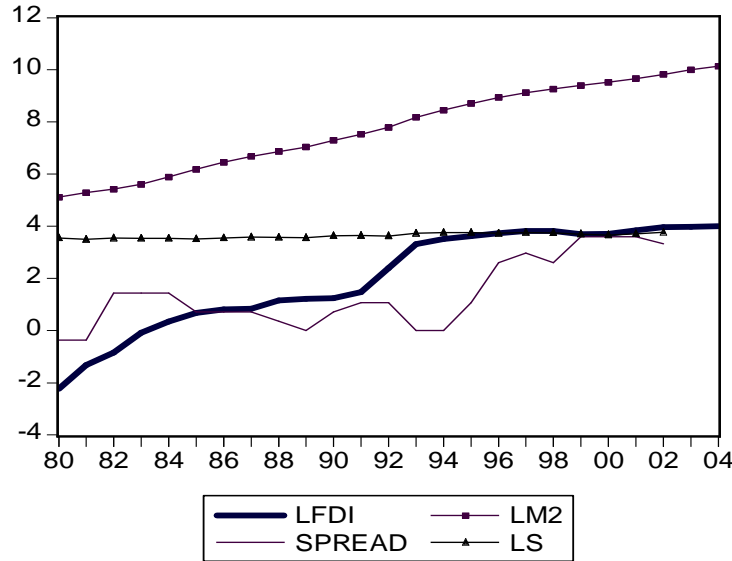


FIG. 1: LOGARITHMIC PLOTS OF FDI, BROAD MONEY SUPPLY, SAVINGS, AND INTEREST SPREAD

Logarithmic plots of FDI, broad money supply, savings, and interest spread for the period 1980–2004 are presented in Figure 4. As indicated by those plots, there has been an upward trend in M2 although the Chinese monetary authorities have been successful in slowing the money supply, without pushing up interest rates, by raising reserve requirements and by partially offsetting the growth of the domestic money supply generated by capital inflows. Also, the upward trend in interest spread suggests increasing intermediation cost or benefits opportunities for banks. Furthermore, broad money and interest spread show an upward trend during the period covered by this study—a trend that matches the strong growth of FDI during that period rather well. Therefore, the relationships between FDI and financial development proxies can plausibly be postulated.

## Model, Methodological Considerations, and Data

### Standard Empirical Framework

Drawing from Pagano (1993), the relationship between capital flows and growth can be examined using a simple endogenous-growth  $AK$  model. The potential effects of changes in financial variables (i.e., financial development and capital flows) on steady-state growth can be deduced from their influence on capital accumulation. In a closed economy, output can be expressed as a linear function of the aggregate capital stock:

$$G_t = AK_t \quad (1)$$

This type of production function can be viewed as a reduced form for either a framework in which the economy is competitive with external economies, as in Romer (1989), or one in which  $K_t$  is assumed to be a composite of physical and human capital, as in Lucas (1988), where the two types of capital are reproducible with identical technologies. In this model, there is no population growth, and the economy produces only one good, which can be consumed or invested. By assuming that the capital stock depreciates  $(1 - \delta)$ , gross investment is

$$I_t = K_{t+1} - (1 - \delta)K_t \quad (2)$$

Financial intermediation consists of transforming savings into investment. The transaction cost involved,  $\phi$ , can be seen as the spread between lending and borrowing rates charged by banks. Following Alfaro (2006), the spread between the lending and borrowing rates is used here as one of the measures of financial development, as it captures the cost of intermediation fairly well. The interest spread includes the costs of ex ante information gathering about investment projects and the ex post information costs of policing investments that arise in a context of imperfect information (Greenwood et al., 2007), as is the case in China. Furthermore, if the gap between the internal rate of return earned by firms and the rate of return received by savers narrows as a result of improvements in the effectiveness of intermediation, then the capital stock in the economy should rise. Since capital market equilibrium requires that net savings (gross savings minus transaction costs) be equal to gross investment, equilibrium in the capital market ensures that

$$\phi S_t = I_t \quad (3)$$

Combining equations (1) through (3) and dropping the time index  $t$ , the rate of growth of output,  $g$ , can be written as follows:

$$g = A \left( \frac{I}{G} \right) - \delta = A \phi s - \delta, \quad (4)$$

where  $A$  is the productivity of capital and  $s$  is the gross savings rate. Equation (4) thus represents the steady-state growth rate of the model with financial intermediation and reveals two main channels through which financial development can affect economic growth. The first channel involves role of the financial sector to influence the fraction of savings that is channeled into investment projects and by this fuelling capital accumulation and economic growth.

The second of channel consists of the efficiency with which savings are allocated to investment. Financial development is assumed to occur as a result of increased financial intermediation, though it could also be influenced by other factors—such as financial innovation or government policies. As banks engage in increased intermediation, they are likely to become more efficient at what they do, and thus the spread between their lending and borrowing rates narrows. In this model, an improvement in the allocation of capital translates into higher growth, because it increases the overall productivity of capital.

As in Bailliu (2000), this framework can be extended to incorporate FDI flows. For simplicity, it is assumed that no distinction is made between Greenfield FDI and M&A<sup>1</sup>. If there is a net inflow of capital, then a larger pool of savings will be available for investment than would be the case in the absence of capital flows. Thus, in the presence of FDI inflows, the financial market equilibrium equation becomes

$$\phi^* (S_t + F_t) = I_t^*, \quad (3')$$

where  $F$  represents FDI inflows. In that scenario, the steady-state growth rate is given by

$$g^* = A^* \left( \frac{I^*}{G} \right) - \delta = A^* \phi^* \frac{(S + F)}{Y} - \delta = A^* \phi^* s^* - \delta \quad (4')$$

The steady-state growth rate of the model with financial intermediation and international capital flows depicted in equation (4') highlights the various channels through which capital flows can influence economic growth via financial intermediation. First, an increase in FDI yields an increase in  $\phi$  via  $A^*$ . Furthermore, FDI can have an impact on financial development via the production process if domestic investment is a function of FDI. FDI inflows can promote FD if they lead to an improvement in both the savings rate and transaction costs. For the savings rate to increase in the presence of FDI, it must not crowd out domestically pooled savings. Domestic banks have a cost advantage over foreign investors in evaluating domestic projects, which implies that the success of FDI-funded projects requires reliance on domestic banks because of their informational advantage.

As in Alfaro et al. (2004), if the success of FDI in China depends on the involvement of local banks, it can be assumed that the flow of FDI-induced resources into the financial system renders the domestic banks more

efficient at converting savings into investment (i.e., if the spread falls) and/or better able to allocate savings to the most productive investment projects. Thus, to the extent that FDI-induced financial flows are intermediated by domestic financial institutions, they can have a positive effect on growth, by causing the banking sector in the local economy to become more efficient (i.e.,  $\phi^* > \phi$ ) and/or better at selecting productive investment projects (i.e.,  $A^* > A$ ). Therefore equation (4') suggests that FDI could lead to increases in investment and savings and an improvement in the interest spread. In sum, FDI can foster financial development if it leads to investments that are associated with positive spillovers into the financial system. Improvements in the efficiency of financial intermediation that are due to improvements in dissemination of information are likely to reduce the spread between the internal rate of return on investment in firms and the rate of return on savings received by depositors.

In the above model, it is assumed that capital inflows are exogenously determined. With this assumption in mind, equation (4') can be used to study how the savings rate, financial deepness, the interest rate spread, and banking credit to the private sector adjust to changes in FDI inflows. From a theoretical point of view, the relationship between FDI and financial development in terms of causality could go in either direction (or both). In such circumstances, a vector auto-regression (VAR) model is more reliable for testing causality hypotheses than a single-equation model. VAR models treat all variables as potentially endogenous, thereby avoiding infection of the model with false assumptions or restrictions [Sims, 1980]. In this study, we estimated the parameters in equation (4') by regressing the logarithms of the financial development proxies with respect to FDI. In particular, we used the following bi-variate vector auto-regression model:

$$Y_t = \alpha + \beta X_t + \mu_t, \quad (5)$$

where  $Y_t$  is a set of measures of financial sector development at time  $t$ ,  $X_t$  denotes FDI inflows, and  $\mu_t$  is the error term. This entailed a three-step process: analysis of the order of integration of the variables, a test for the order of integration of the time series, and implementation of the Toda–Yamamoto version (1995) of the Granger non-causality method (Granger, 1969) to estimate causality.

#### Unit Root and Co-integration Testing Procedure

A non-stationary time series  $Y_t$  is said to be integrated of order  $d$  (and denoted by  $Y_t \sim I(d)$ ) if it achieves stationarity after being differenced  $d$  times (Granger, 1986; Engle & Granger, 1987). To determine the order of integration, the most common unit root test is the augmented Dickey–Fuller (ADF) test (Dickey and Fuller, 1979, 1981), which estimates the following equation:

$$\Delta y_t = c_1 + \varpi y_{t-1} + c_2 t + \sum_{i=1}^p d_i \Delta y_{t-i} + v_t, \quad (6)$$

where  $y_t$  is the relevant time series,  $\Delta$  is a first-difference operator, the linear term  $C_{2t}$  allows for a linear time trend,  $p$  is the lag length, and  $v_t$  is the error term. The above equation can also be estimated without including the linear term. The null hypothesis for the existence of a unit root is  $H_0: \varpi = 0$ .

The tests are based on the null hypothesis  $H_0$ . If the calculated ADF statistics are less than the critical values given in Fuller's table, then the null hypothesis ( $H_0$ ) is accepted and the series is either non-stationary or not integrated of order zero.

#### Causality Test Procedure

According to Granger (1969), if the inclusion of past (lagged) values of  $X$  significantly contributes to the explanation of  $Y$  in a regression of  $Y$  with respect to its own past values and all other relevant information, then  $X$  is said to Granger-cause  $Y$ . To examine the nature of causality between  $X$  and  $Y$ , an appropriate Granger causality test requires determination of an equal lag length VAR involving  $X$  and  $Y$ . The importance of the determination of the lag length is demonstrated by Braun and Mittnik (1993), who show that estimates of a VAR whose lag length differs from the true lag length are inconsistent. Lutkepohl (1993) also demonstrates that overfitting (selecting a lag length which is of higher order than the true lag length) causes an increase in the VAR mean-square forecast errors, whereas underfitting the lag length often generates auto-correlated errors. To avoid over- or underfitting the lag length, Toda and Yamamoto (1995) provide an alternative approach to test for non-causality, one which is based on the test equations of Granger but augmented with extra lags, where the number of extra lags depends on the potential

order of integration of the series of interest. If the series are assumed to be integrated of order one, then one extra lag is added to each variable in the test equation.

The Toda–Yamamoto (1995) approach involves using levels of the variables as in (7) and (8) and estimating the following bi-variate VAR system through the seemingly unrelated regression (SUR) model:

$$X_t = \alpha + \sum_{i=1}^{p+d} \beta_i X_{t-i} + \sum_{j=1}^{p+d} \gamma_j Y_{t-j} + v_t \quad (7) \quad Y_t = a + \sum_{i=1}^{p+d} b_i Y_{t-i} + \sum_{j=1}^{p+d} c_j X_{t-j} + u_t, \quad (8)$$

where  $\alpha$  and  $a$  are constant terms,  $\beta$  and  $\gamma$  are coefficients of exogenous variables,  $k$  is the optimal lag length in the original VAR<sup>2</sup> system,  $d$  is the maximal order of integration of the variables in the VAR system, and  $u_t$  and  $v_t$  are white-noise error terms.

The testing procedure consists of estimation of an augmented VAR( $k + dmax$ ) model, in which the initial lag lengths,  $k$ , are augmented with an extra lag, which depends on the likely order of integration of the series  $X_t$  and  $Y_t$ . If  $X_t$  and  $Y_t$  are both integrated of, say, order 1, then one extra lag is added to each of the original VAR models. Rambaldi and Doran (1996) have proved that this method can be computed by using an SUR form.

The modified Wald (MWald) test for zero restrictions is then used to test the direction of causality. In (7), for example, the lags for  $Y_t$  (excluding the extra lag which is added to capture the maximum order of integration) are tested for their joint significance (i.e., the  $\gamma_j$ 's in (7)—are hypothesized to be equal to zero). If the null hypothesis (that the lags are jointly equal to zero) is accepted, then  $Y_t$  does not Granger cause  $X_t$  in (7). Similarly, the null hypothesis that the joint significance of  $c_i$ 's in (8) equal to zero provides an indication for the reverse causality.

Monte Carlo experiments carried out by Zapata and Rambaldi (1997) provide evidence that the performance of the MWald test is comparable in size and power to the likelihood and Wald tests. The advantage of this procedure is that it does not require precise knowledge of the integration properties of the variables. In addition, a standard vector auto-regression in the levels of the variables (rather than first differences, as is the case with the Granger (1969) and Sims (1972) causality tests) can be accommodated by the model. Such a method can be applied even when there is no integration, and/or when stability and rank conditions are not satisfied, "so long as the order of integration of the process does not exceed the true lag length of the model" (Toda and Yamamoto, 1995).

Before moving into estimation results, however, a word on the sources of the data is in order. The degree of financial development can be measured in terms of different components, namely the size, the structure and the efficiency of the financial sector. In this study, the size of the financial sector is proxied by savings rate and financial depth, M2/GDP. The structure of the financial sector is represented by bank loans granted to private sector. Efficiency of the financial sector is proxied by interest rate spread. The sample period runs from 1980 to 2004, and data were available for every year during that period. The data on savings, broad money (M2), interest rates, and banking credit to the private sector are from *Global Development Finance* (World Bank, 2006) and *World Development Indicators* (World Bank, 2006), while data on FDI are from *International Financial Statistics* (International Monetary Fund, 2006).

## Estimation Results

### Results of Stationary and Co-integration Tests

We performed tests that included just an intercept as well as tests that included a linear time trend. The augmented Dickey-Fuller test (Dickey and Fuller, 1979, 1981) was applied to the variables  $S$  (log of the savings rate),  $M2$  (log of the ratio M2/GDP),  $CP$  (log of the real banking sector's credit to the private sector),  $F$  (log of the ratio FDI/GDP), and  $Spr$  (log of the interest rate spread). The ADF regression and null hypothesis of a single unit root cannot be rejected at the 10 percent level for any of the five variables, and each of the five series was found to be integrated of order 0 after first differencing at the 5% level (10% for  $S$ ). The maximal integration orders ( $d_{max}$ ) of the variables are



given in Table 1, where it can be seen that all the variables were found to be integrated of order 0 after first differencing.

TABLE 1: UNIT ROOT TEST RESULTS

	Without linear time trend		With linear time trend	
	Level	1 <sup>st</sup> Difference	Level	1 <sup>st</sup> Difference
<i>FDI</i>	-2.06	-4.15**	-1.60	-4.14*
<i>S</i>	-0.75	-3.81*	-3.35	-3.61**
<i>M2</i>	-2.66	-3.87*	-2.31	-3.67*
<i>Spr</i>	-1.16	-3.84*	-1.79	-4.14*
<i>CP</i>	-0.46	-4.43*	-2.54	-4.30*

Note: \* and \*\* indicate significance at the 5% and 10% levels, respectively.

Having determined that  $d_{\max} = 1$  for all series, we then proceeded to estimate the lag structure of a VAR system in levels. Our results, which are given in Table 2, indicate that the optimal lag length based on Akaike's FPE criteria is  $k = 3$  for model 1 (the equation for *M2* vs. *FDI*) and  $k = 2$  for the other three models.

#### VAR Lag Order Selection Criteria

In order to confirm the presence of a long-term causal relationship as predicted by economic theory and to check that the algebraic signs were as expected, we also performed co-integration tests.

TABLE 2: OPTIMAL LAG SELECTION

Model	Variable	Optimal lag ( $k$ )	$d_{\max} + k$
1	M2 ratio and FDI	3	4
2	Savings ratio and FDI	2	3
3	Credit ratio and FDI	2	3
4	Interest rate spread and FDI	2	3

We then estimated a system of VAR in levels, with a total of  $d_{\max} + k = 4$  lags for model 1 and  $d_{\max} + k = 3$  lags for models 2–4. The results of the MWald test statistics as well as its  $p$ -values are presented in Table 3.

#### Toda–Yamamoto Causality Tests

The analysis postulated that China's financial development is a function of its FDI inflows. We tested four financial development proxies against FDI. The results, which are given in Table 4, indicate that the  $p$ -values of the tests for four of the models listed there (models 2a, 3a, 4a, and 4b) are very small, which calls for a rejection of the joint null hypothesis at standard significance levels. Specifically, the results point to uni-directional causality, running from savings and banking credit to FDI, while supporting bi-directional causality between FDI and the interest spread.

We ran a series of diagnostic tests to ensure that our underlying assumptions held. Based on the long lag structure, we also conducted the Breusch–Pagan Lagrange Multiplier (LM) test to verify the suitability of the SUR

estimation versus the standard VAR estimation. The results of the LM test—which verify the null hypothesis of a non-diagonal error covariance matrix—lend support to our use of the SUR estimation (see Table 3). As shown in Table 3, the null hypotheses are rejected in models 2a, 3a, 4a and 4b.

TABLE 3: TODA–YAMAMOTO’S VERSION OF GRANGER CAUSALITY RESULTS

<b>Model</b>	<b>Null Hypothesis</b>	<b>MWald Statistics</b>	<b>LM</b>
<b>1a</b>	M2 does not Granger-cause FDI	1.256 (0.125)	1.991 (0.186)
<b>1b</b>	FDI does not Granger-cause M2	4.754 (0.191)	0.291 (0.749)
<b>2a</b>	Savings does not Granger-cause FDI	15.77 (0.000)	0.252 (0.781)
<b>2b</b>	FDI does not Granger-cause savings	4.371 (0.112)	0.005 (0.994)
<b>3a</b>	Credit does not Granger-cause FDI	13.46 (0.001)	0.919 (0.423)
<b>3b</b>	FDI does not Granger-cause Credit	3.367 (0.185)	0.603 (0.561)
<b>4a</b>	Spread does not Granger-cause FDI	10.16 (0.004)	2.913 (0.096)
<b>4b</b>	FDI does not Granger-cause Spread	6.979 (0.048)	0.486 (0.626)

Note: The figures in parentheses are the  $p$ -values.

It should be noted that, given the small sample size employed in this paper, the Toda–Yamamoto test may suffer from size distortion and low power (Mavrotas and Kelly, 2001). In view of this, we checked the robustness of the causality test results by recalculating the  $p$ -values obtained in the initial MWald test, by using a bootstrap test with 1000 replications. The idea behind a bootstrap test is to use the estimation residuals to artificially generate additional observations that have the same distribution as the original ones; this is done via a Monte Carlo type process. Using the additional observations, a more robust estimation can be used undertaken (Greene, 1997). The results are given in Table 4. Given the nature of the test, both the MWald test statistics and the  $p$ -values should be different from those obtained and reported in Table 3. The  $p$ -values in Table 4 show the probability that the value of the independent variable in the regression is equal to zero. The bootstrap results confirm the robustness of the tests and thus the findings reported in Table 3.

TABLE 4: BOOTSTRAP TEST RESULTS

Model	Null Hypothesis	MWald Statistics
<b>1a</b>	M2 does not Granger-cause FDI	0.338 (0.188)
<b>1b</b>	FDI does not Granger-cause M2	0.421(0.191)
<b>2a</b>	Savings does not Granger-cause FDI	0.771 (0.013)
<b>2b</b>	FDI does not Granger-cause savings	0.086 (0.112)
<b>3a</b>	Credit does not Granger-cause FDI	1.334 (0.038)
<b>3b</b>	FDI does not Granger-cause Credit	0.647 (0.185)
<b>4a</b>	Spread does not Granger-cause FDI	0.992 (0.018)
<b>4b</b>	FDI does not Granger-cause Spread	1.357 (0.055)

Note: The figures in parentheses are the  $p$ -values.

All in all, our results suggest that FDI flows have been pulled by credit and savings rather than the other way around. This indicates that FDI inflows are not antecedents of savings and credit, but rather emerging outcomes of interactions among constituent systems that underlie economic growth. This conclusion also corroborates the postulate by Alfaro et al. (1996) that domestic credit acts as a supplement to FDI insofar as the availability of financing influences the course of FDI, since many investors face financial constraints, which can be relaxed only by grants of credit by banks and other financial institutions (credit expansion).

How do we interpret the finding that there is causality running from banking credit to FDI? One possible explanation is that the relationship reflects and is driven by domestic savings, which are either determined by deeper forces or generated through growth itself. After all, if foreign inflows responded largely to investment opportunities that stem from sustained growth and ultimately depend on the local savings rate, there should be an unambiguous causality directed from the savings rate to FDI. Furthermore, this finding is in line with the neo-classical tenet that savings causes investment and not the reverse.

One of the most striking results is the absence of any causality between FDI inflows and the M2 ratio, which makes it reasonable to conclude that sterilization measures have been effective in China insofar as authorities have been successful in their attempts to counteract the effects of capital inflows in general.

Another result worth noting is the bi-directional causality between the cost of intermediation (the interest rate spread) and FDI. Since most of the interest rates during the period covered by this study were set by the government, that finding could suggest that the monetary authorities might have been effective in trying to influence the direction of capital inflows. Despite the huge savings rate and international reserves, the Chinese authorities obviously needed FDI because of its technological and managerial components. Through circular causality, the causal processes become mutually entrained in a coherent and stable system that is conducive to economic growth. This is not surprising, since the Chinese central bank has flexibly adjusted the benchmark interest rates on loans and

deposits which it imposes on financial institutions and has coordinated its interest rate policies with the balance of payments in order to meet its macroeconomic development goals.

Bi-directional causality between FDI and the cost of intermediation reflects the contemporary institutional realities of China, at least to first approximation. Since interest rates were set by the government during much of the period covered by this study, the interest spread co-influenced FDI inflows at the expense of loan risk evaluation by banks. By preventing banks from pricing their offerings on the basis of risk, banks were ultimately forced to continue lending mainly to the SOEs (because of the quasi-fiscal guarantee of the loans they extended to them). As long as that was the case, the private sector had no better alternative than foreign financing, particularly through the joint-venture form of FDI. Still, our bi-directional causality between FDI and interest spread comes as a confirmation that the direct control on loan and deposit rates has been used by the Chinese authorities as a means for maintaining the interest of commercial banks and the necessity of the financial system stability (Dai, 2002).

Our findings do not confirm the conventional view that the direction of causality runs from FDI to economic growth via financial development. Consequently, this casts some doubt on the validity of policies which emphasize the importance of FDI for financial development on the assumption that FDI brings about both economic growth and financial development through capital accumulation. Moreover, evidence of co-movement between the cost of intermediation and FDI lends some support to the efficiency channel of transmission.

The policy implication is that the sustainability of FDI, which is critical in maintaining high rates of employment and economic growth, depends on an effective financial system and further interest-rate liberalization. Evidence that the interest spread affects FDI and conversely (either directly—by affecting savings and the availability of investment resources, and/or the efficiency of intermediation—or indirectly, through higher productivity), indicates the evolving nature of China's process of transition in which the marketization of the cost of intermediation deserves particular attention. The cost of intermediation is a key factor in China's FDI inflows, since the major types of business conducted by the commercial banks—deposits and loans—are still the main channels for the accumulation and supply of a social fund in China.

## Conclusion

The present paper has employed the Toda–Yamamoto version of the Granger non-causality methodology to test potential causal effects on the course of China's financial development over the period 1980–2004 as a result of the country's huge FDI inflows. Our empirical findings seem to suggest that it is financial development proxies that cause FDI. Specifically, both the savings rate and banking credit to the private sector have been found to Granger-cause FDI inflows, while the existence of bi-directional causality between the cost of intermediation and FDI has been evidenced.

In view of our findings, the conventional view, which holds that the direction of causality runs from FDI to economic growth via financial development, is not confirmed. Consequently, this casts some doubt on the validity of policy guidelines which emphasize the importance of FDI for financial development on the assumption that FDI causes both economic growth and financial development through capital accumulation. Moreover, evidence of co-movement between the cost of intermediation and FDI lends some support to the idea that monetary authorities have been protecting commercial by artificially creating lending opportunities for them. Therefore, interest rate marketization needs to be carried out gradually by ensuring a reasonable interest rate spread of commercial banks while avoiding any disruption in FDI inflows. The key issue here is whether increasing entries of foreign banks will be able to bring the alleged efficiency improvement while keeping the volume of FDIs at desired levels.

From those findings, it follows that the introduction of market-based deposit and lending rates holds the key to the success of interest rate reform. Specifically, the impact of FDI on financial development has been in harmony with the cost of intermediation. If monetary policy allows for maintenance of a coherent cost of intermediation (interest spread) with respect to FDI, and if certain borrowers are dependent on banks, so that any change in the cost of intermediation alters the banks' willingness to lend to the private sector, then there will likely be remarkable changes in FDI inflows. Thus it is obvious that the interest rate and financial reforms introduced since

2004 are likely to condition the future course of FDI into China, which will in turn further contribute to the country's financial development.

The findings also suggest that the still higher non-performing loans in the banking sector suggest that FDI still remains a positive contributor factor in further developing the financial sector insofar as FDI inflows provide financial authorities with large maneuver margin in redirecting bank loans to priority projects through higher interest spread. Therefore, the Chinese policy-makers should promote more rapid financial development in order to keep up the current pace of FDI and maintain economic growth and employment creation. Evidence that the interest spread affects FDI and conversely points to the importance of developing a more effective financial system by pursuing the ongoing financial and monetary reforms without jeopardizing the pace of economic growth.

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## End Notes

Merger and Acquisition (M&A) commonly refers to the acquisition of existing assets, while the other component of FDI—Greenfield—primarily relates to the acquisition of new assets. Greenfield FDI involves mainly (though not exclusively) new capital assets, while M&A is just a transfer of existing ones; therefore, Greenfield FDI would seem

more likely to affect growth—if at all—via increased physical investment, while M&A FDI would be more likely to do so via enhanced productivity growth.

<sup>2</sup>The original VAR is in the following form: 
$$X_t = \alpha + \sum_{i=1}^p \beta_i X_{t-i} + \sum_{j=1}^p \gamma_j Y_{t-j} + v_t$$

# FDI Law and Policy in Indonesia: Replacing the ‘Contract of Work’ System

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## Abstract

Indonesia created a novel system to administer Foreign Direct Investment (FDI) in mining. This Contract of Work (CoW) system served the country well from 1967 up to 1997 when the national political (democracy revolution) and economic (Asian Currency) crisis, coupled with the Busang fiasco (where large scale fraud in gold discovery claims caused billions in losses) led to total collapse and cessation of FDI in the country’s extraction industry. Since the stabilization of the political and economic framework in Indonesia after free elections in 1999, the government has attempted to create a new law to replace the CoW system which has yet to be passed. This paper evaluates the new proposals and compares them to the previously successful system and suggests concerns and reforms that need be addressed. Specific focus is placed on issues of security of tenure, taxation and royalties, local government involvement, and environmental damage.

## Introduction and Background

Indonesia has some of the world’s largest reserves of gold and other minerals and commodity prices have soared in recent years. The price of gold has continuously risen from US\$384.40 in 1996 to US\$444.74 in 2005. Indonesia’s resource potential is ranked above Zimbabwe, South Africa, Bolivia, Mongolia, Western Australia, Chile, Nevada, Russian and Congo (Fig. 1). Yet the Wall Street Journal in February this year reported that mining companies “haven’t broken ground on a single mine here since Asia’s 1997-98 financial crisis” (Wright and Barta, 2007).

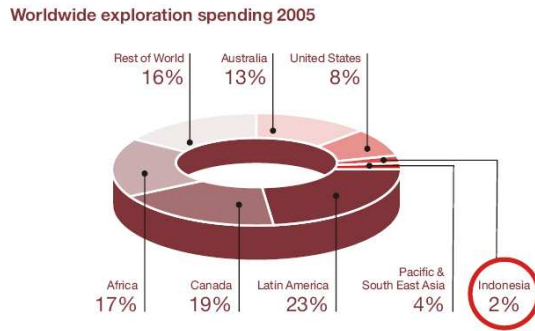


FIG. 1: INDONESIA’S MINERAL POTENTIAL

Source: Wall Street Journal, February 7, 2007

Mining has been one of Indonesia’s top industries for foreign investment. It contributed 50,197 billion Rupiahs or around US\$5.5 billion to the economy in 2005, which accounts for 2% of the GDP. Total government revenues from taxes and royalties increased 62% to US\$2.7 billion, a record for the last 10 years. (mineIndonesia,

2006) Yet, the same survey by PricewaterhouseCoopers notes that the country continues to lag behind global trend of new investments. Canada's Metals Economic Group (MEG) budgeted worldwide exploration in 2005 at US\$5.1 billion. Current exploration spent in Indonesia is only 2% of the global total (Fig. 2). This is noteworthy in that expenditure on greenfields explorations is critically low in Indonesia, and dropped from an average of US\$40 million (1995-1997) to US\$7 million (2001-2005).



Source: Metals Economics Group

FIG. 2: INDONESIA'S EXPLORATION SPENDING  
Source: mineIndonesia 2006, PricewaterhouseCoopers

The Fraser Institute in its 2004/2005 survey of mining companies ranked Indonesia very low for its investment conditions, scoring 22 out of 100 on the Policy Potential Index, and ranked it sixth last, marginally ahead of Zimbabwe, Papua New Guinea, the Democratic Republic of Congo, Venezuela, and the Philippines (McMahon, 2006). The main concern of foreign investors remains the lack of a clear legal framework. Among the factors that were deterring investment in Indonesia, a very large percentage of respondents (53%) cited the uncertainty in regulations (Table 1).

TABLE 1: FACTORS DETERRING INVESTMENT IN INDONESIA

Factor	% of respondents who consider factor to be a strong deterrent to investment in Indonesia	Comments
Uncertainty concerning the administration, interpretation and enforcement of existing regulations	53%	10 <sup>th</sup> lowest rank
Infrastructure	34%	8 <sup>th</sup> lowest rank

Source: Fraser Institute\*

Source: mineIndonesia 2006, PricewaterhouseCoopers

Indonesia has had in place a very novel and unique law for inviting foreign investment in mining. Yet, the PricewaterhouseCoopers survey of 2005 reports that the new draft mining law, now before parliament "indicates that the CoW system will cease to exist for new projects, which is not favored by foreign investors." (mineIndonesia, 2006).



## **Contract of Work (CoW) System**

Indonesia's unique system to administer Foreign Direct Investment (FDI) in mining was created in 1967 and lasted till 1997 – a full thirty years. The CoW system is a well-developed and transparent system of granting concessions and mining rights and obligations to foreign companies. The basic needs of investors: Security of Tenure (covered as Conjunctive Title which empowers the investor to proceed from General Survey through Exploration all the way through Mine Development, Production, Processing and Marketing)) and Security of Investment (covered as *Lex Specialis* treatment, which assures that the investment is not subject to changes in government laws or policies after signing for the period in force); are expressly stipulated.

The Indonesian Mining Law of 1967 does not cover in detail the terms and conditions under which the foreign investor must operate, so these are expressly outlined in minute detail in the CoW. The later generations of CoWs (3<sup>rd</sup> to 7<sup>th</sup>) standardized working procedures and served to fulfill the needs of investors to the point of acquainting and familiarizing them with the system. Foreign investors came to feel “comfortable” with the system. The shortcomings with regard the inefficiencies in the bureaucracy, the poor infrastructure and bad business practices were overlooked as long as the return on investment was meaningful. Naturally, the political stability in the country allowed for long-term investment. Slow, creeping changes via the various generations of the CoW worked either to increase or decrease the enthusiasm of investors, but the confidence in and workability of the system remained intact. During this time, seven generations of contracts were evolved based on the needs of the country as well as foreign investors, taking into account the prevailing market conditions.

## **Collapse of the CoW System**

Two major developments led to the collapse of the mining industry in the period 1997-1998. First was the Busang Scam also known as the Brea-X scandal, described as the biggest mining hoax in history. A small Canadian company claimed a find of over 200 tons of gold in Kalimantan, Indonesia which was valued at over US\$70 billion. The company's stock price rose from fifty cents in 1994 to \$286 in 1996 and ultimately dropped to nine cents in May 1997 when the false claims were discovered (Francis, 1998). This remains a serious blot on Indonesia's legal system. The second was the Asian Monetary Crisis of 1997 and the heavy depreciation of the Indonesian Rupiah which led to protests and the end of the Suharto era, and after 3 years of uncertainty, a new democratic government was elected in 1999.

The resulting political instability caused a severe decline in mining investment. By 2000, more than 170 exploration projects had been either suspended or withdrawn and rendered inactive, and only 12 of the 268 CoWs were in operation. The 8<sup>th</sup> generation of CoW proposed by the government remained unsigned by any investor (Bhasin, 2002). Indonesia got only 1% of exploration dollars worldwide. No new CoW has been issued for eight years (Table 2). The new democratization process demanded decentralization and this required a restructuring of the investment laws for mining in line with the local autonomy laws, which to this date has not been achieved.

TABLE 2: STATUS OF COWS  
**Contracts of Work by generation and status**

	1st	2nd	3rd	4th	5th	6th	7th	Total
Producing	-	4	1	5	1	1	-	12
Other stages	-	-	1	9	5	25	14	54
Suspended/Terminated	1	13	10	80	2	39	24	169
<b>Total</b>	<b>1</b>	<b>17</b>	<b>12</b>	<b>94</b>	<b>8</b>	<b>65</b>	<b>38</b>	<b>235</b>

Source: Directorate of Minerals and Coal Enterprise

Source: mineIndonesia 2006, PricewaterhouseCoopers

## New Draft Mining Law

The new mining law (The Bill of Mining Law) does away with the CoW system established under Law No. 11 of 1967 altogether. It is intended to comply with the fiscal decentralization and regional autonomy brought about by Laws 22/1999 and 25/1999. The new mining law would also provide greater level of environmental protection and recognize needs of the local community's rights. The key elements as outlined by the US Embassy in Jakarta are:

1. **Reclassification of Resources** – Mineral resources have been reclassified from (a) strategic, (b) vital and (c) non-strategic and non-vital to (a) radioactive, (b) metal, (c) non-metal and (d) coal, peat and oil-shale. To these have been added two new areas of regulation – geothermal and groundwater – not formerly included as mineral resources.
2. **Reclassification of Parties** – Parties that may conduct mining operations are now limited to two: a business entity or a private person. Previously parties included government institution, state owned company, local owned company, cooperative, foreign major company, foreign minor company, a joint venture company, or a person or legal entity.
3. **Foreign Investment** – There is now no restriction on foreign capital. Previously foreign investment was regulated by the contents of the CoW (Article 10 of Law11/1967) and foreign interests could not hold a KP (Kuasai Pertambangan - mining rights) which was restricted to local entities.
4. **Mining Licenses** – The new law simplifies mining administration by eliminating distinctions between foreign and domestic investors. Under the new law, both domestic and foreign investors will operate mines under the authority of a "mining operation permit" (Izin Usaha Pertambangan, IUP) or a "mining operation agreement" (Perjanjian Usaha Pertambangan, PUP). For small-scale traditional miners, a "people's mining license" (IPR) will be issued. Under the CoW system, domestic investors could operate mines under a mining right (Kuasai Pertambangan or KP), a local mining permit (Surat Izin Pertambangan Daerah, SIPD) and foreign investors operated under the special terms of the CoW (Kontrak Karya, KK).
5. **Mining Operations** – The stages of mining have also been simplified to two: the Explorations stage includes the general survey and feasibility study and the Operations stage which includes construction, mining operation, refining, processing, transportation and marketing. Previously, there were six stages: general survey, exploration, exploitation, refining and processing, transportation and marketing.
6. **Taxes and Levies** – Taxes now include a central tax, import duty, customs charges and local taxes. Additionally, there is a non-tax component which includes a fixed contribution, a production contribution, and an unspecified bonus. Previously there was a fixed contribution, an exploration contribution and a state levy.
7. **Refining and Processing** – The new law requires all refining and processing to be done in Indonesia. This was not regulated under the previous regulations.

8. **Decentralization** – control of mineral resources has been divided between the local governments and the central government. The CoW system recognized only the central government’s role. The new law reduces the central government’s role to policy and management oversight and direct management of undersea resources beyond 12 nautical miles. The local government’s role has been expanded and defined.
9. **Community Development Obligation** - The new law requires that community development is a responsibility of the mining permit holder. Community development will be supervised and be developed based on local and community input. Reclamation security fund must also be provided. This was not required under the previous law, but the operator was required to recondition the mining area upon completion of operations.
10. **Additional Changes** - The draft law will also address areas on which Law No. 11/1967 was either silent or vague. These include environmental protection, reporting of data and operations, financial requirements, land compensation requirements, and criminal investigations and penalties.

## Drawbacks of the New Law

Several shortcomings of the new law have been observed both by the mining industry and legal specialists:

1. **Toxic Waste** (Article 39) - The new law does not provide a basis for exempting mining waste from being classified as "toxic waste" or provide a clear basis for conducting mining operations in areas designated as protected forests. While Article 16 allows mining operations to be conducted except in areas where otherwise not permitted with the consent of local authorities and the approval of the authorizing agency. The law is conspicuously silent on the identity of authorizing agencies and the appropriate procedure. On a positive note, the article says that mining operators shall not be obliged to pay regional taxes for mining wastes.
2. **Taxation** (Article 37) - does not clearly establish a tax regime for the life of a mine. It says changes in law and regulation can reduce the tax burden on a mine, but does not protect a mine from tax increases.
3. **Continuity** (Article 62) on transitional provisions does not grandfather existing Contracts of Work by clearly stating that they will continue to be administered under the old law.
4. **Duration** -- The draft law does not state the duration of mining permits.
5. **Central and Local Government role** – The exact roles of the central and local governments is not well stipulated and made specific.

## Major Concerns of Foreign Investors

The PricewaterhouseCoopers (PwC) annual survey of the Indonesian mining industry for 2006, issued in February 2007 strongly called on the Indonesian government not to scrap the CoW system for Mining Licenses. PwC mining partner Sacha Winzenried warned that some sectors of the mining industry are not fully supportive of the draft mining law (JakNews, 2007). The Indonesian Mining Association (IMA) also urged the government to keep the CoW system as it provides greater legal certainty than the proposed licensing system. The IMA serves as link between the mining industry and the government and has as its members all foreign mining companies operating in Indonesia. The main concerns of foreign companies are:

1. The change from dealing with one entity, the central government to dealing with local governments, many of who have no experience in dealing with long term based large investors. They fear that the local government with their new found powers may revoke the permit at any time. They feel that under the CoW arrangement, they had an equal status with the government and in the case of a dispute, they could seek independent arbitration.
2. No differentiation is made with regards to majors and minors. Investors propose that a “mining agreement” similar to the CoW should recognize mining projects involving total investment of more than

US\$250 million. The agreement should also be effective for 30 years, which is the usual life of a CoW, and should be further extendable for 10 more years.

3. The additional requirement of community development and social responsibility. The law sets out the obligations of mining companies but lacks clarity. What concerns investors is the way the new mining legislation weighs them down with additional social responsibilities, the result of intensive lobbying by community-based groups. This would mean that mining companies would need to forge agreements with communities in the region who may be affected by their operations in advance of any mining activity.

4. The new law does not allow for “ring-fencing” which the mining community considers a more reasonable approach to involvement in more than one project at a time. The new law dedicates each license to one mineral and a company will be limited to one IUP or PUP only. The mining industry would prefer to an IUP or PUP to apply to multiple projects in order that excess cash from one project can be applied to another project. Assets from one project could also be secured for use by another project. Similarly, losses or profits from one project could be offset by gains or losses from another project.

5. The requirement for all mineral mining products to be processed within the country and export of partially processed minerals will be automatically banned. This is deemed difficult to achieve as presently, about one third of mineral products are processed in the country. There are only two large-scale smelters operating in the country, for copper and tin.

6. Under the existing (new) regional autonomy law, regional governments retain 80 percent of mining royalties. This has resulted in severe increases in royalty rates. Several companies have held back royalty payments amounting to Rp. 1.4 trillion because of unresolved issues. Another company PT Newmont Nusa Tenggara paid US\$3, 206749.22 in the first quarter of 2003. Mining companies want regional government transparency in the use of these royalty revenues.

7. Many local governments are adding on new taxes for such things as street lighting and mine vehicles. In North Sulawesi, local authorities taxed construction materials Newmont used to build a public road at its own expense.

8. The problems of excessive bureaucratic red tape, security concerns in the regions, illegal mining all continue to plague foreign investors.

9. There is a conflict between mining and forestry regulations. According to Forestry Law 41/200 (Article 38) all mining is banned in higher quality “conservation forest” which covers about 10% of Indonesia. Although this is in line with good international practice, the law goes well beyond legislation in other countries by banning surface mining in “protected forests” which covers 17% of Indonesia’s land area. Companies are having a problem in obtaining forestry permits in this regard. The situation is further exacerbated by the fact that boundaries for these areas are subject to mapping uncertainties.

10. The environment rules are inconclusive and insufficient. Many mining companies have been subject to serious prosecution by Indonesian authorities, even though they had complied strictly with environmental regulations. Newmont settled one civil case by agreeing to pay UD\$30 million over 10 years to fund environmental monitoring and community development (Nones, 2007).

### **Continuing Delay in Passing of New Law**

One main reason for the delay in passing of the new law has been the fight over control of Indonesia’s natural resources by the national and local authorities (Wright and Barta, 2007). The WSJ expects this battle, which is part of a wider struggle for local autonomy in Indonesia, to have an impact on global mining companies and world commodity prices in the coming years. The lack of legislation is preventing the launch of new investment ventures as miners see an investor-friendly mining law. The law is now on hold before Parliament and the mining industry through its association (IMA) issued a White Paper recently which calls fundamentally for a return to the CoW system (Krisnamantari, 2007). The proposal seeks to merge the old contract system with the new licensing system where both the government and the mining companies will have equal say, and disputes would be settled through independent arbitration instead of leaving all decisions up to local governments.

Another cause of delay is the need to synchronize the new law with the multitude of existing regulations in the mining sector. It is expected that the new law could be passed this year, but in Indonesia one never underestimates the power of lobby groups and interested parties such big business.

## Conclusions

The World Bank, in its assessment of Indonesia's need to attract new mining investments, lists seven steps to make the mining fiscal regime competitive (World Bank, 2005):

1. Reduce the rates for production contribution (royalty) from the present average of 4% to a uniform rate of 2% regardless of mineral type
2. Modify Law 18/2000 to include coal and gold dore and silver dore, (but not retail gold and silver bars), within the VAT system and zero rate them when exported
3. Modify Law 34/2000 to establish a closed (but expanded) list of district and provincial taxes and state non-tax fees and levies (which specifically excludes turnover-related) taxes
4. Introduce a tax stabilization provision to provide for stabilization of mining-related state non- tax revenues such as royalties for a period of ten years from the start of production
5. Provide VAT tax refunds without undue delay
6. Make mining sector social support and mitigation expenditures to be tax deductible
7. Modify the mining fiscal regime to permit social assets, which may have been imported duty free during the mine life, to be transferred to appropriate social service delivery agencies at the time of mine closure without incurring tax liabilities.

The World Bank also notes that the profusion of local laws is causing great uncertainty and increases risk regarding discretionary interpretation and implementation of laws. This can lead to weak enforcement of legal framework and corruption. The law must provide certainty and equality. As it is, Indonesia is direly lacking in transparency and governance, when compared with many other nations (FIG 3).

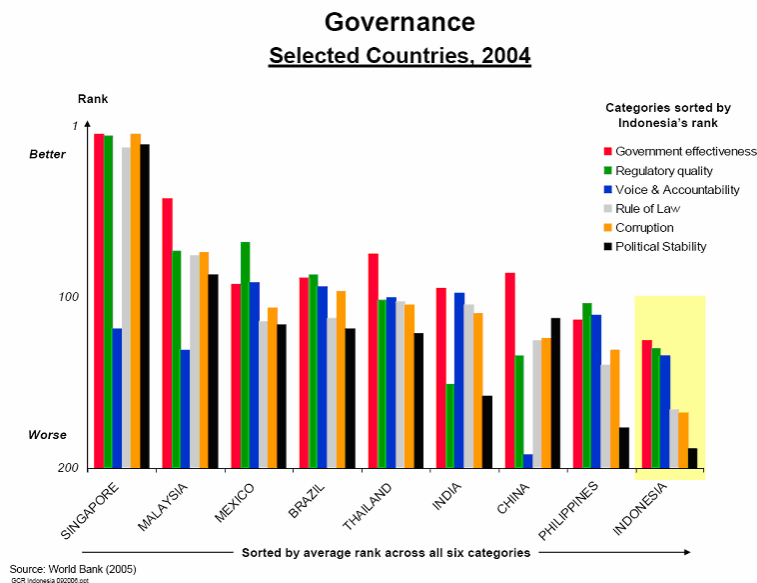


FIG 3: INDONESIA'S GOVERNANCE  
Source: World Bank 2005

The country ranking for bureaucracy involved in regulating businesses with regards to protecting investors and trading across borders, as well as in paying taxes and dealing with licenses is very uncompetitive indeed (Table 3). Indonesia has been constantly listed as a difficult place to do business where nepotism, cronyism, corruption, inefficiency and bureaucracy rule. It is imperative that the authorities use this opportunity to enact and implement legislation that will enhance their credibility and succeed in securing foreign investment, which the country so direly needs.

The CoW system is a well developed and meaningful system of granting mining rights to foreign companies. The basic needs of investors are well covered and protected. The country needs to retain fundamental principles of the CoW. They are Security of Tenure which is covered as *Conjunctive Title*, which empowers the investor to proceed through all stages of mining – from exploration to mine development and marketing without further licenses. Security of Investment, provided under *Le Specialis* treatment assures that the investment is not subject to changes in future laws or policies.

Investment in mining in Indonesia declined once the fundamentals were dismantled. This was certainly exacerbated by the ensuing political turmoil, and though this has long been checked, the issues of illegal mining, security risks and long term needs of investors still demand attention and fixing. Finally, the need to cater for the needs of local communities is paramount but this must be handled in a very congenial manner. The mining companies must be made to feel welcome and their rights and obligations must be clarified in the most transparent manner. Unlike conventional industries, mining is higher in risks and capital and projects are very long term. Hence, predictability with a thorough and upfront understanding of the risks involved is an absolute necessity.

The mining industry has not been able to self-regulate itself. A strong case can be made for a set of international standards of performance applicable to all mining company operations (Garner, 2003). With strong headway being currently made in enacting legislation covering all fields of business and based on global standards, it is only a question of time before calls for greater regulation of the industry on an international scale are heard.

TABLE 3: INDONESIA'S BUSINESS REGULATIONS

**Business Regulations**  
**Indonesia's Relative Position 2006**

Competitive Advantages Relative to GDP per Capita		Competitive Disadvantages Relative to GDP per Capita	
	Country Ranking		Country Ranking
Protecting Investors	60	Starting a Business	161
Trading Across Borders	60	Enforcing Contracts	145
Getting Credit	83	Employing Workers	140
		Closing a Business	136
		<b>OVERALL</b>	<b>135</b>
		Paying Taxes	133
		Dealing with Licenses	131
		Registering Property	120

Note: Out of 175 countries, Indonesia ranks 110<sup>th</sup> in 2005 PPP adjusted GNI per capita.  
Source: World Bank, Doing Business (2006)  
GDI: Indonesia 11/2006/01/01

Source: World Bank, Doing Business 2006

Indonesia's need for foreign investment is particularly acute. The country will need in excess of US\$150 billion in infrastructure development projects over the next five years (Guerin, 2005). In March this year, the Indonesian government at long last passed the new investment bill as part of an effort to improve the investment climate in the country (DPA, 2007). It replaces the 1967 Foreign Investment Law and the 1968 Domestic Investment Law and gives equal legal status and equal treatment to both domestic and foreign investors. It also does not require

foreign investors to divest the majority of their shareholding after a specified period of time. It is time the Indonesian government also enacted a new mining law that will be a win-win for both the investors and the country.

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# International Technology Transfer in the Russian Economy - The Effect of Foreign Direct Investment Spillovers

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## Abstract

Russia is a transitional economy which is strongly relying on exports on natural resources. However, the political leadership has acknowledged the need to make Russia more high-tech oriented. In realization of this goal, foreign technology transfer plays a very important role. This paper estimates the foreign companies' role in the Russian economy and the potential of Russian economy and local companies to receive positive spillovers from foreign investors. The principal channels of international technology transfer in Russia are studied. Traditionally foreign direct investments (FDI) and spillovers from local affiliates of multinational enterprises provide an important and cheap channel of direct technology transfer. Licensing of technology and intellectual property to an existing business is another channel, and is often a preferred option if a ready route to market exists. Technology transfer can also happen through international trade. Using Russian and international statistical data authors provide assessment on the impact of technology transfer in the Russian economy.

## Introduction

Russia is a natural resource rich country. Due to the high prices of natural resources at the world markets it has been easy for Russian economy to focus on export of natural resources. But the fluctuations in the world market prices may cause a serious risk for the Russian economy. Thus, there is a political need to increase the production of value-added goods and to encourage the creation of high-tech industry. In order to improve the value of the production, Russia needs large investments in production facilities and new technology. Local investments are not enough; Russia needs foreign investors to refresh the business environment.

This paper aims to evaluate the readiness of Russian economy to host foreign direct investors and the interest that foreign investors have shown towards the Russian regions. To receive new technology and enjoy positive spillovers from foreign direct investments, the preconditions in the region needs to be in good shape. If the regional administration is not actively inviting foreign investors and if, for example, the gross regional product in the region is too low, it is difficult to attract foreign direct investors. When the total number of foreign investors in the regions is very low, the chance to receive spillovers is poor. The descriptive analysis shows that there are surprisingly many regions in Russia where the possibilities to receive positive spillovers are very low. Authors selected twenty regions with the highest interest of foreign investors and analyzed their readiness to enjoy FDI-induced technology transfer and spillovers.

Spillovers from foreign direct investment is considered to be the best way to transfer new, more advanced, technology to transitional economies [3]. Other two ways, licensing and foreign trade, are efficient in technology transfer only if they happen in full extent. Unfortunately brand new technology is hardly ever available for licensing since the multinational enterprises like to protect their competitive advantages. Companies learn from export and import partners but these new operational and technological skills will solely spread to companies involved in trading.

Governments support foreign direct investment (FDI) since it is commonly perceived that it will directly create job opportunities, bring new capital and contribute to economic growth. There is also a hidden effect, spillovers from FDI, which indirectly benefit local companies. The reason why local companies are afraid of foreign investors is that the overall effect of spillovers can be positive or negative.



The impact of FDI spillovers appears at least in five forms. First impact is the technological diffusion, which happens through imitation, demonstration, and copying. Local firms recognize efficient managerial and operational practices and new technology or products, and try to implement these new practices into their own operation. Second impact is labor mobility. It is believed that foreign affiliates and joint ventures pay higher salaries and train their workers more than local firms. Workers also learn new practices when employed in a foreign company. When these workers move to work in local companies and other regions they bring the skills they have learned with them. Especially in Russia the labor mobility inside regions is high. Thirdly, local companies get contacts with foreign affiliates through backward and forward linkages. When a foreign company is making purchases locally the quality requirements and measurements will be transferred to the local supplier. Effective supply chain management in foreign companies teaches new procedures for local supply chain. Foreign companies tend to create clusters and bring new foreign companies with them. Clustering increases FDI, which further encourages local spillovers. Finally, the most feared spillover effect is the competition effect. Foreign direct investment increases competition. When multinational enterprises invest abroad they usually have high productivity and they are among the most competitive companies in their own markets. For small local companies the adaptation to changed business environment is difficult and some of them have to exit. Competition effect is also known as “crowding out” effect [3]. However, competition effect might be positive as well. Competition increases productivity in local companies, since they need to focus on their core competences. [2]

Whether the spillover effect is negative or positive depends on multiple determinants. Aitken et al. [1] finds the effect to be positive for small enterprises with high foreign participation, but for larger enterprises and enterprises with small or no foreign participation the effect is negative. For non-exporting firms the effect is usually positive, since they haven’t had a chance to learn from previous trade partners [2]. Yudaeva et al. [11] proves that especially in Russia in the regions with more open policies for foreign investors and less corrupted administration the spillover effect for local companies is positive. Foreign firms located in more reform-oriented regions tend to be more productive than others [11]. This reinforces the assumption that openness towards foreign investors benefits the whole region. Sinani et al. [7] claims that the magnitudes of the spillovers depend on the recipient firm’s size, ownership structure and trade orientation. Ownership structure, whether the companies are private or state-owned, is very important determinant of spillovers in transitional economies like Russia.

Positive spillovers might be limited to certain sectors, either the foreign company’s sector or the ones vertically integrated to that. Kinoshita [6] finds out that in Czech Republic positive spillovers from FDI happen in electrical machinery, and radio & TV sectors, which are also active investors in innovative R&D. Spillovers might be location limited [1]. Only those local companies located at the same industrial district might be able to adapt new technologies from foreign affiliates. Foreign investors tend to create clusters also because there are special economic zones intended for foreign companies. In zones like this it is possible that only other foreign companies get advantage of spillovers while local companies are restricted to enter the zone and will not receive any spillovers. One limitation for positive spillovers is the protection of competitive advantages of foreign companies [5]. Multinational enterprises are sometimes very careful not to spill over any firm specific assets.

Probably the most important requirements for spillovers are small technology gap, R&D investments and educated workforce. In order to enjoy spillover benefits local companies have to have certain level technological capabilities, thus, the technology already in use in local companies should not lag too much behind of the technology used in foreign-owned companies. If the technology gap is too big, the catching up process becomes too difficult [3]. Companies with high R&D investments and effective R&D department are able to adapt new technologies fast. The companies with low R&D capabilities using simple technology are not able to enjoy spillovers from foreign companies. In countries where the workforce is well educated, like in Russia, it is easier to transfer technology than in countries where even the literacy among workers is poor.

## **Russian Capabilities to Receive FDI-Induced Spillovers**

In order to receive FDI-induced spillovers and technology transfers the country has to attract certain kind of foreign direct investments. In Russia the stock of manufacturing FDI during years 1998-2003 has been biggest in sectors of

fuel industry, food industry, machine building and forestry. However, due to the limitations on foreign ownership in strategic sectors, like oil and gas production, investments are estimated to be lower than the overall foreign interest in these sectors. Approximately 50-60 percent of FDI goes to manufacturing sector where the FDI spillovers will most likely happen and the transfer of new technology is fiercely needed. Another likely sector for spillovers is service sector with sizable foreign interest such as retail, telecommunications and IT-services.

Russia is a large country in terms of population and territory. With more than 140 million people and 88 regions it gives enormous opportunities for foreign investors. The size of the country means that foreign companies have to choose the regions they want to enter very carefully, it is impossible to cover the whole country at once. In order to measure these investments and their spillovers, the analysis has to be done in the regional level. If the evaluations are done only on such a huge scale as the country level the aggregated spillover effect will most likely be negative. The positive impacts in some sectors and regions are not enough to cover the negative effect in less competitive sectors and regions.

To select the regions where the significance of foreign direct investors is the highest, a list of the Russian regions with the biggest number of companies with foreign participation (later called as foreign companies) is made in Table 1. In Russia a total number of 16 128 companies with foreign participation has been compiled in the statistics of Federal State Statistic Service Rosstat. This includes 479 greenfield projects started in 2005 according to UNCTAD [10].

TABLE 1: NUMBER OF FOREIGN COMPANIES IN RUSSIAN REGIONS IN 2005 TOP 20 [9]

REGIONS	FEDERAL DISTRICT	NUMBER OF COMPANIES WITH FOREIGN PARTICIPATION
Russia		16 128
Moscow region, incl. Moscow	Central	7 112
Leningrad region, incl. St. Petersburg	North-West	2 318
Krasnodar region	South	508
Kaliningrad region	North-West	434
Primosky region	Far East	324
Rostov region	South	265
Belgorod region	Central	253
Bryansk region	Central	203
Novosibirsk region	Siberia	190
Pskov region	North-West	174
Sverdlovsk region	Ural	151
Samara region	Volga	150
Khabarovsk region	Far East	149
Omsk region	Siberia	144
Stavropol region	South	138
Tatarstan	Volga	137
Tyumen region	Ural	137
Murmansk region	North West	136
Yaroslavl region	Central	135
Perm region	Volga	123

According to the listing from year 2005, twenty regions have been selected from the Russian 88 regions. In the selected regions the number of foreign companies is more than 120. In the regions where the number of foreign companies is less than 100 there is a risk that one big company skews the whole picture. The most popular regions among foreign investors are Moscow region with the city of Moscow, and Leningrad region with the city of St.

Petersburg. These two regions together gather almost 60 percent of the foreign investors in Russia. However, the head offices of foreign investors might be located in the two capitals while the operations are put into action in more distant regions. This also makes the evaluation of spillover effect more difficult. After the obvious success of Moscow and St. Petersburg, the most popular regions among foreign investors are Krasnodar, Kaliningrad, Primorsky and Rostov. All these regions are located at the border of Russia. Krasnodar and Rostov are located in the Ukrainian border with a short distance to Kazakhstan and Balkan countries. Kaliningrad is separated from the mainland of Russia and surrounded by Lithuania and Poland. Primorsky is surrounded by Japan and China in the Russian Far East. Thus, the short distance to neighboring countries tends to increase the amount of foreign investors in Russian regions. It could be anticipated that in these regions the spillover effect is positive, because competition in the regions is higher due to the large number of foreign companies and existing clusters with foreign and local companies.

Table 2 shows the relative richness of the regions. Top 20 regions selected in Table 1 will be used in the analysis during the rest of the paper. In the ranking of gross regional product per capita (Table 2) it could be noticed that many regions get along very well without significant number of foreign investments. Especially Tyumen region, which is known as the energy center of Russia with abundant natural resources such as oil and gas, is very rich compared to the average level of Russia, and it has only about 140 foreign companies. The lack of foreign companies in Tyumen could be explained with the above mentioned fact that foreign ownership in strategically important sectors is limited in Russia. The state ownership of these strategic sectors further hinders the possibilities for technology transfer. As mentioned by Sinani et al. [7] the private ownership with open practices increases the spillovers.

TABLE 2: GROSS REGIONAL PRODUCT PER CAPITA [9]

REGIONS	FEDERAL DISTRICT	GROSS REGIONAL PRODUCT PER CAPITA, RUR	INDEX RUSSIA=100
Tyumen region	Ural	361 028	447,2
Moscow	Central	234 601	290,6
St. Petersburg	North-West	94 717	117,3
Murmansk region	North West	93 492	115,8
Khabarovsk region	Far East	86 326	106,9
Samara region	Volga	85 871	106,4
Tatarstan	Volga	84 676	104,9
Perm region	Volga	83 797	103,8
Russia		80 727	100,0
Leningrad region	North-West	80 102	99,2
Yaroslavl region	Central	78 061	96,7
Sverdlovsk region	Ural	70 864	87,8
Moscow region	Central	67 439	83,5
Novosibirsk region	Siberia	63 103	78,2
Omsk region	Siberia	61 419	76,1
Primorsky region	Far East	60 910	75,5
Kaliningrad region	North-West	54 286	67,2
Krasnodar region	South	54 075	67,0
Belgorod region	Central	52 726	65,3
Rostov region	South	42 313	52,4
Pskov region	North-West	42 129	52,2
Stavropol region	South	40 509	50,2
Bryansk region	Central	36 094	44,7

In any case the foreign investors in these top 20 regions have created some value. Table 3 summarizes the share of turnover of foreign companies of the gross regional product. It can be seen, again, that the biggest value created by foreign companies is in Moscow and St. Petersburg. In addition to these two cities the importance of foreign investors is biggest in Omsk and Sverdlovsk regions. However, the above mentioned regions with high number of foreign companies are succeeding poorly in this ranking. This means that in these regions there are a lot of small foreign enterprises which do not create as much value as the bigger ones. The investors are not always coming from high-technology countries and are focusing more on low-quality consumer products as presented in Table 6 later on. There is also a chance that the poorness of these regions (Table 2) slows down the entry of successful foreign investors. For poor regions the spillovers from foreign companies are very important. However, the technology gap could be too wide for local companies to exploit any technology that spills over.

TABLE 3: TURNOVER OF COMPANIES WITH FOREIGN PARTICIPATION AS A SHARE OF GROSS REGIONAL PRODUCT 2005 (IN %) [9]

REGIONS	FEDERAL DISTRICT	TURNOVER/GRP
Moscow	Central	157,7
Omsk region	Siberia	142,5
Sverdlovsk region	Ural	94,3
St. Petersburg	North-West	93,4
Leningrad region	North-West	88,8
Belgorod region	Central	81,7
Perm region	Volga	76,5
Tatarstan	Volga	74,4
Russia		72,1
Moscow region	Central	72,1
Yaroslavl region	Central	64,4
Primorsky region	Far East	53,2
Tyumen region	Ural	49,9
Samara region	Volga	35,2
Murmansk region	North West	32,2
Novosibirsk region	Siberia	30,7
Kaliningrad region	North-West	30,3
Krasnodar region	South	29,6
Stavropol region	South	29,6
Bryansk region	Central	15,6
Rostov region	South	25,8
Khabarovsk region	Far East	15,5
Pskov region	North-West	10,1

Table 4 shows the share of FDI inflows of the regional gross fixed capital formation and gross regional product. According to World Investment Report [10] in developed economies the FDI inflow's share of gross fixed capital formation is on average about 8 percent. In Russia the average figure is 10.7 percent, which means that in Russia the importance of foreign direct investment is more significant than in developed economies. The ratio between FDI inflows and gross domestic product in Russia is 1.9 percent. In developed economies the similar figure is usually less than 0.1 percent. When measuring the ratio between FDI stock and GDP, which shows the long term influence, in 2005 Russia has a figure of 17.3 when the average in developed economies is 21.4. This difference can be explained with the small-scale foreign investments during Soviet times and the early years of transition, as well as the withdrawal of investors after the 1998 financial crisis.

From Table 4 it can be noticed that there are great differences between Russian regions in terms of importance of foreign direct investments. Some regions do not seem to benefit much from the foreign investments even though the number of investors is quite high, like Primorsky in Far East. On the other hand, Moscow,

Leningrad and Krasnodar regions seem to have great benefits of foreign investors. Krasnodar region, located at the South Federal District, is a huge agro-industrial complex. The administration of the region has been very open towards foreign investors and has been actively seeking new contacts. Foreign companies like Philip Morris and Pepsi Cola have established their plants in Krasnodar [8]. Openness towards foreign investors should increase the spillovers.

TABLE 4: FDI AS A SHARE OF GROSS FIXED CAPITAL FORMATION (GFCF) AND GROSS REGIONAL PRODUCT (GRP) IN 2004 (IN %) [9]

REGIONS	FEDERAL DISTRICT	FDI/GFCF	FDI/GRP
Omsk region	Siberia	25,9	0,2
Moscow region	Central	19,7	4,0
Moscow	Central	13,8	2,0
Russia		10,7	1,9
Leningrad region	North-West	8,2	2,2
Krasnodar region	South	7,9	0,6
Tyumen region	Ural	5,1	1,2
Stavropol region	South	4,9	0,1
Bryansk region	Central	4,8	0,4
St. Petersburg	North-West	4,7	0,6
Pskov region	North-West	4,1	0,9
Rostov region	South	3,0	0,3
Kaliningrad region	North-West	2,2	1,0
Belgorod region	Central	1,7	0,4
Samara region	Volga	1,7	1,3
Murmansk region	North West	1,7	0,05
Tatarstan	Volga	1,2	0,6
Primosky region	Far East	1,1	1,2
Yaroslavl region	Central	1,0	0,8
Khabarovsk region	Far East	0,8	0,3
Perm region	Volga	0,7	0,02
Novosibirsk region	Siberia	0,5	0,2
Sverdlovsk region	Ural	0,4	0,5

Table 5 summarizes the nominal gross regional products of top 20 regions selected in Table 1. The differences between regions are overwhelming as well as the growth rate all over the Russia. Only in four years the gross regional product has doubled or trebled in most of the regions. Regions like Omsk, Tyumen and Novosibirsk have faced extremely fast growth. During the same four year period of 2000-2004 foreign direct investments in Russian economy have doubled [9]. It is rather difficult to evaluate how much have the foreign companies accounted to the growth. But when the economy is growing and foreign direct investments are increasing the competition between local and foreign companies is fierce. This competition effect forces local companies to improve their operations in order to protect their markets and compete against foreign companies.

TABLE 5: GROSS REGIONAL PRODUCT IN RUSSIA IN 2000 AND 2004 [9]

REGIONS	FEDERAL DISTRICT	2000	2004	GROWTH
		mln RUR	mln RUR	%
Russia		6 219 254	14 555 093	134,1
Moscow	Central	1 308 901	2 759 101	110,8
Tyumen region	Ural	615 841	1 898 156	208,2
Moscow region	Central	201 254	548 642	172,6
St. Petersburg	North-West	205 092	518 885	153,0
Tatarstan	Volga	203 552	410 906	101,9
Sverdlovsk region	Ural	165 937	366 610	120,9
Samara region	Volga	155 360	349 048	124,7
Krasnodar region	South	147 052	325 811	121,6
Perm region	Volga	129 749	267 976	106,5
Rostov region	South	94 301	224 024	137,6
Omsk region	Siberia	48 477	209 211	331,6
Novosibirsk region	Siberia	76 510	200 029	161,4
Leningrad region	North-West	58 834	174 298	196,3
Primorsky region	Far East	63 989	147 234	130,1
Khabarovsk region	Far East	67 835	135 039	99,1
Stavropol region	South	57 474	132 821	131,1
Yaroslavl region	Central	46 557	121 291	160,5
Murmansk region	North West	57 441	118 165	105,7
Belgorod region	Central	44 440	113 181	154,7
Kaliningrad region	North-West	24 576	65 581	166,8
Bryansk region	Central	26 399	55 108	108,8
Pskov region	North-West	17 178	36 539	112,7

To receive positive spillovers and technology that is useful for Russian companies, the foreign direct investments have to come from successful companies with competitive advantages, for example high-tech companies with multinational operations. Table 6 divides the investments into two categories, the ones coming from innovative countries and the ones coming from less developed countries. Authors are using as a proxy OECD countries of which 80% are classified as high-income countries by World Bank, and almost all of them classified as innovation-driven economies by World Competitiveness Report of World Economic Forum. The highest number of foreign investments coming from high-tech countries is in Kaliningrad, Tatarstan and Leningrad regions. These regions should have more positive spillovers than for example Belgorod, Bryansk and Primorsky regions, where the share of high-tech investors is less than 20 percent.

TABLE 6: SHARE OF OECD AND NON-OECD INVESTOR COUNTRIES AS A % OF SELECTED FOREIGN COMPANIES [9]

REGIONS	FEDERAL DISTRICT	OECD	NON-OECD
Kaliningrad region	North-West	76,5	23,5
Tatarstan	Volga	68,1	31,9
Leningrad region	North-West	62,8	37,2
Samara region	Volga	55,2	44,8
Perm region	Volga	51,1	48,9
Yaroslavl region	Central	48,8	51,2
Murmansk region	North West	47,9	52,1
Sverdlovsk region	Ural	45,0	55,0
Russia		43,4	56,6
Moscow region	Central	42,8	57,2
Pskov region	North-West	41,7	58,3
Rostov region	South	41,3	58,7
Krasnodar region	South	38,9	61,1
Stavropol region	South	37,8	62,2
Tyumen region	Ural	34,7	65,3
Novosibirsk region	Siberia	32,8	67,2
Omsk region	Siberia	31,3	68,7
Khabarovsk region	Far East	30,6	69,4
Primosky region	Far East	19,9	80,1
Bryansk region	Central	8,6	91,4
Belgorod region	Central	6,1	93,9

In addition to FDI-induced spillovers, trade is another way to transfer technology and learn new practices. Table 7 shows the share of export and import of gross regional product in Russian regions. In natural resource rich regions, like Tyumen, Omsk and Samara, exports are very important. The companies located in these regions have definitely learned how to do business abroad and used new practices in their Russian operations.

Especially for non-trading companies the FDI related technology spillovers should be larger than for the companies with some experience of international trade. Thus, the regions where the share of export of GRP is low but the share of import of GRP as well as the number of foreign companies (Table 1) are high have huge potential to receive spillovers.

TABLE 7: IMPORTANCE OF TRADE IN RUSSIAN REGIONS (IN %) [9]

REGIONS	FEDERAL DISTRICT	IMPORT/GRP	EXPORT/GRP
Kaliningrad region	North-West	125,8	26,4
St. Petersburg	North-West	40,5	23,0
Leningrad region	North-West	34,5	79,0
Belgorod region	Central	33,1	25,1
Bryansk region	Central	29,8	23,4
Moscow	Central	28,3	57,2
Moscow region	Central	27,5	15,7
Primorsky region	Far East	26,6	15,9
Pskov region	North-West	22,5	21,6
Rostov region	South	21,1	20,3
Russia		15,1	36,2
Sverdlovsk region	Ural	10,6	38,9
Krasnodar region	South	8,4	8,0
Samara region	Volga	8,1	48,3
Novosibirsk region	Siberia	8,0	11,8
Yaroslavl region	Central	7,1	11,1
Khabarovsk region	Far East	6,1	39,5
Omsk region	Siberia	3,6	57,7
Perm region	Volga	3,4	29,3
Stavropol region	South	3,0	9,1
Tatarstan	Volga	2,9	37,0
Murmansk region	North West	2,9	25,4
Tyumen region	Ural	1,0	35,0

In order to evaluate the technology focus of the Russian regions, the share of technology imports of total imports are presented in Table 8. It can be seen that the share of technology imports in Russia is relatively low. In most of the regions the share of technology import is less than one percent of total import. In the natural resource rich regions, like Tyumen and Tatarstan, the share is highest in Russia. Surprisingly the share is extremely low in Moscow.



TABLE 8: EXPORT AND IMPORT OF TECHNOLOGY AND TECHNICAL SERVICES AS A SHARE OF TOTAL EXPORT AND IMPORT (IN %) [9]

REGIONS	FEDERAL DISTRICT	IMPORT	EXPORT
Tyumen region	Ural	56,09	0,13
Tatarstan	Volga	7,77	0,02
Leningrad region	North-West	5,42	0,002
Murmansk region	North West	4,70	2,16
Yaroslavl region	Central	4,47	0,07
Omsk region	Siberia	4,18	0,02
Stavropol region	South	3,40	0,008
Krasnodar region	South	2,39	0,93
Russia		0,95	0,16
St. Petersburg	North-West	0,92	1,71
Perm region	Volga	0,42	0,003
Samara region	Volga	0,22	0,04
Pskov region	North-West	0,17	n.a.
Sverdlovsk region	Ural	0,14	0,09
Moscow region	Central	0,12	0,87
Kaliningrad region	North-West	0,08	0,11
Novosibirsk region	Siberia	0,06	1,50
Bryansk region	Central	0,05	n.a.
Moscow	Central	0,02	0,15
Rostov region	South	0,01	0,04
Belgorod region	Central	n.a.	n.a.
Khabarovsk region	Far East	n.a.	n.a.
Primorsky region	Far East	n.a.	0,005

## Summary

According to the selected statistics there are only few regions in Russia having the required preconditions for large scale foreign direct investments and thus having opportunities to receive FDI-induced spillovers and technology transfers. Moscow, Moscow region, St. Petersburg and Leningrad region have been popular among foreign investors for a long time. In addition to these regions for example Krasnodar, Kaliningrad, Primorsky, Samara and Tatarstan have high potential to receive FDI and improve their economic condition. These same regions have a high or average investment potential according to the Russian rating agency ExpertRA [4], which measures the investment climate in all Russian regions. St. Petersburg, Moscow region, Krasnodar region, Moscow and Sverdlovsk regions have high potential and only moderate risk. For example Rostov, Tatarstan and Samara receive rating with average potential and moderate risk. According to ExpertRA none of the Russian regions have minimal risk.

## Discussion

This paper takes a look to the Russian investment climate; the capabilities of Russian economy to attract foreign direct investments and opportunities to enjoy spillover effects and technology transfer. Twenty Russian regions are evaluated with descriptive analysis. The analysis shows that there are huge differences between the Russian regions. Moscow and St. Petersburg are obvious gainers of FDI, but also regions like Krasnodar and Primorsky have possibilities to receive positive spillovers. In order to measure whether the overall spillover effect in Russian economy is negative or positive a further analysis is needed. Analysis with company level panel data in each selected region has to be done.

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# International Stock Market and Equity-Related Instruments: Global versus Investable Indexes

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## Abstract

This article examines the characteristics and performance of selected China's financial indexes. Although several indexes were recently made available, this study focuses on three in particular because they are compiled using distinct methodologies. Based on the differences in their composition, they were categorized as either "global" or "investable" indexes, herein indexes composed of shares that are readily available for trading in the market. From a portfolio diversification perspective, this study found that U.S. investors seeking exposure to China stand to gain the most from funds tracking the Standard & Poor's/CITIC 50 Index (a global index) than from those tracking the FTSE/Xinhua China 25 Index or the Halter USX China Index (investable indexes). Its risk-return characteristics, along with other performance evaluation measures used, show that it is most efficient in providing international diversification benefits

## Introduction

Over the last decade, China's importance to the world economy has increased exponentially. Deemed much too big to ignore, and given its outsized growth and considerable need for capital, China has been garnering sizeable attention from portfolio managers and individual investors alike, hence turning its markets into increasingly important destinations for their investments.

In response, a relatively new generation of indexes has been introduced to serve as benchmarks by which to evaluate the performance of money managers in China's markets. Several benchmarks exist, but, three in particular are considered especially capable of capturing the investment characteristics of these markets. Based on distinctly different investment strategies, the FTSE/Xinhua China 25 Index, the Halter USX China Index, and the Standard & Poor's/CITIC 50 Index represent means to answer important questions such as determination of the investment universe, sector weighting and ongoing performance comparison.

Not everyone, however, is convinced that investing in China's financial markets is an idea whose time has come. Critics believe that the benefits from international diversification are not large enough to outweigh the significant risks associated with its equity markets. The main purpose of this study is then to evaluate the legitimacy of these concerns and provide an overview of the investment environment in China. Issues investors should consider before allocating parts of their portfolios to China's index products include the presence of poor corporate governance, doubtful accounting standards, and other allegedly shady business practices.

In this study, the magnitude of the benefits from international diversification through exposure to China is looked at from the U.S. investor point of view. Its content is organized as follows: section 2 lays out the issues by providing background information about the Chinese markets while data and methodology are outlined in section 3. Section 4 describes some of China's new stock market indicators and the motivation which underlies the study's choice of these particular indices followed by section 5 which discusses the overall results. Summary and conclusion are presented in Section 6.

### Review of the Literature

The benefits to the domestic investor from diversifying internationally have been widely documented by academic and practitioners. Grubel (1968), Levy and Sarnat (1970), and Lessard (1973)<sup>1</sup>, are among the most notable precursors of the research on international diversification, a practice that has become an essential tenet of modern portfolio theory.

Although they all noted the beneficial effects of diversifying investment across countries, they also determined that for international diversification to be successful it's important that individual stock market returns

exhibit a certain degree of independence. For example, Grubel and Levy and Sarnat use cross-country correlation when assessing the performance of internationally diversified portfolios and recommend that such cross correlations should be continuously monitored by international money managers and positions altered accordingly.

The main reason given for international diversification clearly stems from the fact that returns in two individual stock markets may be sufficiently independent to provide a benefit to the international investor. International diversification can lead to a reduction in systematic risk because it reduces domestic market exposure that cannot be diversified otherwise. Overall, the early literature confirms the evidence of an international diversification benefit.

Some of the more recent studies also showcase the benefits of international diversification. Solnik (1996)<sup>2</sup> for one demonstrates that with approximately 40 securities equally spread among major U.S. and European stock markets, U.S. investors can reduce their risk exposure by at least 50 per cent when compared "with a portfolio consisting of only U.S. stocks." Other studies, however, indicate that emerging and developed stock markets have become more closely integrated, thus the benefit of international diversification may be diminishing. Serletis and King (1997)<sup>3</sup> document the process of convergence of the European Union stock markets using data from 1971 to 1992. Ng (2002)<sup>4</sup> raised the same issue for South East Asia by investigating potential linkages between the stock market returns of Indonesia, Malaysia, the Philippines, Singapore and Thailand over the period 1988-97. After splitting the period into two (1988-92 and 1993-97), he finds, based on correlation analysis, that their stocks have become more closely linked in the second period 1993-97.

Like the aforementioned articles, this study is also an examination of market convergence. It focuses on the nascent financial markets of China from the perspective of U.S. investors. After all, China has shown its commitment to reforming its domestic financial markets as demonstrated by Xiang (1998).<sup>5</sup> It views them as viable means to progressively sever the dependence of its state-owned enterprises on the state banking system as a source of capital. This in turn has caught the attention of global investors looking for effective means to diversify their portfolios.

Since China's markets are still evolving in relation to those of other emerging markets, this article posits that they have not been around long enough to start showing meaningful correlations with U.S. financial markets and could as such provide U.S. investors with significant diversification benefits.

#### **Brief Overview of China's Markets**

Few nations have changed as dramatically as China since the 1970s. After years of favoring state-owned enterprises, China has engaged in a series of economic reforms with the goal of development through economic liberalization. This shift toward the private sector is highlighted by an astounding GDP growth, underlined by a rising prominence in world trade, and the growing number of companies listed on mainland China's two primary stock exchanges in Shanghai and Shenzhen.

#### **Important Characteristics**

China's securities markets have undergone rapid growth over the past decade. Between the Shenzhen stock market and the much larger Shanghai Stock Exchange, more than 1300 Chinese companies are now listed, with a market capitalization of nearly \$500 billion.

Although these markets are home to many unproven companies, the majority of the listed companies are cash-hungry state-owned enterprises in which the government has sold a minority share. The purchasers of these equity shares are typically Chinese private companies that doubt their ability to obtain a stock listing and opt instead for this form of back-door listing. With their equity capped at 30 percent, however, they often cannot control the companies in which they are investing, nor can they aspire to turn them around by putting a new and more effective management team in charge. Weak minority shareholder rights, poorly regarded management teams, questionable accounting practices, and weak corporate governance have led many foreign investors to consider most of these companies unworthy of investment.

Nearly all of China's offerings are Class A shares (a complete list of Chinese shares along with a brief description is shown in Table 1) representing domestic companies, until recently reserved to local Chinese investors. These investors generally have scant education about relative value or equity fundamentals and more often than not are looking for short-term profit. When unseasoned investors speculate on shares with limited supply, it is also

conceivable that the share prices are pushed beyond their actual values. Therefore the A-share market tends to roil significantly whenever investors are spooked by corporate scandals and market commotions.

The B-share market was introduced in February 1992. It represents about 10 percent of the total number of stocks outstanding. Both A-share and B-share stocks are listed on mainland China. Chinese investors have been allowed to invest in B shares since 2001.

B shares are freely tradable. They can be listed on either the Shanghai Stock Exchange where they are bought and sold in U.S. dollars or the Shenzhen Stock Exchange where they are traded in Hong Kong dollars but not in both. Considering that B shares are mostly issued to attract foreign capital, and considering that the more seasoned foreign investors have a more realistic view on the growth potential of the firms they are buying into, one can safely assume that the B share market is less volatile than the A share market.

H shares are listed in the more mature Hong Kong market. Beginning 1993, mainland companies able to meet the more stringent requirements of the Hong Kong Stock Exchange were allowed to list their shares in that market as H shares. Red-chip shares are issued by firms that are technically Hong Kong companies although they are largely based in mainland China. H share companies tend to specialize in a single activity or infrastructure projects where red-chip companies are more diversified conglomerates.

TABLE 1: CHINESE SHARES DESCRIPTION

A Shares:	Securities of Chinese incorporated companies that trade on either the Shanghai or Shenzhen stock exchanges. They are quoted in Chinese RMB. They can only be traded by residents of China and the selected investors noted above.
B Shares:	Securities of Chinese incorporated companies that trade on either the Shanghai or Shenzhen stock exchanges. They are quoted in U.S. dollars on the Shanghai Stock Exchange and Hong Kong dollars on the Shenzhen Stock Exchange. They can be traded by nonresidents and residents of China with appropriate foreign currency dealing accounts.
H Shares:	Securities of companies incorporated in China and nominated by the Chinese Government for listing and trading on the Hong Kong Stock Exchange. They are quoted and traded in Hong Kong dollars. As with other securities trading on the Hong Kong Stock Exchange, there are no restrictions on who can trade H shares.
Red-Chip Shares:	Securities of Hong Kong incorporated companies that trade on the Hong Kong stock exchange. They are quoted in Hong Kong dollars. Red chips are companies that are substantially owned directly or indirectly by the Chinese government and have the majority of their business interests in mainland China.

### The Welcome Mat

Clearly, investors are not lacking in confidence regarding China's long-term economic growth. They are more concerned with the underlying fundamental structure of the stock market, which has seen several government-initiated reforms fail one after the other due to the systematic problems that entangle the stock market.

Hoping to infuse its markets with some stability, in October 2004 China decided on a transitional approach to opening up its securities market. Under its Qualified Foreign Institutional Investor program, it cautiously opened its once exclusive A-share market to a handful of foreign institutional investors under strict quotas. These same foreign investors once were restricted to B shares. By targeting foreign institutional investors with strong fundamentals, fiscal transparency, and good governance, China is hoping to help its domestic fund management companies improve their management and operational skills by learning from their foreign counterparts. In addition, by bringing in investors more versed in the concept of value and consequently more demanding of IPO issuers, China is in essence showing its resolve to significantly reduce the corporate scandals that have all too often tarnished the reputation of its markets.

Yet to avoid short-term profit schemes, these qualified investors are not allowed to repatriate their funds during the first year of investment. After that, only 20 percent can be repatriated in a quarter. Whether these qualified investors will have made enough money to compensate for the lock-up period remains to be seen. They have, nonetheless, been seeking bigger allotments in the program. Note that the gains or share dividends resulting from these investments can be remitted in foreign currency after being approved.

### Empirical Methodology and Data

To test the diversification benefit of investing in China, this study uses a relatively new set of indexes built by competing index providers to facilitate investments in China. Indexes are chosen over individual securities for two main reasons. They reduce investment risk; also known as selection risk; an important consideration considering that

information on stocks is still not widely available in China. They also reduce costs which is another important consideration especially in the emerging markets where transaction costs can be significant. Indexes give investors access to a range of stocks for much less than it would cost to buy into individual stocks.

Since the manner in which an index is constructed can be construed as an investment strategy by itself, it is important to identify China's indexes and evaluate them in the first stage of the analysis. By overlooking them, this study could incorrectly assume that they exhibit the same return-risk characteristics. We examine a total of three different China's benchmarks although there are other indexes. These were carefully chosen because they were built on methodologies distinctly different from each other. The oldest of the three is the FTSE/Xinhua 25 Index. The Standard & Poor's/CITIC 50 Index and the Halter USX China Index are more recent additions.

Following Masters' methodology (1998) describing the difference between "global" and "investable" indexes<sup>6</sup>, the Standard & Poor's/CITIC 50 Index will be classified in the first category because it's comprised of A-shares, still largely off-limit to foreign investors and thereby "built up from the perspective of local investors." The other two will be categorized as investable indexes. These are free-float market capitalization indexes where 'free-float' refers to the fact that the shares of the companies comprising these indexes are readily available for trading in the market. As such, they exclude government and strategic holdings as well as other locked-in shares that are not readily available in the market. The analysis is performed using data provided by the indexes' respective compilers. The stock market returns include capital gains as well as dividend payments and are based on value-weighted indices.

The performance of an index fund is almost always judged against an index such the EAFE or S&P 500. In this case, since diversification is assessed from the perspective of a U.S. investor, the S&P 500 will be used as the performance benchmark. Hence, after summarizing both background and construction methodologies underlying these indexes, we will consider next their international correlation structure with the Standard & Poor's 500 Index as well as their risk/diversification benefits. Although the correlation among international markets may have increased in recent years as demonstrated by Solnik and Roulet (2000)<sup>7</sup>, casting some doubt on the benefit of international diversification, securities are still much less correlated across several countries especially when their business cycles are asynchronous as is the case for China and the U.S.

Even though trade between them has significantly increased, this study posits that persistent market imperfections in China will result in low correlations among the securities of these two countries. This assertion will be further established by calculating the betas of these indexes in relation to the S&P 500 index as a means to evaluate their sensitivity to domestic portfolios.

Next, the frequently used Sharpe Ratio (1966, 1994), which considers excess returns per unit of total risk as the appropriate measurement of risk-adjusted returns, is applied as a measure of performance that incorporates both risk and return.<sup>8</sup> Herein, it is used to demonstrate the economic benefits of index-specific diversification.

#### **Index Review**

The history of indexes related to China is relatively short compared to other benchmarks gauging Asia's financial markets. Both FTSE and Standard & Poor's have introduced indexes for asset management companies and other investors who see them as important performance benchmarks. A relative newcomer to the world of indexing, the Halter USX China Index, is also in direct competition with the other two index providers. The methodologies underlying the three indexes differ quite a bit from each other. A side-by-side comparison of the three indexes is shown in Table 2.

#### **FTSE/Xinhua China 25 Index**

FTSE/Xinhua, a joint venture between the U.K. FTSE group and China's Xinhua Financial Network, embraces the idea that the best shares issued by Chinese state-owned enterprises are those listed in Hong Kong and New York, leaving the domestic market with lesser performing ones. Quite a few Chinese issuers have pursued international listings, such as with the NYSE, as a way to gain both cachet and to access a foreign investor base considered more affluent.

All 25 companies represent China's largest and most liquid such as China Mobile and PetroChina or Cnooc Ltd.; the latter being an energy company whose relatively recent \$18.5 billion failed bid for Unocal (a fairly small energy player in U.S. markets but a significant provider of natural gas to Southeast Asia) brought it out of relative

obscurity. The index caps at 10 percent, the maximum weight for any individual company in the index to order to reduce exposure risk to larger stocks.

Of the four types of Chinese shares traded, the index has focused on two in particular: the H shares and the Red-Chip shares, both of which trade in Hong Kong. The former are issued by Chinese-incorporated companies and the latter by Hong Kong-incorporated ones. For investors willing to take on the risk of investing in Chinese companies, these shares logically tend to be more stable and provide greater corporate governance and financial reporting since they fall under the jurisdiction of Hong Kong's securities regulators. In comparison, B shares (not included in the index) represent the Shanghai- and Shenzhen-listed companies foreigners are allowed to buy. Although priced in Hong Kong in U.S. dollars, they are not subject to the same degree of regulatory scrutiny as the H and Red Chip shares.

Critics of the index often point out that it does not provide enough diversity among Chinese companies as it tracks only 25 stocks. Its large concentration risk is reflected in the weight of its top 10 companies, which, together, represent 60.1 percent of the index total market capitalization, per Table 2. A large concentration risk is also seen in the index sector allocation with five industries representing no less than 95.7 percent of the index total allocation, also per Table 2.

For example, note the large industry weight of financials that represents 24.9 percent of the index. The increasing presence of banks and insurance companies in the index could mean that this industry is finally coming together as the banking sector continues to undergo massive recapitalization and thorough restructuring. These changes are explained by the recent buying of small stakes in China's biggest lenders by highly visible finance

TABLE 2: INDEX CHARACTERISTICS

	FTSE/Xinhua China 25 Index *	Halter USX China Index *	Standard & Poor's/ CITIC 50 Index *
Market Data			
Components	25	58	50
Top 10 Holdings			
China Mobile [9.2%]		PetroChina Co [6.4%]	China Merchant Bk [9.2%]
PetroChina [8.5%]		Sinopec [6.1%]	Baoshan Iron & Steel [6.3%]
Cnooc [7.7%]		Yanzhou Coal [5.5%]	China United Telecom [5.7%]
China Petroleum [7.1%]		Aluminum Corp [5.4%]	China Yangtze Power [5.7%]
China Construction Bk [6.8%]		China Life Insr [5.2%]	China Petroleum [4.5%]
China Shenhua Energy [4.3%]		China Mobile [5.0%]	China Minsheng Bking [4.5%]
China Life Insurance [4.3%]		Cnooc [4.9%]	China Vanke [4.5%]
Ping An Insurance [4.2%]		China Petroleum [4.8%]	Shanghai Pudong Dev [3.5%]
China Merchant Hld [4.1%]		China Netcom [4.6%]	Shanghai Intl Airport [3.4%]
Bank of Communications [4.1%]		Huaneng Power [4.1%]	ZTE Corp [3.4%]
Top 10 Total Weight	60.1%	52.0%	50.7%
Top 5 Sectors			
Financials [24.9%]		Info Tech [25.5%]	Financials [23.3%]
Oil & Gas [23.6%]		Energy [19.9%]	Materials [16.1%]
Telecom [19.7%]		Telecom [19.5%]	Industrials [14.9%]
Industrials [16.4%]		Materials [11.0%]	Utilities [11.6%]
Materials [11.1%]		Industrials [6.6%]	Cons Disc [10.0%]
Top 5 Total Weight	95.7%	82.5%	75.9%
Review of Constituents			
Quarterly		Quarterly	Quarterly

\* As of March 7, 2006

companies such as Royal Bank of Scotland and Merrill Lynch. As a result, shares of Chinese banks have soared, thereby increasing their market capitalization in the index.

On the other hand, this excessively large presence threatens the diversification of the index; especially considering that the sector is represented by only a few large state-owned banks and life insurance companies with lax risk controls. Indeed, it remains an open question whether taking a minority stake with little control will help foreign bankers turn China's financial system into a sector with strict oversight.

#### **Halter USX China Index**

In contrast to the fixed number of the components of the FTSE/Xinhua China 25 Index, the Halter USX China Index expands and contracts at the discretion of the index selection committee. The index includes 58 stocks as of March 31, 2007, up from 38 at inception. That number could rise substantially as more and more maturing companies meet the index committee's selection criteria.

The index tracks a mixture of American Depositary Receipts (ADRs) for Chinese companies and securities of companies that trade in the U.S. but mostly derive their revenues from China. The methodology clearly underscores the index provider's opinion that a search for local stocks will be marred with difficulties, especially for foreigners who are largely excluded from the A-share market to begin with. Loading the index with ADRs and U.S.-listed Chinese stocks issued by SEC-compliant companies such as China Life or China Netcom ostensibly constitutes a system with built-in protection. After all, U.S. financial markets are much more heavily regulated. For the funds that track the index, its dollar-denominated constituents are also easy to buy and sell since they trade in U.S. markets.

#### **Standard & Poor's/CITIC 50 Index**

Standard & Poor's partnered with CITIC Securities Co. Ltd, a local Chinese financial and investment company, to develop the Standard & Poor's/CITIC 50 Index on China's domestic A-shares. The index is created by a completely different methodology than the two other indexes. Only the A shares listed on the Shanghai and Shenzhen stock exchanges are eligible for possible inclusion in the index.

Its structure reflects the view that the index will be better served by the small and nimble companies with better management that constitute the A-share market. Seemingly, this type of market is where investors may have a better chance to find many of the active companies that could benefit from China's expansive growth. According to the index selection committee, the 50 stocks that comprise the index are not only issued by the soundest China-based companies but are also, on a float-adjusted basis, traded actively. All figures are in China's RMB, since it only incorporates shares locally traded.

Its top 10 holdings are also shown in Table 2. The index shares only two companies with the other two benchmarks: China Merchant is also included in the FTSE/Xinhua China 25 Index while China Petroleum figures prominently in all three benchmarks. On the other hand, although the standard & Poor's/CITIC 50 Index is also noticeably concentrated with 50.7 percent of its free-float market capitalization held by its top 10 holdings, this concentration risk, along with that of the Halter USX China Index, is undeniably lower than that of the FTSE/Xinhua Index, with 60.1 percent exposure to its top 10 holdings. The latter's heavier concentration clearly is due to its smaller size.

Considering that the index providers use different industry classification, additional work needs to be done to compare the three indexes in terms of sector allocation. This comparison also needs to be performed over a longer time horizon before drawing any meaningful conclusion, especially considering that their content is in constant flux. An unsurprisingly strong IPO calendar due to its buoyant economy implies that China's historical pattern of large changes to industry weights is unlikely to abate in the near future.

#### **Historical Performance Review and Interindex Correlations**

The cross-index correlations of returns appear below the diagonal in Table 3. While no measure of statistical significance is reported in the table, almost all correlations greater in absolute value than 0.04 are significant at the 5 percent level. In relation to the S&P 500, the study's proxy of the U.S. stock market, the coefficient is fairly large at 0.59 for the Halter USX China Index. In contrast, U.S. equities have weak correlation (0.10) with the FTSE/Xinhua Index and especially the Standard & Poor's/CITIC 50 Index (0.007). In turn, the FTSE/Xinhua Index has a relatively high positive correlation (0.64) with the Halter USX China Index. On the other hand, both are weakly correlated



with the Standard & Poor's/CITIC 50 Index with 0.20 and 0.12, respectively. Such information can be used to build a diversified portfolio by combining those assets with low positive correlations.

TABLE 3: PERFORMANCE EVALUATION AND CORRELATION

COEFFICIENTS OF THE DAILY RETURNS				
	S&P 500	FTSE	HALTER	CITIC
S&P 500	1.0000			
FTSE	0.1042	1.0000		
HALTER	0.5887	0.6389	1.0000	
CITIC	0.0067	0.1975	0.1185	1.0000

Although correlations change over time, these results suggest that U.S. investors are more likely to achieve gains on their international investments at a reduced risk if they purchase index-linked products based on the Standard & Poor's/CITIC 50 Index (especially) and to those tracking the FTSE/Xinhua Index. Results do not show funds tracking the Halter USX China Index as especially beneficial for U.S. investors. The segmentation of the Standard & Poor's/CITIC 50 Index from the U.S. markets could be explained by the source of its constituents. They are all selected within the A-share market known for its persisting restrictions on foreign ownership of domestic assets.

The high inter-index correlation between the Standard & Poor's 500 on the one hand and the Halter USX China Index on the other is at first quite intriguing. Normally, business cycles are not supposed to be synchronous between China and the U.S., especially considering that the former is still in the process of deregulating its capital markets. This result could be, however, traced to the source of the sample. In all likelihood, their risk-return characteristics have been altered by the fact that their components can be easily obtained in Hong Kong and the U.S. This hypothesis will be tested in the next section of this study.

Table 4 provides the U.S. beta measures of China's indexes and the associated coefficient of determination values ( $R^2$ ). Herein, the betas measure the sensitivity of these indexes to the U.S. stock market returns whereas  $R^2$  measures the fraction of the variance of index returns that can be explained by the U.S. market returns. Note that both the FTSE/Xinhua Index and especially the Halter USX China Index have a beta value that is much less than unity. In the case of the former, this means that U.S. stock market movements account for about 11 percent of the fluctuations in the index. Although this average shows that these indexes provide U.S. investors with a valuable opportunity to diversify internationally, it's the Standard & Poor's/CITIC 50 that has the lowest beta value with -0.03 and an  $R^2$  value of 0.04 percent. This means that of all three indexes, the monthly returns of this index behave the least like that of the S&P 500, thereby providing the most effective international diversification. This result is consistent with that indicated by their correlation coefficient which also suggests from a portfolio risk diversification perspective the desirability to invest in funds linked to this index.

Note that in the early stages of its development, the capital asset pricing model (CAPM) offered a straightforward explanation of the relationship between risk and expected return by depicting the Security Market Line (SML) over the range  $\beta \geq 0$ . It's only after Ross and Westerfield (1988)<sup>9</sup> explicitly showed the SML over both positive and negative beta values that the misspecification of beta was corrected. The opposite movement of a negative beta makes negative beta assets particularly valuable additions to any portfolios because even if the expected return of the new portfolio falls in response to the decline in the portfolio's beta, its risk also declines due to the offsetting movements in the negative beta security. In practice, negative beta stocks such as gold stocks and liquidation companies are hard to find since they are rarely listed. In the case of the Standard & Poor's/CITIC 50, the index components seemingly have enough negative beta values to introduce a downward bias in the slope of the regression. This is most likely due to the fact that most of the A shares included in the index are not moving in tandem with the components of the S&P 500 as our prior correlation results indicated.

#### **Performance Review in Terms of Index Risk-Return Characteristics**

Portfolio theory suggests that investors should select funds by considering both returns and risk. Rational investors may be willing to assume additional risk if they are sufficiently compensated by a higher expected return. So we now expand this analysis to cover both return and risk associated with China's indexes.

Table 5 shows summary statistics of the daily returns for the Standard & Poor's 500 in relation to the three stock market indexes under review. The annualized means and standard deviations of daily returns are provided for each year over the 2001-2005 period for the Standard & Poor's 500, FTSE/Xinhua 25 and the Standard & Poor's/CITIC 50, but only for the 2004-2005 time frame for the Halter USX China Index due to its more limited historical performance. Returns, standard deviations, and Sharpe Ratios were also calculated for the two-, three-, and five-year holding horizons except for the Halter USX China Index due to its shorter performance history.

Note that, because the study's horizon includes years when the benchmarks underperformed U.S. Treasury bills, a few of these ratios are negative. For example, both FTSE/Xinhua 25 and Standard & Poor's/CITIC China along with the S&P 500 underperformed U.S. Treasuries in 2001 and 2002. The Standard & Poor's/CITIC China Index in particular underperformed U.S. Treasury bills in four out of the five years that constitute its data history. The Halter USX China Index, on the other hand, underperformed in both 2004 and 2005.

TABLE 5: RISK-RETURN CHARACTERISTICS\*

	S&P 500	U.S. T-Bills	FTSE Xinhua 25	S&P/CITIC 50	Halter USX China
1998 (%)	28.58	4.82	na	na	na
2001 (%)	-11.89	3.45	-5.51	-24.45	na
2002 (%)	-22.10	1.60	-2.76	-17.83	na
2003 (%)	28.68	1.02	101.09	32.42	na
2004 (%)	10.87	1.40	2.37	-11.21	-0.75
2005 (%)	4.91	3.19	15.05	-3.09	-4.49
2-Yr Ann. Return (%)	7.85	2.29	8.52	-7.24	-2.64
3-Yr Ann. Return (%)	14.39	1.87	33.29	4.45	na
5-Yr Ann. Return (%)	0.54	2.13	16.82	-6.69	na
2 -Yr. Ann. Std. Dev. (%)	7.50	0.29	20.42	17.81	22.13
3 -Yr. Ann. Std. Dev. (%)	9.17	0.29	22.55	18.77	na
5 -Yr. Ann. Std. Dev. (%)	14.94	0.33	23.07	20.00	na
2-Yr. Sharpe Ratio	0.74	-----	0.31	-0.54	-0.22
3 -Yr. Sharpe Ratio	1.37	-----	1.39	0.14	na
5 -Yr. Sharpe Ratio	-0.11	-----	0.64	-0.44	na

\* As of December 31, 2005

Table 5 shows summary statistics of the annualized means and standard deviations of monthly returns for the Standard & Poor's 500 in relation to the three stock market indexes over the 2001-2005 period. Monthly rates of return are calculated by the standard method:  $(Pt - Pt-1)/Pt-1$  where Pt =current month price and Pt-1 = last month's price.

The Sharpe measure is computed using  $S_i = [R_i - RFR]/\sigma_i$  where  $S_i$  is the measurement of the index excess annualized return ( $R_i$ ) over the annualized 90-day risk-free Treasury Bills (RFR) return obtained for each month from the Federal Reserve Bank adjusted for the index volatility as measured by annualized standard deviation ( $\sigma_i$ ) of the monthly index returns.

The results of this peculiar time period translate into a total of four negative Sharpe Ratios out of the 10 shown in Table 5: the five-year ratio for the Standard & Poor's 500, the two- and five-year ratios for the Standard & Poor's/CITIC 50, and the two-year ratio for the Halter USX China index, the only ratio that could be calculated for this more recent benchmark. The notable exception is the FTSE/Xinhua 25 as it displays positive Sharpe Ratios throughout the three horizons. This outstanding risk-adjusted performance is most likely owed to its outstanding 101 percent annualized return in 2003.

In view of the Halter USX China Index's negative Sharpe Ratio and its clearly limiting shorter history, for now this index cannot make a meaningful contribution to our risk-adjusted return analysis. Furthermore, from the point of view of the U.S. investor, its high correlation with the Standard & Poor's 500 as noted in Table 2 (0.59) doesn't mitigate its inclusion in a diversified global portfolio. Albeit based on a short performance history, this strong positive correlation in returns for the two indexes prevents any meaningful reduction in risk when they are combined.

In contrast, the FTSE/Xinhua 25 seems at first the ideal index with positive Sharpe Ratios over the three holding horizons. Its three-year ratio, in particular, compares favorably with that of the Standard & Poor's 500 at 1.39 versus 1.37 for the latter. This, of course, could appeal to U.S. investors interested in translating China's rapid growth into investment gains. With one of the major tenets of investment theory stating that investors should diversify their portfolio by spreading the risk, its low positive correlation of 0.11 with the S&P 500 constitutes risk reduction via diversification without sacrificing risk-adjusted returns as indicated by its high Sharpe ratio. From these two important perspectives, the FTSE/Xinhua certainly provides diversification benefits to the U.S. investor interested in adding China to his or her investment portfolio.

In comparison, over the last three years, the only investment horizon over which its Sharpe Ratio could be meaningfully interpreted, the Standard & Poor's/CITIC 50 conceivably shows at best a modest risk-adjusted gain with 0.14 compared to 1.39 for the FTSE/Xinhua. Nonetheless, its potential diversification benefits are huge if its independence vis-à-vis the Standard & Poor's 500 as indicated (correlation equal to 0.0067) is any indication. Hence products tracking this index could also provide effective diversification tools for the globally minded investors.

In a CAPM world, this also means that the risk-adjusted return difference between the FTSE/Xinhua and the Standard & Poor's/CITIC 50 comes from the difference in the beta risk. As Table 3 shows, with a beta of -0.03 the Standard & Poor's/CITIC 50 exhibits the lowest sensitivity to the S&P 500, thereby demonstrating that by investing in the A share market, U.S. investors can gain additional diversification benefits.

## Conclusion

The emergence of China as an economic force has created tempting investment opportunities for globally-minded investors. A thorough review of three indexes shows that they are by no means redundant. While there is some minor overlap in holdings they are of very different construction methodologies.

As investable indexes, the Halter USX China Index incorporates a basket of China-based companies that have either ADRs or New York-registered shares that trade on the New York Stock Exchange while the FTSE/Xinhua 25 Index is mainly constituted of H- and Red-Chip shares trading in Hong Kong. The "global" Standard & Poor's/CITIC 50 Index solely concentrates on China's A-share market. But, overall, this study has demonstrated that investors with higher tolerance for risk may consider that benefits from international portfolio diversification are likely to be achieved by purchasing products tracking the Standard & Poor's/CITIC 50 Index. In view of their low correlation with the S&P 500 and high Sharpe ratio, this study also indicates that products tracking the FTSE/Xinhua 25 Index are also capable of providing global investors with significant diversification benefits. The same cannot be said of the Halter USX China Index.

Nonetheless, before these results are implemented in a meaningful global portfolio strategy, they need to be reassessed in future research as these relatively recent indexes continue to mature and further observations are available. Considering the dynamic characteristics of international correlations and the other statistical tools used in this analysis, a more substantial historical database can only enhance the robustness of the study's results.

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### End Notes

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# The Significance of Lightly Regulated Stock Markets for Companies, Venture Capitalists, Shareholders, and Society, as Exemplified by the Frankfurt Stock Exchange's Entry Standard

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## Abstract

On October 25, 2005, the German Stock Exchange introduced the new Entry Standard. The objective of this new stock exchange segment based on the Open Market was to provide an attractive trade platform for small- and mid-cap corporations. For this purpose, the segment was only lightly regulated in order to allow for inexpensive listing admission as well as low follow-up costs for stock listings. Still, the requirements and listing obligations should provide market participants with sufficient information about the corporations in order to allow for efficient trading. By the time the segment was started, 11 corporations decided on the Entry Standard. Yet only little more than two years later, the first corporation had to file for insolvency. The questions that arise, then, are whether the new stock segment was able to fulfill the expectations, whether the chosen regulations have been sufficient and right, and what the role of lightly regulated stock listings can be in an economy.

## Background

In Germany, the burst of the high-tech bubble in early 2000 was followed by a phase of illiquid securities markets for small and medium-sized companies. These values generated little to no turnover at the stock exchange, and capital increases were virtually impossible due to the disinterest of both institutional and private investors. This fact became obvious particularly where new stock listings were concerned. While the number of companies aspiring to enter the German capital markets reached a post-war high at 168 in 1999, only one single enterprise dared to make the leap into the stock market in 2003. The driving force for the previously high number of initial public offerings – the New Market – had lost its significance as a result of numerous scandals and bankruptcies. Though the New Market was not even a lightly regulated market, measures to enhance the attraction of the domestic capital markets included an increased focus on control and regulation. For this reason, the German Stock Exchange reorganized the market segments as of January 01, 2003. The Prime Standard was created for corporations with an international scope. Corporations with a rather national scope were traded on the General Standard. This segment does not require English translations of notifications. The New Market was closed and not followed by a similar segment. The only “segment” below the Prime and General Standards was a free market, now Open Market. This Open Market, however, is not considered as organized stock trade. Mostly foreign securities and second-tier stocks are traded here.

## EU Regulated Stock Markets in Germany

While both the General Standard and the Prime Standard are EU-regulated stock markets<sup>1</sup>, the General Standard represents the minimum legal requirements for such markets in Germany<sup>2</sup>.

The results of the high transparency requirements are regular reports for shareholders. Thus, corporations are required to provide quarterly business development reports. In addition, they need to immediately report all facts relevant to the share value in observance of Article 15 of the German Stock Trade Law. Failure to comply with these regulations may result in severe punishment<sup>3</sup>. The requirements of the General Standard can be considered as the basic framework of the follow-up listing duties on the EU-regulated market, while the requirements of the Prime Standards go above and beyond these regulations. The follow-up duties for listings on the General Standard are:

Additional obligations arising from admission to the General Standard:

- Annual reports and half-year reports according to international balancing standards such as IFRS or US-GAAP.
- Disclosure of directors' dealings<sup>4</sup>.
- Obligation to publish ad-hoc publications.
- Notifications on reporting thresholds.
- Obligatory offer in case of change in control<sup>5</sup>.
- Publications may be in German or English.
- Interim reports for Q1 and Q2.

**The following regulations apply to corporations listed on the Prime Standard:**

Additional obligations arising from admission to the Prime Standard<sup>6</sup>:

- Quarterly reports in German and English
- Publication of a corporate calendar
- Organization of at least one analysts' conference each year
- Ad-hoc publications also in English
- Additional obligations arising from admission to the General Standard

Due to the similarity of the obligations, the operational costs, too, are almost identical. Translation costs for the publications are estimated at several thousand Euros annually. The annual analysts' conference may take place as part of another event such as the annual Equity Forum organized by the German Stock Exchange. The costs then amount to e.g. merely 1,000 Euro for the presentation<sup>7</sup>. Yet particularly requirements such as international accounting and balancing as well as the capacity for immediate quarterly reports should involve significant expenses on the part of small- and mid-caps. However, even if we consider only the communications expenses and those directly involved with the listing, the total costs are as high as 200 to 700 thousand Euro<sup>8</sup>. It becomes obvious that for a small corporation with a turnover of perhaps 10 to 20 million Euros, such an amount is hardly affordable.

## The Regulations of the Entry Standard

In order to create an attractive segment particularly for small-caps, the German Stock Exchange introduced the Entry Standard<sup>9</sup>. The Entry Standard is a not a EU-regulated capital market. The objective of this segment, as communicated in a workshop prior to its official opening<sup>10</sup>, was to lower the entry threshold for new listings and therefore to facilitate the first step into the capital market for these corporations. After the experiences with the New Market, which owed its temporary strong growth mainly to private investors<sup>11</sup>, the Entry Standard from its very beginnings addressed well-informed and risk-conscious investor groups, since lower listing requirements involve a higher risk for investors<sup>12</sup>.

Corporations listed on the Entry Standard must fulfill the following requirements:

On the corporation's Web site:

- Publication of the witnessed consolidated annual balance including consolidated annual report, according to national or international accounting standards.
- Publication of a current short corporation profile and a corporate calendar.
- Publication of interim reports after the first two quarters of the fiscal year.
- Immediate disclosure of all essential corporate news and facts that may considerably impact the share price.

The inclusion of shares in trading does not constitute a listing according to German Bonds and Securities Law. Since the Open Market and the Entry Standard are therefore not organized markets according to Article 2, Section 5 of the German Securities Trade Law, a number of regulations do not apply. These include the obligation to publish ad-hoc notifications, the obligation to issue notifications when certain thresholds have been reached, and the obligation to publish further interim reports. However, these low-level regulations should suffice for companies listed on the Entry Standard to differentiate them selves as more transparent than other corporations listed on the Open Market.

## Listing Costs on the Entry Standard

Parallel to our consideration of the Prime Standard and the General Standard, we will concentrate in the case of the Entry Standard only on the direct listing costs. Accounting costs will therefore not be considered, though the option to account according to German Trade Law constitutes another cost advantage for the corporations.

The current costs of communications and listing therefore amount roughly to the numbers in table 1, though the actual costs may be dramatically higher or lower in individual cases.

TABLE 1: ANNUAL LISTING COSTS ON THE ENTRY STANDARD

Area	Type of costs	Costs in Euro
Communications	Annual shareholders' meeting	10,000
	Creation of the annual report, without print, distribution on CD-ROM	20,000
	IR agency for publications, current consulting, investor and press road shows	30,000
	Distribution of press releases, investors' travel expenses, expenses press talks	5,000
Listing	German Stock Exchange fee	5,000
Trading	Designated sponsor	25,000
Coverage	Creation of research material	10,000
<b>Total</b>		<b>approx. 105,000</b>

Source: edicto internal survey

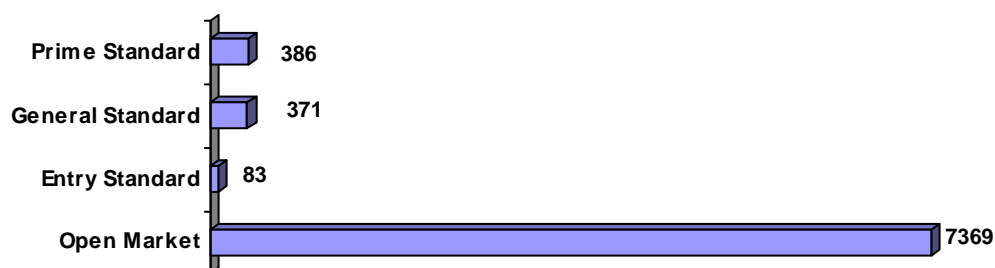
This calculation serves to show that the lower level of regulation as compared to EU-regulated markets results in significantly lower listing costs. As far as the obligations arising from admission to the segment are concerned, the Entry Standard seems to offer the desired cost advantage.

This leaves us with the question whether the cost advantage makes the segment attractive to companies.

### **The Distribution of Listed Companies across the Different Segments**

As mentioned before, the Entry Standard was launched in October, 2005. Since then, 83 companies have decided on this segment, whether through a segment change, a public offering with increase in capital, or an ordinary listing. For the sake of comparison: 386 companies are listed on the Prime Standard and 371 on the General Standard<sup>13</sup>. The Open Market has the most listings by a wide margin, yet we should bear in mind that mostly foreign bonds are traded here. For these bonds, the Open Market is usually a second trading place after the home country or other markets.





FI

G. 1: NUMBER OF LISTED COMPANIES IN LATE FEBRUARY 2007

Source: German Stock Exchange data

This makes the Entry Standard, roughly two and a half years after its start, the segment with the lowest number of listed companies. A comparison of market capitalizations and trade volumes also shows the Entry Standard's low level of significance. The combined market capitalization of all Entry Standard companies equals less than 1% of the combined market capitalization of the Prime Standard companies. The difference in trade volumes is even more extreme, which illustrates the weak liquidity of these stocks – a fact likely to cause particularly institutional investors to avoid individual stocks in this segment. A comparison with the market capitalizations of the Open Market would not offer any useful results, as the Open Market includes a large proportion of secondary listings of foreign bonds.

TABLE 2: MARKET CAPITALIZATION AND TRADE VOLUME PER SEGMENT

	Prime All Share	General Standard	Entry Standard	Open Market
Market capitalization in Euro	878*	N/A	6	N/A
Trade volume in million Euros per month.	183.9	3.0	0.3	15.6

Source: German Stock Exchange, *facts & figures* 03/2007

\* Basis free float

If we consider the number of initial public offers, however, the comparison of the segments yields different results. We find that by now, companies have come to perceive the Entry Standard as an attractive market.

### Attractiveness of Segments as Reflected by the Number of New Listings

The number of initial public offers depends on several factors. The liquidity of the markets plays a big role – are investors at all willing to buy new issues? Furthermore, companies ready to go public must also be willing to make use of the capital market and the ensuing obligations. The attractiveness of the trade segment as far as listing and follow-up costs are involved is certainly another important criterion<sup>14</sup>.

It is therefore not surprising that the annual number of initial public offers is subject to considerable fluctuation. Thus, the years of the New Market boom saw more than 150 new listings p.a. In the context of the severe price decline on the stock markets and the weak economy in the years following the burst of the New Market bubble, the number of new listings continued to decrease dramatically reaching its lowest point in 2003 when only one company went public. By 2006, however, the numbers had increased again to 210 new admissions, clearly surpassing even the high mark of the New Market era.

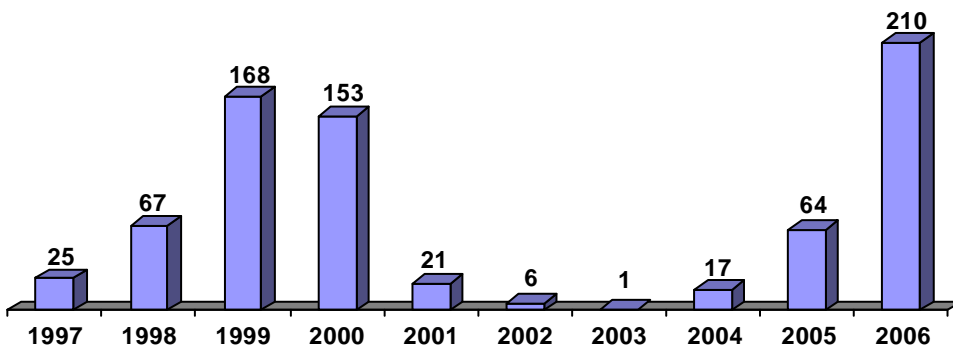


FIG.

FIG. 2: NUMBER OF NEW LISTINGS IN GERMANY IN THE PAST 10 YEARS

Source: German Stock Exchange

New listings here include re-listings and admissions without increase in capital as well as classic IPO's, i.e. public offers with capital increases. Due to this heterogeneity, we will not consider the costs involved in the listing at this point. The mere decision whether to enter the Entry Standard with an exposé or with a prospectus will likely entail cost differences of 50,000 Euro or more<sup>15</sup>.

The 210 companies that went public in 2006 are distributed as follows over the individual segments:

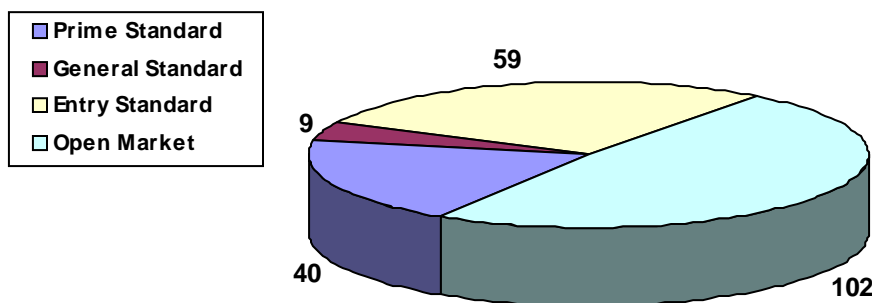


FIG. 3: NEW ADMISSIONS IN 2006 PER SEGMENT

Source: German Stock Exchange

If we do not count the Open Market, the Entry Standard reached the highest proportion of new admissions – 59 – in 2006. The General Standard, ranging between the Prime Standard and the Entry Standard as far as the requirements and obligations are concerned, played a subordinate role with only 9 new listings.

## Market Capitalization and Issuing Volume of the Newly Listed Companies

The sheer number of new admissions does not offer a sufficient basis for an evaluation of the respective segments' significance, since these segments address different companies. This fact should be reflected by the companies' market placements and issuing volumes. Pure listings, i.e. admissions in the segment without capitalization, were not included in these calculations. For the Entry Standard, these constituted a considerable proportion. The German Stock Exchange reports that only 35 of 59 newly listed Entry Standard companies increased their capital.

The average market capitalization at the time of the IPO illustrates the fact that it is mostly small companies who consider the Entry Standard as an attractive segment. Thus, the companies were evaluated at an average of 45 million Euros. The average evaluation of companies on the General Standard was 74 million Euros, while on the Prime Standard, companies' values were estimated at an average of 661 million Euro. The average market capitalization upon IPO of the companies listed in the highest segment was therefore more than ten times higher than that of Entry Standard companies.

A similar picture emerges if we consider the average issuing volume. Companies increasing their capital in the context of an initial offer were able to collect an average of 225 million Euro on the Prime Standard, whereas the average on the Entry Standard was 12 million Euros.

TABLE 3: MARKET CAPITALIZATION UPON INITIAL LISTING AND ISSUING VOLUME OF COMPANIES THAT INCREASED THEIR CAPITAL IN THE CONTEXT OF THEIR IPO IN 2006 PER SEGMENT

	Prime Standard	General Standard	Entry Standard
Number of companies surveyed	32	4	35
Average* market capitalization	661	74	45
Average* issuing volume	225	16	12

Source: German Stock Exchange database, own calculations, \*in million Euro

The individual issuing volumes also reflect the attractiveness of the Entry Standard for small-caps. Of the 35 companies that were newly admitted to the Entry Standard, 19 did not collect more than 10 million Euros, while 12 collected between 10 and 20 million Euros. Only one company placed more than 100 million Euros.

On the Prime Standard, only one company out of 32 had an issuing volume of 20 million or lower. Two companies even collected more than 1 billion Euros.

TABLE 4: ISSUING VOLUME CATEGORIES PER SEGMENT 2006

Up to (million €)	10	20	50	100	500	1.000	>1.000	Number
Prime Standard	0	1	7	11	10	1	2	32
General Standard	1	3	0	0	0	0	0	4
Entry Standard	19	12	3	1	0	0	0	35

Source: German Stock Exchange database, own calculations

This puts the total issuing volume numbers in perspective. The 35 Entry Standard companies issued a total of approximately 436 million Euros. Thus, the placement volume of the Entry Standard only constituted a mere 6% of the total issuing volume of all segments in 2006. Numerous single companies that decided to go public on the Prime Standard were able to collect more money in 2006 than all Entry Standard companies combined.

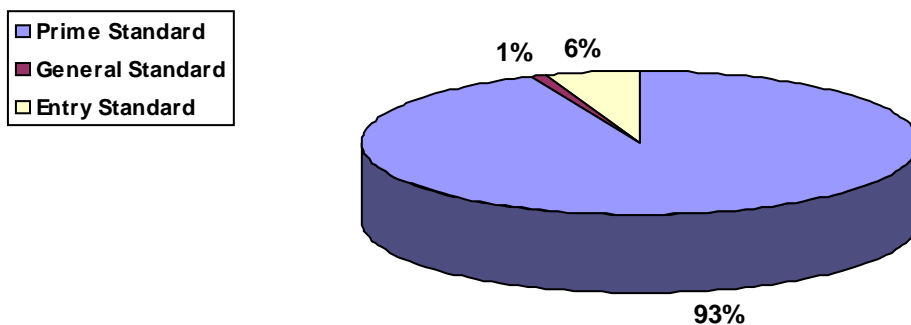


FIG. 4: ISSUING VOLUMES PER SEGMENT 2006

Source: own calculations

### The Performance of the Entry Standard

As pointed out above, the lighter listing requirements of the Entry Standard result in possibly higher risks. The trading range of the Entry Standard, as illustrated below by the performance index, reflects a clear initial out performance in comparison to the Prime All Share for the start of the segment in October 2005. Yet the shares, unlike those on the Prime Standard, did not succeed in recovering from the adjustments starting in May 2006. While the prices on the Prime Standard have started to pick up again, the Entry Standard even had to take further losses. After that, the market shows little movement until late March 2007. The Prime All-Share shows an out performance of approximately 35% in the period under consideration.

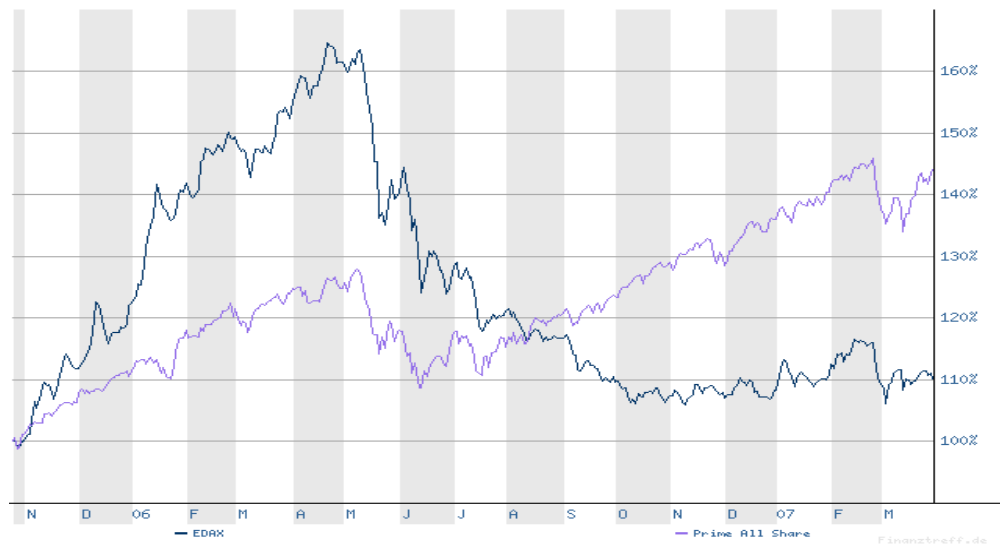


FIG. 5: DEVELOPMENT OF THE ENTRY STANDARD PERFORMANCE INDEX SINCE THE INTRODUCTION OF THE SEGMENT

### A Comparison with the Alternative Investment Market (AIM)

Like the Entry Standard, the Alternative Investment Market (AIM) in London is a non-EU-regulated market. Listing obligations for the companies are similar, requiring annual reports and interim reports as well as disclosure of news and facts that may be significant to a company's future or share price<sup>16</sup>.

The AIM has a considerably longer tradition than the Entry Standard, the segment having been introduced as early as 1995. Since that time until the end of September, 2006, more than 2,500 companies have been listed on the AIM, collecting a total of more than 34 billion £. However, a significant percentage of the companies that were listed on the AIM have by now disappeared from the segment, so that the number of companies currently listed is approximately 1,640<sup>17</sup>.

### The Economic Significance of the Entry Standard

The introduction of the Entry Standard led to hopes that this new segment would provide investment and venture capitalists with an interesting exit channel in Germany. This was expected to have a positive impact on the financing options of smaller companies. The Private Equity industry in general does consider the Entry Standard to be an additional exit channel; still, the majority of participants in an April 2006 survey stated that the introduction of the new segment was irrelevant to their own decision-making<sup>18</sup>.

The large majority of investment capitalists, on the other hand, consider the introduction of the Entry Standard to be a significant step forward<sup>19</sup>. The segment was even rated the top exit channel. These evaluations were made at a time when the index showed approximately 60% price gains. Since then, the prices have fallen considerably. Yet despite that fact, the segment does not seem to have lost its appeal to the companies. In Q1 2007, 12 companies have already decided to go public on the Entry Standard, as opposed to 8 who chose either the General Standard or the Prime Standard.

## Conclusion

The Entry Standard was conceptualized and introduced especially for small- and mid-caps, as a simple and affordable route into the capital market. The Entry Standard posed clearly lighter requirements on companies than the higher segments, while simultaneously offering a clear distinction from purely Open Market companies. The relatively high number of new public offerings illustrates the fact that the segment is getting established. However, the first bankruptcy two years after the introduction makes clear that the risks of such lightly regulated markets should not be underestimated. Yet market participants seem to have learned from the New Market craze. There are constant reminders that the Entry Standard is a segment for professional investors. With a total issuing volume of less than 500 million Euros, the actual capacity of the market, as compared to the Prime Standard, is rather small. Yet for companies that formerly had no access to the capital market, this is a considerable capitalization opportunity. The Entry Standard constitutes not only possibility for investment companies to sell shares and thus obtain fresh funds for new investments. The segment and its large number of new admissions have also brought an upward cycle for service providers offering services involved in IPO's and listings. Among these service providers are issuing banks and IR consultants as well as newspapers and magazines that have seen some, though not strong, increase of ad sales in this area. We should hope, therefore, that the first bankruptcy may serve as a warning signal and that market participants and banking institutes do not succumb to short-term coverage thinking in taking companies to the Entry Standard that could shortly thereafter damage the segment's reputation.

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## End Notes

Cf. Deutsche Bundesbank (2006). *Regulierung von Wertpapiermärkten: Internationale Ansätze*. Monthly Report, January, 2006.

<sup>2</sup> The same applies to the Official Market (“Amtlicher Markt”, formerly “Amtlicher Handel”), as well as to the Regulated Market (“Geregelter Markt”); cf. Mühlhaus, Axel, Knop, Sönke (2002). *Investieren in Small Caps*. Frankfurt: Campus, 2002.

<sup>3</sup> K.F. Johannes Hewicker (2005). “Ad-hoc-Publizität: Die Haftung des Vorstandes.” Dissertation, University Kiel.

<sup>4</sup> Cf. German Stock Trade Law.

<sup>5</sup> Regulated by the German Securities Acquisition and Takeover Act.

<sup>6</sup> Cf. German Stock Exchange (eds.) (February, 2007). *General Standard und Prime Standard, Zugang zum europäischen Kapitalmarkt: Erste Wahl für Unternehmen.*

<sup>7</sup> Cf. [www.eigenkapitalforum.com](http://www.eigenkapitalforum.com).

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<sup>11</sup> On the New Market, cf. Mühlhaus, Axel, Knop, Sönke (2000). *Profi-Handbuch Neuer Markt*. Regensburg / Berlin: Walhalla Fachverlag, 2000.

<sup>12</sup> “Entry Standard: The new way to the floor.” *Vision+money special*, 11/2005.

<sup>13</sup> Notification issued by the German Stock Exchange as of late February.

<sup>14</sup> This paper will address neither the individual costs involved in public offerings, nor the specific advantages of listings with prospectus, exposé, etc. For further information, see German Stock Exchange (December, 2005). *Ihr Weg an die Börse, Entry Standard – General Standards – Prime Standard*.

<sup>15</sup> The numbers at hand differ significantly, since the issuing party may in principle write the prospectus, with a legal advisor merely reviewing it. Or the entire process may be outsourced to a service provider. Experience has shown that the cost of such a prospectus may be as high as several hundred thousand Euros. About 5% of the total volume may serve as a reference point for the capital placement in the context of a listing, with a slightly smaller proportion for larger issues. According to our own calculations, the listing costs may often amount to approximately 8%; in individual cases, however, they may be dramatically higher.

<sup>16</sup> Cf. London Stock Exchange (February, 2007). *AIM Rules for Companies*.

<sup>17</sup> Cf. London Stock Exchange (January, 2006). *AIM, The most successful growth market in the world*.

<sup>18</sup> Deloitte Private Equity Survey (Q1 2006, published April, 2006). “Entry Standard: Neue Perspektiven für den Privaten Equity-Markt?”.

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# A Statistical Analysis of the Value Created by Tracking Stocks of Selected US Companies

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## Abstract

A tracking stock, also known as targeted stock or letter stock, is issued as a new class of common stock that represents the financial performance of a specific division or subsidiary of the parent company. Since the underlying assets are retained by the parent company, investors can own a high-flying growth company with less risk. If the tracked company is a fledging operation, it can maintain the backing and credit rating of a deep-pocketed parent.

The study reported in this paper shows that there is an upward trend in excess returns starting 45 days before the announcement date and spiking on the announcement date. Over the period of 45 days preceding the announcement, the value of the portfolio goes up roughly by 5% over the market. There is almost a jump of 6% on the day of the announcement. Then, in the next 45 days after the announcement, most of the value is gone even though not all is lost -the portfolio still maintains approximately 2% gain over the market. However, as indicated by the hypothesis testing, the value is not statistically significant. This phenomenon -sustaining some value gain (2% for our portfolio). Such an increase is explained not as evidence of a value creation but as a result of other events that take place coincident to issuance of tracking stocks.

## Introduction

A tracking stock, also known as a targeted stock or letter stock, is issued as a new class of common stock that represents the financial performance of a specific division or subsidiary of the parent company. Since the underlying assets are retained by the parent company, investors can own a high-flying growth company with less risk. If the tracked company is a fledging operation, it can maintain the backing and credit rating of a deep-pocketed parent.

Prior to 1994, tracking stock was the least used technique to separate a subsidiary from its parent. Most companies created better value for their shareholders by spinning off the unit or carving it out through a partial initial public offering or divesting it. Shareholder value creation is now such a dominant, driving objective in global business that most companies are evaluating their portfolios on a regular basis, to assess the synergies that exist between businesses and to estimate the value of individual businesses to themselves and to other potential owners. In theory, the parent company's stock price should already fully reflect the value of the tracking stock subsidiary. However, in reality, companies are shrewdly timing the issuance of tracking stocks while the market will reward them with high valuations. General Motors pioneered the use of tracking stock with its acquisition of Electronic Data Systems in 1984 and Hughes Electronics in 1985. Between 1984 and 1998, over forty tracking stocks have been issued or have been under consideration. (Appendix A). Since 1998 not only many companies have not issued tracking stocks but many parent companies have also withdrawn most of what they issued in prior years (Ross, Westerfield and Jaffe, 2008).

However, there is a renewed interest (Lashinsky, 2007) in using this tool by EMC, the parent company of VMware, the division of EMC for which EMC announced an IPO plan in February, 2007. Since the announcement the stock of EMC has gone up from \$14 to \$17 (an appreciation of roughly 20%).

There are three methods of issuing a tracking stock. The first is an underwritten offering which has the ability to raise capital for the tracking company; market the companies story during a road show, and it ensures the distribution of shares to the various interested investors. The risk of this approach is market risk. The second method distributes the tracking stock shares to the parent company shareholders. This approach provides the parent company shareholders with tracking stock shares. The downside to this approach is that it raises no capital and it does not guarantee that the existing parent shareholders will hold the tracking shares for the long haul. The third method is an exchange of shares by the tracking shareholders with the parent company shareholders. This method provides the



parent company shareholders with tracking shares, however the downside is that the parent company shareholders need to relinquish their parent company shares to participate. Of these three, the first is the most popular.

The purpose of this paper is to explore the use of issuing tracking stocks by corporations as a tool for restructuring. This study is along the same lines used in the pioneering study by Fama, Fisher, Jensen, and Roll (1969).

## **Literature Review**

The most fundamental work applicable to spin-offs, carve-outs and tracking stocks was published by Fama, Fisher, Jensen, and Roll (1969) in which they examined the impact of new information on stock prices. Michaely and Shaw (1995) compared spin-offs and carve-outs as the two choices of going public. While Stephen (1995) and Logue, Steward and Walsh (1996) made a case for issuing tracking stocks by examining how targeted (tracking) stocks could create value for a corporation, Pearson (1998) pointed out the difficulties in creating spin-offs. Allen and McConnell (1998) discussed managerial discretions in issuing equity carve-outs. Anslinger, Klepper, and Subramaniam (1999), Banham (1999), Cowen (1999) and Tessler (1999) made a case for restructuring through spin-offs, equity carve-outs and tracking stocks to create shareholder value. Callahan (1999) reported mixed results for Ziff-Davis that had issued a tracking stock. Coy (1999) warned that tracking stocks were accidents waiting to happen. Kedrosky (1999) called issuing of tracking stocks a delusion and Syre and Stein (1999) reported that Genzyme tracking stocks were off track on returns.

## **Issuing Tracking Stocks as Corporate Restructuring Strategy**

The current literature (Anslinger, Klepper, Subramaniam, 1999; Cowen, 1999; Stephen, 1995), available on the subject of tracking stocks discusses the following primary advantages and disadvantages, key features and mechanics associated with issuing of tracking stocks.

### **Advantages**

- Higher valuations -tracking stocks "unlock" the hidden value of high-growth businesses within established companies by creating a fully traded and separately valued equity security.
- Clarify the company's distinct businesses -tracking stock allows the market to more accurately value the disparate business according to fundamentals that are more relevant to each particular unit. Separate equity market identities create a "pure play." Investors can have more direct access to specific businesses run by a conglomerate-
- Access to equity capital -tracking stock can raise millions in fresh cash by generating valuable currency to fund acquisitions.
- Maintain full control -tracking stock allows the parent company to take advantage of restructuring without complete separation.
- Subsidiary could take advantage of its parent company's capital structure to borrow at lower costs. Tracking stock also maintains the ability of disaggregated entities to borrow at the debt rating of the consolidated company.
- Tax benefits -tracking stock avoids the tax consequences of a spin-off and net operating losses can be used to offset taxable profits thereby reducing taxes.
- Recruit and retain talent -can provide management incentives by issuing high value stock options for tracking stock to attract industry stars and maintain key executives.
- Improve performance of the business unit by exposing them to the market and thus attracting a more focused analyst community and new investors.
- Parent company can retain operating synergies and economies of scale in administrative costs.

### **Disadvantages**

- Tracking stock shareholders have limited rights.
- Tracking stock's performance can be a drag on or cast a shadow over other units and vice-versa.

- Tracking stock can create divisions between shareholders that could put one group or the other at a disadvantage.
- Tracking stock could create obstacles for a take over. (I. e., approval by parent and tracking stock shareholders can be a hurdle for a would-be buyer).
- Tax implications of unwinding the deal could create high disincentives in the event of a potential third party sale of the subsidiary .
- Tracking stock may be left out of industry activity such as consolidations because of its structure.
- Potential conflicts of interest can occur with one board of directors for different sets of shareholders.
- Tracking stock can pit classes of shareholders against one another leading to knotty lawsuits.

#### **Key Features and Mechanics**

- There is no legal separation of the company. Tracking stock represents an interest in the company not direct ownership of a stand-alone business.
- Determine structure -Can be a business division, geographic segment, product line or any other separable business unit.
- Determine method of creation -Can be distributed as dividend to shareholders of parent company or issued via initial public offering.
- Mayor may not have voting rights. Votes per share can be fixed or floating based on relative market share.
- Dividends are optional.
- Can create fully traded and separately valued equity security .Shares can be exchangeable or redeemable.
- Shareholder has no direct claim on the tracked assets. Assets are not physically separated from those of the parent. Parent company continues to own assets-
- Company consolidates the tracked division for tax and accounting purposes. A minimum of three sets of financial statements must be prepared -one for the consolidated company and one each for the two separate stocks. Need to develop an earnings per share methodology. EPS must be reported separately.
- Company continues to file consolidated federal income tax return
- All assets, liabilities, income, expenses and cash flows must be divided and allocated to each of the tracking stock. A future change in allocation methodology could be a change in accounting.
- There are no formal auditing requirements. There is more flexibility with regards to disclosure. There are no accounting requirements for arms length transactions.
- Recommended audit to determine if allocation methodology is reasonable, and appropriately applied for the correct amounts.
- Corporate governance provisions -Control remains in the hands of the parent company's board. A single board must now be responsive to more than one set of shareholders. There is an additional burden to communicate effectively and consistently with each group.
- Fiduciary responsibilities -good segregation of economics, internal management issues, cost allocation issues, inter-company transaction policies, arms length transfer pricing.
- The potential for conflict of interest between the two entities: shared resources: regulatory issues: relationships with competitors and/or customers.
- Shareholder vote required -Must go to shareholders for proxy to amend corporate charter and certificate of incorporation to change the nature of the common stock into two classes. Must file additional proxy if you increase the number of shares-
- SEC Review -Must prepare registration statements for distribution and offering. Pro-forma financial statements are required for a public offering.
- Tracking stock is not taxable after implementation; however, in his 1999 budget, US President Bill Clinton announced plans to tax tracking shares as asset sales starting October 1.
- Liquidation Rights -should develop formula to unwind or agreed upon exchange rates at time of creation.
- May need to develop new stock based compensation plans or amend existing plans.

- Liability Overhang -tracking stock shareholders are subject to the risks associated with the issuing company businesses and liabilities.

#### **Valuation of Tracking Stock**

A primary consideration in the issuance of tracking stock is how the market will value the security. In addition to typical equity valuation measures, most notably projections of revenues and earnings, tracking stockowners have additional considerations, including limited control of the tracked subsidiary. The tracked subsidiary is also secure from a takeover unless the parent company is the target and tracking stock may trade at an overhang discount if less than 100% of the equity interest in the tracked division is initially sold or distributed. Exposure to the liabilities of the parent company is also a consideration. Tracking stockowners have liquidation rights in the assets of the entire parent company, not the tracked division.

## **Quantitative Analysis**

#### **Description of Approach to Stock Valuation and Hypothesis Testing**

The null hypothesis for this analysis is the proposition that the issuance of tracking stocks does not, in and of itself, create any additional value to a company, unless there are events coupled with some other decision which may create value. This null hypothesis is based on the assumption that, in a perfect (efficient) market that excludes the possible tax shield effects (the Modigliani-Miller Proposition (Haugen, 2001), the value of a company (its assets and future cash flows) is already captured in its stock price and that the mechanism used by a company to finance its investments has no effect on that value. This hypothesis is further supported by the fact the issuance of tracking stocks does not raise debt amount and does not have any impact on the value of the tax shield on borrowing. The alternate hypothesis is that the mechanism of issuing tracking stocks indeed creates additional value. The proposition here is that such a value will be created at the time of the announcement and not necessarily at the actual issuance of a tracking stock. This timing issue is based on the concept of market efficiency, etc.

In order to test the hypothesis, the value of the parent company before the announcement is compared with the value of the parent company and the tracking stock subsequent to the announcement

#### **Stock Valuation Technique**

Since 1983, 17 parent companies have issued 26 tracking stocks. The daily stock prices for the parent companies were collected over a 90-day period (45 days prior to and 45 days post first announcement). The market response for each such issue was measured by calculating the expected and actual daily returns before the announcement and after. Actual daily returns were calculated by using a mathematical approximation that consisted of calculating the natural logarithm of the ratio of stock prices on any consecutive days  $\{\ln [P(t+1)/P(t)] - 1\}$ . This is a standard approach that is used in many event studies and suggested by Mesznick (2000).

In all such studies, the intent is to verify whether or not a particular event does generate excess return opportunities for shareholders owning the stock at the time of the announcement. The expected returns are calculated using the **betas** before and the betas after the announcement. The assumption here is that the announcement to issue a tracking stock may change the risk of the firm because it may be a division that is riskier or less risky than the rest. Setting it on its own, as is done in a tracking stock issue, will necessarily change the beta of the leftover divisions. Betas were calculated by conducting a regression analysis between the actual daily return of the parent company and the actual daily return of the market as measured by the S&P index over the same 90-day period. It should be noted that each of the various 90-day periods is unique for each parent/tracking stock combination, as determined by the  $T = 0$  (the day of the announcement for each parent/tracking stock).

## **Analysis Methodology**

As stated earlier, the basic methodology used here to analyze the excess daily returns and the cumulative excess return for each day over the 90-day period for each parent and issue combination. Next, this data is analyzed as if it belongs to a portfolio of all the companies that have issued tracking stocks. To do this, we take the sum of all excess

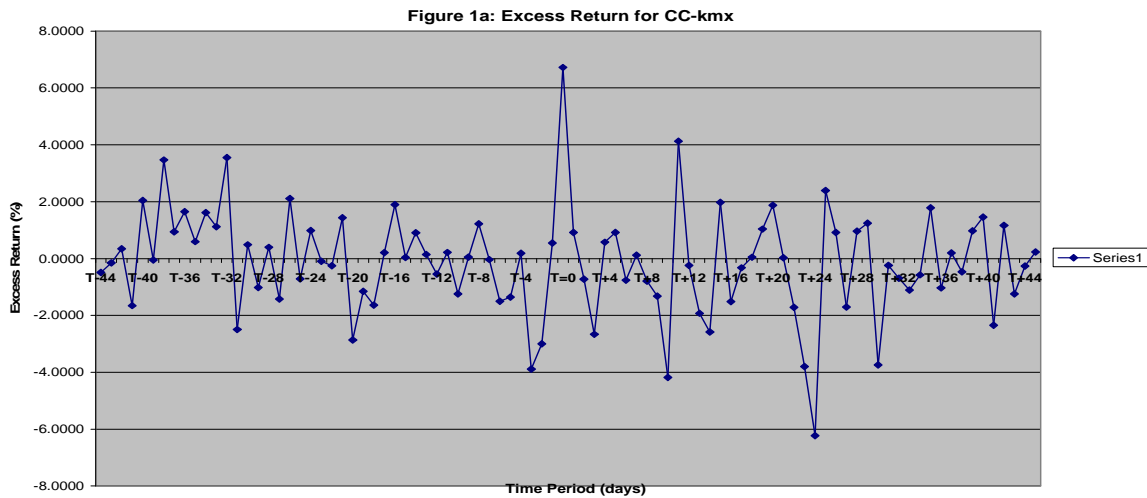
returns for each day. Due to the portfolio diversification, the excess return of the portfolio should be negligible for all days except if the event creates value. In the latter case, the excess return for the period around  $t=0$  should spike. We plot this data and also conduct hypothesis testing for each parent/issue combination as well as for the portfolio.

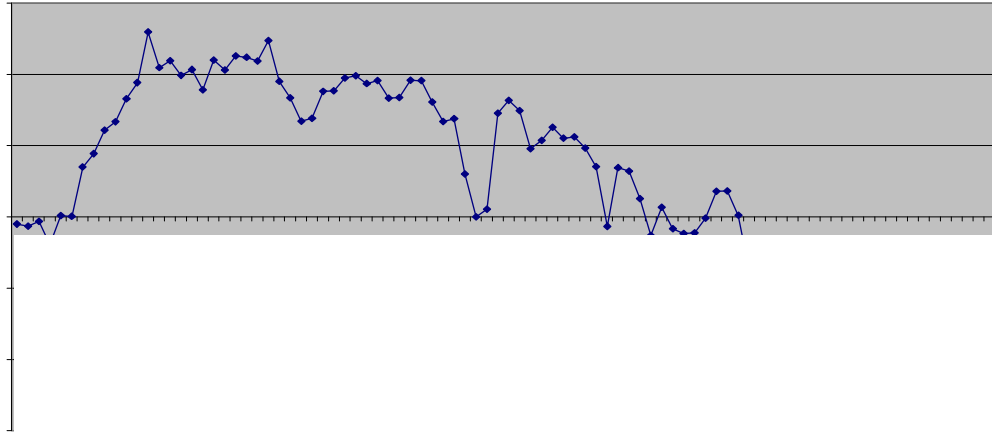
**Analysis**

From an initial potential list of 21 parent companies and issues, selective information (daily stock prices and the date of the tracking issue announcement) was available for only 13 combinations. Data collection also included (1) S+P index daily final values from June 1992 to October 1999, which covered the time period of this analysis. The daily and cumulative excess returns for each of the 13 companies included in this analysis were calculated. For each company, the two betas were calculated.

**Excess Returns for Individual Companies**

We have included only one graph (Figure 1a) for a company as an example. A cursory look at these graphs reveals that the daily excess return follows pretty much a random walk pattern. For pretty much all of them, the excess daily return at  $T=0$  (the announcement day) was positive, with almost half (7) peaking. This can be construed as some evidence that value is being created because of the announcement of impending tracking issue. Actually, this effect is more visible on the cumulative excess return graphs (Figures 1b). Even though, the starting point and the length of the upward trend around  $T=0$  varies for each stock, the point to note is that such an upward trend exists for pretty much all 13 stocks. Another observation to make is that after  $T=0$  there is a downward trend, even though the starting point and the length of such a downward trend varies from stock to stock.





Even though, one could easily conclude from the graphs that the excess return over the 90-day period of our interest is not significant, we conducted statistical tests to do hypothesis testing, which confirmed the fact that the value, if created, is not statistically significant

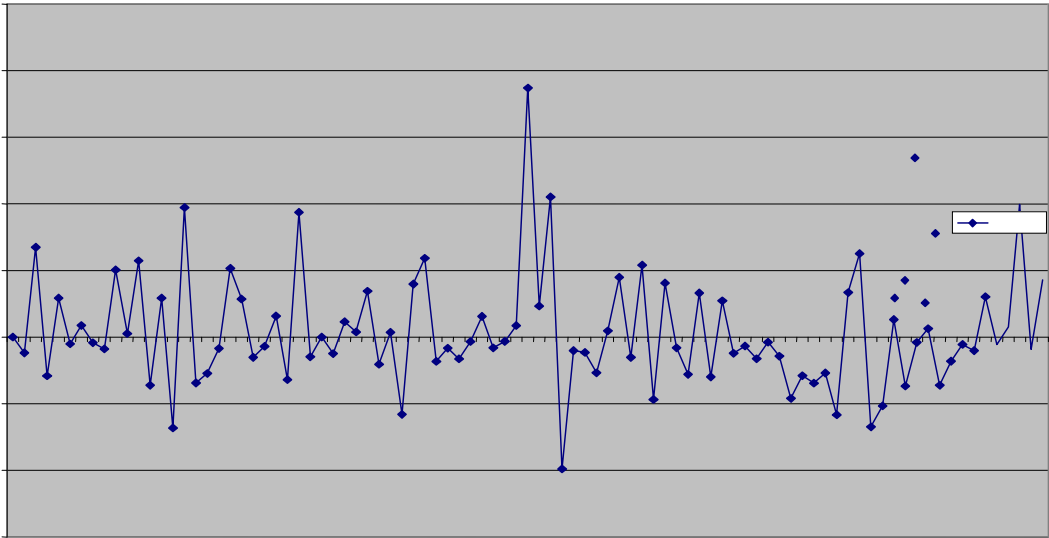
**Excess Returns for the Portfolio**

Since the individual stocks have too much volatility, we treated all 13 companies as if they were part of a single portfolio. The daily excess return data for all 13 companies were combined together to come up with the daily excess return for the portfolio, which then was used to calculate the cumulative excess daily returns. Figures 2a and 2b contain the graphs for the portfolio. Once again - as expected - the daily excess return displays a random walk pattern. What is noteworthy here is the spike at T=0, once again pointing to the fact there is some kind of value creation in the mind of investors as the announcement of issuing a tracking stock is being made. However, as indicated by the hypothesis testing results for the portfolio in Table 1, the value is not statistically significant.

Next, we examined the cumulative daily excess returns for the portfolio (Figure 2b). As is clearly visible, and notwithstanding the daily fluctuations, there is an upward trend pretty much starting at T-45 and spiking at T=0. Over the period of 45 days preceding the announcement, the value of the portfolio goes up roughly by 5% over the market. There is almost a jump of 6% on the day of the announcement. Then, in the next 40 days after the announcement, most of the value is gone (opportunistic profit taking), even though not all is lost - the portfolio still maintains approximately 2% gain over the market. This phenomenon - sustaining some value gain (2% for our portfolio) - has been observed by previous researchers. Such an increase is explained as not evidence of a value creation but as a result of other events that take place coincident to issuance of tracking stocks.

TABLE 1: DESCRIPTIVE STATISTICS AND HYPOTHESIS TESTING

<b>Mean</b>	0.066696507	
<b>Standard Error</b>	0.089109938	
Median	-0.11006867	
Mode	#N/A	
Standard Deviation	0.850054633	
Sample Variance	0.722592879	
Kurtosis	3.401140491	
Skewness	1.172515131	
Range	5.720880214	
Minimum	-1.98152911	
Maximum	3.739351102	
Sum	6.069382181	
Count	91	
Confidence Level (95.0%)	0.177032303	
<b>Confidence Limits</b>	[-0.18, 0.18]	For the population mean of 0 and the alpha of .05.
<b>Testing of Hypothesis</b>		Accept the null hypothesis, meaning no value created by tracking stocks.



## **Conclusion**

This study shows that there is an upward trend in excess returns starting 45 days before the announcement date and spiking on the announcement date. Over the period of 45 days preceding the announcement, the value of the portfolio goes up roughly by 5% over the market. There is almost a jump of 6% on the day of the announcement. Then, in the next 45 days after the announcement, most of the value is gone even though not all is lost -the portfolio still maintains approximately 2% gain over the market. However, as indicated by the hypothesis testing, the value is not statistically significant. This phenomenon -sustaining some value gain (2% for our portfolio). Such an increase is explained not as evidence of a value creation but as a result of other events that take place coincident to issuance of tracking stocks.

## **Acknowledgment**

The analysis presented in this paper was done as part of the author's MBA project at the Columbia Business School. I wish to thank Professor Roger Mesznik of the Columbia Business School for suggesting the use of the logarithmic ratio for this analysis. The author also thanks Ken Chekosky for diligence and hard work for getting access to the data.



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Contact author for the full list of references

## Appendix

### List Of Tracking Stocks

<u>Parent Company</u>	<u>Tracking Stocks</u>
<u>Issued:</u>	
1 American Health Properties	Psychiatric Preferred
2 AT&T	Liberty Media Group
3 Circuit City Stores Inc	CarMax
4 CMS Energy Corp	Energy
5 CMS Energy Corp	Gas
6 Conectiv	Conectiv Class A
7 Donaldson, Lufkin & Jenrette	DLJDirect
8 Fletcher Challenge Ltd	Building
9 Fletcher Challenge Ltd	Energy
10 Fletcher Challenge Ltd	Paper
11 General Motors Corp	Automotive
12 General Motors Corp	Electronic Data Systems
13 General Motors Corp	Hughes Electronics (class H)
14 Genzyme Corp	Molecular Oncology (class E)
15 Genzyme Corp	Surgical Products

16 Genzyme Corp  
17 Genzyme Corp  
18 Georgia-Pacific Corp  
19 Inco  
20 Pittston Co  
21 Pittston Co  
22 Pittston Co  
23 Ralston Purina Company  
24 Ralston Purina Company  
25 Seagull Energy Corporation  
26 Seagull Energy Corporation  
27 Sprint Corp  
28 Sprint Corp  
29 Tele Communications  
30 Tele Communications  
31 US West  
32 USX Corporation  
33 USX Corporation  
34 USX Corporation  
35 Walt Disney Corp  
36 Ziff-Davis

**Considered:**

1 AT&T  
2 AT&T  
3 Auto Nation Inc.  
4 Bell Atlantic  
5 BellSouth  
6 DuPont  
7 General Electric -NBC  
8 JC Penney  
9 Microsoft Corp  
10 Perkin Elmer PE Biosystems  
11 Quantum Corp  
12 Quantum Corp  
13 SBC Communications Inc.

Tissue Repair  
Transgenics Corp  
Timber Group  
Inco Class VBN  
Brinks  
Minerals  
Burlington  
Ralston Purina Group  
Continental Baking Group  
ENST AR: Alaska Group  
Seagull Energy  
PCS  
FON  
Liberty Media Group  
Ventures Group  
Media Group  
USX Steel Group  
Delhi Group  
Marathon Group  
Infoseek & Go.com  
ZDNet

Consumer Services/TCI  
AT&T Wireless Group  
Internet car sales  
Internet Business  
Wireless  
Life Sciences  
Xoom.com & Snap.com  
Eckerd  
internet properties  
Celera Genomics  
DL T & Storage Systems Group  
Hard Disk Drive Group  
Wireless & International Operations

# Investing in Sustainability: The Changing Face of Canadian Banks

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## Abstract

Sustainability is no more a goal, but the new way of doing business. It does not have to be achieved, but assimilated in the way we conduct business today. This paper highlights the role of the Canadian banking industry in promoting (environmental) sustainable development and leading this change in approach to doing business. As a powerful industry sector financing all other business sectors in the local and global economy, Canadian banks have moved from ignoring environmental concerns to embracing them by not only making it a part of their own business practices but also encouraging investors to adopt environmentally responsible investing. Their influence and power to be agents of change is significant. The paper examines the programs and policies, both internal and external, of leading Canadian banks in their quest for promoting sustainable development and the difference they are making to Canadian business. There are challenges but the future looks bright. **Keywords:** Environmental sustainability, banks, Canadian banks,

## Introduction

As the Brundtland Report (UN, 1987; p.54) recommended, meeting the needs of business today in a way that they do not compromise our future is a noble goal for organizations to follow.

The state of the environment and its protection is becoming a fast emerging concern for the business community as well as consumers. Today's consumers often take into account the environmental effects of their purchases and marketers include environmental factors in their plans as a way of gaining competitive advantage. The environment has also become an integral part of many business plans because many countries now have increasingly stringent government (federal and provincial) environmental protection regulations. All types of businesses including manufacturing, energy generation and distribution, resource management, transportation, agribusiness, services and retail are in some way affected by these regulations.

A sound environmental policy embedded in the business strategy is not only necessary but it also makes good business sense. Integration of environmental goals with economic and social achievements is gradually becoming essential for sustained growth and for an organization's long term well being. Business literature is full of publications on how organizations and industrial sectors have approached the goal of "sustainable development"; however, there is limited literature available about what role our financial institutions play in its promotion.

This paper examines the role of the banking industry in promoting the idea of "environmental" sustainable development. This powerful industry sector finances all other business sectors in the global economy, banks' influence and power as agents of change is significant. Indeed they have an opportunity to shape whether environmental concerns are embraced in business dealings. This paper examines the programs and policies, both internal and external, of the five major Canadian banks<sup>1</sup> in their quest for promoting sustainable development.

## Banks and the Canadian Economy – a Snapshot

Banks play an influential role in the Canadian economy as they control as much as 56% of business in the financial sector. These institutions are also a significant contributor to Canada's economic growth, employing over 600,000 Canadians in 2003 and having a yearly payroll of over \$35 billion. The sector represented 6 per cent of Canada's gross domestic product in 2003 and contributed close to \$13 billion in taxes to all levels of government (Govt. of Canada, 2005).

The Government of Canada (2002) reports that “as of July 2002 there were 14 domestic banks, 33 foreign bank subsidiaries and 20 foreign bank branches operating in Canada. In total, these institutions had over \$1.7 trillion in assets, which accounted for over 70 per cent of the total assets within the Canadian financial services sector. The six largest domestic banks (in 2002) accounted for over 90 per cent of banking assets. Banks are among Canada’s leading employers. In 2000 the industry employed over 235,000 Canadians and had a Canadian payroll of approximately \$16.1 billion. In addition, in 2001 the six major domestic banks paid \$4.8 billion in taxes to all levels of government. The six major domestic banks have significant international operations, which vary among the individual institutions both geographically and in strategic direction. They have been seeking growth opportunities in the United States, where they are focusing their business activities on wealth management, corporate investment banking and electronic banking. At the same time, the major domestic banks have made investments in select markets in Latin America, Asia, the Caribbean and other countries around the world. In 2001 their international operations accounted for approximately 33 per cent of gross revenues. In recent years Canada’s banks have demonstrated consistent performance. In 2001 the six largest Canadian banks reported earnings of \$9.7 billion, compared to \$9.6 billion in 2000, \$9.1 billion in 1999 and \$7.1 billion in 1998. Also, the total assets of all six banks have increased over the past two years.”

In the World Economic Forum’s Global Competitiveness Report for 2000-2001, Canadian banks are also considered as being amongst the soundest financial institutions in the world after Australian banks (Govt. of Canada, 2002). Soundness is “the ability to sell goods or services profitably relative to other producers of the same goods or services; a number of factors contribute to competitiveness including technological change, a highly skilled labor force, low inflation and a sound public policy environment. As competitiveness improves, costs are reduced and exports expand across international markets” (Govt. of Canada, 2006a).

## **Banks and the Environment – Reasons to be Involved**

The potential contribution of financial institutions toward sustainable development is significant because they play an intermediary role in the economy: a role that has attracted interest from organizations such as the European Union and United Nations Environment Program (Jeuken et. al., 1999). As engines of economic growth, these institutions are uniquely placed to tackle the challenge of how to care for the environment (the physical world) while delivering economic growth.

Within the business world there has been considerable debate as to whether sustainability and corporate social responsibility are valid constructs. Arguments in favor generally focus on the impacts of business on society and the environment and the resultant ethical imperative to minimize and restore function (Hawken et. al., 1999) or the “business case” which includes considerations of attracting and retaining talent, cost-reduction, market related advantages, financial risk reduction, and/or regulatory imperatives (Morhardt, 2002) (ACCA, 2002; Arthur D. Little, n.d.; KPMG, 2005; Sparks, 2003, Willard, 2002). Counter-arguments focus largely on beliefs that social issues are not business’ primary purpose” (Sparks, 2003; Wilson, 2003). Regardless of debates around the validity of these ideas, driving forces exist that are impelling banks forward.

Internal driving forces for banks to integrate sustainability into their operations and policies range from more philanthropic interests emanating from employees and management to opportunities to reduce their already moderate sector footprints (e.g., improvements in paper and energy use).

It is the external driving forces, though, which create very specific reasons for banks’ interest in sustainable development – “environmental obligations can affect the ability of (your) business to repay loans, but also the marketability and value of its collateral or security (real estate, equipment, etc.). Customers are also becoming increasingly reluctant to deal with a business whose products and practices do not meet their expectations from an environmental point of view. The resulting loss in sales may have an impact on the company’s bottom line and could affect its ability to service its debt” (Canadian Bankers Association, 2000; p.2).

The Canadian Bankers Association (no date) further explains that banks as lenders face two kinds of risks when financing a company which is found in violation of environmental regulations or found indulging in unethical

environmental practices. The first is the risk of non-recovery of the loan and the second risk is being held responsible for the environmental clean up costs, management costs and third party damage claims.

A further external impetus in this country is The Bank of Canada Act (Government of Canada, 2006b) which has mandated financial institutions to annually produce a “Public Accountability” statement. This essentially describes the contributions of the bank and its prescribed affiliates to the Canadian economy and society.

## **Canadian Banks and Sustainable Development**

### **Policies and Principles**

This section provides an overview of the (environmental) sustainable development policies and guiding principles of Canada’s five major banks (the “Banks”).

#### **RBC**

Established in 1992, RBC's Environmental Policy (RBC, no date) is to:

- “Responsibly manage all aspects of its business to ensure environmental laws and recognized standards are met or exceeded.
- Give appropriate attention to environmental laws and risks in the operation and management of its businesses, including assessment of proposed credits and investments and the development of financial products and services.
- Apply best-recognized environmental practices to internal operations, having due regard for environmental benefits and costs, including purchasing decisions, conservation of resources, recycling and waste minimization.
- Foster employee work habits which promote respect for the environment and personal health and safety.
- Maintain guidelines and procedures for the administration of its environmental policies and objectives.
- Communicate in a timely and candid fashion on the environmental aspects of its policies, procedures and performance to relevant stakeholders.
- Work with industry, government and public groups and provide support for selected non-profit groups to help achieve a balanced relationship between a sound economy and responsible environmental practices.
- Promote the foregoing principles and practices throughout RBC Financial Group and strive to continually improve these practices.”

RBC is a signatory to the Equator Principles which is “a financial industry benchmark for determining, assessing and managing social & environmental risk in project financing” (The World Bank, 2006).

The company is a signatory to the International Chamber of Commerce Business Charter for Sustainable development and the UNEP Finance Initiative (UNEP FI), a member of the Canadian Banker’s Association Environmental Issues Advisory group, the Environmental Bankers Association and the Canadian Brownfields Network (RBC, 2005; p.28).

#### **CIBC**

To demonstrate their commitment to the environment, CIBC first launched its environmental risk and management program in 1991. In 1993, CIBC’s Board of Directors approved the first corporate environmental policy. Later in 2004 they launched the Environmental Credit and Investment Risk Management Policy. CIBC’s Annual Accountability Report 2005 (CIBC, 2005; p.31) claims that CIBC “continues to integrate environmental considerations into its business activities and decision processes.” Further, it states that “CIBC’s Corporate Environmental Program ensures that environmental issues are systematically addressed and procedures are continually improved to minimize environmental impacts, with their associated costs, while maximizing opportunities to support sustainable development” (CIBC, 2005; p.31). CIBC tries to achieve its sustainable development philosophy by focusing on environmental engagement through proactive engagement with clients and investors, environmental risk assessment which is an integral part of their analysis of credit and investment business and facilities management.

The Corporate Environmental Policy adopted by CIBC (CIBC, no date) states that “CIBC is committed to responsible conduct in all its activities to:

- Protect and conserve the environment,
- Safeguard the interests of the corporation, its employees, customers and shareholders from unacceptable levels of environmental risk, and
- Support the principles of sustainable development.”

For governing this environmental policy, CIBC further breaks down this policy into “guiding principles” (CIBC, no date), whose main components are Communication, Community values, Continuous improvement, Credit and investment risk management, Employee education, Operations and supplier management and Procurement.

CIBC is involved with a number of environmental initiatives with the UNEP Finance Initiative (UNEP FI), Canadian Banker’s Association, Environmental Bankers Association and Environment Canada’s informal network on Linking Environmental Performance to Financial value (CIBC, 2005).

#### **BMO**

BMO launched its environmental policy in 1992. The policy addresses the bank’s commitment to the environment and the principles of sustainable development. The environmental policy states: “We (BMO Financial Group) are committed to the principles of sustainable development and, in particular, to the belief that the quality of our lives improves when economic growth is integrated with respect for the environment” (BMO, 2005; p.38).

BMO acknowledges that their actions affect the environment directly in terms of their own operations, and indirectly through the practices of the organizations with whom they conduct business. They believe that they should minimize the impact of their business on the environment and help ensure that society can meet its needs today in a way that does not compromise the ability of future generations to do the same (BMO, no date).

The guiding principles at BMO (BMO, 2005; p.39) are established “to ensure that environmental responsibility is a real and living part of our cultural landscape.” These are “to:

- Promote environmental stewardship across our business.
- Respect, protect and act to serve the environment around us.
- Engage our employees in our environmental management programs.
- Provide credit to borrowers in a manner that respects environmental management.
- Take responsibility for our environmental performance.
- Work with others to protect and preserve our environment.”

BMO is a signatory to the Equator Principles which it adopted in September 2005. It is also a signatory to the UNEP and Carbon Disclosure Project<sup>2</sup>. It has committed itself to being a green company through initiatives such as Learning for a Sustainable Future, an aggressive paper reduction program, through waste management and energy conservation programs in-house. Their goal is to be a Green Workplace with a Green Workforce (BMO, 2005).

#### **Scotiabank**

Scotiabank’s environmental policy came into existence in 1991. The Bank’s Board of Directors are responsible for formulation and implementation of specific policies and practices that help achieve the goals of the bank’s environmental policy. The policy states:

“Our core environmental policy, supported by additional specific policies and practices relating to individual business lines, includes:

- Maintaining recycling and resource management programs that meet or exceed legislated environmental requirements;
- Conducting our internal operations in a manner consistent with environmental protection and the principles of sustainable development, with due regard for associated benefits and costs;
- Promoting an environmentally responsible workplace by educating and motivating employees to become more involved in the conservation of resources;
- Monitoring the effectiveness of all our environmental activities by conducting environmental audits and assessments of compliance with the Bank’s requirements;
- Incorporating and maintaining environmental assessment criteria in our risk management procedures and in the ongoing management of our assets;

- Including environmental criteria in assessing relationships with contractors and suppliers; and
- Contributing to an ongoing dialogue with government, industry and relevant stakeholder groups to establish environmental goals.” (Scotiabank, 2005; p.34)

Scotiabank’s environmental activities address both direct and indirect environmental impacts. The responsibility for its implementation is shared by the various departments such as Real Estate, Operations and Global Risk Management.

In 2005, Scotiabank adopted the Equator Principles which is based on the World Bank and International Finance Corporations standards. Scotiabank is a long-standing member of the UNEP FI; Canadian Bankers Association’s Environmental Issues Specialist Group and is a signatory (and contributor) to the Carbon Disclosure Project.

#### **TD Bank**

TD Bank Financial Group’s environmental policy is very new compared to those of the banks profiled earlier. The Risk Committee of the Board of Directors formally approved the new Environmental Policy in 2005 (TDBFG, 2005; p.31). The policy states:

“Applying to all our businesses and corporate support functions globally, our Environmental Policy includes guiding principles that commit TDBFG to:

- Responsibly manage all aspects of our business to promote environmental protection;
- Ensure employees as necessary are aware of and implement the policy and identify ways to improve environmental performance;
- Encourage relationships with suppliers who have procedures in place to manage and comply with environmental laws or risks applicable to their businesses;
- Regularly review and update environmental processes;
- Cooperate with government, the business community, and stakeholders in support of responsible environmental management and accountability, and communicate with relevant stakeholders on environmental aspects of our operations;
- Maintain a credit policy to protect against environmental risk;
- Support local, community-based environmental activities, such as the TD Friends of the Environment Foundation;
- Take a responsible approach to energy conservation and managing hazardous products and processes, and encourage conservation by recycling, reduction, and re-use initiatives; and
- Take reasonable care to prevent or avoid environmental incidents associated with our operations.”

(TDBFG, 2005; p.31)

TD bank’s approach has been to involve top management. “Accountability for environmental issues is shared among a number of departments including Corporate and Retail Real Estate, Government and Community Relations, Corporate Operations, Legal and Risk Management groups” (TDBFG, 2005; p.30). They have initiated a project to develop an Environmental Management System and set up a committee to “prepare an inventory of existing environmental practices within TD to pinpoint strengths and gaps” (TDBFG, 2005; p.30).

Like the other Canadian banks, TD Bank too sees the benefits of partnering for sustainability. It has renewed its membership with UNEP FI and participates in the Carbon Disclosure Project. TD Friends of the Environment Foundation has been providing funding to community groups who help the environment for over 15 years now (TDBFG, 2005).

## **Path to Sustainability**

As we have seen, the major Canadian banks have embraced the concept of environmental sustainable development in different ways. This is reflected in the 2006 Corporate Knights 2nd overall rating of the Financial Sector in their annual ranking of the top corporate citizens in Canada (Corporate Knights, 2006).

RBC has been particularly recognized internationally by virtue of being named one of the world's top 100 sustainable companies at the second annual "Global 100" ranking announced at the World Economic Forum in Davos, Switzerland in January 2006.

The environmental and social performance of Canada's five major banks is reflected in their inclusion in a number of financial indices that aim to provide the investor an understanding of the commitment of the companies in these areas.

RBC, CIBC, BMO, and Scotiabank are all listed on the 2006 Dow Jones Sustainability Index and the FTSE4Good Index (RBC, 2006; CIBC, 2006; BMO MBO 2005?), 2006; Scotiabank, 2006). Further, all five companies except for CIBC are listed on the Jantzi Social Index.

It is a matter of great satisfaction to find the top Canadian banks included in these indices. This is an acknowledgement of their strength in meeting some very specific criteria which are globally accepted for measuring environmental and social performance. However, this should not be considered as an end in itself.

Sustainability is not a goal, but a new way of doing business. It does not have to be achieved, but assimilated in the way we conduct business today. Given this, it is more relevant to examine the process of change and how it has emerged in the Canadian banks. An examination of the Public Accountability Reports or Corporate Sustainability Reports of various Canadian banks over a period of last five years reveals progress is being made; from setting criteria to measuring them to reporting and comparing and finally tracking progress. The degree of transparency seen in the 2005 reports shows a high degree of comfort for the banks with reporting environmental and social performance. A few of these reports even acknowledge areas where they have performed poorly.

The company policies and guidelines reflect many things. There is the philanthropic communication for the community, but behind that are very practical reasons such as risk management and efforts towards reducing liabilities due to actions of those with whom the bank invests.

The following paragraphs highlight some key examples of further initiatives from the banks under three categories – Philanthropic, Long-term (green) business investments and operations.

The best philanthropic example that comes to mind is from TD Bank. Their Friends of the Environment Foundation has helped in more than 15,000 environmental projects in Canada and received \$37.4 million in support since 1990. The support not-for-profit groups that protect and preserve natural surroundings, assist children in understanding the environment and those that conduct environmental research or promote environmental cooperation (TDBFG, 2005; p.33). Other banks are also involved in projects and events that are philanthropic in nature like wildlife rehabilitation (TDBFG, Scotiabank), restoration efforts (TDBFG), earth day events (all banks), brownfield<sup>3</sup> development (RBC), children education (all banks), etc.

Under long-term (green) business investment, there are several initiatives underway that demonstrate the banks are looking to the future and investing in green projects. Examples include:

RBC's commitment to reduce the effects of climate change on business. They have been assessing the risks and opportunities of international agreements and have incorporated "carbon risk" in their assessment of borrowers in high impact sectors such as mining and oil and gas (RBC, 2005; p.26).

Scotiabank has provided advice and financing to support a number of innovative environmental projects in the renewable energies sector. In their 2005 report they mention being "co-lead and arranger of \$100 million in unsecured credit facilities for Canadian Hydro Developers Inc. (CHD), a developer, owner and operator of 17 water, wind and biomass power generation facilities in three Canadian provinces. This should help CHD develop a 76.5 megawatt wind project in Ontario's Melancthon Townshi" (Scotiabank, 2005; p.37).

Operations results are important too, as they are the milestones in this long journey towards adoption of sustainability in regular business practices. They are necessary to measure progress and to motivate those involved for better performance. Researchers often call the initial steps which deliver easily understandable results and often lead to a high degree of satisfaction and motivation as "low hanging fruits." If an organization has to move forward, it must see some quick benefits of adopting green practices. Especially notable are the achievements in the area of waste management, energy conservation and facilities management. This is one of the major areas where banks have demonstrated excellent results. Though it is difficult to choose, some are highlighted below.



Waste Management: In 2005, RBC saved about 40 tons of paper by introducing paperless statements for clients. Earlier, in 2004, it had introduced electronic pay statements for employees thereby doing away with printing 2 million statements and saving 16 tons of paper annually. RBC also reduced the number of printers by 52% in 2005 through networking and sharing of resources (RBC, 2005).

CIBC introduced a paper recycling program and in 2005 recycled 7300 tons of paper compared to 1315 tons in 2003. They also reduced their water consumption from 350 million liters in 2003 to 286 million liters in 2005 (CIBC, 2005).

Bank of Montreal (2005) has run a Technology Disposal Program from 2001 with the objective of minimizing the impact of unwanted machinery on the environment. When possible, BMO donates equipment (computers, fax machines, cell phones, etc.) to charitable organizations. Unusable equipment is disposed off using environment friendly means. By the end of 2005, BMO had donated 19,063 pieces of equipment and disposed of another 24,189 pieces (BMO, 2005; p.40).

Facilities Management & Energy Conservation: RBC has reduced its energy consumption from 210,855 MWh in 2003 to 196,303 MWh in 2005. In addition they increased their purchase of Green Power from a mere 600 MWh in 2003 to 1,530 MWh in 2005. RBC is also installing sensors in new building for conserving energy.

In spite of all these achievements it is probable that a plateau might be reached in the near future, especially operationally, as costs of making additional changes may begin to outweigh the perceived benefits with each percent change costing more tomorrow than it did today.

The pursuit of sustainability is not something one organization can achieve on its own. It is a team effort and collaborations with meaningful and well articulated outcomes are critical to keep moving in the right direction. The significance of support networks in a system thriving to sustain its business and its business environment cannot be under-estimated. Review of literature indicates that the banks understand this quite well. The network they have established (or become a part of) should sustain their progress towards being sustainable businesses.

As the quest for sustainability gains momentum, it is possible that in the near future there will be more assistance from other industry sectors and the government in the form of advice and decision making frameworks.

## **Helping Banks Promote Sustainable Development – Some Other Resources**

At the government level assistance can come from organizations such as the UNEP, NRTEE, the Canadian Council of Ministers of the Environment and Environment Canada's Green Lane.

Organizations such as the World Business Council for Sustainable Development (WBCSD), the Pew Centre on Global Climate Change, Pembina Institute, World Research Institute have been presenting in-depth analysis of issues and environmental concerns suggesting frameworks and standards for performance.

Standard organizations such as the International Standards Organizations (those who proposed ISO 14000), Canadian Standards Association and Standards Council of Canada have been helping organizations develop criteria for measuring and communicating environmental risks.

Finally, industry and trade associations have been involved in producing specific guidelines on good environment friendly industrial practices.

## **Conclusion**

Banks are a powerful component of the Canadian economy. Since the early 1990s they have led the way by embracing the challenge of sustainability. They did not use their business position to obstruct (or delay) the effort to move ahead on the path to sustainable behavior.

The banks also gained a quick appreciation of two important things – validation from different bodies and the benefits of collaboration. They formulated their policies and kept them closely in sync with the globally accepted definition of sustainable development as given in the Brundtland Report (UN, 1987; p.54). It would be fair to say that this led to development of policies and practices that have served the industry well during the last five years (given their inclusion in various globally accepted indices recognizing performance). Collaboration and networking

was achieved through membership of similar institutions and adoption of frameworks that promote practices with some degree of standardization (like the Equator Principles, UNEP FI or the Carbon Disclosure Project).

Internally the banks looked at what researchers call the “low hanging fruits.” Aggressive programs in waste management, energy conservation and facilities management brought them enough benefits to keep them moving forward on the path of environmental sustainability. As they encountered success, they became even more comfortable reporting their progress and adding bigger challenges to their list.

There is a lesson here for other important industries in Canadian economy such as the energy sector and the manufacturing sector. They need to embrace the environmental sustainability and drive change rather than resist it. With the Canadian economy flourishing there is never going to be a better time to make this necessary turn in how we conduct business today.

## References

Contact author for the list of references.

## End Notes

While the authors explicitly examine the Canadian banking industry, they acknowledge the growing influence of the larger ‘Financial Services Sector’ which includes trust and loan companies, credit unions and *caisses populaires*, life and health insurance companies, property and casualty insurance companies, securities dealers and exchanges, mutual fund companies and distributors, finance and leasing companies, as well as independent financial advisors, pension fund managers and independent insurance agents and brokers.

<sup>2</sup> Carbon Disclosure Project (CDP) is an initiative of the global institutional investors to report on corporate responsibility issues including business implications of climate change.

<sup>3</sup> A brownfield is an abandoned, idle or underutilized commercial or industrial property usually in an urban area where past actions have caused, or are suspected to have caused, environmental contamination. Brownfield redevelopment results in the revitalization of communities through increased economic productivity, increased tax revenue, lower municipal infrastructure costs, reduced health risks and improved neighborhoods (RBC, 2005; p. 28).

# China's Hidden Financial Threat of a Banking Crisis

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## Abstract

Although China achieved remarkable economic growth for the past decade, this cannot be said for its banking system. Its nascent weak bank-dominated financial sector poses a threat to China's rosy growth and long-term stability. In 2006, China has about 1.3 trillion yuan of non-performing loans, in addition to 230 billion yuan still unresolved on the books of the Asset Management Companies. The huge NPLs is a hanging sword over China's economic growth and a potential harbinger of a financial crisis. This paper analyses what factors present a hidden threat to China's financial stability and the challenges and policies implications. Logit analysis is used to evaluate the probability of a potential banking crisis. Our results indicate that the Chinese banks have a temporary reprieve through the disposal of NPLs and fresh capital injections. However, the bad debt problem and potential threats remain.

## Introduction

In China, the practice of government directed lending to subsidize the unprofitable and inefficient state-owned enterprises (SOEs) created a high percentage of nonperforming loans (NPLs). The high percentage of NPLs has been a concern for a long time. To address this issue, China has been over-hauling its banking system. The main measures that the Chinese government took include splitting off nonperforming loans to specialized asset management companies (AMCs), injecting capital, and authorizing the banks to go public. At the end of 2006, three of the four state-owned banks became shareholder owned banks, with two of them listed on the Hong Kong stock exchange. These measures lead to significant changes in China's largest banks in terms of their asset quality, capital adequacy, and corporate governance system. Given the hefty NPLs and these changes, it will be noteworthy to evaluate the safety of China's banking sector.

Although three of the formerly state-owned large banks went public, Chinese banks are still majority owned by the government. Foreign banks are allowed only up to 20% stake, up from 15%, in any Chinese bank. In 2006, China has 189 banks and more than 30,000 credit cooperatives with total assets of US\$5.6 trillion (RMB 43.9 trillion). The four state-owned commercial banks jointly own 57% of the banking market share. At the end of the third quarter of 2006, the China Banking Regulatory Commission indicates that the amount of NPLs was approximately 21.67% of GDP. These NPLs did not include those that are currently held by the government resolution agency, the Asset Management Companies. In 2006, the AMCs resolved 1.17 trillion yuan (US\$145 billion) of NPLs with 230 billion yuan (US\$25 billion) still unresolved on the books. The OECD estimates that another US\$203 billion was needed to resolve the remaining bad debts, although the government has spent nearly \$283 billion to shift NPLs off the books of the four state-owned commercial banks since 1998.

Thus, despite the much touted economic growth of China and the prediction that China will become a super economic power in the next decade to come, China seemingly still faces internal financial problems that unless resolved would impede its path to achieving this distinction. The Japanese banking crisis in the 1990s that finally brought a halt to Japan's headlong economic growth followed by a decade of stagnation is a good case in point and a lesson for China.

## Banking Failures and Systemic Crisis

A banking crisis usually occurs in two phases. The dormant phase occurs when a bank incurred bad loans and accumulated massive NPLs greater than their capital base. When it becomes public knowledge, there is quick action

by investors and depositors to be the first claimants of the assets of the insolvent bank, that is, a bank run. In the second phase, the government typically steps in to resolve the crisis by bailing out the insolvent bank before the situation worsens. When the credibility of the government to bail out the insolvent bank is in doubt, then the banking crisis is triggered. One or a few banks facing insolvency is relatively easy for the country's government to maintain credibility before the public, but when a great number of banks all at the same time becomes insolvent, it becomes difficult for the public, whether internal or external, to have confidence in the government to resolve the crisis. This was the case with the financial crisis faced by Thailand during the Asian Crisis in 1997, and the Argentinean banking crisis in 2001. The Chinese government is aggressively pursuing ways to avoid the precipitation of such a banking crisis from happening. The four state-owned problem banks' NPLs are being disposed off to the AMC's and capital injection obtained from IPOs.

Systemic banking crisis is not as rare an event as one would expect. Beim (2001) looked at 113 banking crisis in 93 countries from 1975-1999 compiled by the World Bank. The author classifies them according to their triggering events. Beim finds that the triggering events are four agents: the depositors, the local government, private external lenders, and intergovernmental institutions, like the IMF. For example, Beim notes that because Japanese banks are closely integrated into the global financial system, external lenders worldwide triggered Japan's banking crisis when they began withdrawing their support, alarmed by the banks' NPLs. The Chinese banking system is not immune to any of the triggering mechanisms, and timely and tough actions are necessary to avoid a crisis.

Honohan (1997) made the distinction between macroeconomic and microeconomic imbalances and endemic failures due to pervasive political interference. A banking crisis due to macroeconomic and microeconomic shocks is associated mostly with developed countries. Macroeconomic shocks of the boom and burst of an economic bubble may be due to real estate speculative excesses like the Japanese banking crisis, or to internal banking excesses from greed like the U.S. Savings and Loans crisis. The downward cyclical spiral of credit withdrawal and borrowers defaulting on loans, which in turn collapses asset values and bank collaterals, pushes the banking system into financial distress, possibly leading to bank runs. The Argentina bank runs even lead to social unrest and riots. The Chinese banking system shows signs of macro- and microeconomic shocks from the unprecedented operational risks from bank embezzlements and excesses in speculative investments in real estate development and the stock market.

Other causes may be due to moral hazard behavior and "disaster myopia" of managers in ignoring risky events, although with a small probability of occurrence, and being unprepared for the contingency. The probability of occurrence increases for such myopia in the event of the liberalization of credit ceilings and interest controls, increased competition, and privatization of financial markets (Honohan 1997). Mismanagement can be another microeconomic cause of a banking crisis, which is closely related to inadequate corporate governance, regulations and enforcement, and supervision and monitoring by government agencies. The systemic problem arises when banks take advantage of inadequate policing by authorities, and embezzlement and corruption becomes rife and the problem is allowed to deepen. Chinese bank managers are rotated constantly by policy to prevent corruption and "guangxi" (connections) but this engenders a lack of continuity and a myopic and moral hazard behavior in bank managers with little concerns for future accountability.

Excessive government involvement in banking operations causes an endemic banking crisis. Government directed policy lending, targeting specific sectors, particularly the insolvent SOEs and favored development projects, to drawing on the banking system as a means of financing the government budget, and to lending to the politically elite, engender conditions that lead to banking failures. Transition countries, in particular, are faced with the hard choices of keeping afloat the insolvent SOEs burdened with huge debts to appease social unrest when unemployment rises or closing the inefficient SOEs and allowing free market allocation of scarce resources in the efficient pursuit of economic growth. The deferment or concealment of economic problems through government directed lending weakens the banking system, given that the loans are implicitly irrecoverable. Provincial or local governments can also use the banks as a source of funding regional projects that will please and earn accolade from the central authorities. In a pervasive government-banking environment, banks do not have a profit-seeking incentive. Banks do not carry out credit-risk assessment of customers. Rather, banks consider their function as implementing the directives of the central authority. The Chinese banking system displays the above characteristics.

However, the government is more opened to acknowledging and committed to resolving NPLs but not to less government involvement.

The causes of a systemic banking crisis, therefore, can be both internal and external factors exacerbated more often by a country's government to conceal the extent of the widespread bank problems, while not addressing and resolving the banking problems on a timely basis. Given the consequences of the huge economic and resolution bailout costs which are ultimately borne by depositors, creditors and the taxpayers, not to mention the disruption to economic growth, the prevention of a systemic banking crisis cannot be overstated. Furthermore, the reverberation of a country's banking crisis and costs can be felt beyond its borders because of the globalized integrated world financial markets, as seen in the contraction of the Japanese banks worldwide in 1990s, the impact of the Mexican crisis in 1994, and the Argentina crisis in 2001-2002 on foreign lenders. The Chinese economy is now integrated with the global economy to a large extent and a Chinese banking crisis would have significant impact on the rest of the global financial markets.

### **China's Banking Reforms and Constraints**

Like most transition countries, China's financial system is still essentially a bank-dominated system. Chinese banks continued to be majority state-owned with small stakes allowed by foreign banks. China began serious efforts in the early 1990s to transform its financial system to accommodate a rapidly growing economy that quickly and constantly outpaced the reforms being instituted. Numerous studies warned of the consequences of carrying out inadequate financial reforms (Mehran and Quintyn 1996, Naughton 1998, Business Week 1998, Lardy 1999, Dornbusch and Giavazzi 1999, Miskin 1999, Bonin and Huang 2001, Lardy 2001).

The mounting NPLS of the banks in 1998 pushed the government to implement major reforms to address the growing problems in the banking system. The reforms required the banks to adopt international standards of bad loans classification and recapitalization of the banks. Regional bank branches no longer had autonomy to make lending decisions owing to undue influence from the cozy relationship with the local governments, thereby effectively bypassing the People's Bank of China (PBC), the central bank's control and supervision. A banking system framework was adopted similar to the U.S. Federal Reserve System. The 31 provincial bank branches were removed, replaced with nine regional central-bank branches: Tianjin, Shenyang, Shanghai, Nanjing, Jinan, Wuhan, Guangzhou, Chengdu, and Xian.

In May of 1998, the CCCPC (the Central Committee of Communist Party of China) created the Commission of Financial Work to consolidate financial control over the PBC and state-owned banks accountable to the State Council (Party Leadership). The goal is to put a stop to the *guangxi* and corruption between the regional banks and the provincial governments that grew out of the opportunistic free-for-all environment following the liberalization of the financial markets and end the influence of the local governments. Conflicts still exist between the provincial government and the new branches of the PBC

Although state-owned commercial banks are outside the jurisdiction of the provincial governments, they still have control over most of the local financial institutions and are resistant to supervision and monitoring. Moreover, because the local judicial system is under the authority of the local government, they cannot be counted on to enforce financial disputes such as the settlement of debts, contract disputes, and deposit and fee disputes impartially and favorably since the local governments have greater sway. The local governments have joint investment in a considerable number of financial institutions and their significant interference and control in the business have contributed to the problems and losses for these institutions. Moreover, the local governments practice moral hazard behavior as well when their losses are limited up to their investment in the financial institutions while interference is considerable.

China currently is able to have a centralized planning financial system supporting a real sector economy coexisting side by side because of the current lack of competition in the Chinese financial markets. However, with the elimination of the four state-owned banks' monopoly in 2006 (under the WTO agreement) to hold local depositors and enterprises captive, the protected Chinese financial markets are now opened to foreign

competition. The centralized banking system and the inability to respond quickly to changing market conditions, pose a problem for Chinese banks to be profitable and efficient. The Chinese have a remarkable high savings rate of 30% of household income compared to a negative 0.4% in the United States. Local depositors and corporations now have access to foreign banks that are more efficient and can offer better quality services and more alternative savings and investment choices. The drying up of captive deposit flows into the four state-owned banks may pose a serious threat to the banks' ability to absorb their NPLs.

The banking reforms were implemented to strengthen the regulation and supervision of the four state commercial banks and to comply with the international Basle Standards. In 1999, an internal supervisory board in each of the four state commercial banks, consisting of members from the PBC, the Ministry of Finance (MoF), the National Auditing Office and other government agencies, was created to supervise and evaluate bank performance and behavior of the bank's board of directors. Accountability is to the supervisory board rather than stockholders with potential for *guangxi*, graft, and corruption to breed. The policy is to rotate managers and those who neglected their duties, have weak performances, incurred growing losses or bad loans would be removed from office and replaced.

The centralized decision making of the banking system is inefficient and goes against firm value maximization and business innovation. The four state-owned commercial banks, Industrial and Commercial Bank of China (ICBC), the Agricultural Bank of China (ABC), the Bank of China (BOC), and China Construction Bank (CCB), are government-permeated banks. Although banks are "encouraged" to be profit seeking, it is difficult to envision how that can be achieved when free market incentives are not present. Managers, ostensibly "profit seeking," would inherently made decisions that would please the central authorities without the requisite risk-return consideration. The 1995 Commercial Bank Law requires the four state-owned commercial banks to achieve efficiency, liquidity, safety, risk-taking, and individual accountability for risk and return. On the other hand, the banks are required to carry out government directed industrial development policies where the government or their agencies set the discounted interest rates on project loans. The bank decision in seeking and selecting loan projects and the evaluation of the project's risk is then carried out independently. The limitation of this process is clear. Normal risk-return loan evaluation requires that higher interest premiums commensurate with higher risk project for taking on greater risk. The state banks would have difficulty in balancing the basic risk-return tradeoff. Riskier loan projects would have to be rejected outright if the given government discount rate on the loan is insufficient to cover the bank's deposit rate to produce the desired profit margin. If risky loan projects were "encouraged" to be selected, the expected losses would be considered part of routine bank operations to be the responsibility of the next manager or to be written off against the bank's reserves since accountability is not transparent, resulting in the accumulation of NPLs.

One of the most important reforms undertaken by the Chinese government is authorizing public offerings by three of the largest state commercial banks in 2005 and 2006: China Construction Bank (Hong Kong listing, October 17, 2005), Bank of China (Shanghai listing, July 1, 2006), and Industrial and Commercial Bank of China (Shanghai and Hong Kong listing, October 27, 2006). CCB has raised US\$ 9.2 billion in the world's largest IPO of 2005, Bank of China raised US\$11.2 billion in 2006, and lastly, ICBC raised US\$ 21.9 billion in 2006, a world record in IPO capitalization. The bank public offerings have an important impact on the Chinese banking sector by providing fresh capital for the state commercial banks. The participation of foreign banks also indicates that the Chinese banks will be integrating a greater measure of international corporate governance into their operational structure.

### **China's NPLs and Resolution by AMCs**

China's high savings rate and sustained high economic growth, while diverting attention away, can lead to the complacency to overlook the potential instability and festering problems of the NPLs in the banking system. China acknowledged the rising bad debt problems of the state-owned commercial. In 1998, the Ministry of Finance recapitalized the commercial banks with RMB 270 billion funded by the issuance of special treasury bills (Xie 1999). Despite the recapitalization, the capital adequacy of the four state banks dropped below 8%

from the rapid growth of the banks' assets and debts by the end of 1998. Further, recapitalization was not possible with the government running budget deficits consecutively, while foreign injection and ownership then was not considered an option. The bad debts of the four banks continued to grow while accountability of bank performance is difficult to evaluate with the constant flux in managers with no continuity, stability and knowledge of bank operations. Managers practice moral hazard behavior and a myopic view of bank decision making to maximize short-term performance to satisfy the supervisory board with no market incentives to consider long-term bank value. The China Banking Regulatory Commission estimates the NPLs to be 9.31% of total loans in September 2006. However, the US-China Business Council estimates the NPLs ratio to be 23.5%, which is considerably higher. Other analysts have estimated China's NPLs from the conservative US\$600 million to a realistic US\$900 billion (Ernst and Young), to as high as US\$1.3 trillion, which is between 23.8 %, to 35.82 %, and 51.75 % of 2006 GDP, respectively.

It is widely recognized that a successful resolution of NPLs in a banking system requires timely and effective resolution of the NPLs and a well capitalized and funded AMC is crucial, as past studies have shown (Crockett 1998, Lindgren 1999, Classens et al 2001, Xu 2005). First, a healthy financial system is essential to support a growing privatized real sector in a transitioning country. Second, a banking crisis imposes a high cost on a transitioning country's scarce resources it can ill afford being diverted away from economic development and growth.

In 1999, four Asset Management Companies (AMCs): Huarong, Cinda, Orient and Great Wall were created and matched up to bail out the NPLs of the four state commercial banks. The four state commercial banks' NPLs were sold to the AMCs to be disposed off over 10 years in exchange for non-tradable 10-year bonds issued by the AMCs. The AMCs are capitalized through the issuance of the AMC bonds, Ministry of Finance equity injection and loans from the central bank (Xie 1999, Ma & Fung 2002). The bad debts are then resolved through various methods of debt restructuring, collection of payments, and sale of equity. Uncollectable bad debts are to be written off against the reserves of each bank. The objective is to resolve the NPLs of the four state banks at a given point in time after which stringent assessment of loan quality would be applied to prevent further growth in NPLs. The loan quality assessment will be based on five international measures: normal, secondary, substandard, doubtful, and loss.

NPLs for all periods and for all four state-owned banks have been decreasing since 2004, according to the Chinese Banking Regulatory Commission, as the NPLs are sold to their respective AMCs (Table 1). On the other hand, the amount of total NPLs purchased by the AMCs from their matching state commercial banks is steadily growing from RMB 1.2175 trillion (US \$147.1billion) in the first quarter 2004 to RMB 1.2627 trillion (US \$159.73 billion) first quarter 2006 (Table 2). The AMCs' accumulated disposal of NPLs steadily increased from RMB 518.68 billion of first quarter 2004 to RMB 866.34 billion of first quarter 2006. The AMCs asset recovery ratio is decreasing while the cash recovery ratio is slowing.

TABLE 1: NPLS OF MAJOR COMMERCIAL BANKS (% OF TOTAL LOANS)

	Mar 2004	Jun 2004	Sep 2004	Dec 2004	Mar 2005	Jun 2004	Sep 2004	Dec 2004	Mar 2006	Jun 2006	Sep 2006	Dec 2006
NPLs by 5-Category classification	16.61	13.32	13.37	13.21	12.4	8.71	8.58	8.61	8.03	7.53	7.33	7.09
Substandard	2.42	2.44	2.54	2.36	2.3	2.79	2.65	2.19	2.01	1.80	1.68	1.51
Doubtful	8.84	6.75	6.78	6.84	6.3	3.37	3.42	3.27	3.08	2.96	2.93	2.93
Loss	5.36	4.13	4.05	4.00	3.7	2.55	2.51	3.15	2.94	2.77	2.71	2.65
By Institutions												
Major Commercial Banks	--	--	--	--	12.7	8.79	8.70	8.90	8.26	7.80	7.64	7.51
*SOCHs	19.15	15.59	15.74	15.57	15.0	10.12	10.11	10.49	9.78	9.47	9.31	9.22
*JSCHs	7.12	5.16	5.03	4.94	4.9	4.66	4.51	4.22	3.92	3.09	2.91	2.81
City Commercial Banks	--	--	--	--	11.5	10.43	9.74	7.73	7.89	6.72	6.07	4.78
Rural Commercial	--	--	--	--	6.1	6.38	5.80	6.03	6.96	6.64	6.58	5.90

Banks												
Foreign Banks	--	--	--	--	1.2	1.14	0.92	1.05	0.95	0.87	0.81	0.78
*SOCHs – State-owned Commercial Banks *JSCHs – Joint stock Commercial Banks												
Source: Chinese Banking Regulatory Commission and authors' calculation.												

TABLE 2: NPLS DISPOSAL BY THE FOUR AMCS (RMB 100 MIL) AND MATCHING FOUR-STATE COMMERCIAL BANKS

	Q1 2004	Q2 2004	Q3 2004	Q4 2004	Q1 2005	Q2 2005	Q3 2005	Q4 2005	Q1 2006	--	--	--
<b>Four AMCs Total</b>												
Accumulated Disposal	5186.8	5672.6	5876.2	6750.6	6885.5	7174.2	7366.6	8398.5	8663.4	--	--	--
(Cash Recovered)	1054.8	1138.1	1202.1	1370.0	1408.9	1484.6	1550.3	1766.0	1805.6	--	--	--
Disposal Ratio (%)	42.60	45.70	47.22	53.96	54.95	57.28	58.71	66.74	68.61	--	--	--
Total NPLs Purchased (RMB 100mil)	12175.5869	12412.6915	12444.303	12510.378	12530.482	12524.791	12547.4366	12583.908	12627.0223	--	--	--
Total NPLs Purchased (US\$ Bil)	147.10544	149.970138	150.35207	151.15039	151.39329	151.32452	155.337265	155.78878	159.731832	--	--	--
Asset Recovery Ratio (%)	27.61	26.78	23.79	25.48	25.5	25.55	25.62	24.58	24.20	--	--	--
Cash Recovery Ratio (%)	19.95	19.89	20.46	20.29	20.46	20.69	21.04	20.03	20.84	--	--	--
<b>China Huarong Asset Management Corporation: Industrial and Commercial Bank of China</b>												
Accumulated Disposal	1455.1	1695.6	1745.6	2095.4	2144.4	2201.3	2238.0	2433.8	2468.0	--	--	--
(Cash Recovered)	312.0	338.4	355.1	413.4	425.7	442.5	455.2	543.9	546.6	--	--	--
Disposal Ratio (%)	41.82	48.72	49.85	59.77	61.20	62.87	63.80	69.17	70.11	--	--	--
Total NPLs Purchased (RMB 100mil)	3479.43568	3480.29557	3501.7051	3505.7721	3503.9216	3501.352	3507.83699	3518.5774	3520.18257	--	--	--
Total NPLs Purchased (US\$ Bil)	42.0385418	42.048931	42.307601	42.356739	42.33438	42.303335	43.4270219	43.559988	44.5303095	--	--	--
Asset Recovery Ratio (%)	30.62	27.55	37.35	25.29	25.22	25.72	25.83	26.92	26.50	--	--	--
Cash Recovery Ratio (%)	21.44	19.96	20.34	19.73	19.85	20.10	20.34	22.35	22.15	--	--	--



<b>China Great Wall Asset Management Corporation: Agricultural Bank of China</b>												
Accumulated Disposal	1701.8	1764.9	1832.4	2099.1	2136.1	2294.8	2350.3	2633.9	2707.8	--	--	--
(Cash Recovered)	171.5	183.3	193.4	215.7	222.4	239.2	247.7	273.5	278.3	--	--	--
Disposal Ratio (%)	50.1	52.06	54.05	61.91	62.98	67.73	69.46	77.88	80.11	--	--	--
Total NPLs Purchased	3396.80639	3390.12678	3390.1943	3390.567	3391.7117	3388.1589	3383.67406	3381.9979	3380.10236	--	--	--
Total NPLs Purchased (US\$ Bil)	41.0402148	40.9595117	40.960327	40.96483	40.97866	40.935735	41.8898848	41.869135	42.7582948	--	--	--
Asset Recovery Ratio (%)	15.89	15.74	15.64	14.43	14.38	13.94	13.71	12.90	12.70	--	--	--
Cash Recovery Ratio (%)	10.08	10.39	10.56	10.27	10.41	10.43	10.54	10.39	10.28	--	--	--
<b>China Orient Asset Management Corporation: Bank Of China</b>												
Accumulated Disposal	893.2	923.0	968.8	1045.5	1067.9	1096.1	1134.7	1317.6	1419.9	--	--	--
(Cash Recovered)	178.2	191.7	211.6	232.9	243.7	262.5	277.7	320.1	328.1	--	--	--
Disposal Ratio (%)	35.43	36.60	38.35	41.42	42.29	43.41	44.94	52.08	56.13	--	--	--
Total NPLs Purchased (RMB 100mil)	2521.02738	2521.85792	2526.206	2524.1429	2525.1833	2524.9942	2524.92212	2529.9539	2529.66328	--	--	--
Total NPLs Purchased (US\$ Bil)	30.4590528	30.4690874	30.521621	30.496695	30.509264	30.50698	31.2585358	31.320829	32.0002405	--	--	--
Asset Recovery Ratio (%)	30.33	30.43	29.91	29.50	29.81	30.46	30.47	28.73	27.16	--	--	--
Cash Recovery Ratio (%)	19.95	20.77	21.89	22.27	22.82	23.95	24.48	24.30	23.11	--	--	--
<b>China Cinda Asset Management Corporation: China Construction Bank</b>												
Accumulated Disposal	1236.7	1289.1	1331.4	1510.6	1537.1	1581.9	1643.6	2012.1	2067.7	-	--	--
(Cash Recovered)	393.0	414.8	442.0	508.1	517.1	540.4	569.7	628.4	652.6	--	--	--
Disposal Ratio (%)	41.04	42.67	43.94	48.90	49.45	50.86	52.49	63.82	64.69	--	--	--
Total NPLs Purchased (RMB 100mil)	3013.40156	3021.0921	3030.041	3089.1616	3108.3923	3110.3028	3131.2631	3152.7734	3196.32092	--	--	--
Total NPLs Purchased	36.4079176	36.5008348	36.608955	37.32325	37.555596	37.578678	38.7650371	39.031335	40.4334596	--	--	--

(US\$ Bil)												
Asset Recovery Ratio (%)	38.23	38.28	39.15	38.29	38.34	38.74	39.03	34.30	34.46	--	--	--
Cash Recovery Ratio (%)	31.78	32.18	33.20	33.64	33.64	34.16	34.66	31.23	31.56	--	--	--
Accumulated Disposal – accumulated amount of cash and non-cash assets recovered as well as loss incurred by the end of the reporting period. Disposal Ratio – Accumulated Disposal/Total NPLs Purchased Asset Recovery Ratio – Total Assets Recovered/Accumulated Disposal Cash Recovery Ratio – Cash Recovered/Accumulated Disposal Source: China Banking Regulatory Commission and authors' calculations.												

Ma and Fung (2002) estimate that the Chinese government financed the four AMC's with 3% MOF equity capital, 14% PBC credit, and 83% AMC bonds between 1999 and 2002, burdening the AMC's with a debt-to-equity ratio of 34. The total NPLs purchased by the AMC's are estimated to be RMB 1.4 trillion (Table 3). The 14% credit provided by the PBC is a conservative estimate of the lower limit of RMB 192 billion with an upper limit of RMB 563 billion. The central bank credit is effectively subordinate to the AMC bonds with implicit guarantee by the government, the rationale being that in the event of difficulties in debt servicing the government would sooner honor the AMC bonds than to service the central bank credit to project a semblance of stability in the banking system. Unless there is implicit guarantee by the government, the transfer of the NPLs from the four state commercial banks to the AMC's would be illusory with no improvement in the credit worthiness of the state commercial banks. The implicit government guarantee would only engender moral hazard behavior by the four state commercial banks.

TABLE 3: COMBINED BALANCE SHEET OF The FOUR AMCS (2002) RMB BILLION

Assets		Liabilities and Equity	
Reserves at PBC	0	Paid-in-capital (from MoF)	40
NPLs from the 4 state banks	1400	Borrowing from the PBC	192
		10-year AMC bonds	1168
Total Assets	1400	Total Liabilities and Equity	1400
Source: Ma and Fung (2002)			

## Operational Risk and Unprecedented Bank Embezzlement

The Chinese banking sector is plagued by corruption, embezzlement and inadequate risk management and poor governance, supervision and monitoring, and transparency of the four state banks, exacerbating the poor performance of the four state commercial banks. The application of international auditing standards to the three state-owned banks (ICBC, BOC and CCB) in preparation for their IPOs in 2005 and 2006 uncovered the depth of the embezzlement problem. The Agricultural Bank of China is not financially stable yet to consider any public offering.

A brief internet survey of anecdotal cases of embezzlements by individuals indicates the inherent problems within the Chinese banking system. In the first half of 2005, the Chinese government uncovered 240 cases in the four state commercial banks totaling US\$198 million (RMB 1.6 billion) in losses, amounting to half of the total losses of US\$396 million. According to Forbes (2007), as of September 2006 there are over 800 fugitives still wanted by China for fraud and embezzlement since 1998 to the tune of almost US\$10 billion (RMB 70 billion). The survey of the internet news media shows the extent of the embezzlement and corruption problems, totaling more than US\$975 million (Table 4).

Unlike the Savings and Loans Crisis of the 1980s and the Japanese Banking Crisis of the 1990s, where NPLs are due mainly to speculative investment, it is clear that the four Chinese state-owned banks' financial predicament is due to a combination of government central directed lending policies of mismatched deposit and lending rates, unprecedented bank embezzlements, poor governance, and moral hazard behavior.

TABLE 4: EMBEZZLEMENTS IN CHINESE BANKS

Bank	Year	Perpetrator	Amount
Bank of China	1992-2001	Xu Chaofun, Yu Zhendong (former branch managers of Kaiping branch-Guangdong) & Hui Yat Sing of Ever Joint Properties	US\$ 485 m (largest embezzlement in China)
Bank of China	1993-1995	Chen Man Xiong & wife, Chen Qiuyuan (connection to bank clerks at Zhoushan branch)	US\$ 51 m (RMB 420 m)
Industrial & Commercial Bank of China	1995	Chen Xin (former accountant of small branch)	US\$ 4.84 m (RMB 40 m)
Bank of China	1999-2004	Xhai Changping (former bank data input clerk at Dalian)	US\$ 6 m
Bank of China	2003	Liu Jinbao (former president of HK branch)	US\$ 1.8 m (RMB 14.3 m)
		Bribes	US\$ 1.1m (RMB8.7 m)
Bank of China	2003	Wang Xuebing - fraud	Bank of China fined \$20 m by US and Chinese regulators
Bank of China	2004	Gao Shan (former branch manager – Harbin)	US\$ 130 m (RMB 1.0 B)
China Construction Bank	2006	Zhang Enzhao (former chairman) - Bribes	US\$ 250,000
Bank of Communication	2006	Dai Jinggui (vice-president of Shenyang branch)	US\$ 25 m (RMB 200m)
Bank of China	2006	The Epoch Times (June 14, 2006)	US\$ 146 m
Shanghai Pudong Development Bank	2006	The Epoch Times (June 14, 2006)	US\$ 126 m

Source: Various internet news media

## Methodology and Empirical Analysis

Our empirical study is based on financial statements data. We obtained the sample of failed banks from the FDIC web site for the period from 1934 to 2004. We also obtained the banks' financial information from the Bank Regulatory Database on Wharton Research Data Services for the period from 1976 to 2005. For the balance sheet items (call report), we used the information of the last quarter of each year. For the income statement items, we combined four quarters' data to get the annual information. We merged this year's failed banks' information with the banks' previous year's financial information. The merged file has 248,697 observations including 1,525 failed banks.

Previous studies have shown that certain financial variables are significant indicators of bank failure. These financial variables include a bank's profitability, capital adequacy, and non-performing loan ratios. Hsing, Hsiu, Lange, and Gibson (1991) find that the probability of a bank not failing varies positively with capital adequacy and the return on assets, but negatively with nonperforming loans. Gomez-Gonzalez and Kiefer (2006) find that the capitalization ratio is the most significant indicator of bank failures in the Colombia finance crisis. Logan (2001) finds that profitability and loan growth rate are good predictors of a bank failure. Combining the findings in existing literature and considering the paucity of Chinese banks data, we only include return on asset (ROA), nonperforming

loan ratio (NONPF), and equity to total asset ratio (EOT) in the model since they are consistent and strong indicators across many studies.

The ROA is used to measure the bank's profitability, computed as the sum of four quarters net income (loss) (riad4340) divided by total asset (rcfd2170) at the end of each year. Capital adequacy is calculated as shareholders' interests divided by total asset (rcfd3210/rcfd2170). The nonperforming loan ratio equals the sum of call report items, total loans and lease finance receivables: nonaccrual (rcfd1403) and total loans and lease financing receivables: past due 90 days or more and still accruing (rcfd1407) divided by the total loans, which equals call report item number, the total loans and leases, net of unearned income (rcfd2122).

In the logistic stepwise model, we also include variables Cost to Income ratio and Interest Rate Margin besides ROA, NONPL, and EOT. Not surprisingly, the ROA, NONPF and EOT, which are the first three variables that entered the model in turn, have significant explaining power. Therefore, the model is presented simply as follows

$$\ln\left(\frac{P}{1-P}\right) = \alpha + \beta_1 * ROA + \beta_2 * NONPF + \beta_3 * EOT + \varepsilon \quad (1)$$

Where  $P$  is the likelihood that a bank fails; ROA is return on asset; NONPF is the percentage of nonperforming loan; EOT is equity divided by total asset.

Using the data from the U.S. banks, we estimate equation (1) and obtain the following results:

$$\ln\left(\frac{P}{1-P}\right) = -3.7327 - 11.2245 * ROA + 9.5152 * NONPF - 26.2996 * EOT + \varepsilon \quad (2)$$

All of the coefficients in the model are different from zero, significant at 1% level, and the pseudo R-square for the model is 38.3%.

Using equation (2), we estimate the likelihood of the Chinese banks' failure. Since the four large state-owned banks, China Construction Bank, Industrial and Commercial Bank of China, Bank of China, and Agriculture Bank of China, account for about 51% of China's banking asset, we focus on these banks. Specifically, we only estimate the likelihood of failure for CCB, ICBC, and BOC, since they recently went public and their financial data are available. The Agricultural Bank of China is still fully state-owned and we were unable to obtain its financial data. The results are presented in the following tables.

TABLE 5: PREDICTED PROBABILITY OF CHINESE BANKS FAILURE

Bank	Year	EOT	NONPL	ROA	Predicted Probability
Bank of China	1999	0.051097102	0.393	0.00152	0.205812549
Bank of China	2000	0.051597674	0.288	0.00145	0.085688639
Bank of China	2001	0.064974645	0.13	0.00235	0.014290881
Bank of China	2002	0.061120095	0.114	0.00152	0.013714168
Bank of China	2003	0.05119442	0.163	0.00542	0.026836138
Bank of China	2004	0.04808658	0.051	0.0049	0.010300616
Bank of China	2005	0.049304568	0.046	0.0058	0.009425636

China Construction Bank	1999	0.048554609	NA	0.0024	NA
	2000	0.045365517	NA	0.0032	NA
China Construction Bank	2001	0.039080895	NA	0.002	NA
China Construction Bank	2002	0.034779644	NA	0.0015	NA
China Construction Bank	2003	0.05241494	0.043	0.0068	0.008339604
China Construction Bank	2004	0.049676208	0.039	0.013	0.008065294
China Construction Bank	2005	0.049873673	0.038	0.011	0.008142813
Industrial and Commercial Bank of China	1999	0.051245833	NA	0.00117	NA
Industrial and Commercial Bank of China	2000	0.04718835	NA	0.0013	NA
Industrial and Commercial Bank of China	2001	0.044462884	NA	0.0015	NA
Industrial and Commercial Bank of China	2002	0.038103044	0.219	0.0015	0.064957957
Industrial and Commercial Bank of China	2003	0.032761132	0.242	0.0005	0.091668347
Industrial and Commercial Bank of China	2004	0.028727625	0.212	0.0005	0.077242191
Industrial and Commercial Bank of China	2005	0.029439454	0.047	0.0005	0.016851919

From the table above, we can see that the probabilities drop for all three banks. In 1999, the likelihood of failure for the Bank of China is 20.1%. This probability dropped to 0.9% in the year 2005. Similar trends hold for China Construction Bank and Industrial and Commercial Bank. The improvement in the banks' financial condition and the decreasing likelihood of failure as indicated by all three ratios, non-performing loans, ROA and equity to total asset, over the years from 2004-2005 are obvious. Of particular significance is the sharp drop in the failure probability from 2004 onwards. First, the dropping trend since 1999 is due to the hefty transfer of NPLs to the AMCs. Second, the three state banks' books were cleaned up in preparation for their IPOs in 2004 and 2005.

Besides applying the logistic model to estimate the failure probability, we also compare the three Chinese state banks with failed and non-failed groups of the U.S. banks with their respective ratios for the year 2005. We can see that compared with the non-failed banks in the U.S., the three Chinese banks are still much less efficient, as reflected by their lower ROA, lower equity to total asset ratio, and higher non-performance loan ratio, although these ratios are better than those of failed groups. The comparison indicates that the Chinese Banks still need to improve themselves in these dimensions.

TABLE 6: COMPARISON RATIOS OF U.S. NON-FAILED BANKS, U.S. FAILED BANKS AND THREE BIG CHINESE BANKS

Variables	Non-Failed U.S banks (year 2005)	Failed U.S. Bank (year 2005)	Chinese Big Three (year 2005)
ROA	2.49%	-10.21%	0.57%
NONPF*	1.05%	9.11%	4.38%
EOT	11.29%	5.33%	4.28%
Average probability	0.18%	7.67%	1.14%
*The non-performing loans in the U.S. banks are the loans overdue more than 90 days including accruing and non-accruing loans. The NPLs in Chinese banks are for the last three categories based on a five category classification. This may lead to the large difference in the NPL loan ratio. But the other two ratios are defined in the same manner..			

The analysis above is based on data from the banks' financial statements. Scrutinizing the data carefully, we can see that the non-performing loan ratios drop drastically in a short period of time from 2003 to 2004. For the Bank of China, the non-performing loan ratio drops from 16.3% to 5.1%; for ICBC, it dropped from 21.2% to 4.7%. These drops are not due to improvement in the banks' operational performance, instead it is due to the balance sheet restructuring when the books were cleaned up by transferring the NPLs to the AMCs. Transference of the NPLs does not imply that China's bad debt problem has been resolved. The financial costs of clean-up remains, having only been transferred to the AMCs, and therefore, ultimately borne by the state. Our analysis is limited by the availability of only financial statements data and the availability of public data. Our empirical results show that the Chinese banking system still faces many challenges in their restructuring and reforms.

### Hidden Threats, Challenges and Policy Implications

The Chinese government has made determined efforts in trying to resolve the NPLs. The government has stepped up efforts to crack down on bank corruption and embezzlements, prosecuting more than 1,116 individuals alone from January 2004 to September 2005, of which 376 were former senior management officials accounting for 42.15% of the total. The government has instituted more controls on the financial sector to reduce operational risk. However, unless the banks have a strong governance of checks and balances and transparency, preferably accountable to stockholders and transparent public scrutiny, punishment and rotation of management to prevent "guangxi" and embezzlement would be insufficient. Full privatization of the four state-owned commercial banks would be a step forward towards a stable and healthy financial sector.

By allowing foreign participation in the IPOs of the three state commercial banks, the Chinese banking system reaps a number of benefits. First, the state banks were recapitalized to replenish the depleted bank capital, more than what the PBC, MoF and AMCs bonds can provide. Foreign capital injection would be a logical step for the Chinese government without jeopardizing the state budget and economic growth while still meeting the WTO mandate of opening its banking markets to foreign banks strategic equity ownership in Chinese banks. Second, the risk is partially borne by the foreign shareholders as well. However, the amount of foreign stakes is still relatively minuscule in comparison to the total market (Table 5). Thirdly, foreign participation brings risk management and operational skills, new bank products, technology, and international corporate governance and accounting standards. In return, foreign banks are able to secure a foothold in a potentially profitable banking and financial service market through joint ventures with Chinese banks, minimizing start-up costs of building a network of branches and customers.

TABLE 7: FOREIGN FDI IN CHINESE BANKS

Foreign FDI in the Four State-Owned Banks		
Foreign Participants	Amount	Ownership Stake
Tamasek-Singapore (2005)	US\$ 3.1 billion US\$ 500 million	10 % stake in BOC Additional investment in BOC's IPO stock listing
Tamasek-Singapore (2005)	US\$ 1.5 billion US\$ 1 billion	5.1 % stake in CCB Additional investment in CCB's IPO stock listing
Royal Bank of Scotland & Consortium banks (2005)	US\$ 3.1 billion	10 % stake in BOC
Bank of America (2006)	US\$ 2.5 billion US\$ 500 million	9 % stake in CCB Additional investment in CCB's IPO stock listing
Foreign Direct Investment in other Chinese Banks		
Citigroup (2003)	----	5 % stake in credit card venture with Shanghai Pudong Development Bank, with the objective of a 19.9 % stake
HSBC (2004)	US\$ 1.75 billion	19.9 % stake in Bank of Communications (maximum allowed per shareholder)
Commonwealth Bank of Australia (2004 )	US\$ 1.7 million	11 % stake in Jinan City Commercial Bank
Commonwealth Bank of Australia (2005 )	US\$ 77 million	19.9 % stake in Hangzhou City Commercial Bank
Source: International Herald Tribune 2005		

The opening up of the Chinese banking market to a greater presence of foreign competition from independent foreign banks may jeopardize the ability of the state owned banks to absorb their NPLs. Currently, the three state banks are able to clean up their NPLs by transferring them to the AMCs and through IPO capitalization. Unless the state banks are able to improve their financial performance after the clean up, the offering of better quality products, services, and returns by foreign banks may be a threat to the Chinese banks' recovery. The current widening interest rate gap between the deposit and lending rates has improved the banks' recovery. However, the rates are still set by the State Council. The Chinese banks have to be given total independence in setting market deposit and lending rates that are compatible with risk-return tradeoff and in selecting investment projects free from government directives. The inability to react to swiftly changing lending conditions is a drawback on the performance of Chinese banks unlike their foreign counterparts.

The current recovery rate and resolution of the NPLs by the AMCs are improving but low. While the state banks are recapitalized by fresh IPOs injections, the AMCs capital is still dependent on the PBC and MOF. If the AMCs bonds are not repaid and asset recovery stagnates, the cost of the resolution will ultimately have to be borne by the state budget and taxpayers' money at a huge cost, as past lessons from other banking crises, the Japanese crisis, the Argentinean crisis and the U.S. Savings and Loan crisis, have shown. Moral hazard behavior has to be eliminated with market incentives given to managers to manage the Chinese banks profitably.

It can be argued that China has stockpiled US\$1.07 trillion of foreign reserves by 2007, thereby possessing a capacity to avert a crisis. China faces difficult issues in restructuring the banking system. China does not provide an equivalent FDIC deposit insurance to depositors for the four state-owned banks which possess the largest proportion of total deposits. The hint of a bank run could lead to a disastrous domino effect in the event of an insolvent bank not able to cover withdrawals, and in the absence of a deposit insurance this is a very real threat. Therefore, a policy of aggressive resolution of a problem bank or the bailout of an insolvent bank subsidized by the state budget and taxpayers may be necessary. When depositors and investors lose confidence in the banking system, a concerted systemic bank run and currency speculative attack by depositors and foreign investors could lead to a similar Asian crisis or Argentinean financial collapse. The Chinese government has to do more to avert even the possibility of a crisis from getting underway by stepping up the privatization of the financial markets and instituting better banking governance.

## Conclusion

The Chinese banking system is currently plagued with non-performing loans that remain a threat to China's spectacular economic growth. The current optimism and the zealously in taking advantage of opportunities, as evidenced by the enthusiasm in the speculative excesses on the stock market in China and the oversubscription to the Chinese banks IPOs despite their NPLs, speak to the risk of China as an emerging economy. Our paper shows that the four state-owned commercial banks have cleaned up their balance sheets to some extent, but the risk of losing depositors and investors' confidence is still a potential threat to the Chinese banking system. At the moment the risk has been alleviated by balance sheet clean-up and fresh capital injections. Although our results show that the Chinese banks have reduced their NPLs on the books, the improvement is cosmetic. Operational risks still exist and bank performance is still inefficient and poor. Despite the limitation of the data, our analysis sustains the premise of our paper, that the Chinese banking system is still weak and that the threat of a potential crisis is averted but hidden threats remain.

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## **Resurgence in the Indian Banking Scenario: A CRM Perspective**

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### **Abstract**

The Global banking scenario has seen a dramatic pace of change so rapidly in volumes and magnitudes that it has entered new era of banking. As a result the Indian banking system also could not remain untouched, hence a revolutionary change in its attitude towards the customers came in the form of CRM and its application. Indian Banking systems have realized that customers are the lifeblood of the business and that the way to protect and grow its customer base - and ultimately its profitability - is to build strong customer relationships. Modern customers require flexibility in hours of operation, greater convenience, customization, transparency, accessibility, and control. In this paper the authors have conducted an empirical research on CRM in The Indian Banking Sector to trace the latest trends , customer preferences and strategies of banks in the process of retaining and widening the customer base. Research has shown that the key drivers of customer loyalty are positive staff attitude, honesty, integrity, and reliability, proactive advice and delivery of promise, consistent delivery of superior quality service, simplicity and ease of doing business, good after-sales service, a fair and efficient complaints resolution policy.

### **Introduction**

The rise in economic activity in Asia, particularly India and China, during the last decade has spurred a surge in banking activities. Technology-driven developments in the financial markets combined with a shrinking universe and the change in outlook of society from that of “saving for the future” to “consume to make a better present leading to brighter prospects” have put pressure on the banking industry to provide continuous and reliable service. The Reserve Bank of India regulations and guidelines on implementation of technology require banks to create reliable IT infrastructure and support procedures to ensure high quality service at all times. “The benefits to be derived from the use and adoption of technology cannot be exaggerated. Central Banks the world over have been providing their unstinted support to development of technological infrastructure and to IT innovations in the banking sector.

The growth in Indian GDP indicates the qualitative growth in the Indian demographic characteristics. There has been a phenomenal change in the customer awareness; he has become knowledge savvy and highly choosy for products and services and brands that he demands. Indian consumers are facing an era of enlightenment. In this scenario it is not only the Banks but any other industry needs to be very conversant with the customers’ needs so as to sustain in the market in a profitable style. With specific reference to the Indian Banking Industry changes were initiated during the early 1990s, RBI (Reserve bank of India) started to work towards establishing the regulatory framework with effective and prompt supervision, and institutional and technological infrastructural development. Continuing attempts have been made to adopt international benchmarks as suitable for Indian conditions. Although many changes in legal infrastructure still need to be put in place, the developments till date have brought financial system in India nearer to the global standards. With technological advancements, banking sector in India has become much accurate, fast, easier, and less time consuming. SMS Banking, Mobile Banking, ATMs, and Net Banking are just the beginning. Evolution of IT-services outsourcing in Indian Banks has now moved on to Facilities Management Level. Banks are now targeting at BPM (Business Process Management) to increase ROI (Returns on Investment), enhance CRM (Customer Relationship Management) and productivity of employees.

The resurgence in the Indian banking industry is happening due to the increased awareness among the customers. Researches have shown that banks can remain competitive only building long term partnerships with

customers. CRM is a tool which can be used for the purpose. CRM can be employed to develop an ongoing dialog with customers, integrated across all contact points. CRM allows retail banks to integrate customer interaction channels and provides consistency to their interactions with customers, generate better customer intelligence, customize their offerings and communications to customer, manages customer portfolio by assessing the life time value of customer. Staying ahead is only a matter of providing value to the customers and it is not that easy. It involves a 360 degree change in perspective of top management.

The research paper presents the findings based on an empirical research of Indian Retail Bank customers which includes ten Indian banks like State Bank India (SBI), Industrial Credit and Investment Corporation of India (ICICI), Housing Development and Finance Corporation (HDFC), Unit Trust Of India, Punjab National Bank, ABN AMRO Bank, the Bank of RAJASTHAN, State Bank of Bikaner and Jaipur, Bank Of Baroda, Centurion Bank. By considering the value added activities of the bank, the research paper provides a strategic framework for evaluating profitable opportunities, crucial areas where they lack from a customer viewpoint, additional services/ facilities that the market is demanding, accuracy and efficiency in service delivery. It also identifies what are the strong points of their bank which they have to maintain, services which have to be prioritized, customer satisfaction levels and payoffs of various sophisticated technology.

## CRM in Indian Banks, Current Status

The IT saga in Indian Banking commenced from the mid eighties of the twentieth century when the Reserve Bank took upon itself the task of promoting automation in banking to improve customer service, book keeping, MIS and productivity. This role played by the Reserve Bank has continued over the years. The pace of IT revolution in the banking industry increased after the nationalization took place in 1990s'.

Previously sidelined by other priorities, but re-emerging strongly In the recent past, CRM initiatives were sidelined for other priorities such as data warehousing, financial systems overhaul, core banking. However, the end result of these projects is that banks now find themselves with much improved data resources to leverage.

To be sure, many banks still be focusing on the fundamentals around data warehouses and customer information repositories, but a growing number will be looking at sophisticated analytics to support a variety of tactical CRM initiatives.

The focus on CRM is driven to a great extent by banks keen to go full force into retail banking. The reasons being:

- **The opportunities offered by retail banking** – potentially high returns supported by significantly huge customer bases, low funding costs, opportunities for cross-sell, and generally lower delinquencies – still remain unrealized the prevailing theme surrounding banks' investments in CRM is that of optimization. This theme is relevant to financial services organizations as they view customer relationships; customer contacts themselves, channels, and marketing resources. Banks would like to find the best use of customer databases, especially as the race for customer acquisition has itself brought a race by banks to contact customers. The survey shows that customers in general are annoyed with the many calls and the many products pushed to them many products pushed to them.
- **Banks are now more focused on lead management.** But these days, banks have become keen to implement effective lead management. Banks have become intent on ensuring that their resources – channels, staff, and marketing budgets – cope with the growing demands of CRM initiatives. Certainly, banks should ensure that channels are adequately equipped and that frontline staff is trained well. Furthermore, there has been a growing focus on marketing optimization, so that competing campaigns are prioritized and marketing budgets and resources are allocated properly, tracked and utilized efficiently. **Banking customers, their awareness, expectations and concerns have also changed in recent years.** Customers are more knowledgeable, sophisticated, and assertive. They demand higher levels of customer service, are less loyal, and more inclined to switch to a competitor. Modern customers require flexibility in hours of operation, greater convenience, customization, transparency, accessibility, tailor made solutions, individual attention, time and control.

## Vitality of the Study

The western world is fast moving in terms of technology interface so as to gain maximum information with high efficiency and speed so as to cover up a major market share. The banks of the developed nations are all well equipped with CRM technology, usage and are all out with bright results.

The position in India is that the Indian consumers are now being influenced by the west and they are now far more enlightened. Moreover the Indian Banking industry is under the government protection as there are many entry hazards in the form of rules and regulations for the foreign banks to enter the Indian land. But all these regulations are proposed to be relaxed by the year 2009. This period is nearing and the Indian players will have to gear themselves to survive in the tough competition to be faced then. They need to equip themselves with all the latest technology and above all ideology to maintain and increase their market share and business above all. So an in depth study into the CRM need, implementation process and paybacks are very important for banks' today.

Typically, customers are looking for convenience, want their bank to sufficiently manage their money and provide up-to-date and accurate communications: statements, email alerts, etc. This defines a "transaction-based relationship," but this type of relationship will only get a bank so far. To break into a more desirable "service-based relationship," a customer needs to feel that their interactions with the bank are professional, fair and friendly. This is where customer service begins to creep up in the list of reasons why a customer stays. It's also how satisfaction increases and loyalty begins to solidify. But the pinnacle relationship every bank should be working toward is the "advice-based relationship." Here, a bank earns the right from the customer to evolve into the role of trusted advisor - someone who approaches the relationship in a customer-centric way. While in this role, a bank can, and is able to, manage more products and services for their customers. This is the stage in which truly loyal customers are born and solid financial partnerships are nurtured. If our polled customers are not feeling that partnership, banks have a long way to go in building profitable customers. This is what Indian banks need to strive for in the remaining time to come when the going may get tough with all the major players into the Indian market to lure the Indian customer.

## Research Design & Objectives

### Objectives

1. **To study the marketing techniques in the banking industry in India.**
2. **To evaluate the effectiveness of these techniques in terms of customer satisfaction**
3. **To study the CRM process and implementation with reference to ICICI and HDFC bank (Two major Indian Banks).**

The research is descriptive in nature.

**Data Collection:** Both primary and secondary data was collected. The secondary data was used for exploratory research. Primary Data was collected pre tested questionnaires covering various problem domain meant for bank customers. Secondary data was collected through internet, Journals and magazines.

**Data Collection Tool:** A 25 point multivariate self structured questionnaire (enclosed at the end of the paper) was prepared for the customers to find the satisfaction levels in terms of various marketing techniques, process and facilities available for customers. The first part of the questionnaire deals with collection of information about the respondents, their age education level, profession etc. The other part deals with their banking experiences, technology awareness and use; and their view about the bank. The questionnaire also aims to find out the satisfaction level of the customers in terms of behavior, efficiency, skill delivery time of the bank employees. It also identified the customers' view of CRM their awareness and preparedness of the whole process and ways by which the relationship can improve. It also proved to be helpful in identifying the loopholes of banking service and how the customers view the banks. The respondents profile was chosen to be at least graduates and have some banking experience. The target respondents hail from varied spheres like private sector, public sector, housewives, self employed, students etc.

**Sampling Plan:** The sampling unit is taken as a customer of any bank having any kind of an account with the bank. The sample taken for the study is 200 customers from 10 banks. They were selected on the basis of non probability convenience sampling. But it was taken care that the respondent is educated and is at least a graduate according to the Indian education system so that the respondent is able to respond effectively and provide insights into the banking services scenario.

## Data Analysis

The raw data collected was tabulated and subjected to analysis using SPSS analysis revealed that:

- The aspect of customer delight is absent from the entire banking transaction right from account opening to later stages. Only HNW customers are catered to at this level.
- It was found that a whopping 94% of the respondents didn't receive any gifts while opening accounts or maintaining a long term association.
- Almost 98% of the respondents believe in multiple banking and have accounts in more than 2 banks.
- It was also observed that the major account opening reasons apart from salary account are interest rates, branch proximity, efficient service and personal attention in terms of tailor made solution providers.
- Regarding awareness about technology enabled products the private sector customers are at a higher level of awareness vis-à-vis the public sector bank customers.
- If we compare the level of usage of these techno products that it is low as compared to the level of awareness in private sector banks.
- Customers prefer going in only for two or more tech enabled services like debit/credit cards, phone banking and SMS services.
- The major reasons for not opting any other technology driven products/services is mainly due to ignorance about its usage, advantage and security and also due to lack of training of the bank employees to convince the customer.

The research has revealed that the banks are facing a strong problem of retaining customers and specific issues of customer loyalty and customer retention. The Indian customers are having a tendency of multiple banking which necessitates the banks to be more competitive and alert in terms of services and products. The Indian customers are also not that much techno savvy and they always prefer to have a personal touch every time they want to avail any service. More over their tendency to technology trust is also low. They need to have more of training programmes for technology use, efficiency and security. These are certain winning edges which the banks can use to create a win-win situation in the Indian market.

### **Research has shown that the key drivers of customer loyalty are:**

- Brand image in terms of market reliability of the bank
- Honesty, integrity, and reliability of services
- Positive staff attitude of Banks
- Qualitative & diverse product portfolio
- Net returns from investments and other benefits
- Extension of competitive advantages to the consumer
- Proactive advice and delivery of promise
- Consistent delivery of superior quality service
- Good after-sales service
- Simplicity and ease of doing business
- A fair and efficient complaints resolution policy

The customers are too eager to have structured tailor made solutions which can create a win- win solution both for banks as well as customers. The respondents were also fussy about the bank staff attitude and proficiency level.

## CRM Perspective: Customers versus Banks

### Customer Perspective

#### Personal Customer Needs

Personal contact  
A knowledgeable reliable banker  
Relevant information  
Customized & timely solutions  
Value for Money  
Honest feedback & co-operation

#### Business Customer Needs

A professional partnership approach  
High levels of information  
Customized and highly responsive service  
Quality customer information

### Bank Perspective

#### Banks' expectations from its staff

Quality customer information  
Product knowledge  
Consultative selling/relationship  
Management skills  
Proactive approach  
Honest feedback & co-operation

#### Bank Requirements in Management & Administration

Strategic thinking  
Understanding the business  
Industry knowledge  
Partnership skills  
High degree of professionalism

## CRM Process and Implementation in HDFC Bank and ICICI Bank

The CRM application in Indian banks is still at an infant stage. Two aggressive banks ICICI and HDFC banks were analyzed for their CRM implementation initiatives. The details are as below.

### HDFC Bank

HDFC Bank, India's 12th-largest bank (but one of the country's fastest growing), kicked off its CRM initiative about five years ago, when it had about 5 million customers. Rahul Bhagat, senior vice president, Retail Banking at HDFC Bank, remarks that from the very beginning, customer data was already well structured to support analytical marketing and enterprise marketing automation technology.

The bank deployed Unica's Affinium solutions to design, test, optimize, execute, and analyze all marketing programs, including event-based and multistage communication initiatives. Affinium's Universal Dynamic Interconnect (UDI) technology allows the bank to simultaneously access its multiple data systems, resulting in a complete view of its customers across channels and products. Affinium enables marketing communications such as registration alerts and product cross-sell. It also supports models for activation propensity, response likelihood, and usage. Alongside the impressive growth in the bank's customer base – the bank currently already has grown to about 9 million customers – marketing velocity has significantly increased. The bank used to run about 120 campaigns in 2004. In 2005, this number had risen to approximately 700 campaigns – a dynamic mixture of campaigns across several channels and ranging in size from about 5,000 to 150,000 customers.

The bank is currently working on a customer data model that covers over 6,000 fields, which should allow it to have one comprehensive and intelligent view of its customers. Also, as the bank's modeling capabilities mature, it will be running more event-based campaigns, quickly identifying when customers are at the point of making financial decisions.

### ICICI Bank

The CRM initiatives in India's ICICI Bank hold together its compelling story of growth – its growth in customer base, channels, and product and service offerings. Since its inception in 1995, the bank has grown to have 15.8 million customers, holding about 17 million accounts. The bank's network has expanded to 610 branches and standalone counters and over 2,000 ATMs.

CRM has been envisioned by the bank to support its goals in sales, customer service, and analytics. Already, about 30 to 40% of the bank's home loans are cross-sold to existing customers. Similar ratios have also been reported in the sale of insurance policies. Ratios of about 50 to 60% have been seen out of the credit cards and personal loans business. The bank's stated intention is to take these ratios to as high as 60 to 5%. ICICI Bank states that these high levels of relationship maximization are made possible by how its CRM system is able to "know and understand the customer better – which customer is most suitable for what kind of product and at what point in time." In the area of service, the bank receives as many as 150,000 customer requests per day, a challenge not only to channel capacity but also to how the bank is able to ensure that each request is recorded, tracked, and resolved. Last, customer analytics have been used to support various strategic decisions of the bank. Recent strategic decisions of note are several anti attrition programs, the intended attrition of unprofitable customers, the imposition of fees, and various customer segment tactical initiatives. ICICI Bank's CRM capability is built on a Teradata data warehouse that integrates data from multiple sources, including the Oracle database and various flat files. The system provides users with **ICICI Bank**

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## Conclusion

The overall analysis revealed that the customers are reasonably satisfied and the public sector banks need to put in many efforts in terms of customer care to remain competitive. Although the SBI has emerged as the highest account holder bank in the survey but it is very closely followed by ICICI Bank. So it should gear up by now moreover to meet the free competition arising after 2009 wherein the entry of MNC Banks will become easier. The Indian customer has an emotional preference for physical preference of branch and staff. Howsoever technology efficient services are provided to them but they still have a tendency to visit a branch and take care of the transactions personally. The survey also reinforced the message that innovations no matter how beneficial but should take place close to the customer. It also revealed that the current Indian consumer is far more elite as compared to the past. But they need to be taught and made aware of the various changes taking place in the banking scenario. Research has revealed that CRM payoffs were positive in terms of customer retention and customer satisfaction.

*Note: The above findings are based on the partial information and data collected and analyzed for the purpose of Doctoral research.*

## Questionnaire

CRM stands for Customer Relationship Management. It is a strategy used to learn more about customers' needs and behaviors in order to develop stronger relationships with them. Good customer relationships are at the heart of business success.

**Personal Profile**

1. Name (optional) : Mr/Ms ..... Education .....
2. Age  
a) 20-30 yrs  b) 30-40 yrs   
c) 40-50yrs  d) 50-60yrs   
e) Senior Citizen
3. Sex : Male  Female
4. Occupation  
Private organization  b) Public sector   
c) Self employed  d) Technology professional   
e) Education Sector  f) Student   
g) Homemaker  h) Others
- 5 Annual Income  
a) a. Upto 2 Lacs  b) b. 2-4 lacs   
c) c. 4-6 lacs  d) d. 6-8 Lacs   
e) e. Above 8 Lacs  f)

**Banking Profile**

6. How long are you a customer of any bank (Banking Experience)?  
a) 0-5 yrs  c) 5-10 yrs   
b) 10-15yrs  d) 15yrs and above
7. Rank the reasons due to which you opened an account with ..... Bank.  
(Rank 1 for the best reason & so on)  
a. Bank's Image / Goodwill  b. Branch proximity   
c. Salary account  d. Bank's marketing professionals   
e. Best in practice technology  f. Dissatisfied with earlier bank   
g. Wide range of products/services  h. Fast and efficient service   
i. Personal approach of the bank staff  j. Interest rate on deposits   
k. Convenient banking hrs  l. Wide network of ATM's   
m. Wanted to go for multiple banking  n. Others specify.....
8. Have you received any gifts from the bank when you opened an account with them.  
a) Yes  b) No
9. Why do you feel the bank values you as a customer?  
.....  
.....
10. Has the bank offered you with any kind of monetary or non-monetary incentive for being associated with them for a long time?  
a) Yes  b) No
11. Do you believe in Multiple Banking  
a) Yes  b) No
12. If yes then tick the Banks in which you have account  
a. SBI  b. ICICI  i) Raj. Bank

- c.  UTI                      d.  SBBJ                       j) Madhav Nagrik
- 
- e.  PNB                       f.  CANARA BANK  k) OBC
- g.  HDFC                       h.  Union Bank                       l) OTHERS.....

13. What are the benefits of multiple banking (Tick as many applicable)
- a) Best of Interest                       b) Management of Funds
- c) Convenience / Separation of activities                       d) Extension of facilities
- e) Loan probable                       f) Business probable
- g) Customer name association with the bank
- h) Others please specify .....

14. Are you aware of technology enabled Banking.  
Yes                       No

15. Which Technology product you know and you use, specify:

	You Know	You Use
a) ATM cum debit card	<input type="checkbox"/>	<input type="checkbox"/>
b) Credit card	<input type="checkbox"/>	<input type="checkbox"/>
c) Demat Account	<input type="checkbox"/>	<input type="checkbox"/>
d) SMS/Mobile service	<input type="checkbox"/>	<input type="checkbox"/>
e) Net Banking	<input type="checkbox"/>	<input type="checkbox"/>
f) Phone banking	<input type="checkbox"/>	<input type="checkbox"/>
g) Instant debit card	<input type="checkbox"/>	<input type="checkbox"/>
h) Bancassurance	<input type="checkbox"/>	<input type="checkbox"/>
i) Any other .....		

16. If you are not using various facilities / technologies then tick  the reasons that are relevant.

- |  |   |
|--|---|
| a) Unaware of the facility /technology <input type="checkbox"/>          | b) Inaccessibility of information <input type="checkbox"/>                |
| c) No training for using the technique <input type="checkbox"/>          | d) Facility not required <input type="checkbox"/>                         |
| e) Confusion caused due to improper information <input type="checkbox"/> | f) Enabled only after repeated follow ups. <input type="checkbox"/>       |
| g) Doubt the security aspect <input type="checkbox"/>                    | h) Product has failed you at some critical point <input type="checkbox"/> |
| i) Cumbersome operational process <input type="checkbox"/>               | j) Others .....   |

17 With technology enabled services available, Do you:

- a) You avoid going to the branch
- b) Still prefer visiting a branch – as a necessity
- c) Still prefer visiting -- as pleasure
- d) Visit only when bank requires

18 Your Bank's .....(Bank's name) is

- a) Highly customer oriented
- b) Highly Product oriented
- c) Service oriented facility



d) Mix of both (a) ,(b) & (c)

19 i. How frequently the customer care executive contacts you? Are you satisfied with such contacts.

a) Frequently  b) Very Frequently   
c) Need Based

ii. Are you satisfied with such contacts?

a) Yes  b) No

20. Tick the specific complaints you have with banking operations

- |  |   |
|--|---|
| a) Procedural hassles <input type="checkbox"/>               | b) Unskilled staff <input type="checkbox"/>                                     |
| c) Delay in procedures <input type="checkbox"/>              | d) Inability to structure tailor made solutions <input type="checkbox"/>        |
| e) Too many calls / reminders. <input type="checkbox"/>      | f) Too many counters without service specified confuse <input type="checkbox"/> |
| g) Long queue for depositing money. <input type="checkbox"/> | h) Delayed cheque clearance <input type="checkbox"/>                            |
| i) Too many documentations required <input type="checkbox"/> | j) Others please specify .....  |

21. How the bank manages to attend to the complaint in the following respect.

a) Attitude of bank's staff

i)Highly co-operative  ii) Co-operative  iii) Least co-operative

b) Competence level of Bank's Staff

i) High  ii) High  iii) Low

c) Response time taken

i)Very High  ii) High  iii) Low

d) Accuracy of service / solution provided

i) Very High  ii) High  iii) Low

e) Clarity of service reps explanation

i)Very Good  ii) Good  iii) Fairly Good  iv. Not Good

f) Degree of professionalism

i)High  ii) Mediocre  iii) Low

h) Level of personal care

i) High  ii) High  iii) Low

22. Do you get mailers/information/post from the bank describing various schemes and new products launched by the Bank.

a) Yes  b) No

23. Has the bank ever provided you with a financial solution even when you haven't approached them with a problem?

a) Yes  b) No  c) Specify .....

24. What do you understand by **CRM BY BANKS**

- .....
- .....
25. Give suggestions to improve the **CUSTOMER RELATIONSHIP** with banks.
- .....
- .....

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# Foreign Banks' Entry into China's Banking Market: an Empirical Study

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## Abstract

Using a fix-effect modelling method, this study investigates the effect of foreign bank entry on the performance of indigenous banks in China during the post-deregulation period 1996-2004. Contrary to the results of Claessens' et al. (2001), our results show that it is the loss of market share (as measured by the ratio of foreign bank assets to China's entire bank assets) rather than the increase of bank branches which has a greater effect on China's domestic banks. Moreover, our results support the view of Lensink and Hermes (2004) that as China's banking sector is not well developed, domestic banks have incurred higher costs and margins when learning banking techniques and practices from foreign banks due to the spill-over effect. As a result, China's domestic banks may transfer their implementation costs to their consumers or clients by raising margins and thus gaining higher profits. It is therefore difficult to draw a conclusion whether the foreign bank entry has enhanced the competitiveness of Chinese domestic banks thus improved the efficiency of financial sector.

## Introduction

China has been opening up its banking market in the last five years by following commitments under the terms of its World Trade Organization (WTO) accession. As a result, foreign banks penetration has increased substantially.. It has been reported that by the end of 2005, 71 foreign banks from 20 countries opened 238 branches. In addition, 173 banks from 40 countries and regions have set up representative offices in 23 Chinese cities (Xinhuanet, 2005). The market share of foreign banks is relatively small in relation to the Chinese indigenous banks, for example, the total assets of foreign banks was 84.5 billions in 2005, accounting for 2% of the total banking assets in China (Ba, 2006). Nevertheless, the benefits the foreign banks can offer and the pressure they have brought on the domestic banks are widely recognised. For example, the loans provided by the foreign banks was already 20% of the total loans in the entire banking sector in China (Xunhuanet, 2005).

This paper attempts to investigate the impact of foreign bank entry on Chinese domestic banks by using panel data from 1996 to 2004. The paper is organised as follows. Section II discusses previous studies pertaining to the topic. Section III estimates the effects of foreign bank entry on China's domestic banks, and Section IV concludes the paper.

## Previous Studies

The impact of foreign entry on the performance of domestic banks has attracted increasing attention from economists within the last two decades. The research in this field has gone through exploratory to empirical test stages. Much of the early research was focused on case studies. For example, Cha (1990) argued that after the entry of foreign banks into Indonesia the banking market has become more competitive. Denizler (2000) conducted a research on the Turkish banking sector and drew a conclusion that the foreign bank entry led to the decrease of the interest margin, return on asset and operation costs of domestic banks. Barajas et al. reviewed (2000) foreign bank entry in Columbia and found that the foreign bank entry may contribute to the reduction of the cost of financing for

the financial intermediaries and the deterioration of capital assets. Similarly, McFadden (1994) examined the impact of foreign bank entry in Australia and found that it has led to more efficient domestic bank operations.

Demirgüç-Kunt and Huizinga studied the performance of foreign banks in different countries and suggested that in terms of interest income and profitability, foreign banks from developed countries were lower than the indigenous banks but foreign banks from developing countries often had achieved better performance than their developed counterparts in hosted countries.

Claessens et al. (2001) conducted the first comprehensive empirical research on a large scale. Using 7900 bank observations from 80 countries for the 1988-1995 period, Claessens et al. (2001) studied the extent of foreign bank entry and its impact on the domestic banking markets. The host countries included both developed and developing countries. Their research showed that the foreign banks entering developing countries would obtain higher interest income, profitability and taxations than their domestic counterparts. However, the opposite was found in developed countries. Claessens et al. (2001) also demonstrated that the numbers of foreign banks presented in host countries have bigger impacts on indigenous banks than their market share in the host banking market. In other words, as soon as the foreign banks penetrated the market of host countries, the indigenous banks would be pressurized and start to respond to competition regardless of the actual market share the foreign bank may possess. Claessens et al. (2001) pointed out that although the time spans of their data were not very long, it might not directly prove whether foreign bank entry may intensify the competition in host banking markets. Nevertheless, the short term development of various banking markets showed such a trend. In the meantime, there exist some risks associated with the opening of banking markets, particularly in those developing countries where the regulation system of financial sectors was not well developed. If indigenous banks can not quickly respond to the changes of competitive condition in the market, some banks may not survive.

Having collected data from 48 countries covering the periods between 1990 and 1995, Lensink and Hermes (2004) conducted a series of econometric analyses and observed the short term effects of foreign bank entry on banking industry in host countries. Lensink and Hermes (2004) argued that the short-term effects of a foreign bank entry on the behavior of indigenous banks may be determined by the level of economic development in host countries. Their study showed that the lower the levels of economic development, thus the less developed the banking market, the higher the costs and margins indigenous banks may incur when learning banking techniques and practices from foreign banks. This may be attributed to importance of spill-over in less developed banking market. As a result, the less competitive indigenous banks in less developed banking markets are able to transfer their implementing costs to their consumers or clients by raising margins and thus gaining higher profits. The opposite was found true for banks from developed banking markets. In other words, the costs, margins and profits had not been found to be associated with foreign bank entry.

Lensink and Hermes (2004) had advanced the study by Claessens *et al.* (2001). By investigating the relationship between the levels of economic development and the effects of foreign bank entry on the behaviour and outcomes of indigenous banking sectors. In addition, Lensink and Hermes (2004) also suggested including other variables, in studying the impact of foreign bank entry to indigenous banking sectors such as the level of bank market concentration or the level of financial development in host countries.

Okuda & Rungsomboon (2004) studies impact of foreign bank entry on Thai domestic banks by using panel data on 17 domestic commercial banks from 1990 to 2002. Differing from all the previous studies, Okuda & Rungsomboon (2004) made attempt to disentangle the factors attribute to the effects of foreign entry from those of other concurrent financial reforms by including various control variables both at the firm (bank) and country level. The control variable they used including government ownership dummy, a crisis dummy, the Herfindahl index, the relative bank size, and some macroeconomics variables such as the percentage change in the CPI and GDP. Okuda & Rungsomboon (2004) illustrated that an increase in foreign bank presence would negatively affect the operations of domestic banks thus leads to a rise in overhead expenses, a decline in profits, and an increase in the interest rate spread of the latter.

Following the suggestions by Lensink and Hermes (2004) and using data from 319 banks in the Central and Eastern countries covering period of 1995 to 2001, Uiboupin (2005) studied the relationship between the level of the financial development and the impact of foreign bank entry on domestic banking markets. Uiboupin's main findings were as follows: foreign bank entry had increased competition in domestic banking markets which was reflected by

the increased operation costs and decreased profits (before tax), non-interest income, average interests of loans and loss preparation of loans; Second, the degree of the development of the domestic banking market directly influence the extent of the impact of foreign bank entry on indigenous banks. Indigenous banks in more developed banking markets suffer fewer losses in incomes and loan loss provisions than in their counterparts in less developed banking markets. Furthermore, overhead costs of indigenous banks are also less likely to increase in more developed markets after foreign bank entry. Finally, the markets share of indigenous banks is another factor contributing to the variations of the impact of a foreign bank entry. Banks with higher market share tend to react less on foreign banks entry in terms of non-interest income and loan loss provisions.

## Empirical Testing of Impact of Foreign Banking Entry on China's Domestic Banks

In this study, a multiple regression method is used to test the impact of foreign bank entry on China's banking market. The degree of foreign bank entry is proxied by the ratio of foreign bank assets to China's entire bank assets (FS) and the numbers of foreign bank branches (FN). The dependent variables are the bank performance measures. We have included interest income ratio (IM, or bank's net interest income over total asset) and non-interest income ratio (NIM or non-interest income over total asset) which accounts for banks' non lending activities, the ratio of profit before tax (PRO) and overhead ratio (EXP or overheads over assets).

Equation (1) expresses the relationship among the above variables:

$$I_{i,t} = \alpha + \beta FS_{i,t} + \lambda X_{i,t} + \varepsilon_{i,t} \quad (1)$$

Where  $I_{it}$  are bank performance measures, including IM, NIM, PRO and EXP,  $\alpha$  is the intercept; FS is the degree of foreign bank entry consisting of the ratio of foreign bank assets to China's entire bank assets (FS) and the numbers of foreign bank branches (FN). Since a country's economy has an important influence in banks' lending activities, China's economic growth rate (GDP) is also included in the equation as a control variable, which is denoted by  $X_{it}$  in the equation.  $\varepsilon_{it}$  is the error term,  $i$  denotes for individual bank whilst  $t$  representing the time.

Comparing to the models of Claessens, Lensink, Hermes, Uiboupin, the major difference of our model is the fact that we did not introduce those variables reflecting the individual characteristics of domestic banks. This is because we believe that the Chinese commercial banks were established in the same political and economic environment. The history of the commercial banks is not very long. The earliest one has just less than 20 years' history<sup>1</sup>. As a result, no matter whether it is a state-own bank, a commercial bank or stock-holding bank, they do not significantly differ from each other in terms their business scope, operating environment, organization structure, management structure and human resource management. In the meantime, the Hausman test rejected the random effects model in favor of the fixed effects model. Therefore, we treat all the domestic banks invariant in these aspects in order to simplify the model.

All the data is either directly or adapted from 'China's Finance Statistics Yearbook', 'The Quarterly of People's Bank', and 'China's Statistical Yearbook'. The panel data between 1996 and 2004 was used which included data on China's four biggest state-owned commercial banks. They are Bank of China, Bank of Communications, Industrial and Commercial Bank of China and China Construction Bank. It also includes data on thirteen commercial banks: China Everbright Bank, Hua Xia Bank, China Mingsheng Banking Corp., Guang Da Bank, Guangdong Development Bank, China Merchants Bank, Shanghai Pudong Development Bank, Shenzhen Development Bank, Export-Import Bank of China, Agricultural Bank of China, Bohai Bank, China Industrial Bank and China Citic Bank. The empirical results are provided in Table 1 and Table 2.

TABLE 1: THE IMPACT OF FOREIGN ENTRY ON CHINA'S DOMESTIC BANKS USING FS AS THE MAIN EXPLANATORY VARIABLE

	Dependant variable											
	Net Interest Margins			Non-interest Incomes			Overhead Costs			Pre-tax Profits		
	Simple regression	First difference regression	Second difference regression	Simple regression	First difference regression	Second difference regression	Simple regression	First difference regression	Second difference regression	Simple regression	First difference regression	Second difference regression
Constant	1.294** *	1.466** *	1.476** *	-0.328	0.360	0.574** *	1.344** *	1.565** *	1.742** *	- 0.378**	0.238	0.362**
	(8.062)	(6.267)	(7.045)	(-1.548)	(1.560)	(3.636)	(7.523)	(7.641)	(11.885)	(-2.255)	(1.070)	(2.461)
FS	8.615 (1.438)	3.040 (0.414)	-3.118 (-0.408)	58.937** (7.455)	32.626** (3.785)	12.027* (2.147)	27.288** (4.090)	19.398* (2.851)	4.847 (0.844)	40.264** (6.426)	21.925** (2.900)	3.337 (0.614)
GDP growth rate	-0.528 (-0.428)	-1.140 (-0.657)	-0.076 (-0.048)	0.120 (0.074)	-3.033* (-1.860)	-1.645 (-1.369)	-1.803 (-1.311)	-2.451 (-1.654)	-2.128* (-2.000)	1.395 (1.080)	-1.929 (-1.161)	-0.689 (-0.644)
AR(1)		0.362** *	0.553** *		0.625** *	0.573** *		0.430** *	0.383** *		0.446** *	0.469** *
		(3.775)	(5.590)		(8.021)	(9.401)		(5.629)	(4.826)		(5.142)	(6.997)
AR(2)			-0.136 (-1.575)			-0.106* (-1.908)			0.025 (0.423)			0.029 (0.539)
Adj. R <sup>2</sup>	0.392	0.503	0.573	0.582	0.747	0.837	0.359	0.576	0.643	0.509	0.601	0.742
F-test	5.728	7.126	7.572	11.251	18.932	26.088	5.109	9.246	9.816	8.616	10.154	15.103
D.W. test	1.203	1.481	2.292	0.834	1.869	2.202	0.955	1.853	1.964	1.158	1.668	2.536
Number of observations	113	113	113	113	113	113	113	113	113	113	113	113

The t-students are presented in parentheses.

\*\*\* indicates coefficient significant at 1% level; \*\* indicates coefficient significant at 5% level; \* indicates coefficient significant at 10% level.

TABLE 2: THE IMPACT OF FOREIGN ENTRY ON CHINA'S DOMESTIC BANKS USING FN AS THE MAIN EXPLANATORY VARIABLE

	Dependant variable											
	Net Interest Margins			Non-interest Incomes			Overhead Costs			Pre-tax Profits		
	Simple regression	First difference regression	Second difference regression	Simple regression	First difference regression	Second difference regression	Simple regression	First difference regression	Second difference regression	Simple regression	First difference regression	Second difference regression
Constant	1.775 (1.800)	-0.089 (-0.104)	-0.652 (-0.978)	7.191** *	1.643* (1.776)	0.930 (1.724)	4.143** *	1.276 (1.625)	0.155 (0.276)	4.824** *	0.367 (0.427)	-0.402 (-0.786)
	-0.002	0.010*	0.013** *	-	-0.004 (-)	-0.001	-	0.013**	0.005	0.011**	0.026** *	0.003 0.005
FN	(-0.329) (1.438)	(1.922) (0.414)	(3.081) (-0.408)	(-4.376) (7.455)	(0.775) (3.785)	(-0.355) (2.147)	(-2.000) (4.090)	(0.938) (2.851)	(2.980) (0.844)	(-3.963) (6.426)	(0.526) (2.900)	(1.601) (0.614)
GDP growth rate	-0.512 (-0.300)	-1.295 (-0.788)	-0.615 (-0.402)	-4.938* (-1.929)	-3.854* (-1.940)	-1.307 (-0.994)	-3.310 (-1.657)	1..579* (-2.179)	-2.063* (-2.003)	-2.141 (1.092)	-3.883* (-2.070)	-0.753 (-0.678)
AR(1)		0.409** * (4.528)	0..576* ** (6..257)		0.673** * (7.768)	0.573** * (9.401)		0.499 * (6.369)	0.341** * (4..540)		0.447** * (4.702)	0.469** * (6.646)
AR(2)			-0.146* (-1.876)			-0.093 (-1.669)			0.041 (0.750)			0.019 (0.387)
F-test	5.484	7.477	9..319	6..996	15. 099.	24.171	3.805	8.143	11.752	5.809	8.021	15.799
D.W. test	1.192	1.438	2.281	0.875	1.901	2.151	0.975	1.979	1.852	1.171	1.666	2.226
Number of observations	113	113	113	113	113	113	113	113	113	113	113	113

The t-students are presented in parentheses.

\*\*\* indicates coefficient significant at 1% level; \*\* indicates coefficient significant at 5% level; \* indicates coefficient significant at 10% level.

The summary of the econometrics can be drawn as follows.

Firstly, t-statistics of the numbers of foreign bank branches (FN) is not significant. This shows that Chinese domestic banks are not sensitive to the increase of foreign banks branches, thus have not accordingly adjusted their strategies. Secondly, in contrast, the market share of foreign banks (measured by the ratio of foreign bank assets to China's entire bank assets) has yielded a significant result. This demonstrates that it is the loss of market share rather than the increase of bank branches which has a greater effect on China's domestic banks. This result differs from that of Claessens' (2001). Thirdly, when using the market share of foreign banks as one of the explanatory variables,

the interest income variable has not achieved a significant result. In contrast, non-interest income, overhead cost and pre-tax profitability have all yielded positive signs with significant results. These results show that foreign bank entry has improved the efficiency of Chinese indigenous banks.

## The Comparison of the Empirical Results

We have summarized our econometrics results and compared them with those of Claessens (2001), Lensink and Hermes (2004) and Uiboupi (2005), which were listed in Table 3.

TABLE 3: SUMMARY OF THE EMPIRICAL RESULTS AND COMPARISON WITH SOME MAJOR EARLIER STUDIES

	Explanatory Variable	Net Interest Margin	Non-Interests Income	Overhead Cost	Pre-Tax Profits
Claessens (2001)	FN	NS	-	-	-
	FS	NS	NS	NS	NS
Lensink & Hermes (2003a)	FN	+	+	+	-
	FS	+	+	+	-
Lensink & Hermes (2004)	FN	+	+	+	-
	FS	+	+	+	-
Uiboupin	FN	-	-	NS	-
	FS	-	-	NS	-
Our analysis	FN	NS	NS	NS	NS
	FS	NS	+	+	+

Note: “+” indicates a significant positive correlation, “-” indicates a significant negative correlation, “NS” indicates a relationship that is not statistically significant

Specifically, our results differ from the previous studies in several respects. First, the extent to which the impact of foreign bank branches and the market share of foreign banks on the domestic banks vary significantly. All the previous research listed above indicated that the increase of foreign bank branches will have a substantial impact on the performance of domestic banks (Claessens, 2001; Lensink and Hermes (2003, 2004; Uiboupin (2005). Our results showed an opposite result. It seems that China’s domestic banks are insensitive to the increase of foreign bank branches. Generally speaking, it takes some time for foreign banks to establish certain market share after they initially open their bank branches. In a developed market economy, the domestic banks may quickly respond to the expansion of the rivals thus may adopt an appropriate strategy to compete with the new arrivals. However, despite the many years of reform, the major big banks of China remain largely owned by the state<sup>2</sup>. As a result, the majority of the top bank managers are still appointed by the government who still serve a government function in addition to their roles of chairman or the directors. They may not act in the best interest of shareholders. Consequently, Chinese domestic banks, particularly, the big banks may not significantly change their behaviour and become market oriented (Xi, 2006; IMF, 2006). Uiboupin (2005) demonstrated that when facing foreign bank competition, big banks may respond more slowly than small ones. On the one hand, big banks that normally have a larger market share may care less about foreign entry; on the other hand, big banks may be too big to react (Uiboupin, 2005). This explanation may be applied to the banks in China since the average size of Chinese domestic banks are relatively large due to historical reason. Specifically, banks have been state owned for many years and their market shares are well established. So this maybe why the Chinese are less responsive to the increase of foreign bank branches.



Second, our results show that there is not strong correlation between net interest margin and foreign bank entry and economic growth. The possible reason may be the low degree of marketisation. Although Chinese domestic banks are given some freedom to charge interest on the lending rate, the rate is still set by the government. Namely, the government can still control the interest margin to a great extent. Moreover, the size and allocation of banks loans to a certain extent are still policy orientated.

Third, there is a significant positive relationship between the foreign bank entry and the increase of non-interest income which is contrary to Uiboupin's result. The increase of non-interest income may be brought by the unique banking regulatory environment and the spill-over of foreign banks. As aforementioned, since Chinese domestic bank can only charge the interest rate within a certain range, when they compete with foreign banks, they try to expand their business through diversification into non-traditional banking activities such as personal financial advice and brokerage. In the meantime, some banks even start to abolish certain bank charges including annual fee of credit cards and fees for non-profitable accounts. However, under China's current separate financial service regulation regime, it is difficult to reach the vast customer base of the capital market.

Fourth, overhead costs are positively correlated with foreign bank presence. Facing the fierce competition and to catch up with banks from developed countries, Chinese domestic banks realize they need to introduce advanced technology and facilities, recruit highly trained personnel and change the business model or even management system. All these will inevitably increase the overheads. This finding is consistent with all the previous studies.

Finally, foreign bank entry has generated a positive effect on China's domestic banks' pre-tax profits. The relationship among all the explanatory variables can be displayed as below:

### **Net Interest Margin + Non-interest Income = Overheads Costs + Pre-tax Profits**

Our result show that even though the overhead costs have increased after foreign bank entry, there still exists a positive association between the foreign bank entry and pre-tax profit. This result, again, differs from the previous studies. The possible explanation is that the increase of the magnitude of non-interest has exceeded the increase of overhead cost which leads to the improvement of profits.

## **Conclusion**

In this paper, we had investigated the impact of foreign bank entry on China's domestic banks by using a panel data on 14 domestic banks from 1996 to 2004. The study proved that the increasing presence of foreign banks has led to a rise in overhead cost, net interest margins and profits of China's domestic banks. This may mean foreign bank entry has enhanced the competitiveness of Chinese domestic banks thus improved the efficiency of financial sector. However, the results may also be attributed to the unique characteristics of China's banks. For example, one of the major findings of our research is the insensitivity of domestic banks towards the impact of foreign bank entry when the net interest margin is used as an indicator of the performance. We believe this could be explained by the slow development of the marketisation of the Chinese banking sector. The majority of the early researches on the impact of foreign bank entry were normally concentrated on the transitional economies, particularly eastern and central European countries where the degree of marketisation is higher than China due to the large scale of privatisation of state-owned enterprise and greater restraints of government direct control over the market. In the meantime, the limitation of the foreign ownership in China's domestic banks may become an obstacle in implementing modern management system thus preventing the banks from full market orientation. The shortage of managerial personnel in China's financial sector who can quickly respond to the market signal is well documented (Xue, B. & Enderwick, 2003; Tsang, 2004).

It may be noted that because China's domestic banks do not have a complete autonomy in deciding their interests, the net interest margins are not necessarily relating to the results of market competition. The focus of further deepening banking reform should be placed onto building up financial infrastructure of the banking sector and cultivating market oriented banks and financial products.

Finally, our research also show that despite that increase of overall overhead costs, the profits of China's banks also increased. We believe this may be due to the efforts of China's bank in diversifying into fee-earning activities, such as service charges on deposit accounts, net service fees, net securisation income, insurance commissions and fees or other banking/brokerage fees.

Overall, it may be concluded that notwithstanding the relatively small share of foreign banks, the presence of foreign banks has changed the competitive environment of Chinese banking sector and brought the pressure on China's domestic banks to improve their management practise and operations. However, as China's domestic banks may transfer their implementation costs to their consumers or clients by raising margins and thus gaining higher profits. It is therefore difficult to draw a conclusion whether the foreign bank entry has enhanced the competitiveness of Chinese domestic banks thus improved the efficiency of financial sector. In the meantime, the banks' fast portfolio diversification may require an assessment of risks involved. It must be noted that there are at least two limitations in this research. First, we did not separate the effects of foreign bank entry from other effect of banking reforms that have taken place simultaneously in China. Second, the sample size may need to increase to draw more convincing conclusion.

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### **End Notes**

The first domestic bank 'China's Industrial Bank' was established in Fijian, China in 1988.

<sup>2</sup> China's only allows foreign strategic investor to hold 15% of the share of an individual Chinese banks or 25% for a combined foreign

# Consolidation and Competition in the Malaysian Banking Industry: Empirical Evidence from Malaysia

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## Abstract

This paper investigates the effect of bank consolidation on market structure and competition in Malaysian banking industry over the periods 1998-2005. The study evaluates the degree of competition using  $H$ -statistic proposed by Panzar and Rosse (1987). The estimated  $H$ -statistics are positive ranging from 0.38 to 0.62 and Wald tests for the market structure of monopoly or perfect competition is rejected. The results imply that the financial institutions in Malaysia earned their revenue in the condition of monopolistic competition. Furthermore, the traditional interest-based market however is significantly less competitive than the overall market. The evidence is not strong to conclude for an increase in competition reflecting a change in the market structure. Thus, the findings suggest that some competition policy responses need to be considered to make the Malaysian banking market more competitive in the wave of further liberalization in banking industry. JEL Classification: G21; D24, L1. Keywords: Competition; Panzar-Rosse model; Malaysia; Market structure

## Introduction

Academics and policy makers seem to accept the view that financial institutions play a crucial role in the effective functioning of modern economies. One would expect that the higher the degree of competition, the higher its efficiency in terms of allocating funds and in general operating as an intermediary between depositors and borrowers. There has been considerable concern about how ongoing consolidation in financial systems around the world will affect competition. Indeed, much of the recent public debate seems to assume that perfect competition in banking is ideal. For much of the last century, this has not always been the case where policy-makers focused on stability. Therefore, banking competition generally can be characterized as monopolistic competition that banks do not offer completely homogeneous products (Allen and Gale, 2001).

It is observed that the banking industry in developing economies has been experiencing a fundamental change in its market structure since the Asian financial crisis. One of the main underlying factors behind such a wave of financial consolidation may be the fierce competition among banks triggered by financial deregulation and financial globalization, resulting in a sharp increase in financial management risk. In addition, significant progress in information technology necessitates that banks seek scale economies and risk diversification to gain comparative advantage over rival banks. While that of emerging economies has been forced by government-led structural adjustment policy for the banking industry as a way of overcoming the financial crisis, the financial consolidation in industrial countries has been evolved by market forces

This study is motivated by several factors. First, a number of studies have examined the effects of consolidation on competition and market structure of banking industry; however, these studies have concentrated on developed markets. Our study contributes to the literature by comparing the competitive behaviour of Malaysian banking industry before and after the consolidation period. Secondly, a dearth of bank consolidation and competition studies utilizes the non-structural model approach suggested by Panzar and Rosse (1987), and most of them have been concentrated on the developed countries with very few studies on developing countries. Thus, we extend the

literature by employing a Panzar and Rosse (1987) model to empirically estimate the competitive behaviour in developing countries specifically Malaysian banking industry. Since, the overall effect of greater concentration can be ambiguous it can either be that the greater bank size can lead to an increase in *monopolistic power*. A rise in lending rates or greater *economies of scale* (banks are more efficient) and a decrease in lending rates. Hence, this is an important issue for policy makers, regulators, researchers and economists

The paper is structured as follows: Section 2 provides the structure and trends market concentration in the Malaysian banking industry during the period of 1997 and 2005. Section 3, elaborates on theoretical model of Panzar-Rosse (1987) and some empirical evidences generated from their model. Section 4 presents the data and the empirical model used in the empirical analysis. Section 5 provides the estimation and results of the *H*-statistic for the pre- and post-consolidation periods. Section 6 summarizes the paper with some concluding remarks.

## Malaysian Banking Structure and Concentration

At the onset of the crisis the Malaysian banking system is characterized by its high market concentration consisted mainly of three types of institutions: commercial banks (domestic and foreign), finance companies, and merchant banks. Table 1 shows the evolution of the Malaysian banking structure between 1998 and 2005. Domestic commercial banks had the largest share of the market controlling 73.6 percent of the market share in 2005. Among these, the government controlled the largest bank (Maybank) through a majority share and it fully owned the second largest bank, Bumiputra-Commerce Bank. Foreign commercial banks controlled only 19.2 percent of banking assets. Foreign banks do not make any progress in controlling market share was the result of a deliberate government policy of developing the domestic financial sector, under which foreign banks have been prohibited to open new branches and no new license was granted to foreign institution.

TABLE 1: STRUCTURE OF MALAYSIAN BANKING IN 1997 AND 2005

	1997		2005	
	No. of Institutions	Total Assets (%)	No. of Institutions	Total Assets (%)
Domestic Commercial Bank	22	57.0	10	73.6
Foreign Commercial Bank	13	16.7	12	19.2
Finance Company	39	20.0	0	0.0
Merchant Bank	12	6.3	10	7.2
Total	86	100.0	32	100.0

Source: Bank Negara Malaysia.

Following the deepening of the financial crisis that struck the region in 1997/98, the Government took stronger measures to promote merging of banking institutions. A merger program was initiated in 1998 covering only the finance companies initially. The merger program was subsequently extended to include all domestic banking institutions in July 1999 and all domestic banking institutions would be restructured so that six banking groups would be formed. However, as uncertainty remains on the impact of the mergers on the asset quality of the newly formed group, particularly on the anchor banks and thus the plan was finally halted at the end of September 1999. A new merger plan was announced, that all domestic banking institutions to form their own merger groups and choose their own leader in each group by end-January 2001. In response to this approach, approval was granted for the formation of 10 banking groups. It was also intended to avoid the turmoil in the financial markets due to the drastic reduction of financial institutions. The Malaysian banking industry, after its first stage of consolidation that reduced the number of banks to 10 anchor banks, is poised to enter a second phase of consolidation. Table 2 shows the banking groups in Malaysia after the completion of second phase of consolidation process. This phase of consolidation is beginning to involve mergers between banks and their finance company subsidiaries, and the initial stages of mergers between the country's remaining ten banking groups.

TABLE 2: BANKING GROUPS IN MALAYSIA AFTER CONSOLIDATION

Anchor Bank	Merger Groups
Malayan Banking Bhd (MayBank)	Mayban Finance Bhd, Aseambankers Malaysia Bhd, Phileo Allied Bank Bhd, Pacific Bank Bhd, Sime Finance Bhd and Kewangan Bersatu Bhd
The Bumiputra – Commerce Bank Bhd	Bumiputra-Commerce Finance Bhd and Commerce International Merchant Bankers Bhd
RHB Bank Bhd	RHB Sakura Merchant Bankers Bhd, Delta Finance Bhd and Interfinance Bhd
Public Bank	Public Bank Bhd, Public Finance Bhd, Hock Hua Bank Bhd, Advance Finance Bhd and Sime Merchant Bankers Bhd
The Arab Malaysian Bank Bhd (AMMB)	Arab Malaysian Finance Bhd, Arab Malaysian Merchant Bank Bhd, Bank Utama Malaysia Bhd and Utama Merchant Bankers Bhd
Hong Leong Bank Bhd	Hong Leong Finance Bhd, Wah Tat Bank Bhd and Credit Corporation Malaysia Bhd
Perwira Affin Bank Bhd	Affin Finance Bhd, Perwira Affin Merchant Bankers Bhd, BSN Commercial Bank Bhd, BSN Finance Bhd and BSN Merchant Bank Bhd
Multi-Purpose Bank Bhd	International Bank Malaysia Bhd, Sabah Bank Berhad, MBf Finance Bhd, Bolton Finance Bhd, Sabah Finance Bhd, Bumiputra Merchant Bankers Bhd and Amanah Merchant Bank Bhd
EON Bank Bhd	EON Finance Bhd, Oriental Bank Bhd, City Finance Bhd, Perkasa Finance Bhd and Malaysian International Merchant Bankers Bhd
Southern Bank Bhd	Ban Hin Lee Bank Bhd, Cempaka Finance Bhd, United Merchant Finance Bhd, Perdana Finance Bhd and Perdana Merchant Bankers Bhd

Source: Bank Negara Malaysia

The bank consolidation in Malaysia, characterized by the structural adjustment of the banking industry since the currency crisis of 1997, has caused significant change in its market structure. The first phase of structural adjustment during the period of 1998 and 1999 has been carried out to sweep out non-performing banks. Unlike the first phase, the second phase of structural adjustment has been initiated by major large-sized banks to obtain competition power since the 2001 (Bank Negara Malaysia, 2004). As such, each phase of bank consolidation has been carried out with a contrasting motive. In addition, the bank consolidation in Malaysia has been remarkably characterized by horizontal mergers among banks with overlapping market segmentation. As the banking market structure in Malaysia has been reorganized mainly by several leading banks or financial holding companies, it is observed that the size distribution of banks has been widened. As a consequence, the number of banks has sharply decreased and market concentration in the banking market has markedly increased. Moreover, considering that additional bank mergers are currently in progress, it is expected that market concentration in the Malaysia banking industry will be higher in the near future than at present.

The most frequently applied measures of concentrations,  $k$ -bank concentration ratio ( $CR_k$ ) and Herfindahl-Herschman Index (HHI)<sup>1</sup>. Market concentration is used as a measure of market dominating power within an industry or among companies. Following the step of previous researchers, this paper employ a widely use bank concentration index of the highest two ( $CR_2$ ), three ( $CR_3$ ) and five ( $CR_5$ ) bank total assets, total deposits and total loans as an initial measure.  $CR_k$  is computed as the sum of top  $k^{\text{th}}$ -tier firms' market shares and summing only the market shares of the  $k$  largest banks in the market, it takes the form:

$$CR_k = \sum_{i=1}^k S_i \quad (1)$$

*CRk* is a relatively strong measure because it clearly catches the market structure through market shares of a few dominating firms. This index is based on the idea that the behavior of a market is dominated by a small number of large banks. The *CRk* index is very useful to examine the market influence of a few dominating firms in the market, it is not so useful in grasping the general features of market structure. On the other hand, the Herfindahl-Herschman index (*HHI*) is defined as the sum of the squared market shares of all banks in the market. *HHI* takes market shares as weights, and stress the importance of large banks by assigning them a greater weight than smaller banks. The *HHI* can be computed as follows:

$$HHI = \sum_{i=1}^n (MS_i)^2 \quad (2)$$

Where *MS* is the market share of the *i*<sup>th</sup> firm and *n* is number of firms in the market. *HHI* has the advantage of including information of the distribution of market share as well as the number of firms which take part in the industry. Having their own merits, both *CRk* and *HHI* are widely used as major measures of market concentration. As the market concentration index indicates the possibility of firms' anticompetitive behavior in an industry or a market, many countries' regulatory authorities utilize the index as one of the approval criteria of corporate consolidation.

To examine the trends of market concentration in the Malaysian banking industry we estimate the market concentration index based on *CRk* and *HHI* over the period 1998-2005, which includes periods of bank consolidation, restructuring as well as structural reform of the whole banking system. Table 3 summaries *HHI*, *CR*<sub>2</sub>, *CR*<sub>3</sub>, *CR*<sub>5</sub> of total assets, total deposits and total loans, as the indicators of market concentration of commercial banks in Malaysia. The results show that Malaysian banking industry *HHI* estimate is in between 1,231.10-1,644.31 for the periods 1998-2005 which is considered as a moderately concentrated market. For the market with *HHI* between 1,000 and 1,800, anti-competitive behavior could be exercised when *HHI* is increased by more than 100 according to the guideline by U.S Department of Justice.

TABLE 3: MARKET CONCENTRATION OF MALAYSIAN BANKING INDUSTRY

	Total Assets				Total Deposits				Total Loans			
	CR <sub>2</sub> %	CR <sub>3</sub> %	CR <sub>5</sub> %	HHI	CR <sub>2</sub> %	CR <sub>3</sub> %	CR <sub>5</sub> %	HHI	CR <sub>2</sub> %	CR <sub>3</sub> %	CR <sub>5</sub> %	HHI
1998	0.38	0.51	0.70	1317.29	0.36	0.50	0.69	1321.38	0.36	0.49	0.70	1346.40
1999	0.41	0.55	0.70	1551.40	0.41	0.55	0.70	1527.27	0.43	0.57	0.69	1551.28
2000	0.42	0.55	0.55	1563.41	0.42	0.54	0.69	1553.99	0.43	0.58	0.71	1644.31
2001	0.38	0.49	0.63	1315.86	0.38	0.48	0.63	1325.51	0.40	0.52	0.65	1427.91
2002	0.38	0.48	0.59	1297.71	0.37	0.47	0.62	1291.11	0.40	0.51	0.65	1407.52
2003	0.34	0.45	0.59	1181.29	0.34	0.45	0.60	1170.31	0.36	0.48	0.61	1274.35
2004	0.35	0.47	0.63	1193.68	0.36	0.47	0.68	1205.56	0.36	0.46	0.62	1231.10
2005	0.40	0.50	0.69	1334.50	0.40	0.51	0.70	1358.10	0.42	0.53	0.68	1465.88



The market concentration ratio in Malaysian banking industry shows an increasing trend in between 1998-2000, after the first phase of consolidation. The *HHI* estimate based on total loans increases to 1,644.3 (1,346.4 in 1998), *CR*<sub>2</sub> estimate increases to 0.43 (0.36 in 1998), *CR*<sub>3</sub> estimate increases to 0.58 (0.49 in 1998) and *CR*<sub>5</sub> estimate increases to 0.71 (0.70 in 1998). This increasing trend is due to Government measurers to restructure the banking system by including all domestic banking institutions so that six banking groups would be formed and the initial measures to promote merging of finance companies after the crisis in 1998/99. Even though the first phase of consolidation has led to increase in concentration ratios, it was not sufficient to induce the banking system to become anti-competitive. The restructuring of the banking system was mainly to remove the unhealthy financial institutions and to retain sound financial institutions in the system.

The second phase of consolidation in between 2001-2004, market concentration ratios, *HHI*, *CR*<sub>2</sub>, *CR*<sub>3</sub>, and *CR*<sub>5</sub> based on total loans show a decreasing trend of 1,231.1 (1,427.9 in 2001), 0.36 (0.40 in 2001), 0.46 (0.52 in 2001) and 0.62 (0.65 in 2001). In addition *HHI*, *CR*<sub>2</sub>, *CR*<sub>3</sub>, and *CR*<sub>5</sub> based on total deposit reveals a similar trend to that of market concentration based on total loans. These trends indicate the failure of the first plan of consolidation to merge domestic commercial into six anchor banks. It seems to indicate that after the financial crisis in 1998/99, the market concentration ratios reflect the change in the market structure. However, in 2005 the concentration ratios, *HHI*, *CR*<sub>2</sub>, *CR*<sub>3</sub>, and *CR*<sub>5</sub> increase sharply based on total loans and total deposits. The sharp increase in the market concentration ratios reflects the changes in the market structure and distribution of market shares derived from the completion of all merger and acquisition exercise during the second phase of consolidation. In these periods, the completion of merger and acquisition has led to the expansion of market share of the remaining financial institutions. Hence, the plan to initiate further merger and acquisition without opening the market to further competition will increase the market concentration and lead to the financial institutions behaving in anti-competitive manner.

## The Panzar-Rosse Approach: Theory and Evidence

Studies designed to estimate the competition in the banking literature can be divided into two groups: structural approach that focus on market structure parameters (Mason, 1939; Bain, 1951; Demsetz, 1973) and non-structural approach that estimate firm's input-output cost relationship (Baumol, 1982; Bresnahan, 1982; Panzar and Rosse, 1987). Empirical research has been devoted mostly to examine the market-power hypothesis through the profit rate-market concentration relationship (Berger, 1995) and contestability (Shafer, 1994) hypotheses. The findings of empirical investigations towards market structure either in banking or in general for public policy, have so far been inconclusive. Among those studies that appear to show a link between structure, conduct and performance have been recognized as methodologically flawed, rendering their findings unsuitable for public policy (Shafer, 1994).

The Panzar-Rosse (P-R) approach for testing market power relies on the premise that banks will employ different pricing strategies in response to change in input costs depending on the market structure in which they operate. The advantage of non-structural approach is that it is rooted in theory and in principle distinguishes between market power and efficiency as a source of concentration and profitability. It is very useful because it depends on individual bank's data, for which there are sufficient observations. Therefore, whether a bank operates in a competitive market or exercises some monopoly power can be inferred from the analysis of that bank's total revenue as it responds to changing input prices. Panzar and Rosse (1987) introduce a series of tests based on properties of reduced-form revenue equations at the firm level on which the hypothesis of monopoly or oligopoly of profit maximization places testable restrictions.

The test is derived from a general banking market model, which determines equilibrium output and the equilibrium number of banks by maximizing profits at both the bank level and the industry level. Two critical implications exist for this equilibrium model. First, at the bank level, profit is maximized where marginal revenue is equal to marginal cost:

$$R_i^l(y_i, \kappa, v_i) - C_i^l(y_i, f_i, q_i) = 0 \quad (3)$$

$R_i^l$  is the marginal revenue function,  $C_i^l$  is marginal cost function,  $y_i^l$  is the output of bank  $i$ ,  $\kappa$  is the number of banks,  $v_i$  and  $q_i$  consists of exogenous variables that shift the bank's revenue and cost functions, respectively and  $f_i$  is a vector of bank  $i$ 's factor input prices.

The second implication is that the zero profit constraint holds at the industry level:

$$R_i^*(y^*, \kappa^*, v_i) - C_i^*(y^*, f, q) = 0 \quad (4)$$

From these conditions, the  $H$ -statistic is formulated as:

$$H = \sum_{x=1}^t \frac{\partial R_i^*}{\partial f_{xi}} \frac{f_{xi}}{R_i^*} \quad (5)$$

This is the sum of the factor price elasticity, which indicates how responsive revenue is to percentage change in factor prices.

Before outlining the estimation procedure, it is necessary to discuss the various testable implications of the model. The  $H$ -statistic can be used to identify the three major market structures, namely, monopoly/perfect collusion, monopolistic competition and perfect competition/contestable market. Conclusions about the type of market structure are made based on the size and sign of the  $H$ -statistic. That is, both the size and sign are used to differentiate between the different market structures. The intuition behind the  $H$ -statistic rests solely on microeconomic theory, which outlines how income or revenues react to changes in input prices for the different market structures.

Under monopoly, if the input price is increased, then the marginal cost should increase and the equilibrium outputs and total revenue should decrease or remained unchanged. Hence, the  $H$ -statistic should be equal to or smaller than 0. Under monopolistic competition, the change in input price is greater than the change in revenue, thus the  $H$ -statistic should be smaller than 1 but greater than 0. Under perfect competition, the change in input price leads to an equal change in revenue, therefore the  $H$ -statistic should be equal to 1. A summary of the testable hypotheses of the different market structures is presented in Table 4. Using a simple, single product monopoly model with the assumptions of constant price elasticity and a constant returns to scale Cobb-Douglas technology, P-R further showed that not only is the sign of the  $H$ -statistic important, but so too is its size. That is, a larger  $H$ -statistic means that the market is more competitive implying that the  $H$ -statistic is a continuous measure of competition.

TABLE 4: INTERPRETING THE PANZAR-ROSE H-STATISTIC

<i>Parameter Region</i>	<i>Competitive Environment Test</i>
$H \leq 0$	<ul style="list-style-type: none"> <li>- Monopoly or conjectural variations short-term oligopoly.</li> <li>- Each bank operates independently as under monopoly profit maximizing conditions.</li> <li>- H is a decreasing function of the perceived demand elasticity.</li> </ul>
$0 < H < 1$	<ul style="list-style-type: none"> <li>- Monopolistic competition</li> <li>- Free entry (Chamberlinian) equilibrium excess capacity.</li> <li>- H is an increasing function of the perceived demand elasticity.</li> </ul>
$H = 1$	<ul style="list-style-type: none"> <li>- Perfect competition, or natural monopoly in a perfect contestable market, or sales maximizing firm subject to break even constraint.</li> <li>- Free entry equilibrium with full (efficient) capacity utilization.</li> </ul>
<i>Parameter Region</i>	<i>Market Equilibrium Test</i>
$H = 0$	- Equilibrium
$H \leq 0$	- Disequilibrium

Source: Molyneux *et al.* (1994).

In applying the P-R model, it is important to clearly define the production activity of the banks since they are not exactly comparable to other types of firms. The current literature presents two alternative approaches - the “production approach” and the “intermediation approach” – that can be taken in empirical work. Although there is some amount of debate as to which approach should be taken in empirical work, this paper will follow the intermediation approach, which classifies deposits and loans as inputs and outputs, respectively.

There are several studies in the literature have used Panzar-Rosse method to measure the level of competition in the banking sector. A summary of previous P-R studies on banking is presented in Table 5 for various countries. Most of the previous empirical estimations of P-R model is applied to developed countries and recently, several studies have employed this methodology to quantitatively assess the degree of competition and market structure of banking industry in developing and transition countries. In general, all of these studies find that banking market are best described as monopolistic competition. However, none of the studies in banking literature investigated the competitive behaviour and market structure in the Malaysian banking sector.

TABLE 5: SUMMARY OF OTHER P-R STUDIES ON BANKING

<i>Author (s)</i>	<i>Period</i>	<i>Countries</i>	<i>Findings</i>	<i>Average H</i>
Shaffer (1982)	1979	New York	MC	
Nathan and Neave (1989)	1982-84	Canada	MC (1983, 1984); PC (1982)	0.82
Molyneux <i>et al.</i> (1994)	1986-89	France, Germany, Italy, Spain, U.K	MO (Italy); MC (France, Germany, Spain, U.K)	0.37
Vessala (1995)	1985-92	Finland	MC (except for 1989-90)	0.58
Molyneux <i>et al.</i> (1996)	1986-88	Japan	MO	0.17
Hondroyiannis <i>et al.</i> (1999)	1993-95	Greece	MC	0.18
Bikker and Groeneveld (2000)	1989-96	15 EU countries	MC (all countries)	0.82
De Bandt and Davis (2000)	1992-96	France, German, Italy	MC (large bank in all countries and small bank in Italy)	0.28
Bikker and Haaf (2002)	1988-98	23 EU and non-EU countries	MC (all countries, competition weaker in small markets and stronger in international market)	0.70
Gelos and Roldos (2002)	1994-99	8 European and Latin American countries	MC (all countries except for Argentina and Hungary near PC)	0.66
Yildirim and Philappatos (2002)	1992-99	14 Central and South East European and the Russian Federation	MC (Lithuania, Macedonia); PC (Latvia); Neither MC nor PC (other countries)	0.71
Murjan and Ruza (2002)	1993-97	Middle Eastern countries	MC (oil-producing countries are less competitive than non-oil producing countries)	0.22
Hempell (2002)	2002	Germany	MC	0.68
Coccorese (2004)	1997-99	Italy	MC	0.92
Claessens and Leaven (2004)	1994-2001	50 industrialised and developing countries	MC (largest countries tend to have lower competition)	0.69
Mamatzakis <i>et al.</i> (2005)	1998-2002	7 Southern Eastern European countries	MC	0.73
Drakos and Konstantinou (2005)	1992-2000	Central Eastern European and former Soviet Union countries	MC	0.31
Mkrtchyan (2005)	1998-2002	Armenia	MC	0.69
Al-Muharrami <i>et al.</i> (2006)	1993-2002	Gulf Cooperation Council's Countries	MC (Bahrain, Qatar); PC (Kuwait, Saudi Arabia, UAE); Neither MC nor PC (Oman)	0.62
Perera <i>et al.</i> (2006)	1995-2003	4 South Asian countries	MC	0.59
Gunalp and Celik (2006)	1990-2000	Turkey	MC	0.37
Yuan (2006)	1996-2000	China	PC (nearly perfect competition)	0.89

PC = perfect competition, MC = monopolistic competition, MO = monopolistic market

## Data and Model Formulation

For the empirical analysis, 22 financial institutions comprise of domestic commercial banks, finance companies and merchant banks from 1998-2005 are used, which accounted for approximately 121 observations. Malaysian banks operating in Islamic banking environment will be excluded in the sample of the analysis due to different regulatory framework. Unconsolidated bank-specific annual data are taken from published balance sheet of annual reports of each individual financial institution. The data is an unbalanced annual data due to merger and acquisition during periods of the study. Table 6 shows the summary statistics of the sample distribution in the empirical analysis over the 1998-2005.

TABLE 6: SUMMARY STATISTICS OF VARIABLES USED IN P-R MODEL (IN RM MILLION)

Variable	Mean	Median	Maximum	Minimum	Std. Dev.
Total Revenue	1346.65	898.90	8687.70	23.50	1644.00
Total Interest Revenue	1244.60	802.70	7014.60	7.90	1548.08
Total Loans	13854.76	6515.50	115481.60	4.10	20449.47
Total Deposit	18150.09	11124.00	145572.10	150.00	24607.55
Total Assets	23006.82	13733.20	175434.70	279.20	32285.63
Loan Provision	207.58	106.80	1578.10	-32.30	293.54
Shareholder's Equity	2002.69	1172.60	15179.30	30.20	2694.17
Personnel Expenses	144.63	61.20	974.40	3.50	202.92
Other Operating Income	168.64	68.50	1673.10	-17.10	264.31
Fixed Assets	173.53	62.70	1188.90	0.10	254.69
Net Profit	245.84	97.70	3809.60	-747.50	521.23
Interest Expenses	622.75	423.90	4078.00	1.20	754.86
Operating Expenses	176.89	83.55	2424.10	0.80	303.02

The empirical application of the P-R approach assumes a log-linear marginal cost function (dropping subscripts referring to bank  $i$ ) following Bikker and Haaf (2002):

$$\ln MC = \alpha_0 + \alpha_1 \ln OUT + \sum_{i=1}^m \beta_i \ln IP_i + \sum_{j=1}^p \gamma_j EX_{COSTj} \quad (6)$$

Where  $OUT$  is output of the bank,  $IP$  are the factor input prices (*e.g.* funding, personnel expenses and other expenses) and  $EX_{COST}$  are other variables, exogenous to the cost function  $C_i^l$  in equation (3). Equally, the underlying marginal revenue function has been assumed to be log-linear of the form:

$$\ln MR = \delta_0 + \delta_1 \ln OUT + \sum_{k=1}^q \vartheta_k EX_{REVk} \quad (7)$$

Where  $EX_{REV}$  are variables related to the bank-specific demand function  $z$  in equation (1). For a profit-maximizing bank, marginal costs equal marginal revenues in equilibrium, yielding the equilibrium value for output (denoted by an asterisk):

$$\ln OUT^* = (\alpha_0 - \delta_0 + \sum_{i=1}^m \beta_i \ln IP_i + \sum_{j=1}^p \gamma_j \ln EX_{COSTj} - \sum_{k=1}^q \vartheta_k \ln EX_{REXk}) / (\delta_1 - \alpha_1) \quad (8)$$

The reduced-form equation for income or revenues of bank  $i$  is the product of the equilibrium values of output of bank  $i$  and the common price level, determined by the inverse-demand equation, which reads, in logarithms, as:

$$\ln p = \xi + \kappa \ln(\sum_i OUT_i^*) \quad (9)$$

In the empirical analysis, a methodological choice needs to be made on how to appropriately define a bank's production process. The approach to input/output definition used in this study follows the intermediation approach, which was originally developed by Sealey and Lindley (1977) and posits that total loans and securities are outputs, whereas deposits along with labour and capital are input to the production process of banks. Specifically, the input variables used in this study are the average cost of labour, deposits and capital. Following Shaffer (1982, 1985), Nathan and Neave (1989), Molyneux *et al.* (1994), Perera *et al.* (2006) and Al-Muharrami *et al.* (2006), the reduced-form total revenue and total interest revenue equation can be written as:

$$\ln TREV_{it} = \alpha_0 + \alpha_1 \ln PL_{it} + \alpha_2 \ln PK_{it} + \alpha_3 \ln PF_{it} + \sum \zeta_j \ln BSF_{it} + \varepsilon_{it} \quad (10)$$

$$\ln TINT_{it} = \alpha_0 + \alpha_1 \ln PL_{it} + \alpha_2 \ln PK_{it} + \alpha_3 \ln PF_{it} + \sum \zeta_j \ln BSF_{it} + \varepsilon_{it} \quad (11)$$

for  $t = 1, \dots, T$ , where  $T$  is the number of periods observed and  $I = 1, \dots, I$ , where  $I$  is the total number of banks. Subscripts  $i$  and  $t$  refer to bank  $i$  and at time  $t$ . In this study, we use two measures dependent variables  $TINT$  is the ratio of total interest revenue to total assets and  $TREV$  is the ratio of total revenue to the total assets. The dependent variable is divided by total assets in order to account for size differences. The first specification in which the dependent variable is only the interest part of total revenue is consistent with the approach that financial intermediation constitutes the core business of financial institutions. Although interest revenues still constitute the principal source of banks' earning, recent studies on banking activities report a dramatic increased of other income from fee-based products and off-balance sheet activities in recent year given the increased level of competition in financial markets (Nathan and Neave, 1989; De Bandt and Davies, 2000). This can also be explained partly by the desire of financial services firms to expand their revenue generating sources without altering their risk and thus their capital structure. For this reason, it is appropriate to include total revenues in the model in addition to interest revenues.

This study follows previous studies (Molyneux *et al.*, 1994; Perera *et al.*, 2006; Al-Muharrami *et al.*, 2006) assuming that all funds are input in banks' production function. Under this intermediation approach, banks use three inputs namely labour, deposit and capital.  $PL$  is the ratio of personnel expenses to the total assets, a proxy for cost of labour,  $PK$  is the ratio of other operating expenditure to fixed assets, a proxy for cost of capital and  $PF$  is the interest expenses over total deposit, as a proxy of price of funds. All dependent and independent variables are taken in natural logarithm.

The input prices are followed by a set of bank-specific factors ( $BSF$ ) that are relevant to the modern banking business. The  $BSF$  includes the ratio of total equity to total assets ( $EQASST$ ) is included to control for differences in capital structure. The expected coefficient can be positively related to total revenue well-capitalized banks involved in riskier operations and portfolios and in the process tend to hold more equity, voluntarily or involuntarily. However, according to Molyneux *et al.* (1994) the coefficient can be expected to be negatively related to the total revenue dependent variable since lower capital ratios should lead to higher bank revenue. In addition, the ratio of loan provision to total asset ( $RSKASST$ ) is included to account for a different measure of bank-specific risk (Al-Muharrami *et al.*, 2006). The  $RSKASST$  is expected to have a positive impact on revenue.

Total assets ( $ASST$ ) controls for the size of the bank and can be considered as a proxy for economies of scale (De Bandt and Davies, 2000; Shaffer, 2002). However, the effect of this variable is indeterminate on the

grounds that any positive influence on revenue may be offset by larger banks capable of diversifying their business and spreading the risk of business. Total financing to total assets (*LOANASST*), a proxy for degree of intermediation, is expected to be positively related to revenue, as higher proportion of asset on the bank's book is expected to generate higher revenue, since higher provisions are associated with higher risk and higher expected return.

An important feature of the *H*-statistic is that the tests must be undertaken on observations that are in long-run equilibrium. As suggested in the previous studies (Molyneux *et al.*, 1994; De Bandt and Davies, 2000; Bikker and Haaf, 2002), the test is based on the proposition that in competitive capital markets risk-adjusted rates of return will be equalized across banks. The equilibrium test can be performed by recalculating the Panzar and Rosse's *H*-statistics replacing the dependent variable total revenue over total assets with the natural log of return on assets (*ROA*). This verification is important for the cases of perfect competition ( $H=1$ ) and monopolistic competition ( $H>0$ ), while  $H<0$  is a long-run condition for monopoly. Thus, if the sample is not in the long-run equilibrium,  $H<0$  no longer establishes monopolistic market conditions, but remains true that  $H>0$  disproves monopoly or conjectural variation short-run oligopoly (Shaffer, 1985). The long-run equilibrium can be estimated in the following form:

$$\ln (ROA)_{it} = \beta_0 + \beta_1 \ln PL_{it} + \beta_2 \ln PK_{it} + \beta_3 \ln PF_{it} + \sum \zeta_j \ln BSF_{it} + \varepsilon_{it} \quad (12)$$

It should be noted that following Claessens and Leaven (2004), the measure of *ROA* included in equation (12) is equal to  $\ln (1+ROA)$  and thus adjusted for small negative values due to banks' losses in any year. The long-run equilibrium test measures the sum of the elasticity of return on assets with respect to input prices. If the *E*-statistic  $(\beta_1 + \beta_2 + \beta_3) = 0$ , this implies that the banking market is in long-run equilibrium. If rejected the market is assumed not to be in equilibrium (Claessens and Leaven, 2004). It should be noted however that equilibrium does not mean that competitive conditions are not allowed to change during the sample period. It only implies that changes in banking are taken gradually.

## Empirical Results

There are number of empirical studies generally employs Ordinary Least Square (OLS) estimation methodology on the cross section yearly data but this has a potential to produce unstable results. In addition to basic OLS model, this paper also includes panel regression methodology combining cross section and time series data with the fixed effect estimators, to control for the heterogeneity among banks bank specific factors, which affect revenue, knowingly or not, but are not considered in the basic model. Hausman test for model selection was not carried out due to difficulty in estimating a random effect model. Throughout the study White's (1980) heteroscedasticity consistent statistics were used. Preliminary investigations of data revealed that there was no severe multicollinearity which hinders efficient estimation of the models. The Wald test which follows an F-distribution was used in the competition models to test whether or not the calculated *H*-statistics are statistically different from zero and unity.

In order to test competition and equilibrium of banking industry in the long-run, the equation (10) and equation (11) is estimated for two sub-periods 1998-2001 and 2001-2005. The estimation results for the competitive position using the total revenue (*TREV*) as the dependent variable for the periods 1998-2001 and 2002 to 2005 are reported in Table 7. The period 2002-2005 shows a relatively higher degree of competition than in 1998-2001 indicate that individual banks have some ability to post higher profit due to their unique features and market strategy. The estimated regression equations for panel model and fixed effect model explain in the range of 79% - 96% of the variability in the total revenue (*TREV*) equation. The results for the period 1998-2001 better explained the variation of the total revenue compared to the estimation results for the period 2002-2005. All diagnostic tests confirm the good fit of the models.

The estimate of *H*-statistics in both panel and fixed effect equations are positive ranging between 0.599 - 0.728 for *TREV* equation. The results of *H*-statistics for the period 2001-2005 ranging from are 0.728-0.813 while the results the *H*-statistics for the period 1998-2001 are ranging from 0.599-0.654 which are significantly lower than the recent periods. This is consistent with the study by Claessens and Leaven (2004) on Malaysia and studies on other developing countries (Al-Muharrami *et al.*, 2006; Perera *et al.*, 2006) that find *H*-statistics between zero and

one (i.e. monopolistic competition). Therefore, the results suggest that the Malaysian banking sector earned their revenue in market condition of monopolistic competition any form of conjectural variation oligopoly and monopoly can be clearly rejected during the sample periods.



TABLE 7: PANEL REGRESSION RESULTS OF COMPETITIVE

Variable	ln <i>TREV</i> (1998-2001)		ln <i>TREV</i> (2002-2005)	
	Pooled OLS	Fixed Effects	Pooled OLS	Fixed Effects
Intercept	1.716* (1.665)	2.667*** (4.949)	-0.553 (-1.331)	0.554 (0.987)
ln <i>PL</i>	0.221*** (3.993)	0.336*** (5.338)	0.086* (1.865)	0.297** (2.634)
ln <i>PK</i>	-0.029 (-1.163)	-0.077** (-2.490)	0.017 (0.534)	-0.021 (-0.358)
ln <i>PF</i>	0.462*** (10.122)	0.340*** (6.492)	0.625*** (7.307)	0.537*** (3.702)
ln <i>ASST</i>	-0.228** (-2.169)	-0.396*** (-5.011)	-0.001 (-0.014)	-0.263** (-2.671)
ln <i>EQASST</i>	0.029 (0.358)	0.017 (0.211)	-0.536 (-0.055)	-0.536 (-0.055)
ln <i>RSKASST</i>	0.065*** (3.596)	0.080*** (4.022)	0.038** (2.004)	0.055** (2.392)
ln <i>LOANASST</i>	0.252** (2.432)	0.152 (1.174)	0.058 (0.880)	0.051 (0.501)
Adjusted R <sup>2</sup>	0.93	0.96	0.79	0.90
<i>F</i> -statistic	74.26***	49.48***	25.91***	17.83***
<i>H</i> -statistic	0.654	0.599	0.728	0.813
Wald test ( <i>F</i> -statistic) for <i>H</i> =1	65.769***	79.097***	79.888***	67.748***
Wald test ( <i>F</i> -statistic) for <i>H</i> =0	45.741***	43.627**	20.871	16.344
No of observations	53	53	68	68

Notes: The values in parenthesis are *t*-statistics and were calculated using White's correction for heteroscedasticity. The Wald test is used to test the *H*=0 and *H*=1 hypothesis and follows an *F*-distribution. \*\*\*, \*\*, and \* indicate significance at 1%, 5% and 10% levels.

In the estimation results where *TREV* is used as dependent variable, all the banking cost elements such as unit price of labour (*PL*) and unit price of funds (*PF*) have the positive signs, implying the increased factor costs leading to the higher revenue while the unit price of capital (*PK*) has a negative sign in both panel OLS and fixed effect model. However, only two of the variables, unit price of labour (*PL*) and unit price of funds (*PF*) are statistically significant at the conventional level. The major contribution to the *H*-statistic mainly comes from unit price of funds (*PF*) and followed by unit price of labour (*PL*) which is hardly surprising given the fact that funding and labour cost are the main factor in the production function of banks. The positive sign of unit price of labour (*PL*) suggests that personnel costs are as important as overhead costs which are relatively high in the banking industry. Nevertheless, in both specifications, the effect of the price of capital (*PK*) on the overall elasticity appears to be minimal (and statistically insignificant) compared to other input prices. Our results are consistent with other studies that find that the sign of the coefficient on the unit price of capital varies and, in most cases, its impact is negligible on the factor price elasticity.

The coefficient of the *EQASST* is positive in the period 1998-2001 and negative in the period 2002-2005 but statistically insignificant. The results seems to suggest that in the period 1998-2001, the well-capitalized banks involved in riskier operations and in the process tend to hold more equity, voluntarily or involuntarily, i.e., the reason might be banks' deliberate efforts to increase safety cushions and in turn decrease the cost of funds, or perhaps just regulatory pressures that mandate riskier banks to carry more equity and vice-versa in the period 2002-2005. The coefficient of the variable depicting risk propensity (*RSKASST*) has a positive effect on income and statistically insignificant suggesting that banks with a higher level of provisions indicates a more risky loan portfolio and consequently a higher level of compensating return. Thus, positive *RSKASST* in both periods indicates that bank operating with higher provisions to assets in their balance sheet generate higher revenue per unit of assets.

The coefficient of the *ASST* variable is negative and statistically significant both OLS and fixed effect model except for the period 2001-2005 for the case of OLS. The results suggests that size-induced differences between banks may lead to lower total revenue per unit of assets and that larger banks seem to be less efficient compared to smaller banks. This may implies that as a whole the banking market in Malaysia faces diseconomies of scale. Finally, the results show that the ratio of loans to total assets (*LOANASST*) always has the expected positive sign and is significant in both specifications. The positive coefficient reflects that the higher fraction of loans on the total assets' composition envisages greater interest income and total revenue.

The estimation results for the competitive position using the total interest revenue (*TINT*) as the dependent for the periods of 1998-2001 and 2002 to 2005 are reported in Table 8. All tests confirm the good fit of the models. The estimated regression equations for panel model and fixed effect model explain in the range of 90% - 97% of the variability in the total interest revenue (*TINT*) equation. The results for the period 1998-2001 better explained the variation of the total revenue compared to the estimation results from the period 2002-2005. *H*-statistics in both panel and fixed effect equations are positive ranging between 0.531 - 0.631. The results of *H*-statistics for the period 2002-2005 ranging from 0.569-0.631 while the *H*-statistics for the period 1998-2001 ranging from 0.531-0.576. With regard to the degree of competition, the *H*-statistics when using *TINT* as the dependent variable generally produces lower estimate than *TREV* for both OLS and fixed effect. This indicates that traditional interest-based banking is less competitive than the overall market for both periods under investigation. This may suggests that the growing interest by bank in the fee- and commission-based product market segment.

TABLE 8: PANEL REGRESSION RESULTS OF COMPETITIVE CONDITION FOR TOTAL INTEREST REVENUE

Variable	ln <i>TINT</i> (1998-2001)		ln <i>TINT</i> (2002-2005)	
	Pooled OLS	Fixed Effects	Pooled OLS	Fixed Effects
Intercept	1.928 (0.127)	-0.460** (-2.563)	-0.810 (-3.034)	1.044** (2.501)
ln <i>PL</i>	0.080*** (3.029)	0.001 (0.030)	0.180** (6.162)	0.232*** (6.964)
ln <i>PK</i>	0.013 (1.169)	0.023*** (3.032)	-0.078*** (-2.826)	-0.093*** (-7.342)
ln <i>PF</i>	0.483*** (15.162)	0.507*** (15.080)	0.529*** (8.953)	0.430*** (16.218)
ln <i>ASST</i>	-0.105*** (-2.820)	-0.022** (-2.031)	-0.278*** (-3.828)	-0.329*** (-5.882)
ln <i>EQASST</i>	-0.044 (-0.888)	0.021 (0.328)	-0.448*** (-4.824)	-0.351*** (-5.381)
ln <i>RSKASST</i>	0.057*** (4.324)	0.049*** (3.888)	0.027*** (2.667)	0.054*** (6.188)
ln <i>LOANASST</i>	0.089** (2.396)	0.255*** (9.835)	0.123* (1.742)	0.039 (0.595)
Adjusted R <sup>2</sup>	0.96	0.97	0.90	0.96
<i>F</i> -statistic	36.82***	70.53***	63.63***	46.94***
<i>H</i> -statistic	0.576	0.531	0.631	0.569
Wald test ( <i>F</i> -statistic) for <i>H</i> =1	69.031***	70.991***	83.370***	31.310***
Wald test ( <i>F</i> -statistic) for <i>H</i> =0	73.661***	68.042**	55.196	60.031
No of observations	53	53	68	68

Notes: The values in parenthesis are *t*-statistics and were calculated using White's correction for heteroscedasticity. The Wald test is used to test the *H*=0 and *H*=1 hypothesis and follows an *F*-distribution. \*\*\*, \*\* and \* indicate significance at 1%, 5% and 10% levels.

Similar to the estimation results for *TREV* the unit price of capital (*PK*), unit price of labour (*PL*) and unit price of funds (*PF*) for the model *TINT* have the positive signs (except for the unit price of capital (*PK*) in the period of 2002-2005), implying that increase in factor costs leading to the higher revenue. All the variables of banking cost, *PL*, *PF* and *PK* are statistically significant at the conventional level. The major contribution to the *H*-statistic mainly comes from unit price of funds (*PF*) and followed by unit price of labour (*PL*) which is similar to findings for *TREV* equation given the fact that funding and labour cost is the main factor in the production function of interest revenue. The positive sign of unit price of labour (*PL*) suggests that personnel costs are as important as overhead costs which are relatively high in the banking industry whereas the negative sign of unit price of capital (*PK*) may indicates that preferences of bank customer to deal with labour intensive banks. Nevertheless, in both specifications, the effect of the price of capital on the overall elasticity appears to be minimal compared to other input prices. The results are consistent with other studies that its impact is negligible on the factor price elasticity.

The coefficient of the *ASST* variable is negative and statistically significant both panel OLS and fixed effect model both periods which suggests that size-induced differences between banks may lead to lower total revenue per unit of assets and that larger banks seem to be less efficient compared to smaller banks. This also suggests that as a whole the banking market in Malaysia faces diseconomies of scale with respect to producing interest-based revenue. The results show that the ratio of loans to total assets (*LOANASST*) always has the expected positive sign and is significant in both specifications. This implies that a higher fraction of loans on the total assets' composition envisages greater interest income and total revenue. The coefficient of the variable depicting risk propensity (*RSKASST*) suggesting that banks with a higher level of provisions indicates a more risky loan portfolio and consequently a higher level of compensating return and therefore has a positive effect on income but statistically insignificant. Thus, positive *RSKASST* in both periods indicates that bank operating with higher provisions to assets in their balance sheet generate higher revenue per unit of assets. Finally, the coefficient of the *EQASST* is positive and statistically insignificant in the period 1998-2001 whereas it is negative and statistically significant for the period 2002-2005. Thus, negative *RSKASST* for the period 2002-2005 indicates that bank operating with higher provisions to assets in their balance sheet generate lower interest revenue per unit of assets. The results for *TREV* and *TINT* for both periods show the robustness of P-Z estimation.

In order for the above test results to be valid, the banking industry should be in the long run equilibrium during these periods. The reason for this is that if the market is in equilibrium, a dependent variable will have no correlation with prices of input factor. The equilibrium position in the banking industry is assessed by estimating the equation with *ROA* as a dependent variable which is presented in the Table 9. The Wald test cannot reject the null hypothesis  $H=0$  for both OLS and the fixed effect model leading to the conclusion that the banking industry is in the long-run equilibrium both periods 1998-2001 and 2002-2005. Although banking consolidation is still progressing, it is possible that the market is in equilibrium in reaction to the institution at different times.

TABLE 9: PANEL REGRESSION RESULTS OF EQUILIBRIUM CONDITION

Variable	ln (1 + ROA) – 1998-2001		ln (1 + ROA) – 2002-2005	
	Pooled OLS	Fixed Effects	Pooled OLS	Fixed Effects
Intercept	0.0247 (1.3096)	0.0537 (0.6718)	-0.0362 (-1.1128)	-0.0714 (-0.8834)
ln <i>PL</i>	0.0006 <sup>***</sup> (3.1450)	0.0001 <sup>***</sup> (10.4115)	0.0005 <sup>*</sup> (1.8461)	0.0002 <sup>***</sup> (2.4272)
ln <i>PK</i>	0.0005 (0.4542)	-0.0002 <sup>**</sup> (-2.0207)	-0.0003 <sup>***</sup> (-2.8508)	-0.0004 <sup>**</sup> (-2.8860)
ln <i>PF</i>	0.0039 (0.6762)	0.0010 (0.1150)	-0.0077 <sup>*</sup> (-1.7333)	-0.0001 (-1.0742)
ln <i>ASST</i>	0.0027 <sup>***</sup> (5.6030)	0.0033 (0.2853)	-0.0002 (-0.0815)	0.0165 (1.4175)
ln <i>EQASST</i>	0.0168 <sup>**</sup> (3.2946)	0.0312 <sup>***</sup> (2.8324)	0.0090 <sup>***</sup> (3.4054)	0.0863 <sup>**</sup> (2.0693)
ln <i>RSKASST</i>	-0.0035 <sup>**</sup> (-2.1951)	-0.0002 (-0.0803)	-0.0089 <sup>***</sup> (-3.7714)	-0.0058 (-0.9646)
ln <i>LOANASST</i>	0.0092 <sup>***</sup> (3.2481)	0.0027 (0.1486)	-0.0006 (-0.1764)	-0.0034 (-0.1402)
Adjusted R <sup>2</sup>	0.51	0.46	0.43	0.55
<i>F</i> -statistic	6.14 <sup>***</sup>	2.41 <sup>***</sup>	8.19 <sup>***</sup>	3.40 <sup>***</sup>
Equilibrium test:				
Wald test ( <i>F</i> -statistic) for <i>E</i> =0	2.252	1.755	1.520	1.969
No of observations	53	53	68	68

Notes: The values in parenthesis are *t*-statistics and were calculated using White's correction for heteroscedasticity. The Wald test is used to test the  $H=0$  and  $H=1$  hypothesis and follows an *F*-distribution. <sup>\*\*\*</sup>, <sup>\*\*</sup> and <sup>\*</sup> indicate significance at 1%, 5% and 10% levels.

## Conclusion

The study examines the competitive condition of Malaysian Islamic financial sector for the period 1998-2001 and 2002 to 2005. This period correspond to a period characterized by substantial reform to restructure and consolidate the banking into a market-driven based economy, and to further liberalize and deregulate sufficiently the systems in order to integrate economically with the international financial market. The basis for the evaluation of competitive conditions is the extant of oligopoly theory in the new industrial organization literature, specifically, the competition model developed by Panzar and Rosse (1987).

The findings of the market competition, the estimated values of  $H$ -statistics for the both sample periods are positive ranging from 0.599 - 0.728 for  $TREV$  equation and 0.531 - 0.631 for  $TINT$  equation. This is consistent with the study by Claessens and Laeven (2004) and many other studies on developing countries that find  $H$ -statistics between zero and one (i.e. monopolistic competition) (Al-Muharrami *et al.*, 2006; Perera *et al.*, 2006). The Wald test rejects the hypothesis for the market structure of monopoly or perfect competition for both periods of investigation. Although the results pointed to the monopolistic competition in the banking, it does not show any indication of the change in the market lead to increase in market competition in the recent years. Furthermore, the evidence suggests that there is less competition in the traditional interest-based market compared to the overall market which includes other operating income from fee- and commission-based product market segment.

Based on the findings on the Malaysian banking sector, the results of the concentration approach and the market structure suggest that the competitive behaviour of banks is not necessarily related to the number of banks in a market or to their concentration, other factors are also at work. The finding of this paper, however need to be interpreted cautiously given the full market liberalization process of the banking system is at the initial stage and is an ongoing process. Recent research has highlighted, however, that the relationships between competition and banking system performance are more complex (Vives, 2001). Although allowing new entry to the market may induce banks to behave in a competitive manner when there are few banks in the market, a well-developed financial system also appears to be important, perhaps because banks face competition from other financial firms and markets (Boot and Thakor, 2000). Few restrictions on the activities that banks can undertake is important to contestability may also be related to increasing competition over the financial system.

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### **Endnotes**

The U.S Department of Justice applies the horizontal merger guidelines to the banking industry in practice. In order to reflect the changing competitive environment, it includes thrift institutions when computing HHI. The Department of Justice takes the stance that it grants merger approval when HHI after merger marks at least 1800 and the changes in HHI is at most 200.

# Perceptions and Expectations of Policyholders toward the Services of Insurance Agents

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## Abstract

This paper explores the perception and expectation of insurance policyholders towards the services of their insurance agents. Indirectly, the study intends to examine whether insurance policyholders are satisfied with the services of their insurance agents. One hundred and sixty respondents from the Klang Valley area participated in this survey. The 5 SERVQUAL dimensions were utilized for this purpose. The results indicate that policyholders are generally dissatisfied with the services of the agents as there are significant differences between the respondents' expectations and perceptions. The findings suggest that the on going trainings provided by insurance companies to the insurance agents need to be re-looked to promote a healthy insurance sector.

## Introduction

Insurance is a product known to be sold and not bought. What this literally means is that it is a product that is rarely sought out by customers but more of one that requires the company or its representatives to solicit the customers. Insurance is an intangible product by nature and therefore relies heavily on the selling and marketing techniques of its agency force to make sales.

The insurance agents would be the first contact or link that consumers have with the insurance company. These agents are representatives or middle men of their principals or insurance companies. Thus, it is vital that the agents who solicit an insurance application present themselves in a professional manner.

Insurance agents are not actually favorites among customers. Known to be aggressive in their sales techniques, the image of the Malaysian insurance industry in the past has slightly been marred by this negative stigma.

Despite whatever shortcomings associated with insurance agents, they are the "blood" of the insurance companies. In general, insurance businesses are mainly sold through insurance agents. Thus, it is not surprising that these agents are highly rewarded and their contributions play an important part in the insurance company's portfolio.

Numerous guidelines have been issued by the Central Bank of Malaysia to address the issues pertaining to insurance agents. The Complaints Services Bureau under the wings of the Central Bank of Malaysia has been receiving complaints on insurance matters and most of these are related to agency issues.

To enhance professionalism among insurance agents, the Central Bank of Malaysia together with the Life Insurance Association of Malaysia has introduced several innovative measures. Such measures include imposing a minimum qualification requirement on agents, a minimum of 20 Continuous Professional Development hours that all insurance agents have to undergo as well as the 3 tier limit agency structure.

Research on agency matter is still very limited in Malaysia. As of date, there has not been much research that has been documented pertaining to the satisfaction level of insurance policyholders toward the services of their insurance agents. The present study is an attempt to asses the level of perception and expectation of insurance policyholders on the services of their respective insurance agents. The responses to this survey would also indicate the qualities and skills that insurance agents should be equipped with in order to foster a sound agency force in the Malaysian insurance scenario. Ultimately, the findings of this study would give an insight to the gaps in the respective dimensions of service quality for which the insurance companies as a whole would need to address.



## Research Objectives

Based on the fact that there is limited source of data pertaining to the level of satisfaction of insurance policyholders towards the services of their agents, the objective of this exploratory study attempts to investigate on:

- What is the level of perception and expectation of policyholders towards the services of the agents
- Whether there is a link between the amount of sum insured and the policyholders' expectation.
- Which service quality dimension needs to be improved to enhance the level of satisfaction of the policyholders

## Research Methodology

This study focuses on respondents within the Klang Valley and the quality of services being probed is that provided by life insurance agents.

Since the subject of this study is services quality, the SERVQUAL method which is a 22-item scale is being employed. This multiple item scale would be used to measure expectations and perceptions of service quality (Parasuraman, Zeithaml and Berry, 1985; 1988).

The five dimensions of the SERVQUAL that determine service quality, which are, tangibles, reliability, assurance, responsiveness, and empathy are being used in this study.

For the purpose of this study, one hundred and sixty respondents within the Klang Valley area were randomly identified. Data collection was by personal interviews as well as distribution of questionnaires. Each respondent has been identified as one who has at least a life insurance policy. The questionnaires were personally delivered to the respondents either at their homes or at the workplace. A total of 180 questionnaires were distributed but only 170 were received. The total of usable questionnaires was 160. These respondents were asked on their perceptions and expectations toward the services provided by their insurance agents.

The questionnaire is divided into 4 sections. Section 1 comprises the demographic details of the respondents. Section 2 and 3 are adapted from Zeithaml et al (1990).

Section 2 is on Service quality expectations whilst Section 3 is on Service quality perceptions. Both these sections use a 7-likert scale; ranging 1= strong disagree to 7= strongly agree. Section 4 is on the profile of the respondents' insurance policies.

## Review of Literature

### Insurance Agents in Malaysia

Life insurance agents in Malaysia are not directly under the supervision of the Central Bank of Malaysia but are however required to be registered with the Life Insurance Association of Malaysia (LIAM). To ensure a certain level of professionalism among the agency force, the Central Bank imposes a minimum requirement for a new agent to possess the Malaysian Certificate of Education. All insurance agents are also required to pass the Pre-Contract Examination for insurance agents conducted by the Malaysian Insurance Institute.

As at the end of 2005, the number of registered insurance agents was listed as 126,898. (Insurance Annual report 2005). A fund of RM1 million (contributions from the 18 life insurance companies operating in Malaysia) has been allocated each year to assist in the training and development of the Bumiputra life agency force. ([www.liam.com.my](http://www.liam.com.my))

Insurance agents are required to conduct detailed analysis of the financial position and needs of their clients before recommending any insurance plan. The analysis will involve assessing the prospective clients' earnings, assets and liabilities. Other measures introduced to protect the prospective clients from unscrupulous insurance agents include the introduction of the "Best Advice Regulation" which holds insurance intermediaries liable for wrongful advice of life insurance products.

Complaints against insurance agents provided by the Complaints Service Bureau of the Central Bank of Malaysia include misleading advertising, poor handling, misrepresentation of facts, policy twisting as well as forced

selling. Poor handling which encompass delay in policy issuance as well as handling claims contributed to 85% of the overall complaints.

### **Service Quality**

In an era of intense competition, service quality is regarded by many organizations throughout the world as being vital to their survival as well as success. Service quality has been identified in both manufacturing and service sectors as a key strategic value in their respective operations (Lewis, 1994).

Some of the companies that have been identified to have pushed for service quality and made that as their hallmark include Federal Express, Xerox, Hospital Corporation of America, Ford Motors etc...

The benefits/rewards derived from high levels of quality service include:-

- Higher returns on investments and profits
- Increase market share
- Repeat customers and referrals through the development of customers' relationship
- Enhanced corporate image

(Lewis et al, 1989, Crosby 1979, Reichfield and Sasser 1990)

Service providers are expected to perform up to the level of expectations of the customers. In the event that these expectations are not met, this would have a negative impact on the service quality ratings as negative word of mouth communications would be bound to happen (Brown and Swartz, 1989).

On the other hand, when customers' expectations are met, positive word-of-mouth would take place; leading to repeat customers and referrals.

### **Service Quality Defined**

Service has been defined by Zeithaml and Bitner (2003) as all economic activities whose output is not a physical product or construction, is generally consumed at the time it is produced, and provides added value in forms such as convenience, amusement, timeliness, comfort and are essentially intangible concerns of the first purchasers. Service is performance or actions rather than objects; they cannot be seen, felt, tasted or touched in the same manner that we can sense tangible goods.

Allen (1998) supports this definition by saying that 'a service is primarily an intangible activity that one part performs for another. Service can be experienced only as they are performed, used or consumed.

Service quality, because of its elusive and abstract nature is not easy to define as opposed to the quality of a product.

Service quality is defined as how well the service meets or exceeds the customers' expectations (Parasuranam, et al, 1985).

The unique features of service quality as compared to that of products; namely intangibility, inseparability, heterogeneity and perish ability make it difficult to measure.

The "gap" model which compares customers' expectations of services with their perceptions of the actual service performed was designed to address this issue (Parasuranam et al, 1985). Zeithaml et al (2003) defines expectations as the reference points customers have in a service experience while perceptions reflect the service as actually received.

A shortfall in this comparison indicates that a service quality gap is present and the respective organization/service providers would require to close.

Service quality has been defined as how all the service level delivered matches customers' expectations.

The SERVQUAL concept, which is the service quality instrument, measures the service quality gaps using the following equation

$$Q = P - E \quad \text{or} \\ \text{SERVQUAL SCORE} = \text{Perception Score} - \text{Expectation Score}$$

Based on the equation, positive scores reflect high perception of service quality and vice versa.

### **Marketing of Life insurance**

Life insurance, which is based on actuarial and mathematical principles, guarantees a specified sum of money upon death of the person whose life is being insured or upon the maturity of the policy (Lilke, 1995). The function of

insurance is to safeguard against such misfortunes by pooling the contributions of the many to pay the losses of the unfortunate few (Huebner et al, 1982). Due to the exposures to these uncertainties, individuals are encouraged to take proactive measures so as to create some form of financial security especially when there are dependants.

Life insurance products are mainly through marketing intermediaries and one of the most effective marketing strategies employ by insurance companies is to recruit insurance agents to solicit and market their products.

These agents act as representatives of the insurance companies and any information or knowledge obtained by them in the course of soliciting the business is deemed to be that of the insurance companies. Insurance agents are required to portray a professional image and to conduct their business in a professional manner so as to win the client's confidence.

## Results

Table 1 indicates the demographic details of the respondents. The analysis revealed that both males and females have equal participation of 50% each. Most of the respondents are executives (50.6 %) while 44 are non executives accounting for 27.5%. Respondents' in "others" and supervisor categories comprise 14.4% and 8 % respectively. Respondents are generally educated with at least a certificate at hand. The majority of the respondents earned below RM 3,000 per month; 15.6% of the respondents earned incomes of RM 5,000 and above.

TABLE 1: DEMOGRAPHIC DETAILS

Demographic	Categories	Frequency	Percentage
Gender	Male	80	50
	Female	80	50
Occupation	Non executive	44	27.5
	Executive	81	50.6
	Supervisor	12	7.5
	others	23	14.4
Education	Certificate	54	33.8
	Diploma	49	30.6
	Graduate	48	30
	Post graduate	9	5.6
Income (monthly)	Less than RM3,000	91	56.9
	Rm3001 – 5,000	44	27.5
	5001 – 10,000	17	10.6
	More than 10,000	8	5

Table 2 shows the profile of the insurance policies of the respondents. 69 respondents or 64.3 % possess life insurance policies with sum insured of more than RM 50,000.

86 of the respondents or 53.8% effected their life insurance policies for more than 4 years.

111 of these respondents were introduced to life insurance through their agents.

Variables	Amount (RM)	Number	%
Sum insured	Less than 10,000	6	3.8
	10,001 – 50,000	51	31.9
	50,001 – 100,000	69	<b>43.1</b>
	100,001 500,000	34	<b>21.2</b>
Duration of policy	1- 3 years	74	46.2
	4 – 10	55	<b>34.4</b>
	More than 10	31	<b>19.4</b>
Introducer to the policy	Friends	49	30.6
	Agents	111	<b>69.4</b>

Table 3 is designed to establish whether there is a link between the level of sum insured of their policies and the policyholders' expectations. The analysis is done based on the responses obtained for all dimensions.

A high percentage (88%) of the respondents with sum insured of more than RM 50,000 strongly felt that major improvements were required in the quality of the agents' service. For respondents with sum insured of less than RM 50,000, 71% of them shared the same opinion. The results actually conveyed a message that the expectations of policyholders with sum insured of more than RM 50,000 (88%) are higher than that of the policyholders with sum insured of less than RM 50,000 (71%)

Scale	Amount	1	2	3	4	5	6	7	Total
Less than RM		102	67	50	114	169	188	471	1161

50,000								
%	9	6	4	10	15	16	41	100
	<b>19</b>			<b>10</b>			<b>71</b>	
More than RM 50,000								
%	91	52	46	71	172	500	1107	2039
%	4	3	2	3	8	26	54	100
	<b>9</b>			<b>3</b>			<b>88</b>	
Total	193	119	96	185	341	688	1578	3200**
	6	4	3	6	11	21	49	100
	<b>13</b>			<b>6</b>			<b>81</b>	

\*\* 160 respondents X 20 Questions

Table 4 summarizes the level of service quality by comparing between the results in the expectations and perceptions of the respondents. The results show that even though the policyholders were of the opinion that their agents possess the skills and qualities required, their overall performance is still below the expectations of the policyholders. A negative service quality gap indicates that respondents' expectations are greater than their

perceptions. Examining each of the service quality dimensions, 5 negative service quality gaps were recorded. This depicted that the service quality rendered by the customers were lower than their expectations. According to Zeithaml and Bitner (2003), to build a long lasting relationship, the service providers need to close the gap between what is expected and what is received in order to satisfy the customers. The results revealed that the service quality gap for empathy was the lowest with a mean score of – 0.03 while the service quality gap was the highest for reliability with a mean score of – 0.80. Respondents do expect that the insurance agents should be more reliable in the sense that these policyholders could count on their agents to keep them informed on insurance policy matters and also someone they can truly depend on. Overall, it can be concluded that the policyholders are generally dissatisfied with services of their insurance agents and are performing below the policyholders’ expectations.

TABLE 4 : EXPECTATIONS PERCEPTIONS AND SERVICE QUALITY GAPS

Dimensions	Expectation (Average Mean)	Perception (Average Mean)	Service Quality Gap
Tangibility	6.17	5.75	- 0.42
Reliability	6.30	5.49	- 0.80
Responsiveness	4.43	4.38	- 0.04
Assurance	5.97	5.22	- 0.74
Empathy	5.61	5.57	- 0.03

## Discussion

The aim of this study is to find out whether there is a significant difference between the insurance policyholders’ service quality expectations and perceptions. These service quality gaps could be calculated by subtracting the respondents’ expectations from perceptions.

The descriptions of the dimensions used in this study are as follows :

- Tangible : refers to the availability of equipment and the agents’ physical appearance when approaching potential clients
- Reliability : focuses on the agents’ timeliness, dependability, record keeping, and scheduling of services for the customers
- Responsiveness : addresses the agents’ promptness and their willingness to help the policyholders
- Assurance : Solicits policyholders’ opinion on whether they should be able to trust their insurance agents and whether they feel safe in their transactions with their agents

- Empathy : gathers policyholders' opinion on whether insurance agents' should be polite, willing to assist clients' problems and whether they are getting the support from the insurance companies. It also tests the policyholders' opinion on whether insurance agents are expected to give personal attention to the clients, agents' knowledge of the needs of the clients, the agents' interest and the flexibility of their operating hours

Table 4 presents the values for the respondents' expectations, perceptions and service quality gaps. The gaps in all the dimensions indicate minus scores. Therefore, it can be summarized that the policyholders are generally dissatisfied with services rendered by their insurance agents. The areas of improvement are in all the dimensions, with reliability being the most important. Negative scores may also indicate that policyholders may switch to other service providers, commenting negatively about the provider , reducing the usage of the service or simply not recommending the service providers to others.

## Suggestions for Future Research

For future research of service quality in the insurance industry, the following areas could be considered :

- A larger sample size over a wider geographical area
- Analyzing and studying the trainings provided to insurance agents
- Comparing the services of life insurance agents versus that of general
- Formulating other factors/ dimensions that influence customers' satisfaction

## Conclusion

Based on the findings, it can be concluded that the policyholders are generally not satisfied with the services of their insurance agents. Insurance agents are expected to be well versed in their product knowledge and to be able to give the best advice and services to the policyholders. These agents must be viewed as dependable and reliable by the policyholders. In light of the growing competition in the insurance industry with more avenues to purchase insurance services, the findings of this research should be taken as a signal to the insurance companies to improve the skills and expertise of these intermediaries. The insurance companies must continue to provide adequate training to these agents if they continue to depend on the services of these agents to solicit and market their products. At the same time, insurance companies should consider this as part of their social obligation so that the insurance industry is always held in high esteem by the public.

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# Efficiency of Foreign-Branch Banks: Evidence from the Wake of the Asian Financial Crisis

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## Abstract

During the 1990s two simultaneous phenomena converged to greatly change the panorama in the financial services industry in Thailand. At the global level, large multinational banks were taking advantage of worldwide financial deregulation and rapid technological advances by offering a full range of financial products and services, competing fiercely in both their own domestic and far-flung global markets. At the Thai national level, the financial sector had to restructure in response to the financial reform mandated as an outcome of the financial crisis of 1997. This paper analyzes the determinants of 18 foreign-branch banks' performance in Thailand, using quarterly financial time-series data from 1997-1 to 2003-4. Among determinants (total assets, efficiency ratio, Tier1 capital ratio, loan loss provisions, non-interest income), only loan loss provisions was found to influence (negatively) the foreign-branch banks' performance.

## Introduction

In the period since the Asian financial crisis of 1997, two simultaneous phenomena have converged to greatly change the panorama in the financial services industry, one at the regional level and the other at the global level. In the wake of the regional crisis, each of the victim countries adopted (whether voluntarily and/or under pressure from the IMF and other international agencies) new policies emphasizing *high levels of transparency and the liberalization of capital markets*. At the same time, major players in the global financial services sector continued leveraging advances in telecommunications and information technology as well as cross-border mergers and acquisitions, resulting in immensely intensified competition worldwide and in the crisis countries. The question arises at this point of convergence, then, about whether foreign-branch banks in these countries had any special in the situation and if so what are the salient factors that contribute to the differential in their levels of performance.

This paper attempts to empirically investigate multinational banks' performance in emerging economy. Foreign-branch banks operating in Thailand have been selected for this study because the emerging economy of Thailand has now completely restructured its financial sector and recovered; key economic indicators have been favorable both in internal and external balances since 2000 (Appendix A). Quarterly financial time-series data of foreign-branch banks from 1997-1 to 2003-4 were used. The remainder of the paper is organized as follows. Section two provides a background description of (a) global integration and international competition in the financial services industry and (b) the Thai financial sector and its evolution since the financial crisis. Section three reviews the literature related to bank performance in various countries. The model and time-series data being used to test the efficiency of banks are provided in detail in section four. The empirical results and conclusions are provided in the last two sections.

## Background

### *Global Integration and International Competition in the Financial Services Industry*

Since the inception of global integration, international competition in the financial services industry has become greatly intensified. Few other sectors have raced forward at a pace as swift as that of the banking industry during the last two decades. The sector in which they compete took advantage of financial deregulation worldwide and

rapid technological advances in the 1990's. With deregulation removing regulatory barriers to entry and technological advances reducing the cost of managing affiliates in distant markets, banks undertook a strategy of growth by merger and acquisition to accomplish two objectives: (i) to defend a position within their domestic stronghold by merging with domestic competitors thereby fending off potential foreign competitors, and (ii) to establish bridgeheads in foreign markets by acquiring an interest in foreign institutions<sup>1</sup>.

While the extent of the industry's globalization through international acquisitions is debatable<sup>2</sup>, what is clear is the full effect of deregulation and technological advances, i.e., cross-border mega-size mergers and acquisitions recently undertaken by multinational banks. The large multinational banks now offer a full range of financial products and services, competing fiercely in both their own domestic and far-flung global markets.

#### **Reorganization of the Thai Financial Sector after the Crisis**

Immediately after the financial crisis of 1997, the Thai government closed down 64 of 91 domestic financial companies, leaving only 27 operating along with 13 local banks operating. Those remaining banks and financial companies were allowed to create 300 billion baht for new capitalization by issuing preferred shares and new debt debentures in return for 10-year government bonds. Financial institutions were also required to increase their back-up funds to cover their large non-performing loans (NPLs) [Bangkok Post, 1999]. Although the NPLs were reduced to 12.65% by the end of 2003, even today the financial system is still burdened by them.

In addition, in early 1998 the Financial Sector Restructuring Authority (FRA) and Asset Management Corporation (AMC) were created to handle the assets of the defunct financial companies. The FRA seized the assets of financial companies, and banks and sold them at an average bid of 37% of book value. The process was very slow, and many assets lacked full official documentation. By the end of 2003 in addition to the 13 domestic commercial banks, 18 foreign-branch banks were operating in Thailand.

### **Related Literature on Other Countries' Bank Performance**

The viewpoints of specialists on the effects of deregulation and technological advances are mixed. For U. S. banks, Berger and Mester (2003) found that cost productivity worsened even though profit margins improved substantially for banks engaging in mergers. Focarrelli and Pozzolo (2001) and Williams (2003) evaluate the profitability of international banks in the OECD and that of domestic and foreign banks in Australia, respectively. Both studies argue that efficient banks expand abroad seeking higher profits, but that profits are negatively correlated to their market share. Using Italian data, Focarelli, Panetta and Salleo (2002) show that mergers increase income from expanded services and product lines, but the increase is offset by higher costs. However, the return on equity improves because of a decrease in the capital base of the acquiring bank. Similar studies of commercial banks in other countries have been undertaken, such as the one on Japanese banks by Drake and Hall (2003), Indian banks by Kumbhakar and Sarkar (2003), Portuguese banks by Mendes and Reblo (1999), Turkish banks by Isik and Hassan (2003), and Spanish banks by Grifell-Tatje and Lovell (1996). While the analytical designs and econometric variables used in these studies vary considerably, one common conclusion emerges: following deregulation or technological change, the measures of profitability or productivity, or both, generally declined for banks in these diverse countries.

### **The Measure of International Bank Performance and Its Determinants**

Profitability is a generally accepted way of measuring the performance of businesses, including commercial banks. However, banks vary considerably in terms of size, types of products offered, types of assets owned, and many other factors. Therefore, some form of standardization of profitability measurement is needed. Two potential measures of bank performance are return on assets (ROA) and return on equity (ROE). Due to the nature of bank assets (largely loans), return on equity seems to be the more appropriate measure, at least from a purely logical perspective. For that very reason, ROE is used as the dependent variable for this analysis. Finally, regression analysis is the generally accepted tool for measuring the relationship among variables.

Similar studies of international banks have used five variables (total assets, efficiency ratio, Tier1 capital ratio, loan loss provisions, and non-interest income) to explain bank performance [Allen and Raj (1996), Kim and Singer (1997), and Brimmer (1998)]. For purposes of comparing Thai domestic banks and foreign-branch banks in Thailand, this analysis follows similar lines. Efficiency can be defined as the ratio of a given bank's non-interest expense to total revenue. It is hypothesized that the coefficient of this variable will be negative because higher ratios imply reduced efficiency of bank operations. Second, a measure of risk was ascertained by calculating the ratio of Tier1 capital to risky assets. The Tier1 capital ratio is defined as core capital (essentially the book value of a bank's equity) divided by risk-adjusted assets (basically total assets, weighted more heavily for more risky assets). The coefficient of the Tier1 capital ratio is hypothesized to be negative. Thirdly, loan loss provisions are used to represent bad debts. Here a negative coefficient for the variable is anticipated since increases in the loan loss provisions suggest that the quality of the bank's loan portfolio is reduced. The non-interest income variable is expected to have a positive impact on a bank's performance. Finally, total asset value is considered as the other potential explanatory variable, but the coefficient is not expected to produce statistically significant results.

An empirical study by Grosse and Gart (2001) reports that considerable variations in the key factors influence the performance of multinational banks from different countries. For American banks, efficiency is the only significant variable whereas for UK banks, total assets, efficiency, and loan loss provisions are significant. For German banks, total assets and non-interest income are significant whereas efficiency and Tier1 capital ratio are significant for Japanese banks. Surprisingly none of these variables was found to be a significant determinant for the performance of Swiss banks.

Chotigeat et al. (2004) empirically studied the performance of three major French banks –Societe General, BNP Paribas, and Credit Lyonnais from 1993 to 1999. They found that the factors determining banks' profit are total assets, efficiency, Tier1 capital ratio, and loan loss provisions.

## Data and Model

### Data

For this study 18 foreign-branch commercial banks operating in Thailand were selected. The data used are from quarterly reports of the Bank of Thailand from 1997 to 2003, a time period during which (a) Thailand restructured its financial system after the financial crisis of July, 1997, including a policy of increased transparency and liberalization of the capital market and (b) there were significant cross-border investments taking place in the world's banking industry. The six key variables calculated from the raw time-series data to be used in this study are: return on assets (ROA), return on equity (ROE), total assets, efficiency ratio (non-interest expense to total revenue), Tier1 capital (equity capital divided by adjusted-risk assets), loan loss provisions, and non-interest income.

### The Model

The least-square model used to measure a bank's performance is expressed as:

$$ROE_{it} = \alpha + \beta_1 ASST_{it} + \beta_2 EFF_{it} + \beta_3 TIER1_{it} + \beta_4 NII_{it} + \beta_5 LLP_{it} + \varepsilon_{it} \quad (1)$$

where, ROE = the return on equity; ASST = total assets; EFF = efficiency ratio; TIER1= Tier1 capital ratio; LLP = loan loss provisions; NII = non-interest income; and  $\varepsilon_{it}$  (error term)  $\sim N(0, \sigma^2)$ .

## Empirical Results

The performance of foreign-branch banks in Thailand is provided in Table 1. The foreign-branch banks perform well in terms of total income (both interest income and non-interest income) and pre-tax profit. However, they had higher operating costs and loan loss provisions, reflecting the impact and after math of the Thai financial crisis of July 1997 (the resulting reorganization of the structure of the financial market and the restricted as well as new liberal financial policy).

TABLE 1: PERFORMANCE OF FOREIGN-BRANCH BANKS IN THAILAND, U.S. BANKS AND OTHER EUROPEAN BANKS (IN PERCENT)

	<b>Thailand</b> <b>(Foreign-Branches)</b>	<u>U.S.*</u>	<u>Euro zone*</u>	<u>France*</u>	<u>Spain*</u>	<u>U.K.*</u>
(1) Net interest margin	4.88	3.22	1.68	0.93	2.66	2.19
(2) Non-interest income	3.08	2.65	1.19	0.89	1.36	1.75
(3) Total income: (1) + (2)	7.96	5.87	2.87	1.82	4.02	3.98
(4) Operating cost	3.96	3.80	1.98	1.26	2.67	2.59
(5) Loan loss provision	2.56	0.39	0.31	0.24	0.39	0.22
(6) Pre-tax profit: (3)-(4)-(5)	1.44	1.67	0.57	0.32	0.97	1.13
*Data covered 1996-98 from Larosiere (2000).						

The mean values of the key factors affecting bank performance (ROE, ROA, efficiency ratio, loan loss provisions/total assets, and Tier1 capital ratio) are compared and presented in Table 2. Even though, foreign-branch banks in Thailand have performed positively since the financial crisis, all their key factors are in relatively small positive values. They are rather lower than the banking industry's standard measure of good performance, i.e., ROA > 1 (Ritter et al. (2000, p. 225)). In fact, only a handful of banks worldwide have their ROA > 1, such as Lloyds and Chase Manhattan (Chotigeat et al. 2004).

Table 3 provides a matrix of correlation coefficients among the variables being used in equation (1). Only one of the simple coefficients among independent variables

TABLE 2: PERFORMANCE DATA FOR FOREIGN-BRANCH BANKS IN THAILAND AND OTHER MULTINATIONAL BANKS

Bank and year	ROE	ROA	Efficiency ratio	$\frac{\text{Loan loss provisions}}{\text{total assets}}$	Tier1 capital ratio*
Foreign-Branch Banks (in Thailand) 1997-2003	0.12	0.31	0.12	0.01	0.38
Credit Lyonnais 1992-199	-8.02	-0.08	45.60	1.73	6.16
Citibank 1991-1998	12.21	0.85	53.50	1.52	8.51
Lloyd 1991-1998	24.09	1.03	58.90	0.95	8.30
Deutsche Bank 1991-1998	7.96	0.29	72.80	0.35	5.20
Bank of Tokyo-Mitsu. 1991-1998	1.68	0.32	26.50	0.42	5.23
Credit Suisse 1991-1998	4.59	0.41	63.80	0.43	11.45
*1997 & 1998 average only, except Foreign-Branch Bank					

TABLE 3: FOREIGN-BRANCH BANKS IN THAILAND: CORRELATION COEFFICIENT MATRIX

	EFF	ASST	TIER1	ROE	NII	LLP
EFF	1.00	-0.06	-0.12	0.27	0.16	0.01
ASST	-0.06	1.00	-0.67	-0.11	0.05	0.45
TIER1	-0.12	-0.67	1.00	0.05	0.23	-0.47
ROE	0.27	-0.11	0.05	1.00	0.17	-0.55
NII	0.16	0.05	0.23	0.17	1.000	0.01
LLP	0.011	0.45	-0.47	-0.55	0.01	1.00

(*in absolute value*) is greater than 0.50. The correlation coefficient is between total assets and Tier1 capital ratio, that is -0.67. To avoid multi-collinearity issues, we chose *not* to use both total assets and Tier1 capital ratio at the same time in an equation. Thus, we formulated two models: Model 1 has total assets, efficiency, Tier 1 capital, loan loss provision, and non-interest income as the independent variables; Model 2 is same as Model 1 without the variable of total assets.

The LS regression model of equation (1) was estimated for Model 1 and the estimated parameters are provided in the left two-columns of Table 4. Since autocorrelation of the error-term in the model was detected, the model was modified to correct the problem; the specification of equation (1) thus includes AR(1). Only the coefficient of loan loss provision shows a negative sign as expected and is statistically significant. The coefficient of non-interest income has an appropriate positive sign but is not statistically significant.

The estimated parameters of model 2 (model 1 without the total assets variable) are provided in the right two-columns of Table 4. The pattern of coefficient estimates has not changed for foreign-branch banks in Thailand.

Our findings are consistent with those found in other countries reported by other studies<sup>3</sup>. The determinants of the foreign-branch banks in Thailand are compared to those of other top banks around the world (see Table 5). Loan loss provision as a determinant of foreign-branch banks' performance in Thailand is similar to that of British, French, and Thai domestic banks.

Overall, our findings confirm the previous studies, i.e., loan loss provisions is the dominant factor that determines the profit performance of banks worldwide. More specifically for foreign-branch banks, despite the fact that they (1) are from different countries, (2) operate under different banking systems under different organizational structures, (3) have different corporate cultures, and (4) operate under varying national economies, they share many common variables with global competitors from different parts of the world.

TABLE 4: FOREIGN-BRANCH BANKS (IN THAILAND): REGRESSIONS MODEL 1 AND MODEL 2

Dep. Variable: ROE		Dep. Variable: ROE	
Variable	Coefficient	Variable	Coefficient
C	-0.21 (-0.13)	C	0.04 (0.48)
ASST	0.02 (0.16)		
EFF	0.03 (0.26)	EFF	0.02 (0.24)
TIER1	0.23 (0.25)	TIER1	0.13 (0.17)
NII	6.01E-05 (0.80)	NII	6.32E-05 (0.90)
LLP	-0.01* (-2.07)	LLP	-0.01* (-2.18)
AR(1)	0.49* (2.37)	AR(1)	0.49* (2.79)
R-squared	0.55	R-squared	0.55
Adj. R-squared	0.41	Adj. R-squared	0.44
S.E. of regression	0.05	S.E. of regression	0.05
SSR	0.06	SSR	0.06
Log likelihood	43.54* (F-stat=4.12)	Log likelihood	43.51* (F-stat=5.18)
D-W stat	2.10	D-W stat	2.11

t-stat is in parenthesis. \* 1% significance level, \*\* 5% significance level.

TABLE 5: DETERMINANTS OF EFFICIENCY: INDIVIDUAL COUNTRY BANKS COMPARISON

	Thailand	Foreign-Branch (in Thailand)	France	USA	UK	Germany	Japan
Total assets			X		X	X	
Efficiency	X		X	X	X		X
Tier1 capital ratio			X				
Loan Loss Provisions	X	X	X		X		
Non-interest income						X	

X indicates a statistical significant of the coefficient.

Source: Chotigeat et al. (2004, p. 14)

## Conclusion

This paper discusses the restructuring and evolution of the financial system in Thailand (especially commercial banks) after the financial crisis of July 1997. With the new financial system that emphasized and enforced of a policy of liberalization and transparency, many foreign-branch banks are now expanding to operate in Thailand. This paper thus analyzes the performance of these foreign-branch banks in Thailand and compares it to that of Thai banks. Of interest is how foreign-branch banks performed in emerging economy, especially in a country that has just recovered from its financial crisis.

The performance of 18 foreign-branch banks in Thailand was analyzed in light of their responses to the changes in the new global environment. Using quarterly time-series data from 1997-1 to 2003-4, we analyzed foreign-branch banks' performance (return on equity capital ratio). Their ROE was found to be influenced *negatively* by loan loss provisions; the negative sign confirms our hypothesis. When we compared the determinants of performance in this study of foreign-branch banks in Thailand with those of other top banks around the world, we found that the loan loss provisions of the foreign-branch banks' performance is similar to that of French and British banks. Globally, efficiency, total assets, and loan loss provisions are the three determinants of banks' performance.

Overall, foreign-branch banks appears to perform well, reflecting their management style, activities, and policies: (1) since global integration in the early 1980's, foreign banks have recognized the intensified competition in the financial service industry, and they have participated with their foreign competitors in domestic and cross-border expansions; (2) most foreign banks have evolved into global financial service companies through mergers and acquisitions. For example, a large multinational bank, like its foreign competitors, might become a conglomerate, comprised of an investment bank, an asset-management arm, a retail and commercial bank, and a private banking entity for wealthy customers; and (3) foreign banks worldwide have had to react to changing business environments brought forth by global deregulation of the banking industry and advances in communication and information technology to maintain their competitiveness.

## References

Contact author for the list of references.

## Appendix

<b>Key Economic Indicators of Thailand, 1997-2003</b>							
<b>Internal Balance</b>							
<b>Country</b>	<b>Year</b>	<b>GDP % Change</b>	<b>Government Budget bn. dom. currency.</b>	<b>CPI % Change</b>	<b>Stock Index</b>	<b>Interest Rate (%) short-term</b>	
<b>Thailand</b>	1997	-0.4	-15.16	8.0	376.2	14.59	
	1998	-8.0	-128.95	4.3	355.8	13.02	
	1999	0.2	-154.19	7.2	391.5	3.70	
	2000	6.0	-108.06	1.8	327.5	3.25	
	2001	4.2	-122.99	1.3	303.5	2.75	
	2002	6.0	-102.07	0.4	353.48	2.00	
	2003	5.8	-105.01	1.1	567.1	2.00	
			<b>External Balance</b>				
			<b>Trade Balance US\$bn</b>	<b>Financial Account US\$bn</b>	<b>Foreign Reserves US\$bn</b>	<b>Currency per US\$</b>	
		1997	1.60	-5.4	26.9	47.00	
		1998	13.10	-9.8	29.5	41.37	
		1999	10.50	-7.9	34.8	37.84	
		2000	5.60	-10.3	32.7	40.15	
		2001	2.50	-5.1	33.0	44.48	
	2002	3.40	-4.0	38.9	43.00		
	2003	4.50	-7.0	39.2	40.01		

### End Notes

See Larosiere (2000) for an excellent discussion on banking consolidation in Europe in general and why most European banks favor merger and acquisition for their growth.

<sup>2</sup> Examining how more than 2000 affiliates of large MNC's patronize banks in 20 European nations, Berger, Dai, Ongena and Smith (2002) argue that the banking industry may never become fully globalized.

<sup>3</sup> Focarelli, Panetta and Salleo (2002) for Italy, Grifell-Tatje and Lovell (1996) for Spain, and Kumbhakar and Sarkar (2003) for India.



# Rise of Sukuk: an Emerging Fund Generation Mechanism

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## Abstract

Funding needs and investment opportunities are available in many varieties, worldwide. Securitization too, has been an important tool employed mainly by banks and mortgage houses to generate new funds and sell off or securitize their asset portfolio. A recent important development is the emergence of sukuk. Sukuk (singular sak) are the product of an asset backed funding, like securitization. They are termed to be “equity” bonds<sup>1</sup>. This paper analyses the mechanisms of sukuk product. The product dynamics are discussed in a simplified form to enable the readers to relate its properties to the existing conventional products, if required. A product with a lot of potential, reaching out across the banking, securities and stock market as well as the imprint of real assets’ markets. Among the large variety of sukuk, the Ijara’h sukuk and the recent Musharaka based sukuk are discussed in detail. These sukuk instruments are popular in the Muslim countries but gaining momentum in the capitalist world too. The interesting development of sukuk emerges out of a “meltdown” situation where Islam and the western economics coagulate, without being driven affray by the concept of charging interest on sale of loans (money) which is prohibited in Islam. Hence, it is attempted to describe the commonalities between the Islamic economic doctrines and the capitalist economic system of business and investment.

## Introduction

The need for funding or financing arises out of satisfying the financing needs of governments and businesses and the investment appetite of individual and corporate investors. Decisions on investment alternatives entail risk and reward to the stakeholders in investments and users of funds. **The manner, in which investments are interpreted and propagated, sets the tone of a discipline.** The definitions and treatment of investments differs between the capitalistic economic society and the Islamic economic system. However, there are many commonalities too and none is mutually exclusive. In this article the discussion on the increasing usage of the sukuk investment instrument worldwide and its anatomy, is attempted, in an effort to describe the product and its features and in the process deal with the myth or misunderstanding about Islamic Finance as totally divergent from the conventional capitalistic economics and finance. Practical application of such techniques, as employed in sukuk contracts can be a very powerful tool to utilize otherwise untapped and illiquid resources (like government land, machinery, asset usage rights and others) fruitfully, for alternate capital generation.

## The Investments Setting-Islam and Capitalist Economics Thought

Investment is defined, according to the capitalist economic theory as: “...the current commitment of dollars for a period of time in order to derive future payments that will compensate the investor for (1) the time the funds are committed, (2) the expected rate of inflation, and (3) the uncertainty of the future payments. The “investor” can be an individual, a government, a pension fund, or a corporation. Similarly, this definition includes all types of investments, including investments by corporations in plant and equipment and investments by individuals in stocks, bonds, commodities, or real estate”<sup>2</sup>

However, the Islamic school of thought emanating from the Holy Scripture of the Qur’an<sup>3</sup> and the Sunnah<sup>4</sup>, has a socio-economic system called “Ilmul Iqtisad”<sup>5</sup> (Savharvi, 2001) and also the commonly used title of Islamic Economic System (Mirakhor, A., 2002). It differentiates between investments in equity and debt. In the same note it differentiates between investments involving exchange of fungible assets ( goods and services) and “investments” involving return from only monetary exchange. The Islamic verdict of this differentiation proclaims the investment in equity and earning profit out of exchange of commodities (e.g. in trade, purchasing- selling) and rendering services as permissible. However, categories of “returns” involving purely monetary exchanges, devoid of asset

transformation and value addition are impermissible or “haram”. This category is termed as the root cause of innumerable ills in the society, and the most pronounced among the ills are injustice and deprivation in the society. Islam encourages trade and participation in equity of businesses for earning profits. It proclaims that the return for taking the risk of equity –based investment and trade is in the shape of profit. It is unjust to reap the rewards without (a) adding to the production (and services) and without taking the risk of participation in business enterprise and exchange (trade).

Hence these are two parallel concepts of investments as developed by the western economics and that of Islam. While Islam does not encourage or propagate increasing risk or non-management of risk (like portfolio diversification within the permissible categories) , it propagates risk-sharing in society , by considering the reward of business risk and entrepreneurship risk as the lawful profit . In other words, there is no entitlement to rewards in profit from business investments, until the business risks are shared. Therefore, the investment and financing risk as proclaimed in the Capital Asset Pricing Theory (popularly called the CAPM) of the Portfolio Theory is not recognized in Islamic Economics in that sense. For example, in the asset pricing models of portfolio return and risk measurement and assessment, (like the Capital Asset Pricing Model), an investor can maximize return at a given level of risk, on the efficient frontier of market portfolio. However, a point to be noted is that on the efficient frontier of investment ( in CAPM) , the financing part of investment, which arises from borrowing ( at the risk –free rate) and then investing is impermissible and “haram” . Charging interest and paying interest is impermissible<sup>6</sup> according to Islam as well as in the major religions of the world (for instance in Christianity and Judaism (Lariba .com)) while interest on loans is impermissible, profit from trade is allowed <sup>7</sup>

## Investment Opportunities

The varieties of investment opportunities to the investors in the world markets range from the primary markets of commodities, stocks and bonds to custom-made portfolios and over-the counter investment opportunities available. The bigger the value or volume of investment, the larger the investment opportunities and the higher are the profit-margins available. Banking institutions too offer much better rates to their “high net worth” clients than their market rates or “rack rates”.

Emerging derivative products in the late eighties and early nineties were the feared and revered instruments used by some, although this name has more fear factors attached to them due to lack of proper handling and understanding and speculative elements in them. Securitization too, has been a derived product, based on sale and repackaging of existing, usually non-liquid assets of institutions like mortgage houses, and selling them as securities. Hence the name securitization was coined. **Securitization** now comprises a major chunk of activities of disintermediation and appears in many forms and varieties. The regulatory report namely “The International Convergence of Capital Measurement and Capital Standards Report” (Basel II) <sup>8</sup> identifies traditional and synthetic securitization as the overall broad categories and dedicates a separate section to the regulatory treatment of securitization risk in credit risk. However, the important point to note in the securitization section of the report is the assertion on the economic substance of the securitization product instead of the form (or name) it takes. While risk and reward or borrower are separated through the debt structures, most of the efforts of regulators, fund managers and researchers are consumed in how to mitigate risks<sup>9</sup> , and how to maximize investors returns at a (theoretically) given risk level<sup>10</sup>.

The Islamic postulates (and that of many other religions too, as mentioned earlier) propound risk and reward sharing primarily through equity investment and no debt mechanism usage for profit earning. The option of debt-based “earnings” from interest on money does not exist, altogether. Hence all Islamic finance products and exchanges of business and investment ought to be equity or rent –based, in order to earn “halaal” or permissible profits. However, this does not mean that without interest based financing, no financing would be available. Many innovative sukuk structuring in practice have proved that given the parameters specified by the Divine Rulings of Islam, there are innumerable opportunities available to discover for financing, as long as interest is not charged, and equity and fair play is practiced.

With the differences between the Islamic and capitalistic schools of thoughts being highlighted, one may deduce that the two systems have no commonality. However, we must remember that both of these systems are in operation. Secondly, because the capitalistic society and their economic system have overshadowed the world, one might think that no other system can be better. But given the burgeoning economic problems of the world it is all the more convincing to “see through” the capitalistic economic flaws, and seek a better solution. Even if we deny that any problems exist because of the capitalist economic system, one must re-search the truths, in an effort to seek the betterment of the society.

Putting discussion like the above aside for a while, we present and provide some food for thought about one of the popular product of Islamic finance, which is popularly used for funding /investments purposes, in the Muslim countries and is also being embraced in the western world. Whether it is the money (petro –dirhams) being sought for funding or the efficacy of the “Islamic “product is for the readers to explore or deduce, but what is important from the point-of –view of this study, is that this is a product, that is termed, Islamically permissible” and yet usable by the west in addition to its popular use by the Muslim countries and populace.

## **Introduction to Sukuk**

While bonds are the product of debt markets, sukuk are dubbed as equity bonds. However, they are not debt -based instruments as interest on debt is impermissible according to Islamic principles. Hence it is necessary to analyse sukuk structures to find out why they are called equity bonds. It is also necessary to analyse them, as mentioned earlier to see how they are able to break the barrier of investment by the capitalist society, and being accepted by their yardstick too.

## **Sukuk Defined**

Sukuk or Investment sukuk are certificates of equal value, entitling the owner or bearer to a claim over the financial rights and obligations represented by the certificates. All certificates represent a common share in the ownership of the underlying assets they represent, whether non-monetary assets, usufruct, services or a combination of these including intangible rights, debts and monetary assets. However, they do not represent debt owed to the issuer by the certificates holder/s. The sukuk are issued on the basis of shari’a –nominated contract, according to Sharia’ rules of issuance and trading. Their trading is subject to the terms governing trading of the rights they represent. Their sharing of return is in accordance with the contract terms given in their subscription prospectus and the loss sharing is in proportion to the certificates’ value out of the total pool.

### **Types**

There are different types of sukuk. The most popular or common type seen in many issues, especially the initial ones, were the ijara’h sukuk , or composite sukuk with a majority of ijara’h transactions , to pass the permissibility test. Hence we discuss the ijara’h sukuk first. As per the Shariah Standards<sup>11</sup> of the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) Sukuk or investment sukuk are of different types. They are given as follows. 1)Certificates of ownership in leased assets, 2)Certificates of ownership of usufruct ( a) of existing assets ,b) of described future assets, 3) Certificates of ownership of services of a specified party, 4) Certificates of ownership of described future services, 5) Salam certificates, 6) Istisna’ certificates, 7) Murabaha certificates, 8) Musharika certificates, a) Participation certificates b) Mudaraba Sukuk and c) Investment agency Sukuk,9) Muzara’a (sharecropping) certificates 10) Musaqa ( Irrigation) certificates 11) and Mugharasa ( agricultural) certificates.

According to the same Sharia’ Standard (No. 17) of the Accounting and Auditing Organization for Islamic Financial Institutions, investment sukuk can be issued through subscription procedure on the basis of any of the Sharia-nominated investment contract/s. These investment sukuk can be issued for (to securitize) assets, that are tangible assets, and their usufruct. These assets and /or their usufruct shall be divided into equal shares and sukuk certificates be issued for their value. The contract of issue is its main legal document. It describes the type of sukuk, the legal arrangement between the parties to the contract, especially the issuer and the subscribers.

For the sake of describing the sukuk composition, the Ijarah sukuk (being the most common) and the musharika or participatory sukuk (being the most recent innovation, practically (2006)) shall be describe, instead of describing all types of sukuk. Along with their generic content, description of actual contracts shall be presented culled from their offering prospectus.

#### **Ijara'h Sukuk**

Ijara'h sukuk represent the group of investment sukuk that are: 1)Certificates of ownership in leased assets, 2)Certificates of ownership of usufruct ( a) of existing assets ,b) of described future assets, 3) Certificates of ownership of services of a specified party, 4) Certificates of ownership of described future services as given earlier.

The word "Ijara'h" literally means "to give something on rent". In Islamic jurisprudence, it has two meanings. Firstly, it means, "to employ the services of a person on wages given to him as a consideration for his hired services." Secondly, (type of Ijara'h) means "to transfer the usufruct of a particular property to another person in exchange for a rent claimed from him". This class of ijara'h is similar to the term "leasing", in western finance. It is used as a form of investment and as a mode of financing in general. (Usmani, Taqi, 2002)

#### **The Ijara'h Contract**

Suppose we consider an owner of assets. This owner (of assets) rents out the usage rights to another party in return for return (benefit) in kind (e.g. a portion of agricultural produce), or money decided before-hand. (These usage rights can also be sub-let). The owner of assets becomes a lessor (called Mu'jir) the lessee is called musta'jir and the rent payable to the lessor is called "ujrah". The leased asset ( asset under ijara'h remains the property of the lessor, and the lessor bears all the risks related to the asset except its maintenance and wear and tear, while in the use of the lessee. The subject of lease must have a valuable use. Anything which cannot be used without consuming cannot be leased out. Hence money, eatables, fuel, etc. cannot be leased, as they would perish with consumption. (Usmani, Taqi, 2002). Cultivable Land is an ideal example of ijara'h asset, as it can be cultivated, and the crops harvested, and the land returned to the owner. The ujarah of ijara'h (lease rent) must be determined for the period of ijara'h (lease) at the time of commencement of the ijara'h (lease) contract. The rent is payable only after the asset is in the possession of the lessee.

Hence ijara'h is not originally a mode of financing but a mode of "renting out" particular assets (main property mentioned) in exchange for rent called "ujrah". Owing to the "rent" payment mechanism of leasing suitable to the investors, ( who become the owners of leasing rights or leased assets, for a certain period of time ( investment period)) the ijarah sukuk were an attractive investment opportunity , especially the Muslim investors and the international bond market investors, for the foreign currency denominated sukuk.

Similarly, the arrangement of ijara'h sukuk proved feasible for the development needs of the lessees, (who were indirectly sukuk originators). They comprised large conglomerates, autonomous bodies or sovereigns primarily, who are developing property, infrastructure, or projects (usually medium to long term).

Their target investors, favoured a fixed return amount or a fixed percentage with respect to London Inter Bank Offer Rate (LIBOR), and hence the ijara'h sukuk provided the solution.

#### **Examples of Ijara'h Sukuk**

In general, sovereigns, municipal governments, autonomous bodies, corporates and high Net Worth individuals are mainly the target market for fixed income securities world wide, mainly due to the medium to long term nature of their projects. Ijara'h Sukuk too, present an alternate of Islamic investment opportunity with a fixed income stream, attached to the pre-agreed rentals on the underlying ijara'h contracts. The Sukuk certificates represent an undivided beneficial interest in the underlying assets, be they land parcels or building or project assets.

Sovereigns have mostly favoured ijara'h Sukuk for these reasons and also because they usually have ample resources, like land and buildings which are not for permanent sale but can be sold for a certain period of time and leased back. This arrangement enables them to generate funds for otherwise idle resources. In many instances like the WAPDA sukuk's assets mentioned ,their estimated value is written as the value of the underlying assets, although these units may hardly be of any use, out of context (i.e. out of site ).

However, the exposure of the investors is on the originators, and their fund generating capacity and the legal structure of the contract which is so designed that the sukuk investors, are satisfied regarding the receipt of their periodic payments and maturity or redemption value ans at the same time are shariah permissible. The different sovereign sukuk of similar structures but different sovereign ratings internationally, have accordingly different

pricing ( say LIBOR plus 0.5 for Qatar’s Ijarah Sukuk of 2003 and LIBOR plus 2.2 for Pakistan’s Ijara’h Sukuk of January 27, 2005, issued through the SPV namely, Pakistan International Sukuk Company (PISC). The SPV gets the net proceeds from the issue of Sukuk . It uses them to purchase the underlying assets from the originators, and at the end of the Sukuk period, the Ijarah contract is terminated and the residual assets if any are sold back to the originators (unilateral agreement to purchase the underlying assets) at a price that meets the maturity payments of the Sukuk

In a recent local currency Sukuk (closing date January 06, 2006) for Pakistani Rupee (PKR) 8.0 billion, for seven years by an autonomous body namely Water and Power Development Authority (WAPDA) of Pakistan, which is the sole supplier and distributor of power to the country, an Ijara’h Sukuk floatation through a specifically set-up Special Purpose Vehicle namely WAPDA First Sukuk Company took place. This Sukuk contract has provided the Hydel power generating units as the underlying assets and their value has been assessed as.....

Under the Sukuk fund generation programme, part of the project undertaken was Improvement to the existing capacity of the Mangla Dam. Hence the underlying assets were 10 hydel power generating Turbines of Mangla Hydel Power Station under Sale and Lease back arrangements. The Sukuk assets are leased back to WAPDA for a period of seven years, corresponding to the life the of the ijara’h Sukuk...The issue is facilitated further through a guarantee from the Government of Pakistan and the subsequent qualification of Statutory Liquidity Requirement (SLR) given to the Sukuk , enabling Islamic Banks to invest in the Sukuk for SLR requirement.

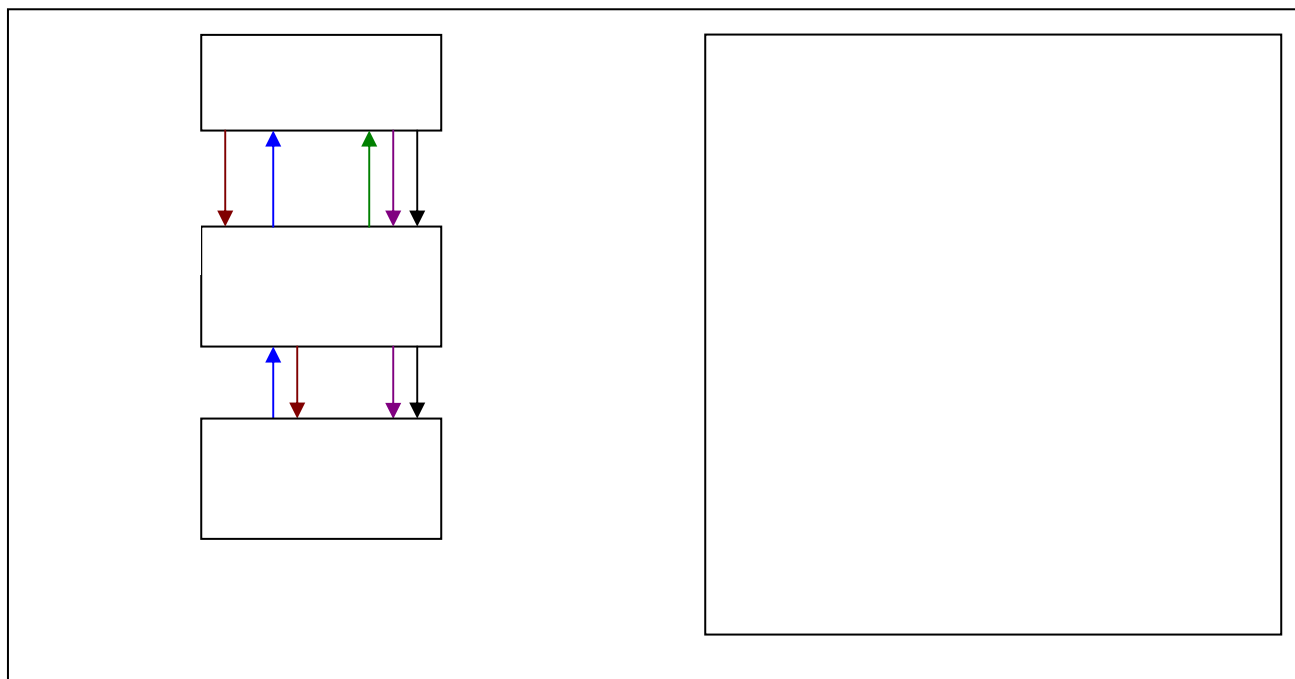


FIG. 1: IJARA’H SUKUK’S BASIC STRUCTURE

Source : Author’s own

Ijara’h sukuk has been termed as a structure which reciprocates the debt –based bond structure, or a structure made compatible with the debt-based bonds, while remaining sharia’h compatible. Besides Ijarah sukuk there are other more complex and innovative structures of sukuk with a greater tilt towards participatory shares and equity content are also emerging. For instance, the Saudi Arabian corporate sector Sukuk structures namely Caravan

1, and the PCFC (Dubai Ports) sukuk structures taken as examples below. These are examples of Musharaka sukuk, which shall be described below.

## **Musharaka Sukuk**

Musharaka (or Musharika) is the popular name of Sharikatal-Aqd, meaning contractual partnership<sup>12</sup>. Musharaka Sukuk are defined as equal value certificates, issued for using the funds received, for establishing a new project, or development and financing a business activity on the basis of any of partnership contracts. The certificate holders become the owners of the project or the assets of the activity as per their respective shares. The Musharaka certificates are structured on the basis of participation or Mudaraba or an investment agency. ( AAOIFI, Sharia Standards, 1424-5H, 2004-3<sup>13</sup>).

The **Caravan 1** structure was quite a complex structure<sup>14</sup>. Owing to the Saudi government requirements<sup>15</sup> (their transfer of assets regulations) the sukuk structure complied with all the Saudi Arabian Governments' Legal requirements amicably as well as safeguarding the interests of the international investors, while remaining Sharia'h permissible. Caravan 1 Limited is a Special Purpose Vehicle created for the purpose for issuing Sukuk. It is incorporated with Limited Liability in the jurisdiction of Jersey. It is linked to its sister Special Purpose Vehicle incorporated in Saudi Arabia, which purchases the assets from the originator and receives the funding generated through sukuk issuance from Caravan I. This is a Variable rate Auto-backed Sukuk. Its legal final maturity falls on July 8, 2009. This is a Two-tier structure involving securitization of Automobiles (Inventory). Caravan 1 Limited issues the sukuk and the Redeemable participating Shares (in aggregate amount of Saudi Riyal (SR) 102,167,281.20)<sup>16</sup> and advances these proceeds to Al- Karam. Hanco subscribed to full amount of Redeemable participating Shares, throughout the term of the transaction, Alkaram purchases assets from Hanco, and uses the proceeds for this purpose. SR 4,167,281.20 were paid by Hanco (at closing date of the sukuk issue offer), for purchase of Redeemable participating shares. From these shares, Hanco is entitled to a profit-sharing dividend after redemption of the Sukuk in full. Hanco manufactures the Auto vehicles under consideration (underlying assets). Hanco shall sell these vehicles to Al Karam. By (before) May 8, 2007, the vehicles would be completely manufactured and ready to sell to Al Karam. On May 8, 2007, Al Karam shall pay (is expected to pay) the issuer SR 6,000,000/- . This cash flow would result from sale of Vehicles (bought from Hanco) and the cash available in the excess spread account and the issuer's cash account. This Balloon payment is expected to redeem the outstanding balance on the sukuk. A minimum reserve level of SR 2.5 million will be maintained by the issuer, from end of June 2004 throughout the life of the Sukuk. Dividend and repayment of redeemable Participating shares will not be made before full redemption of sukuk. Sukuk returns shall be paid monthly (in arrears) on 8th of each month, the first one being on 8th March 2004.

According to one legal source, Caravan I sukuk is a two tier structure with credit enhancement features of 15.39% over-collateralisation, a 4.25% equity tranche and 8.77% cash reserves to make it more robust. It also had embedded in it early warning triggers to mitigate its performance. This issue has been unrated, as it would have become more expensive. The legal opinion regarding the enforceability of profit sharing under Sharia'h was also not available and its only investor, Shamil Bank of Bahrain, was satisfied with the structure<sup>15</sup>.

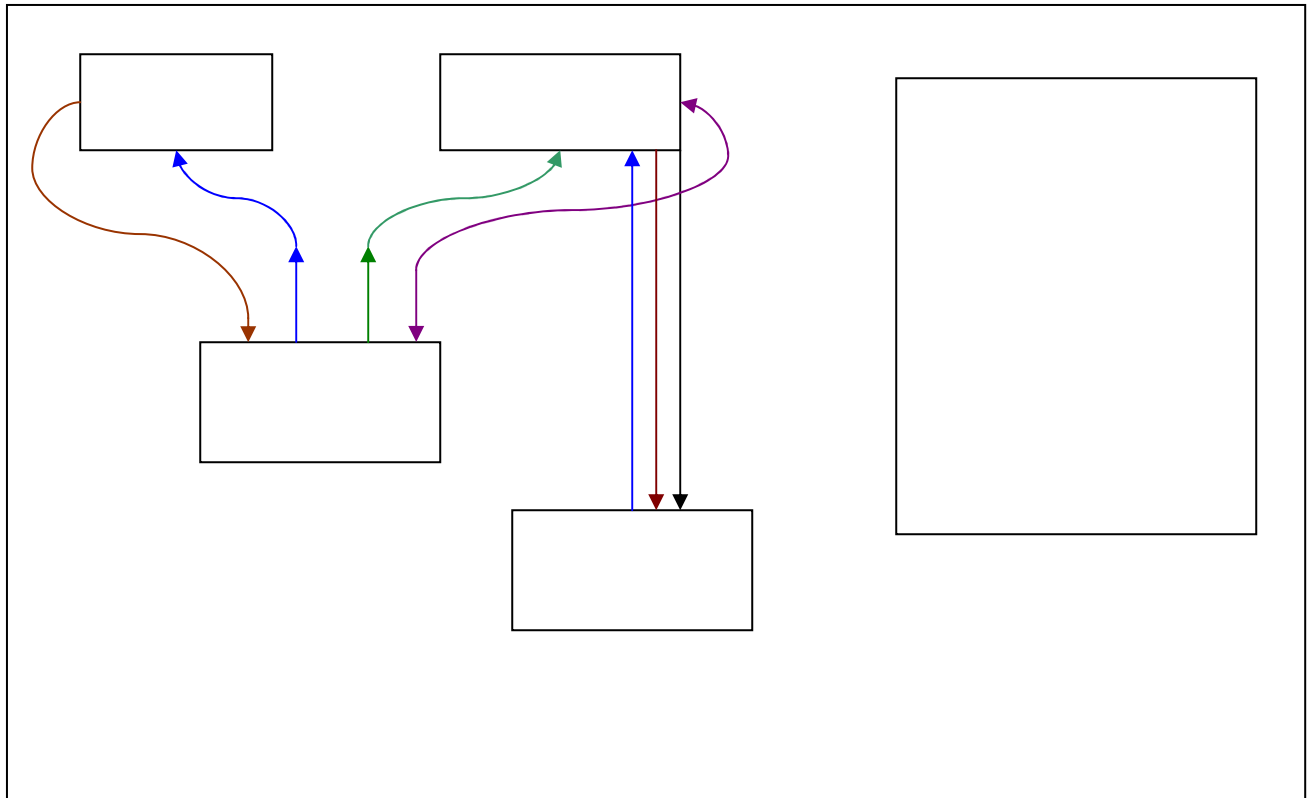


FIG. 2: MUSHARAKA SUKUK- BASIC STRUCTURE

Source: Author's own

**The PCFC Development FZCO Sukuk of Dubai ( Jebel Ali Free Zone)**

Jurisdiction is an example of a Musharika based structure of sukuk or Musharaka sukuk. U.S. \$3,500,000,000 worth of Trust Certificates Sukuk due 2008 were issued (at 100 % of the aggregate principal amount of certificates) on 23rd January 2006. The Certificates were constituted by a declaration of trust on the closing date, (i.e.23rd January 2006) made by the Issuer (SPV) and Ports, Customs & Free Zone Corporation (PCFC). Each certificate (suk) represents an undivided beneficial ownership of Trust assets and ranks pari passu with the other certificates. According to the Musharaka Agreement between the Issuer (SPV) and the obligor (originator), the capital of the musharaka shall be U.S.\$5,000,000,000, of which the Issuer contributes U.S.\$3,500,000,000 and the originator, namely Ports, Customs and Free Zone Corporation (PCFC) <sup>16</sup> makes a contribution in kind<sup>17</sup> of U.S.\$1,500,000,000, while the issue price of the sukuk Trust Certificates is U.S.\$3,500,000,000. PCFC is also the Managing Agent of the Musharaka assets and activities. The sukuk holders are paid as follows on the qualifying Public offering and /or redemption date occurrences, whichever the case may be. a) If Qualifying Public Offering (QPO) redemption takes place, on that date, sukuk holders shall be paid a fixed return of 7.125 per cent. Per annum of the issue price and b) If final or mandatory redemption takes place, on that date, a fixed return of 10.125 per cent per annum shall be paid. According to the Musharaka agreement between the Obligor (originator, PCFC) and the issuer (SPV) the Musharaka profit distribution shall be 30% to the Obligor and 70% to the issuer (SPV) of sukuk. If the accumulation profit of Musharaka is greater than the return paid and/or settled on redemption of the certificates, such excess accumulated profit count as the Musharaka Management incentive fees of the Managing Agent. Issuer will act as trustee of the trust assets on behalf of the certificate-holders (sukuk holders). An innovative feature of the sukuk from the perspective of sukuk holders is that the sukuk were certificates of partnership and sukuk holders as partners in the





instruments,  
their interest  
revenue and  
gain from  
transactions

<b>Legend:</b> ✓ = Applicable, ✗ = not applicable
--

Equity finance is very much a part of everyday business and finance but practice of risk and reward pattern involving individual- level safeguards ( in terms of maximizing investors' returns at minimum risk levels and so on) pushes the investors towards debt based investments and investment in banking portfolios which are also debt-based. Although the present day sophistication in portfolio management software and banking and investment software and systems has increased their efficiency for the purpose utilized, there is no denying the fact that the systematic risks of the financial markets cannot be avoided. Similarly, each market has to look after its own systematic risk. However, in addition to the portfolio diversification and the hi -tech techniques, through risk and reward sharing among various stakeholders as in equity financing , since all stake-holders will share risk and return, systemic risks can be greatly reduced.

## Pricing

Finally, we give a view on the pricing aspect of this investment. One of the positive developments of the introduction of Musharika sukuk seems to be the added dimension to the investment activity regarding pricing. It allows pricing on the basis of profit sharing from the (net) returns of the Musharaka. This phenomenon has the connotation of well-diversified risk and return for the whole economy and not just for individual investors or corporates. It also shows us how to safeguard the rights and interests of various business and investment stakeholders in an undertaking through the structuring of the legal contracts. These aspects can have positive connotations for the financial sectors too, if they are able to issue their own sukuk or participate in Musharaka sukuk of sound business partners. One of the very rare examples in this connection is that of Dubai Islamic Bank which, very recently issued a US\$ 750 million sukuk. This sukuk is also based on the Musharaka principle (Ameinfo, March 17, 2007). For the Islamic Banks, such sukuk securitization is important from their own business perspective too, owing to the nature of their business being a combination of financial -cum commodities based activities.

## Conclusion

It is hoped that the kind of product structures depicted especially in the form of Musharaka based sukuk, would build the world wide investors' confidence in risk and return sharing concept, instead of the risk and return compartmentalization concept of investors risk and return versus borrowers' risk and return, and then the regulatory

buffers, in action, trying to safeguard the individual components' risk as well as the systemic risks and the spillovers or arbitrage among the financial sectors and jurisdictions.

These sukuk structures, (especially the PCFC Musharaka combination) and their success should propagate the real move towards equity financing and risk and return sharing among the international investors<sup>18</sup>. These are also a kind of “bridge” between bond market and the equity (shares) market or in other words, between the mode of financing through bonds and equity shares. One can call it another “confidence-building measure” between the two markets' investors and financiers/borrowers.

As an added comfort factor to the investors, in the sukuk structuring, the investors have the right or option to subscribe to the IPO ( called QPO meaning Qualifying Public Offering) as well as the originating (also called obligor) company's unilateral promise to redeem the outstanding portion in the form of shares in the IPO. Hence whether the sukuk investors opt to convert to the QPO shares or want to liquidate their sukuk at maturity or redemption, they benefit from the investment. Appreciation in the market value of shares after the QPO enables the sukuk investors- turned- share holder, to take the benefit of appreciation in shares' price if they wish to sell the shares.

However, this entire rosy picture isn't possible unless the underlying project is performing well. Rightly said, the underlying assets lie at the core of the transactions, no matter how sophisticated the structure, and no matter how tight or secure the legal contracts and regulations, what are they of any use, if the parent company “falls ill” and can't perform according to the expectations, whether it is a debt structure or an equity investment in shares. This statement is made to reinforce that the primary exposure of any investment ought to be on the originator and redeemer, along with the legal and regulatory structure. These two –tiered (or multi-tiered) and multi-pronged financing structures with extensive, legal and regulatory input considerations also give us important lessons. That is of balancing the risk and rewards sharing among all the stakeholder of the sukuk issue, safeguarding the rights and operationally and legally tying the obligations to be met, to ensure their execution. Despite these structurings, there are elements of risk and rewards being shared between the stakeholders, especially those being financed and those providing the financings. Together, these are the success factors of the sukuk and the businesses, assets and investments they generate<sup>19</sup>.

Looking at the large tranches of investments generated through sukuk, it seems that these types of sukuk would have the institutional investors and high net worth clients as their target. These investors are not in for trading but for long term investments. The retail investment market may be tapped through sukuk of different denominations and maturity provided these investors are comfortable with the risk and return structure too.

The select sukuk product structures' analysis encompassed deductions for investments based on its legal, operational and technical properties. The possibilities of its utilization in other economies can be explored by others in their own indigenous settings. It is currently catering to the funding needs of sovereigns, conglomerates and autonomous bodies, particularly in Muslim countries. They have been able to attract the petro- Dollars or petro – Dirhams (of the Middle East in particular) as well as other International bond market investors. The beneficiaries of the sukuk transactions are the originators of the sukuk , ranging from sovereigns, corporations and autonomous bodies of mainly Muslim countries to non-Muslim European countries like the German state of Saxony and the very recent US sukuk<sup>20</sup> related to petroleum related business. Hence sukuk can be termed as one of the popular products of Islamic finance, which are being embraced as acceptable modes of finance by the investors and users of funds alike. Business aside, they are at least breaking the barrier of shunning or compartmentalizing Islamic Finance as non practical in the capitalist system revolving around interest.

## References

Contact author for the list of references

## End Notes

- with the term “equity” being a pre-qualifier for its particular set of audience and a puzzle for popular economics
- <sup>2</sup> Reilly, Frank., and Brown, Keith., (2005), 8th Edition “Investment Analysis and Portfolio Management”, Chapter 1, “The Investment Setting”, p5., Dryden Press.
  - <sup>3</sup> The last Divine book , revealed by God ( Allah (SWT)) to the last prophet Mohammad ( Peace be Upon Him).
  - <sup>4</sup> The sayings and actions of the Holy Prophet Mohammad ( PBUH).
  - <sup>5</sup> “Iqtisad” meaning moderateness and good character. “It refers to the discovery of reasonable ways pf producing wealth, of spending it in the right ways and of the causes of its destruction or waste.”( Savharvi,2001, p.17)
  - <sup>6</sup> Charging interest or usury was also forbidden in all the major religions , in which the prophets preached the oneness of the Almighty God, submission to the Creator (God, Allah), belief in the prophets and the day of resurrection and life after death, like Christianity and Judaism.
  - <sup>7</sup> “But Allah has permitted trading and forbidden usury....” (Qur’an: 2:275, Surah al Baqarah- ayah # 275)
  - <sup>8</sup> The report of the Basel Committee for Banking Supervision ( BCBS) of the Bank for International Settlements, dated June 2004
  - <sup>9</sup> For example the local and worldwide banking regulations aimed at buffering the risk in banking “debt” transactions through provisioning , setting minimum capital adequacy requirements and risk management
  - <sup>10</sup> for instance , the portfolio management theories and Capital Asset pricing theories and models
  - <sup>11</sup> Shariah Standard No 17, Investment Sukuk, page 295-313, Shariah Standards 1424H-May2003, Accounting and Auditing Organization for Islamic Financial Institutions
  - <sup>12</sup> “Sharika ( Musharaka) and Modern Corporation, Shari’a Standard No. 12, pages 197-226 , “Sharia Standards”, Accounting and Auditing Organization for Islamic Financial Institutions, 1424-5 H/2003-4
  - <sup>13</sup> “ Shari’a Standard No. 17, Investment Sukuk” , pp 299, “ Shari’a Standards”, Accounting and Auditing Organization for Islamic Financial Institutions, 1424-5H, 2003-4.
  - <sup>14</sup> The Caravan 1 Sukuk was awarded the most innovative product structure of the year (2005). It had to be structured in a manner that the Saudi government regulations were complied and the investors were also satisfied, regarding their ownership claim and risk factors in payment of principal and maturity value of the sukuk.
  - <sup>15</sup> According to the Saudi Arabian Law, assets cannot be pledged to companies outside Saudi Arabia. ( “Islamic Finance, Shariah, Sukuk & Securitization”, pp15, Lovells, Client Note.
  - <sup>16</sup> The total value of the sukuk issue is Saudi Riyal (SR)98,000,000.
  - <sup>17</sup> 1) Caravan I- Offerring Prospectus 2 )”Islamic Finance, Shariah , sukuk and Securitization”, Client Note, Lovells 3) <http://www.securitization.net/international/article.asp?id=434&aid=3379>
  - <sup>18</sup> It is a Public Limited Company of the Dubai Ports Authority, Jebel Ali Free Zone Authority and Department of Customs
  - <sup>19</sup> It consists of vesting into the Musharaka , of all of its rights , benefits and entitlement to PCFC usufruct rights.
  - <sup>20</sup> The size of the two pre-IPO issues ( US\$ 3.5Billion (PCPF Development) and US \$ 3.52 Billion Nakheel Development) alone ( totaling US \$ 7.02 Billion) makes up a big chunk of the total sukuk issues in 2006.
  - <sup>21</sup> These views are the author’s own deductions based on the study and explained in the paper through logical reasoning.
  - <sup>22</sup> The first sukuk (Islamic securitization) originating in the United States, namely East Cameron Partners, for the purpose of oil and as financing. The underlying assets are East Cameron Partners’ two gas properties offshore Louisiana with 68 billion cubic feet of proved reserves. The sukuk issue is for \$165.67 million. It is a two-tiered structure designed by BSEC investment bank of Beirut, Lebanon, in which the purchaser/ special purpose vehicle (SPV) in Delaware (USA) is acquiring the gas assets of East Cameron Partners offshore Louisiana. Secondly, the issuer/ special purpose vehicle (SPV) in the Cayman Islands is issuing the sukuk to the capital markets. The proceeds will then be invested in the purchaser special purpose vehicle under the sukuk funding agreement. Interestingly , majority of the investors in the fund are those hedge funds which are not based upon Shari’a (Muslim law.) ( Houston Business Journal ( ejournal)(2007))

# The Role of Asian Capital in the Competitiveness of a Resource-Dependent Country: A Case of Nigeria

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## Abstract

Nigeria's slow economic growth is attributed to over-reliance on oil. Today, the incessant militants' activities in the oil rich region is a reminder that the country cannot afford to rely exclusively on the oil sector. Over the years, we gathered data on manufacturing sector in order to gauge the significance of foreign capital on economic diversification of Nigeria. Interestingly, we found that Chinese and Levantines tend to invest more in manufacturing than other foreign investors. Also, using Spearman's correlation statistics, we established that the competitiveness of companies is greatly enhanced by increased level of awareness and responsiveness to global challenges as well as foreign capital. Equally, companies that exhibit high level of competitiveness were found to be either wholly or partially owned by the Asians. Thus, by exploiting the Asian drive for massive investments across borders and by learning from the successes of Asian firms, Nigerian industrialists would have a greater chance of acquiring technology and expertise which are essential for building competitive industries.

## Introduction

Nigeria is rich in both human and material resources that could be harnessed to produce tremendous wealth. Unfortunately, crude oil remains the major source of government revenue. Over the years, the country has given very little attention to agricultural and industrial activities. This is because petrodollars have not been adequately utilized to develop infrastructure and human capital for development. More worrisome is the fact that, the Niger delta region which produces the country's oil resources is the most neglected in the country. The on going crisis in the region which includes abduction of foreign oil workers and the general economic slow down across the nation is a constant reminder of the need to rethink overdependence on the oil industry.

The problem is that oil export does not represent real wealth without concerted efforts to develop other sectors with potential to create enduring value. The successes of commodity exporters such as Chile, Malaysia, Morocco and Turkey suggest that commodity production does not condemn a country to backwardness. Thus, the economy must be diversified away from one commodity and channel resources towards creating economic linkages capable of harnessing the country's huge natural and human resources to produce wealth for its citizens.

A number of studies have shown that developing a strong and viable industrial sector is the fastest way to achieve economic growth. Yet, industrial activities in the country have suffered from years of neglect. Interestingly, there has been significant injection of Asian capital into the manufacturing activities of the country and this has significantly improved the performance of the sector. However, many local investors are not pleased with the growing dominance of Asians in the economic activities of the country. They claim that Asian investors have unfair advantages and they seldom trust local communities.

This notwithstanding, this paper explores the benefit associated with the increased Asian investment in Kano and Kaduna states. These states have the largest industrial activities in northern Nigeria. The aim is to find out certain factors that make Asian companies more competitive than the local ones. In the end, we hope to draw lessons that would help stimulate manufacturing sector in general which would, in turn, help move the country a step away from over dependence on petrodollars.

## Oil Dependency and Industrialization

Generally, oil is regarded as the watershed for economic breakthrough and the pillar for wealth creation. Some nations such as United Arab Emirates, Saudi Arabia and Russia have made efforts to convert their underground resources to create real wealth. Many others however, have been groping in the dark; they often consume or distribute their oil revenue to less promising areas. Oil, when it leads to wealth brings about liberation from poverty and its attendant negativities.

In recent past, not much improvement was recorded by Nigeria in terms of economic diversification. Table 1 below shows that from 2001 to 2004 oil still remains the major contributor to the Gross Domestic Product (GDP) of Nigeria followed by agriculture. Manufacturing sector which is the basis for competitiveness in the global economy still remains highly underdeveloped.

TABLE 1: SHARE OF OIL, AGRICULTURE AND MANUFACTURING AS A PERCENTAGE OF GDP

	2001	2002	2003	2004
Petroleum	35.6	33.3	39.5	34.26
Agriculture	34.0	34.9	30.8	31.2
Manufacturing	4.2	4.4	4.1	4.50

Source: Central Bank of Nigeria, (2005)

Today, Nigerian economy is still mono-cultured relying heavily on crude oil for foreign exchange. Ironically, the huge foreign exchange from oil exports brought about regimes that encourage imports and neglect local production. Heavy reliance on imported consumer goods and low export performance continued to drain the resource that could have been otherwise used for internal growth and development. This trend and high level corruption paradoxically, make Nigeria an oil rich nation and poor at the same time.

Buckman (2004) found that primary sectors (oil and agriculture) are unsecured foundation for a poor country's growth drive. Today, countries that relied heavily on primary products are the most severely hit by the wave of globalization and their people are increasingly buried in abject poverty. Global dynamics have undergone dramatic change in the last few decades. The colonial legacy that preconditioned Africa's domestic activities to low skill, low technology and therefore low value goods must be reexamined.

Recent studies suggest that the poor countries do much better if a giving amount of GDP growth is produced by technical progress in service or in manufacturing than if it is owing to technical progress in agriculture (Mbabazi et al, 2003). One of the poor countries that achieved rapid economic growth in the 1990s is Vietnam with annual growth rate of 7.4%. The growth came from structural changes where the contribution of agricultural sector to GDP declined from 40.6% in the 1990 to only 23% in 1999; the share of the manufacturing sector increased from 22.4% in the 1990 to 34.3% in 1999, and the share of service increasing from 36.9% in the 1990 to 41.9% in 1999 (Harvie, 2003). This is a challenge for Nigeria which is the most populous nation in Africa.

Increase in manufacturing and service sectors would not automatically happen unless the necessary environment in terms of infrastructure and support are provided. Also, the sectors cannot be sustained without the required capital, knowledge and skills to drive it forward. This essentially requires significant injection of foreign capital and expertise to compliment domestic investments and talents.

## FDI and Investment Potentials in Nigeria

The presence of foreign investments stimulates competition and raises the efficiency of local firms as they improve their mode of operations. Dirk (2003) found that with a minimum level of human capital, FDI correlates with the per capita GDP growth or productivity. The productiveness of an economy improves because foreign firms (equipped with modern technology and expertise), on the average, are more productive than purely local ones. Today, China is the largest recipient of FDI in the developing world and this has significantly improved its labour productivity and

technological advancement (Liu, 2001; Buckley, et al, 2002). The present of Asian capital in the industrial sectors of Nigeria is particularly beneficial because foreign companies tend to increase productivity in less competitive industries as companies use resources more efficiently (Chung, 2001). It is important to point out that Multinational Corporations (MNCs) still remain the main agents of technological and knowledge transfer in the fast integrating world. They possess unique capabilities and they maintain high return by spreading expertise across borders.

There are different types of foreign investments and not all are especially beneficial to developing economies. Buckley and Casson (1998) stress that Greenfield investments tend to increase local capacity and intensify competition. This makes it more advantageous to poor countries than other means of entry such as acquisitions and short term investments. Kolodko (2003) also emphasizes that FDI is less volatile than short-term capital flows. In addition, export oriented FDI providing linkage to the local economy is more beneficial in terms of transferring knowledge and technology than those that mainly transfer operational and marketing knowledge (Mayer, 2004). When FDI contributes to strong exports base of a nation, it also enhances economic resilience and competitiveness.

Today, return on investments in Africa surpasses that of other regions of the world. As observed by the Nigeria-US Conference held in 2004, Nigeria possesses vast investment potentials in agriculture and agro-allied industry due to rich arable land and friendly atmosphere. Sagagi, (2006) observes that the demand for housing and real estate financing is in high demand in Nigeria and this makes investments in landed properties a lucrative venture. Also, Nigeria possesses solid minerals such as bitumen, iron ore, tin, limestone and other precious stones in immeasurable quantity. Yet, they remain under utilized due to lack of investments. Also immense opportunities exist in manufacturing and transportation. Asian producers are aware of the fact that Nigeria has low costs of labour and abundantly cheaper raw materials when compared to other developing nations. Most importantly, human capital in the country is progressively improving in spite of budget constraints. The continuous closure of manufacturing industries as a result of inadequate capital and technology opens up a strategic advantage for Asian investors.

Interestingly, in 2006, China hosted a two day presidential conference to reiterate its desire to strengthen strategic partnership with African countries. The declaration cut across a number of areas of mutual interest but it is believed that Chinese involvement in oil and providing loans may not assist Africa in any significant way. The partnership would only be beneficial to Africa only when China invest its huge trade surplus into the productive sectors of Africa. The sectors that require significant Greenfield investments include transportation, manufacturing, petrochemicals, pharmaceuticals among others.

## **Methodology**

This paper is aimed at identifying factors that make Asian companies operating in Nigeria successful. In order to ascertain the differences in the mode of operations and strategies of local and Asian companies, we studied 27 companies in Kano and Kaduna states of northern Nigeria (see table 2 below). These states have the largest concentration of industries and businesses in the region. Among them, five large integrate textile companies were selected and deeply investigated. We used insights from these companies to understand operational differences between local and Asian firms. We also undertake a Quick Survey of the relative performance of 12 small and medium size enterprises (six local and six Asian owned). Lastly, using the same method, we studied 10 other companies wholly owned by Asians and examine their modes of operations and strategies. Using both interview and questionnaire schedules, we hoped to uncover the major sources of competitiveness of the companies and how these advantages could be enhanced in order to create strong and viable private companies in Nigeria. Considering the volume of the data generated, we used correlation statistics using computerized statistical package and qualitative analysis to help us draw relevant conclusions.

TABLE 2: CATEGORIES OF COMPANIES/BUSINESSES SELECTED FOR THE STUDY

**Large integrated companies**

<b>Companies</b>	<b>ownership structure</b>
Gaskiya textiles	locally owned
Dangote textile (Dangotex)	locally owned
African Textile Manufactures (ATM)	owned by Asians
Finetex	jointly owned by Asians and locals
United Nigeria Textile plc (UNTP)	wholly owned by Asian

**Small and medium companies**

**Locally owned**

	<b>Asian ownership</b>
Nasiriya chrome furniture	NAN Chrome furniture
Lovers bread	Oasis bakery
Ramad table water	Aquadana table water
Clear impression	Al-khittab printing company
Joseph Abdullahi bread	Watson bread
Mixed grill confectionery	Bakers delight

**Wholly owned Asian businesses**

	<b>Type of business</b>
Khusibhu Nigeria limited	rugs
See sweat & Bakery	fast food
Spice food restaurant	food
Hongfu restaurant	food
Golden Dragon	food
Peking Chinese restaurant	food
Tahir Guest Palace	hotel
Arabian Sweet	fast food
Mikano International limited	generating sets

**An Analysis of Competitive Advantages**

It would be difficult for a nation to diversify its economy when its industries are not competitive. In this study we presupposed that the competitiveness of companies would be enhanced with increased preparedness to confront global challenges (awareness), large investment, collaboration to cut cost, and merger to build strength. In order to establish the relationship between these four determinant variables and the level of competitiveness of companies, we used data collected from the five integrated textile companies. With the aid of correlation statistics we obtain the following results:

TABLE 3: COMPETITIVENESS OF COMPANIES

	<b>Pearson's</b>	<b>Spearman's Rho</b>
Awareness of global challenges	0.475	0.475
Investments	0.442	0.449
Collaboration	0.279	0.198
Merger	0.405	0.372

Source: Survey Data

First, it is recognized that companies that anticipate challenges of globalization; adopt new competitive strategies, exploit local and foreign markets, and overcome threats of foreign competition are more likely to be competitive than those that do not. Table 3 shows that there is positive and strong relationship between awareness of global challenges and competitiveness of companies. More so, this relationship is substantial and significant at 99%

confidence level. Having established the relationship between awareness of global challenges and competitiveness, we compared the best and the least performers in terms of awareness and competitiveness. From table 4 we could observe that the competitiveness of UNTP is rated high. Also, the level of global awareness of UNTP is ranked very high (see table 5). In fact, UNTP is the only company among the samples that is classed very high. On the other hand, Dangotex is ranked low in competitiveness but moderate in terms of awareness. For the rest of the companies almost similar condition is observed. The interesting issue here is that UNTP is owned by Chinese while Dangotex is a locally owned. Thus, we may infer that companies with Asian origin perform better in terms of preparedness in facing global challenges.

TABLE 4: LEVEL OF INTERNATIONAL COMPETITIVENESS OF COMPANIES AS SEEN BY RESPONDENTS

COMPANIES	HIGH	MODERATE	LOW
ATM	√		
DANGOTEX			√
FINETEX		√	
GASKIYATEX		√	
UNTL	√		
TOTAL	2	2	1

Source: Study Data

TABLE: 5 RANKING OF COMPANIES ON DETERMINANT VARIABLES

RANKING	AT	Dangotex	Finetex	Gaskiyatex	UNT
	M				L
VARIABLES					
Awareness	HIGH	MODERATE	MODERATE	MODERATE	VERY HIGH
	H	TE	TE	TE	H



<b>Investment</b>	HIG	LOW	MODERA	MODERA	VER
<b>s</b>	H		TE	TE	Y
					HIG
					H
<b>Collaborati</b>	LO	MODERA	HIGH	MODERA	VER
<b>on</b>	W	TE		TE	Y
					HIG
					H
<b>Merger</b>	LO	LOW	MODERA	VERY	VER
	W		TE	LOW	Y
					HIG
					H

Source: Study Data (2003)

Second, the size of Investment required for upgrading technology and increasing volume of operations is also regarded as an important measure of competitiveness of a company. Accordingly, table 3 indicated that the relationship between capital investment and competitiveness is positive and also strong. It is equally observed that UNTP is graded very high in terms of capital investment, while for Dangotex was graded low. Likewise, the capital investment of ATM is ranked high, while Finetex and Gaskiyatex are ranked average accordingly. Interestingly, UNTP and ATM both with high capital investment are also of Asian origin.

Third, in the world of international business companies strive to collaborate with their counterparts in the supply chain in order to reduce the cost of doing business. Some of the strategies frequently used are resource sharing, outsourcing and partnering. Table 3 indicates that although the relationship between collaboration and competitiveness is positive, it has no appreciable relation with the competitiveness of companies. As such, the relationship is weak and insignificant. This suggests that both local and Asian companies are not exploiting advantages of collaborative strategies to achieve greater competitiveness. However, there was a clear willingness on the part of local companies to collaborate. The willingness to collaborate was not very pronounced among the Asian companies. This could give credence to the observers who claimed that Asian companies are secretive and they hardly trust local (business) community.

Fourth, in the face increased competition companies resort to the use of merger or acquisition. It is expected that together the businesses could operate more efficiently and profitably. Table 3 indicate that Merger has a positive relationship with competitiveness and the extent of that relationship is moderate looking at the Pearson correlation and Spearman rho which reports 0.405 and 0.372 co-efficient respectively. These results are however significant at 0.05 confidence level. The relationship is not strong considering the fact that only UNTP experienced merger among the entire sample. That is why the performance of UNTP with respect to merger is rated very high

while for all other companies the rating is either low or very low. It is important to point out that UNTP and Nichemtex both owned by the Asians investors merged in 2004.

## **Critical Success Factors for Asian Companies**

It could be seen from the foregoing analysis that Asian companies operating in these states are on the average more strong and competitive than their local counterparts. This is glaring in the performance of the companies based on the determinant factors identified. In order to uncover differences in the mode of operation and strategies of Asian businesses, we utilized the results of the quick survey of 12 businesses made of six local and six Asian companies. We chose to pair the business on the basis of size, age or type of business. We also used data from ten other Asian companies to aid the analysis. From our investigation we found certain key attitudinal and operational differences exist between local and Asian businesses. They include Commitment and discipline, Nature of products, Differentiation, Capital and size and Community integration

### **Commitment and Discipline**

It is glaring that Asian businesses adhere to standard work practices and are dedicated to building long term ventures. This is typical in Lebanese and Chinese fast food and restaurants that impose upon themselves the system of promptness, punctuality, efficiency and neatness. One interesting thing is that the owners participate actively in running the affairs of the businesses. Although some local firms are equally efficient, but they hardly have the same level of management commitment and standard work practices.

### **Nature of Products**

Among the business surveyed Asians owned firms appear to have more varieties of offerings. Also, they tend to have better quality even though the prices of the products are higher than the local ones. Product varieties and high quality attract middle class consumers to patronize Asian products on regular basis. At the same time, the poor segment of the consumers tends to patronize locally made products which have modest quality and limited varieties.

### **Differentiation**

In most of the Asian companies surveyed, the nature of the environment, the employees' attitude to work and the products offering have global touch. In other words, they operate their business using international standards and orientations. This is not surprising since most of the Asian business owners have operated in other countries and they have acquired relevant skills and expertise. Local firms tend to imitate the changes introduced by the Asians, but they hardly keep up to the innovative practices of Asian businesses.

### **Capital and Size**

Although we could not obtain the capita investment of all the businesses, but local companies are clearly at a disadvantaged position. Asian firms have large initial investments and they tend to grow their businesses faster than the local ones. This is not unconnected to the financial discipline of Asians which tend to enable them secure funding from local and foreign financial institutions. Although some Asian investors are accused of diverting bank loans to other interests, they still access more bank loans than an average local investor.

### **Community Integration**

It is clear that Asians are highly reserved and they tend to operate in isolation of the larger community. Many of the local respondents are of the opinion that Asian businesses are very friendly to customers, but they do not associate or get actively involved with the local community. This approach is more common among Chinese, Indians and Korean businesses. Local business however tend to be community oriented even though they sometime compromise customer satisfaction.

## **Conclusion**

In the wave of continued shrinkage of international borders, the defining challenge for competitiveness has now become global. Our observation reveals that many local companies are embedded in sticky old concepts, which inhibit new learning. As previous works clearly established, sustained competitive advantage requires that companies continually find new opportunities in markets and respond to emerging challenges. Asian companies

exhibit high level of competitiveness and are in much stronger position than the local counterparts. Against this background, this paper establishes that there are clear lessons to be learned from what makes Asian companies more successful. By learning from the best practices of others, we believe local businesses would also become competitive and viable at the sometime. When both local and foreign based firms operating in the country become competitive, Nigeria would be a step towards diversifying its mono-cultured economy.

Asian companies that attain high level of competitiveness adopt strategies that enable them to greatly overcome threats of competition and also exploit market advantage. So, local firms must embrace innovation and also adopt highest standards of quality and efficient process in order to keep afloat. This requires investment in training and the acquisition of modern production technology. Companies must take their businesses more seriously as Asians do. This would require long term thinking, financial discipline, better management and willingness to learn.

High volume is required to be cost efficient. To this end, companies would have to increase market share steadily. This also require that the management of companies set aside portion of their profit to financing growth and at the same time consistently build credibility to access funding from financial institution to finance future expansions.

It is similarly clear that competitive companies have larger investments and the least competitive companies have very small capital investment. Therefore, companies that are able to embark on strategies aimed at raising substantial capital in the capital market and undertake deliberate actions to attract foreign investors and expertise would have unique competitive advantage.

Finally, Asian companies are required to rethink their relationship with the host community. Most African societies are friendly and highly cooperative. Asian investors should exploit this advantage to increase their business networks rather than stay relatively isolated. When local and Asian firms build strong partnership, form alliances and share key knowledge and resources, they could help create a viable and prosperous private sector in Nigeria.

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# What Attributes Bankers Look for when Lending to Entrepreneurs?

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## Abstract

Studies on entrepreneurship have revealed that people who start their own business are also found to have certain attributes that are different from the general population. Such attributes are essential in influencing the entrepreneur's effectiveness in acquiring adequate capital. This paper reports the findings of an empirical study identifying the attributes that are deemed important by bankers when appraising loan applications from the entrepreneurs. It is argued that the decision by a banker on whether or not to lend to a business would be primarily influenced by those personal attributes of the entrepreneur. The data in the study were collected by means of questionnaires. The respondents were the branch managers of domestic banks in Malaysia. Out of a total of 1000 questionnaires mailed, only 140 useful ones were returned, representing a response rate of 14.0 percent. The findings reveal that of the 20 attributes, 12 were ranked 'high importance' with having integrity, financial awareness, and committed and reliable as attributes highly sought by the bankers. These findings may prove beneficial for entrepreneurs preparing for loan applications from the banks. If entrepreneurs can learn more about how bankers view attributes for business success, then this should improve the prospect of getting loan approvals. **Keywords:** Entrepreneurial attributes, entrepreneurs, bankers, lending

## Introduction

The development of entrepreneurship in Malaysia has been the focus of much attention in recent years. This interest has been generated by the recognition that entrepreneurship is a major key to economic development and wealth creation, thereby contributing towards social prosperity and upward mobility. The success of any new business often depends on the entrepreneur's ability to obtain support and assistance from bankers and other financiers. Insufficient amount of capital can result in a business inability to remain viable. However, many entrepreneurs find difficulties to access the bank finance, and therefore they are sometimes forced to seek funding from informal sources such as friends, relatives, acquaintances or even loan shark operators. Some entrepreneurs, mostly startups, are perceived to be at high risk of default, and this leads banks to use secured lending which is usually based on the asset of the borrower, the amount of security available is clearly a constraint on borrowing for the entrepreneurs. Hence, the potential sources of economic and development may be stymied by these bank lending practices.

Studies on entrepreneurship have revealed that people who start their own business are also found to have certain attributes. Such attributes are essential in influencing the entrepreneur's effectiveness in acquiring adequate capital. Sergeant and Young (1991) find attributes like need for achievement, internal locus of control, tolerance for ambiguity, and self-esteem, provide the entrepreneur with greater proactive behaviour, diligence and resourcefulness, essential qualities for promoting action that foster entrepreneurial success. It has also been argued that the decision by a bank manager of whether or not to lend to a business would be primarily influenced by those personal characteristics of the entrepreneur (Storey, 1993).

This paper reports on a study that adds to understanding of the decision making process of bank managers when granting loans to entrepreneurs. Specifically, this paper reports the findings of empirical study identifying the attributes that are deemed important by bankers when assessing the entrepreneurs.

## Successful Entrepreneurs

Studies on entrepreneurship have identified different personality types capable of achieving entrepreneurial success. They also assumed that entrepreneurs have distinct personality traits. These include risk taking, need for control, internal locus of control, autonomy, independence, assertiveness, initiative, creativity, achievement motivation, confidence, optimism, imagination, persistence in problem solving, single-mindedness, leadership, decisiveness, and

competitiveness (Hornaday, 1982; McClelland, 1987; Timmons, 1990). According to McClelland (1965), individuals who have a strong need to achieve are among those who want to solve problems themselves, set targets, and strive for these targets through their own efforts. Individuals with a strong need to achieve often find their way to entrepreneurship and succeed better than others as entrepreneurs.

Caird (1988) mentions a good note for business, the desire to take risks, the ability to identify business opportunities, the ability to correct errors effectively, and the ability to grasp profitable opportunities as characteristics of successful entrepreneurs. The characteristics of successful entrepreneurs are the ability to take risks, innovativeness, knowledge of how the market functions, manufacturing know-how, marketing skills, business management skills, and ability to cooperate (Casson, 1982). Entrepreneurs are also found to possess a set of leadership skills and attributes that include an ability to inspire others, autonomy, and a high level of endurance. They also possess social skills such as persuasiveness, low need for support, low conformity and lack of emotionalism (Buttner & Rosen, 1988). Similarly Stevenson and Gumpert (1985) found flexibility, imagination and willingness to take risks as some of the attributes to business success. Sexton and Bowman (1985) describe successful entrepreneurs to be tolerant of ambiguity, preferring autonomy, aloof, enjoying risk-taking, resists conformity and readily adapting to changes.

The acquisition of funds has also been considered a critical factor for success in any business ventures by the entrepreneurs. Kahn (1987), Macmillan et al (1985), and Bruno and Tyebjee (1985) found that the viability of project, competencies of the entrepreneurs, knowledge demonstrated in the presentation of the business plan, and the background of the entrepreneur and the management team are some of the criteria fund providers looked for when granting funds to the entrepreneurs.

## **Methodology**

The respondents were bank managers who are charged with assessing the loans applied by entrepreneurs. They were selected as the sample population of this study because most of the business loans transactions are conducted at the bank branch levels. Furthermore, business lending to entrepreneurs often involves branch managers making in-person calls on the entrepreneurs. Thus it was assumed that they would be most familiar and knowledgeable about the issue under study. There are currently ten domestic banks in the country and all are included in this study. Data were collected by means of questionnaires. A total of 1000 questionnaires were mailed to a random sample of branch managers of the 10 domestic banks in the country. However, only 140 useable questionnaires were returned. This resulted in a response rate of 14.0 percent. The questionnaire included questions about background of the respondents, and highly structured questions about the importance of attributes in determining the success of obtaining loans for entrepreneurs. Respondents were asked to rate the degree of importance of these attributes on a scale from (5) Great importance to (1) Unimportance.

## Results and Discussion

TABLE 1: BACKGROUND OF RESPONDENTS

	Frequency	Percentage
<b>Gender</b>		
Male	117	84.7
Female	21	15.3
Total	138	100.0
<b>Race</b>		
Malay	82	59.4
Chinese	49	35.5
Indian	2	1.5
Others	5	3.6
Total	138	100.0
<b>Age (years)</b>		
25 – 29	3	2.2
30 – 35	16	11.6
36 – 40	21	1.5
41 – 45	40	29.0
46 – 50	40	29.0
Above 50	18	13.0
Total	138	100.0
<b>Academic Qualification</b>		
University graduate	114	82.6
Non graduate	24	17.4
Total	138	100.0
<b>Banking experience (yrs)</b>		
Less than 10	11	8.0
10 – less than 15	19	13.8
15 – less than 20	36	26.1
20 and above	72	52.2
Total	138	100.0
<b>Managerial experience (yrs)</b>		
Less than 5	53	38.1
5 – less than 10	38	27.6
10 – less than 15	34	24.6
15 – less than 20	12	9.0
20 and above	1	0.7
Total	138	100.0
<b>Bank Employees</b>		
Less than 25	97	70.3
25 – less than 40	29	21.0
40 – less than 60	7	5.1
60 and above	5	3.6
Total	138	100.0

The majority of the respondents were males (84.7%) with Malays, which formed the largest number (59.4%), followed by the Chinese with 35.5 percent. More than two thirds of the respondents were in the above 40 years of age (71.0%), university graduates (82.6%) and had more than 20 years of banking experience (52.2%).

More than half had been in the managerial position of less than 10 years (65.7%). The majority of the respondents also reported that their branches employ less than 25 employees (70.3%). It appears that this sample is typical of the bank branch manager in Malaysia.

Table 2 below analyses the bankers' perceptions on attributes of successful entrepreneurs. The results show that the bankers placed a much higher value on the scales (mean rating value of 4.21 and above) for five attributes namely 'having integrity', 'financial awareness', 'committed and reliable', 'realistic about business', and 'desire to succeed'. The bankers also gave a mean of four and above for attributes such as 'self-aware and honest with themselves', 'ability to focus and set priorities', 'able to provide a proper business plan', 'self-confident', 'having vision', 'willing to comply with bank's advice', 'having previous business experience', and 'can put ideas into practice'. The coefficient of variation shows an increasing trend as the mean decreases, and this indicates a higher diversity of opinion among the bankers, especially at the lower end of the mean value. Table II highlights the fact that bankers perceive all the variables used in this study as important attributes for successful entrepreneurs although some are viewed more important than others.

TABLE 2: ATTRIBUTES OF SUCCESSFUL ENTREPRENEURS

Rank	Attribute	Mean	SD	Coef Var.
1.	Having integrity	4.5000	.64037	0.142
2.	Financial awareness	4.4357	.62572	0.141
3.	Committed and reliable	4.3429	.67612	0.156
4.	Realistic about business	4.2500	.61311	0.144
5.	Desire to succeed	4.2302	.73540	0.173
6.	Self-aware and honest with themselves	4.1871	.80369	0.192
7.	Ability to focus and set priorities	4.1071	.72664	0.177
8.	Able to provide a proper business plan	4.0863	.70692	0.173
9.	Self confident	4.0857	.74414	0.182
10.	Having vision	4.0571	.77526	0.192
11.	Willing to comply with bank's advice	4.0216	.82064	0.204
12.	Having previous business experience	4.0214	.78170	0.194
13.	Can put ideas into practice	4.0071	.74425	0.186
14.	Ability to manage people	3.9429	.80262	0.203
15.	Good interpersonal skills	3.8357	.85335	0.222
16.	Able to think laterally	3.7929	.80909	0.213
17.	Articulate and able to communicate ideas in a clear way	3.7643	.83632	0.222
18.	Ability to get along with a range of people	3.7500	.84073	0.224
19.	Desire to form collaborative relationship	3.6571	.84625	0.231
20.	A good listener	3.4857	.82659	0.237

The analysis proceeded further by identifying the relevant dimensions using a set of 20 important variables. Factor analysis was used because it seeks to include as many factors as there are in the analysis. A factor may be viewed as group variables that are closely inter-correlated based on the manner in which the bank managers responded to the survey. To facilitate interpretation of the factors, the factor matrix was rotated using the Varimax method. The criterion for rotation was value greater than one. Only items with factor loading of 0.50 and above were considered significant in interpreting the factors. The results presented in Table III below shows that four factors were produced. These four factors explained 62.45 percent of the total variance. In light of these four loadings, the following interpretations are offered:



**Factor 1: Leadership**

Factor 1 has heavy loadings for eight variables of the attributes of successful entrepreneurs. Aspects of leadership quality such as ability to get along with range of people, good interpersonal skills, a good listener, and desire to form collaborative relationship all load heavily on this factor. This factor is considered the most important factor in influencing bankers when lending to entrepreneurs. Hence it has been labeled accordingly.

**Factor 2: Creativity**

In considering the second factor, having integrity, can put ideas into practice, realistic about business, desire to succeed, having vision, and financial awareness, constitute the six main variables having high loadings on this second dimension. The nature of the second factor suggests creativity, the second most important factor explaining the attributes bankers looked for when making decisions.

**Factor 3: Experienced**

The third factor consists of two variables 'having previous business experience' and 'ability to provide business plan', and is called as the 'experienced' dimension.

**Factor 4: Trustworthy**

The fourth factor delineates a relationship among committed and reliable, and self aware and honest with them. A combination of these two variables can be grouped together under the heading of trustworthy. This factor is the least important factor defining the attributes of entrepreneurial success as perceived by the bankers.

The items in the factors were also tested for reliability and validity. The reliability test was undertaken to ensure that the research findings have the ability to provide consistent results in repeated incidences. To check the reliability aspect of the items and the factors, internal consistency analysis was performed. The items were grouped into their respective factors and coefficient alpha was calculated. The coefficients ranged between 0.696 (factor: experienced) and 0.906 (factor: leadership). This indicates that all items and factors in this study are sufficiently reliable measures as all these are above the value of 0.6 (Nunnally, 1978).

TABLE 3: FACTOR ANALYSIS ON ATTRIBUTES OF SUCCESSFUL ENTREPRENEURS

Factor	Loadings	Statistics
Factor 1: Leadership		
Ability to get along with range of people	.830	Cronbach Alpha=0.906 Eigen Value=4.970 Variance=24.849
Good interpersonal skills	.825	
A good listener	.788	
Desire to form collaborative relationship	.747	
Articulate and able to communicate	.659	
Able to think laterally	.573	
Ability to manage people	.540	
Self confident	.527	
Factor 2: Creativity		
Having integrity	.747	Cronbach Alpha=0.772 Eigen value=3.071 Variance=15.357
Can put ideas into practice	.686	
Realistic about business	.596	
Desire to succeed	.561	
Having vision	.544	
Financial awareness	.526	
Factor 3: Experienced		
Having previous business experience	.781	Cronbach Alpha=0.696 Eigen value=2.526 Variance=12.629
Ability to provide proper business plan	.772	
Factor 4: Trustworthy		
Committed and reliable	.789	Cronbach Alpha=0.710 Eigen value=1.922 Variance=9.612
Self aware and honest with themselves	.659	

**Note: Cronbach alpha represents the internal consistency of the items within the factor**

## Conclusion

The study was guided by the objective of examining the attributes deemed important by bankers when deciding whether to lend or not to business entrepreneurs. Based on these findings it can be concluded that the attributes (in order of importance) include having integrity, financial awareness, committed and reliable, realistic about business and desire to succeed. Based on the factor analysis, it can be concluded that the following factors were common to entrepreneurs, namely; leadership, creativity, experienced and trustworthy. The findings of this study have revealed some information, which provide a basis for understanding attributes that bankers looked for when assessing loan applications. The entrepreneurs must understand what attributes bankers look for when they decide whether to accept or reject loan propositions from prospective borrowers. Although some entrepreneurs may believe that they know how to evaluate their own potential, these bankers may be looking at certain attributes which may be entirely different from those perceived by the entrepreneurs. Understand what the bankers want may enhance the probability for entrepreneurs of getting the loan approval.

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## The European Union as an Institutional and Regulatory Answer to the Globalized Financial System

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### Abstract

The author refers to the repeated crises in the nineties characterised by their systemic impact due to the Globalisation, and the weaknesses appearing on the level of the institutional organisation of the international monetary and financial market. The lack of institutional framework was commensurate with the global dimension of the problem and the structural backlog in the regulations, in particular as far as technological innovation and global market practices are concerned. The author thinks that the action plan for a single European financial market appears as a consistent institutional and regulatory answer for a necessarily more integrated monetary and financial system facing the globalisation. In this context, the rapid progresses made by post-transition economies, especially in central Europe, have putted forwards the leading role of banks in the development of their financial markets. Finally, the joint responsibilities of both the public and private sectors of the economies are stressed as a key factor for a better-functioning monetary and financial system.

### From Systemic Financial Crises to a Globalised Monetary and Financial System

The process of globalisation of the financial markets, which had really started with the fall of the Berlin Wall, has quite rapidly known, in the nineties, its first full-scale crises, the sizes of which were without any comparison with the Great Depression of the Thirties. This new type of financial crises pointed to the need, for the major industrialised and developing countries, to find common means enabling them to react quickly in the field of global liquidity in order to cope with possible contagious effects. Due to the lack of adequate supervision, it also fostered the emergence of a new kind of risk, i.e. the moral hazard, meaning the loss of risk awareness due to the subjective feeling that organisations could rely on a higher authority for covering their losses (*too big to fail*).

The interconnection of Stock Exchanges has made the markets more sensitive to information, regardless of its source. The way in which markets handle information, bears the influence of the fact that information is spread in real time processing while at the same time its contents can suffer from disruptions and delay.

The high degree of activity, on behalf of private as well as public investors from Western countries, in the economy of emerging and transition countries has contributed to the globalisation of markets, but no similar effort had been made yet as for adapting the regulatory framework.

With one notable exception in 1993, the crises of the nineties have mainly affected emerging market economies and, for most of them, have had important consequences in terms of output loss, welfare, social conditions and unemployment. In addition, the changed international financial environment has been seen as allowing abuses in terms of money laundering, financing of illegal activities, inside information, disclosure laws manipulation and tax evasion.

One may safely say that standards for regulation and prudential control should be laid down at an international level, in combination with a strengthening of the principles of *corporate governance* and *best practices* in financial institutions. The full implementation of this cannot be achieved without transparent and fast information technology systems that help improving soft market anticipations as well as the spread of risks over the players concerned. Discussions on improving the governance of the international monetary and financial system often focus on the IMF, where significant decision-making power related to the international monetary and financial system is vested. Other proposals intend to create new overarching bodies, such as a Global Governance Group or a UN Economic Security Council. Such initiatives would require widespread political support to be initiated.

At present however, the multilateral organisations do not completely succeed in giving concrete expression to the clear intentions for improving the regulatory framework of the financial markets and for creating a better and more transparent balance in the split-up of risks between lenders and borrowers.

As already mentioned, things are not made easier by the fact that there is a large variety of global players such as groups of companies big and small which rely on the markets for their financing, bank consortia, governments and central banks, savers with all kinds of nationalities putting their money in mutual or pension funds, etc. Each category tries to defend its own short term interests. In the absence of any appropriate international regulation and supervision, one could say that ‘the plane would fly without a pilot at its controls’.

## **Progress towards a Multilateral Regulatory Organisation**

Recent years have seen the emergence of numerous proposals on how best to adapt the international monetary and financial system to the changes and challenges of a global economy. Numerous proposals have been launched, ranging from very modest ones, such as increasing and improving the flow of information to market participants, to very ambitious ones such as the creation of a single world currency. Some initiatives are in the process of being implemented, reflecting a certain degree of consensus among the international financial community; others lack political support or would imply a too high level of public interference in the markets. Some of the more ambitious changes would require the creation of a new institution or a much more profound reform of the international financial architecture (COM, 2002 –4).

At the crisis prevention level, suggestions for further progress that are broadly accepted include (1) increasing transparency in policy design and implementation, and improving the flow of information to market participants; (2) developing and deepening financial markets and strengthening domestic financial systems to make countries less vulnerable to crises; and (3) strengthening the foreign exchange reserves of emerging market economies. Their implementation by many countries is already contributing to making the system more predictable and more resilient to shocks.

Progress is also being made on other fronts but at a slower pace because these proposals are either of a less consensual nature or more difficult to implement in practice. These proposals include (1) the development of early warning systems; (2) the introduction of collective action clauses into new international bond issues of emerging market economies; (3) the creation of Clubs of Creditors; (4) the development and use by emerging market economies of financing instruments that can be used as a first line of defence in case of crisis; and (5) the need to ensure an orderly and well-sequenced capital account liberalisation process.

Finally, there are a number of proposals that have yet to gather sufficient support by policymakers and which often require important institutional changes. Establishing an international debt insurance agency, creating an international prudential supervisory agency or introducing a currency transactions tax are among the more visible proposals (COM, 2002 - 4).

Freedom of capital flows is now present in almost all countries. Combined with deregulation and a more and more integrated international financial system, this freedom is creating many opportunities for emerging economies. Net financial inflows to emerging countries have increased enormously over the past years, boosting economic growth. But this freedom is also generating more vulnerability. Short-term capital is volatile, and, as the experience of Southeast Asia has shown, the lack of a robust, well capitalised, and properly managed and monitored banking system can be a major source of weakness when investor sentiment changes and capital movements start to shift.

## **The European Integrated Monetary and Financial System**

All countries, and in particular the European ones, are exposed to the powerful changing trends that have characterized the international financial system during the past decade. These trends, particularly evident in the

United States, but affecting Europe and the rest of the world as well, are posing new challenges to regulators and supervisors.

Regional macroeconomic and monetary co-operation are frequently seen as a way of strengthening economic integration, growth and stability. The introduction of the euro provides an example of successful regional integration that has not only been beneficial for Europe but also is likely to contribute to the stability of the international monetary and financial system.

Although the European experience cannot be translated directly, it provides a good benchmark to analyse the sequencing and the necessary conditions of successful regional monetary and financial co-operation. Essential ingredients include policy co-ordination on the basis of a shared philosophy on fiscal discipline; shared views on price stability; and some form of institutionalised multilateral monitoring. Given the free movement of capital and the desire to stabilise the exchange rate between Member States, the convergence of monetary policy rules is inevitable (COM, 2002 – 4).

The European Union also has an interesting regulatory framework at its disposal, which has already proved its value as well as its solid resistance against the recent financial turmoil. Moreover, Europe provided the first model of a *supranational* integrated supervisory system based on common standards to be complied with through provisions that are still under the responsibility of the Member States.

This approach has the advantage of striking a balance between the need for a harmonisation of the fundamental principles of international equilibrium on the one hand, and keeping the responsibility on the level of the Member States on the other hand. The existing mechanisms hold the obligation for the Member States, through the European directives, to take measures which suit their proper environment, and to consult each other for anything which belongs to matters in common. The supervision of banks falls under the competence of the home country supervisory authority, whereas the principle of free provision of services allows any bank with a ‘European passport’ to set up business wherever it wants.

By sticking to this principle of “*subsidiarity*”, the European Union probably has in hands the keys of success in combining three elements that are hard to reconcile, i.e. liberalising the markets, strengthening the regulatory framework and taking into account both the different situations and the responsibility for each Member State to prevent moral hazard.

There are numerous fields in which this approach is applied, such as monetary matters (convergence plan for the euro), regulations (banking laws, putting into practice the recommendations of the Basle Committee with respect to capital adequacy, the fight against money laundering, investors protection scheme, payment systems, etc.). At any rate, the process of integration the European Union has opted for in the field of bank and other financial actors regulations can be a useful source of inspiration for those who, at an international level, start being interested in an international harmonisation of supervision rules as a complement to the programmes for monetary stability and financial strength, particularly in emerging countries or countries in the transition process.

## **Key Role of Financial Markets**

The primary function of any financial market is to allocate economic resources, both across borders and across time, in an uncertain world. Viable investment projects are selected and funded, thereby contributing to the development of the economy. A more integrated and complete financial market would offer a wider range of financing options to meet the needs of enterprises, from start-ups and SMEs to mature corporates.

There are six basic functions for the financial market (COM 2002 - 3): (1) allocating Resources across time and space; (2) clearing and Settling Payments to facilitate the exchange of goods, services, and assets. (3) pooling resources to facilitate large-scale enterprises and ‘subdividing’ shares to facilitate portfolio diversification; (3) managing Risk: financial markets provide ways to manage uncertainty and control risk; (4) providing Information to enable decentralised decision-making across the economy; (5) providing incentives for symmetrical information for consumers to take advantage of opportunities available in the market.

### Building a Single EU Financial Market

The recent years have showed a visible acceleration in the process of development and integration of EU financial markets. Three interrelated factors are behind this acceleration: (1) the globalisation, fostered by the liberalisation of international capital movements, financial deregulation and advances in technology; (2) the progress in creating a common regulatory framework across the EU as part of the effort to complete the Internal Market in financial services accompanied by financial reforms in the Member States; and (3) the changeover to the euro.

### A Market Dominated by the Banks

Market operators have adopted more pan-European strategies, and policy-makers have responded by assigning a high political priority to the completion of the internal market for financial services. In addition, there is now a greater incentive to intensify domestic reforms as a means of preserving the competitiveness of previously protected national financial systems.

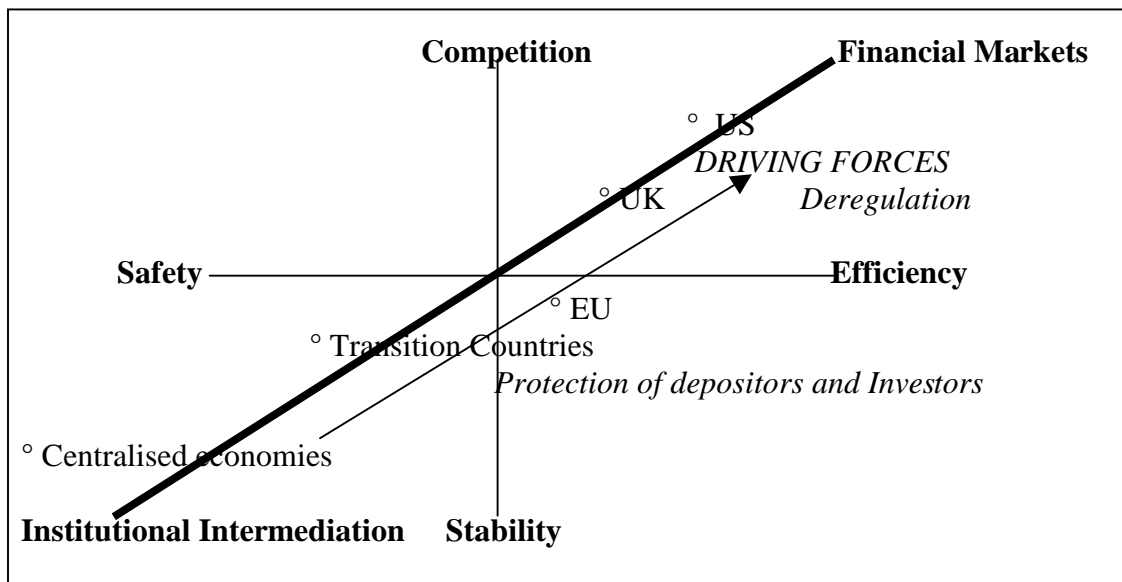


FIG 1: FROM INSTITUTIONAL FINANCE TO FINANCIAL MARKET

With quite similarly sized financial assets, US financial systems are seen as predominantly market-based, while the euro area system as predominantly bank-based. In particular, bank financing plays a much bigger role in business financing in the euro area than in the US. In the US, direct issuance of securities is the dominant means of business financing, as reflected in the large outstanding amounts of debt securities and stock market capitalisation. In spite of these differences, it is noticeable that in both economic areas the whole range of instruments and intermediaries play an important role.

TABLE 1: FINANCIAL STRUCTURES IN THE EURO AREA AND THE US (END-2001, IN % OF GDP)

	<b>Euro area</b>	<b>US</b>
Bank deposits	64.3	60.6
Bank loans	108.2	50.7
– to corporation	42.7	16.1
– to households	45.7	34.6
– general government	12.4	0.0
Outstanding debt securities	90.6	148.6
Issued by		
– corporations	5.8	24.2
– financial Institutions	28.7	43.1
– public sector	52.7	84.4
Stock market capitalisation	73.3	138.7

Sources: ECB (euro area bank deposits and loans), Federal Reserve (US bank deposits and loans), Eurostat (euro area and US GDP, stock market capitalisation), BIS (debt securities).

According to the evidence collected by the ECB, banks are responsible for the management of around 80% of all mutual funds in the euro area (ECB, 1999). Large financial groups have emerged involving banks and securities firms, and occasionally also insurance companies. Asset management activities have a capital market component, in which intermediaries trade assets in order to offer diversified products to final retail investors.

The supply of portfolio diversification services (capital market part of the business) has been most affected since the introduction of the euro, as cross-border diversification has become less costly and risky, and free of any previously currency-based regulatory restrictions. There is also increasing diversification across asset classes, as funds are increasingly managed on an asset type and industry, rather than country, basis.

Mutual funds sold to euro area residents are already fairly diversified geographically. In the case of equity funds, the share of domestic equities was around 28% on average (March 2002), while non-domestic European equities and non European equities reached 26% and 46% respectively (COM 2002).

However, a major obstacle to cross-border trading and integration is the fragmented infrastructure for cross-border clearing and settlement of securities transactions. As a consequence, direct and indirect costs associated with trading can be several times higher in Europe than in the United States. The importance of an efficient clearing and settlement infrastructure is well demonstrated by the successful integration of the money markets, in which operations involving unsecured instruments can be cleared and settled through the TARGET system (BCE, 2002). Thus, there is certainly room for a substantial consolidation of the securities settlement industry. There are also other market-related aspects hampering trading in capital markets, in particular differences in technical requirements and market practices.

#### **General Conditions for an Efficient EU Financial Market**

The integration process in the European Union has been market driven, reflecting a trend towards more globalised investment strategies, made possible by technological advances and cross-border mergers and acquisitions. However, the transformation from a patchwork of up to 27 national financial systems to an integrated EU financial system is not yet complete. Providers of financial services continued to face numerous obstacles - legal, regulatory, competition, tax or technical - to cross-border activity within the EU.

The Financial Services Action Plan (FSAP), launched in 1999, is the principal blueprint for financial integration in the EU, being based on a programme of 42 measures to develop and improve the Single Market for Financial Services. The FSAP contains key measures to deliver an integrated market. Its completion is therefore a necessary condition for reaping the potential from the EU's financial markets<sup>1</sup>. The action plan has put forward indicative priorities and a timetable for specific measures in order to achieve three strategic objectives: (1)



establishing a single market in wholesale financial services; (2) making retail markets open and secure and (3) strengthening the rules on prudential supervision.

The decision-making framework for securities legislation, adopted on the basis of the proposals by the Lamfalussy Committee<sup>2</sup> contributed to this objective and ensured that legislation is more swiftly adapted to the evolving financial markets. Furthermore, competition policy is to be pro-active as financial integration proceeds, so as to ensure that economic benefits are fully exploited. Consumers and investors are to be adequately protected so that they have the confidence to operate in, and enjoy the full benefits of a single market extending across the Union. Therefore, the following general conditions for an efficient EU financial market are to be respected by the policy makers of the member states.

## **Level Playing Field**

A level playing field is a prerequisite for fair competition. Regulation needs to be efficient and effective to support financial integration. Consistent implementation of regulation contributes to a level playing field. Disparities between Member States' rules on corporate governance can give rise to legal and administrative barriers, which hinder the efficient operation of the EU financial market. However, the term "corporate governance" covers a wide range of issues whose ramifications for the single financial market are at present unclear. Moreover, other measures, such as streamlining reporting requirements, will also be helpful. A recent study by the Commission concluded that the reporting burden for financial institutions could be reduced without impairing the legitimate objectives of supervision.

### **Fair Competition**

Completion of the FSAP is necessary but not sufficient to ensure that further financial integration promotes higher growth. Only if integration results in a genuine increase in the level of competition will the potential economies of scope and scale be able to translate into lower capital costs for borrowers, higher returns for investors and a wider array of financial products. Therefore, to accompany the transition to an integrated financial market, the competent competition authorities must be fully prepared to respond to the evolving structure of the EU's financial markets, including by addressing uncompetitive structures and arrangements resulting from the inheritance of national markets in financial services. It must also, of course, be ready to address any anti-competitive behaviour by providers of financial services and the Member States.

It will also be necessary to ensure equal access to market infrastructure, such as trading platforms, clearing and settlement systems. Special attention should also be drawn to the need to rationalise, where necessary, such infrastructure and to ensure more dynamic, efficient and effective EU arrangements, for example, by:

- Identifying actions how to overcome barriers and promote a market-led convergence of technical requirements and market practices to provide for inter-operability between national systems;
- Establishing common standards in this area: such common standards should contribute to create a more level playing field for the providers of such services.

Other distortions and obstacles to competition still need to be removed, beyond the explicit legal and regulatory obstacles addressed by the FSAP. Of particular importance in this regard is the removal of unfair tax measures (as well as non-tax administrative measures) which represent discrimination against cross-border suppliers. An important issue is the elimination of tax barriers and distortions. It would be politically difficult to create a single market in financial services as long as the process of tax co-ordination in financial markets was incomplete. This underlines the need to ensure minimum effective taxation of cross-border [savings](#) income. Furthermore, the efforts to eliminate tax barriers impeding the smooth operation of the single market in financial services, include proposals on [pension funds](#) and insurance

### **Consumer Confidence**

Whilst integration under the FSAP is based on mutual recognition of legal matters, applying the country-of-origin principle, harmonisation of rules essential for consumer protection is also important for both supply- and demand-side reasons. Cross-border providers of financial services can face additional costs to market entry due to national differences in consumer protection. Moreover, if they are to take advantage of new cross-border providers of retail

financial services, consumers also need to have sufficient confidence in and familiarity of the procedures available for protecting their interests.

It is important, however, that legitimate concerns about consumer protection are not abused to impede the integration process. An appropriate balance must be found between those legitimate concerns and integrating measures that promote growth. For example, measures based on increasing information to consumers and other ways of enhancing transparency can be used to help to generate consumer trust, and provide adequate protection, without adding to the costs of market participants.

### **Financial Stability**

Finally, the benefits of an integrated financial market can only be achieved if it is complemented with appropriate, efficient and effective arrangements to preserve financial stability. Whilst a deeper and more liquid EU-wide capital market is likely to be inherently better able to absorb shocks, it is equally essential that supervisory arrangements are properly designed and equipped to prevent and manage financial crises, with potential cross-border spill-over effects.

Many specific prudential rules are addressed in the FSAP. EU regulatory safeguards need to keep pace with new sources of financial risk and state-of-the-art supervisory practice in order to contain systemic or institutional risk (e.g. capital adequacy, solvency margins for insurance companies) and to take account of changing market realities (where institutions are organised on a pan-European, cross-sectoral basis).

Without prejudice to the need to preserve financial stability and protect the consumer, individual measures should aim (1) to reduce the costs of raising capital for companies, particularly growth-enhancing SMEs, (2) to increase potential and actual rates of return for investors and savers, including for pensions, (3) to engender genuine cross-border market access and competition between providers of financial services; and/or (4) to facilitate a wider provision of financial services and products for both investors and savers.

Such aims might, for example, be promoted with appropriate differentiation between the treatment of professional and retail investors; proportionality of market rules; and sufficient flexibility of definitions to allow future market development and innovation.

## **The Progress in the Post-Transition Economies**

Under central planning, the financial system was little more than "a book-keeping mechanism for tabulating the authorities' decisions about the resources to be allocated to different enterprises and sectors" (EBRD 1998). Securities markets were absent, since no marketable securities were available, and there was no need for prudential and supervisory regulations. The challenge for the transition economies after 1989 was to create from scratch a functioning financial system. The problem was that state owned banks had portfolios dominated by non performing loans and personnel with few technical skills in the field of banking.

Repairing the banking sectors in transition countries has been and is a major task that has developed over the years, which has implied massive injections of capital by the State<sup>3</sup>. Nevertheless, these banking crises in transition countries did not always produce the severe economic disruptions typical to many other countries, precisely because transition economies had a relatively underdeveloped system of financial intermediation (World bank, 2000).

The ratio of bank credit to the private sector relative to GDP by the countries' level of income per capita reveals that during the transition the new market economies were well below the corresponding full market economies. But this gap has been gradually eroded, as progresses were made in strengthening their banking systems.

Capital Markets in transition economies were characterised by less depth and breadth than those in market economies at comparable levels of development (where development is measured by GDP per capita). Comparing the market capitalisation of local corporations with that of other emerging-market economies revealed that the stock market capitalisation in post transition economies was relatively low, although it developed over years. Stock markets in the region also have seen considerable volatility.

Looking to the future long-lasting growth in post transition economies requires the conjunction of two major elements: stronger local savings and higher investment in the productive sector. In order for this to happen,

macroeconomic stability needs to be pursued. This is indispensable for reassuring savers that their deposits and investments will not be wiped out by inflation. In this respect, there has been a trend, in some countries, toward a somewhat excessive recourse to foreign debt and higher current account deficits.

A favourable business climate is also needed, with clear rules of the game and a competitive business environment. Eliminating subsidies to loss-making companies, enforcing bankruptcy laws, and eradicating state intervention in the conduct of enterprises are some of the prerequisites for improving the business climate.

TABLE 2: THE ROADMAP FROM TRANSITION COUNTRIES TO NEW EU MEMBERS IN THE FINANCIAL SECTOR

1990-2000: transition, instability & restructuring Public interventions Banking crises Macroeconomic instability Economic downturns Link between financial and economic crises	2000 - 2010: stability strengthening & development Financial and economic development Stable Banking Sector Private Ownership Expanding money markets Established Securities markets Macroeconomic Stability Positive economic Growth rates
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### **The Booster Effect of Enlargement**

For the EU enlargement enhanced its weight and influence in the international arena, while imposing on it new international responsibilities. For the new members, enlargement improved their long-term growth prospects by providing them with unimpeded access to a large single market and eventual free movement of goods, services, capital and people within the market.

Most of the EU membership requirements (market liberalisation and increased competition) would also be necessary for long-term growth of these countries with or without EU membership. The accession therefore provided important impetus for the acceleration of much needed reforms in some of the accessing members.

Closing the income gap with the EU average will require that almost all the new comers accelerate their real GDP growth rates substantially. For a successful integration, the new members also need to address other challenges in addition to the implementation of the *acquis communautaire*. These include (1) addressing the fiscal challenge, taking into account contingent liabilities and hidden deficits; (2) addressing the challenge of global financial integration; (3) strengthening administrative capacity; and (4) raising living standards for the groups at risk.

### **Private and Public Sector: towards a Joint Responsibility**

Apart from technical assistance given by the World Bank (EFSAL), little attention had been paid until the end of the previous decade to strengthening the finance industry. The initiatives taken by the IMF had always been aimed at the public authorities and public finance. The public authorities and the finance industry find it hard to set up a dialogue between them which makes it possible to combine their efforts for enhancing confidence on the side of the public, ensuring the solidity of the institutions and providing sound mechanisms for financing the real economy.

This highlights the importance of making further progress in clarifying and developing the principles for private sector involvement in both the prevention and the resolution of financial crises. The international community has also recently recognised the need to analyse how a clearer and more solid legal framework for debt standstill, debt restructuring, and debt reduction could contribute to facilitate orderly crisis resolution. Here too, some proposals imply more significant institutional changes.

As already mentioned above, the use of the international financial system for illicit purposes has become a major concern. Characterised by a high degree of openness and decentralisation, the system is being used for criminal activities, including money laundering and the financing of terrorism, for tax evasion and for the circumvention of regulations. In some cases, corporate entities are deliberately created for such purposes. The abuse problem is

compounded by the existence of a number of countries and judicial territories that see their comparative advantage in granting favourable tax and regulatory environments for non-residents funds. Financial abuses can threaten the credibility and undermine the integrity of the international financial system and affect countries at every stage of development.

In response to these challenges international collaboration has been intensified through existing fora and organisations, such as the G8 Finance Ministers, OECD work on harmful tax practices and the Financial Action Task Force on money laundering and on the financing of terrorism. The Financial Stability Forum established in 1999 has worked on a variety of questions, including the activities of highly leveraged institutions and offshore financial centres. Specific actions have been taken against terrorist financing. Increased corporate transparency and better-integrated supervisory systems are seen as necessary conditions to prevent the misuse of corporate vehicles for illicit purposes.

A common challenge to most of the proposals reviewed is the question of how to ensure compliance of non-signatory third partners. It is sometimes argued that better compliance with international rules and practices could result from improved co-ordination between the existing institutions engaged in related projects. Furthermore, the fight against unfair practices has to be placed in the broader context of a coherent and sustainable approach to development.

Most of the initiatives taken by the IMF till the end of the nineties passed through the central banks and are primarily aimed at the supervision of monetary and budget policy measures. The scope of these initiatives is more and more extended to the solidity of the finance industry, banks and non banks. The central banks of emerging countries take more initiatives, on their own behalf, in order to foster the development of a well-organised finance sector with the ability to make an active contribution to the implementation of collective systems for payment, clearing, information and training, etc.

Financial actors associations and federations are natural complement to both the processes of corporate governance and internal supervision. Their task also consists in stimulating the national finance industry as a whole to become market oriented as well as to adapt its human and technological resources. The organisation representing the finance community, banks and non banks, must be consulted whenever a reform is being implemented, in order both to defend the legitimate sectoral and cross-sectoral interests, and to help the industry in adapting to the new situation as smoothly as possible.

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### **End Notes**

The Barcelona European Council in March 2002 renewed the commitment of Heads of State and Government to the FSAP, calling for full implementation by 2005 and for every effort to be made to foster an integrated securities market, and risk capital market (via completion of the Risk Capital Action Plan), by the end of 2003. So far, 80% of the original measures have been finalised. This is a notable achievement. However, the measures in the remainder of the package are crucial.

<sup>2</sup> Committee of Wise Men on the Regulation of European Securities Markets. The Committee issued its Report in February 2001. The European Parliament gave its agreement to this approach on 5 February 2002.

<sup>3</sup> These actions to repair the banking systems have typically cost on the order of 10 percent of GDP per country. This is by no means unique to transition economies. Banking sectors in other countries be they industrialised (such as the Scandinavian countries and Japan) or emerging (Latin America and Southeast Asia) also have experienced crises that have led, in some cases, to more heavy injections of equity than in transition countries.

## **Formal Microlending and Adverse (or nonexistent) Selection: a Case Study of Shrimp Farmers in Bangladesh**

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### **Abstract**

Microcredit schemes have become a popular means of improving smallholders' access to credit and making long-term investment possible. We study efficiency in shrimp farming in a rural region in Bangladesh where formal microlending is well established, but where more expensive informal microlending coexists with the formal schemes. Farmers, both those who exclusively use formal loans and those who also use informal loans, remain credit constrained; both types over-utilise labour in order to reduce the need for inputs that require cash payment, creating inefficiencies in production. However, the credit constraint is actually milder for the informal borrowers; the implicit shadow price of working capital is substantially higher in the group that only takes formal loans than in the group that also uses informal loans. These results suggest that informal lenders – with their closer ties to the individual farmers – remain more successful in identifying those small-holder farmers that are most likely to use the borrowed funds successfully. Informal lenders have an information advantage that formal microlenders lack; formal lenders need to find routes for accessing this information in order for formal microcredits to succeed.

### **Introduction**

In this paper, we study measures to improve credit access for smallholder shrimp farmers in Bangladesh. Specifically, we study whether the increasingly popular small scale formal credits – microcredits – are successful in reaching those borrowers who are most likely to use the borrowed funds successfully. Our findings suggest that this may not be the case.

It has long been noted that limited access to credit is an important constraint on rural development in many developing countries, and that there are information problems and other inherent problems in the credit allocation process (Hoff and Stiglitz, 1993). The outcome of these information problems, discussed in detail in section 2, is frequently that larger farmers have access to cheap formal credit but that smaller farmers are forced to resort to costly informal loans. Because of these information problems, many attempts at providing cheap credit to smallholder farmers have failed in the past.

A solution to this problem which has come into increasing popularity is the use of so-called microcredit financing, where various innovative means of securing the loans, such as peer monitoring, are used. The most well-known microcredit organisation, the Grameen Bank in Bangladesh, was awarded the Nobel Peace Prize for 2006 jointly with its founder Muhammad Yunus. Grameen Bank has been in operation since the 1970s, starting in Bangladesh and spreading to several other Asian countries and inspiring similar schemes in many developing countries. Microcredits have also had considerable impact on the development debate. Thus, the United Nations declared 2005 the “International Year of Microcredit”, giving some indication of how important this issue is now considered to be for development.

In this paper, we study the effectiveness of formal microcredit schemes as compared to the traditional informal credit sources in a rural shrimp farming district in Bangladesh. We compare the two types of credit by studying the technical and allocative efficiencies of the two groups of borrowers. Our results indicate that formal microlending still has trouble identifying the most suitable loan recipients.

The paper is structured as follows. Section 2 provides theoretical background on the issues surrounding rural microlending and discusses experiences from existing schemes. Section 3 explains the theoretical framework used in efficiency analysis. Section 4 describes the dataset used and provides some descriptive statistics. Section 5 describes how the analysis of farming efficiency was carried out in practice. Section 6 presents the results from the efficiency calculations, and the final section discusses the policy implications of these results for rural upliftment strategies.

## **Formal and Informal Credit**

Historically, the lack of access to credit has been an important constraint to rural upliftment strategies. Microfinance is not the first attempt to address this problem; many developing countries provided cheap small scale credit to smallholder farmers in the 1970s. However, these government-run credit schemes were rarely financially viable, and when governments were forced to reduce subsidies in the 1980s many of these rural credit schemes collapsed.

To some extent, the problems that these government credit schemes encountered were not surprising. There are a number of reasons why credit markets tend to be more problematic than many other markets, especially in developing countries, and policy interventions that do not take this into account are likely to fail. The main reason why credit markets are more problematic than others is that lenders and borrowers have different information about the quality of the borrower's project, both with respect to the expected outcome and with respect to the variance of the outcome.

Lenders face an adverse selection problem. They can discourage borrowers who have projects with low expected returns by charging high interest rates. However, the borrowers most likely to accept loans with high interest rates are the ones whose projects have high risk but potentially also high return – for the borrower. This means that a higher interest rate will increase the share of risky projects in the lender's loan portfolio and will, at sufficiently high interest rates, reduce the overall return on the loan portfolio (Stiglitz and Weiss, 1981). Therefore, lenders will normally try to ration credit through other means as well, especially in settings – such as those in many developing countries – where the scope for collecting debt from defaulters is limited due to weak institutions.

As an alternative way of rationing credit, lenders can pose high collateral requirements in order to ensure that the borrowers will be able to repay even if the projects fail, but high collateral requirements will of course tend to make it difficult for smallholders to borrow. Alternatively, lenders can rely on screening procedures in order to identify those borrowers who are likely to succeed. However, screening is costly for a bank and the cost will have to be recouped through increasing the cost of the loan. Since the screening cost is likely to be high even for the small loans that smallholder farmers might be interested in, the costs of such loans become prohibitively high for smaller farmers.

On the other hand, informal lenders who are based in the communities, and who pursue lending as a side activity, can observe individual farmers' production activities and can more easily identify those farmers who are likely to succeed in their projects. Such informal lenders therefore have a natural advantage over formal banks, and since they have a far smaller adverse selection problem than the formal banks do they can charge high interest rates on the loans that they provide.

Attempts to provide cheap credit to farmers through government credit schemes might in theory avoid some of the problems facing other formal lenders – since the government can more easily, e.g., confiscate land from those farmers who do not repay their loans – but in practice these advantages have rarely been used. Governments have been reluctant to enforce loan repayments from defaulting farmers; this has meant that government credit schemes have needed subsidies in order to function, and since default rates have frequently increased over time – when other farmers observe that defaulters have not been penalised – most schemes have collapsed at some point.

Formal microcredit schemes are an attempt to utilise social pressure in order to encourage borrowers to repay their loans. A common setup is that a group of borrowers in the same village or region are made jointly responsible for each other's projects; this moves part of the cost of defaults from the bank to the borrowers. It also reduces the need for screening loan applicants, because neighbours will monitor each others' loan performance and there will be considerable social pressure on individual borrowers to repay loans. By reducing the costs related to

small-scale loans, such arrangements make it possible for the formal lenders to make cheap loans available to smallholder farmers. The intent is that this will enable smallholder farmers to make investments and production decisions that would not be profitable at the interest rates charged by informal lenders, but that are profitable when interest rates are lower.

The formal microcredit initiatives are intended to promote rural development and help the poorer small scale farmers by making long term investment easier. This could, in principle, be done by making cheap credit available to a randomly selected group of poor farmers. However, given the adverse selection issues which have troubled small scale formal credit schemes in the past, there should also be some attempt to target those farmers who are most likely to use the invested funds successfully.

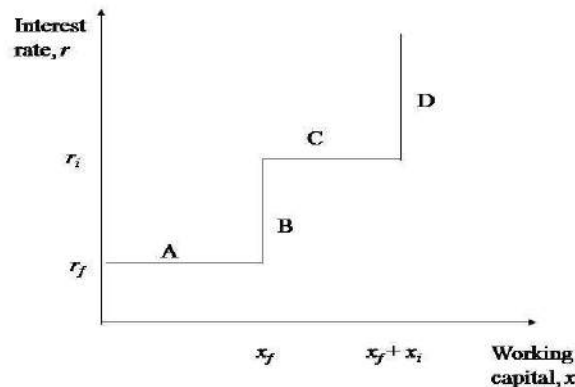


FIG. 1: THE SUPPLY OF WORKING CAPITAL TO AN INDIVIDUAL FARMER.

Fig. 1 helps to illustrate the potential outcomes of making cheap credit available to a farmer. We assume that the farmer has a demand for working capital, determined by the profitability of the marginal unit of working capital, and that the farmer can borrow the amount  $x_i$  at an informal rate  $r_i$  to finance part (or all) of his/her working capital requirements. The size of this informal credit, and the interest rate at which it is lent, will vary between different farmers, depending on the informal lenders' perception of the individual borrower. If a formal credit scheme makes an amount  $x_f$  of cheap credit available to the farmer at the lower interest rate  $r_f$ , we see that this can have a range of different outcomes. The outcome will depend on the supply of formal and informal credit (illustrated in the figure) relative to the farmer's demand for working capital.

If the formal credit is sufficiently large compared to the farmer's demand for working capital, the farmer will make all the investments that are profitable at the interest rate  $r_f$ , will not wish to borrow the full amount of formal credit made available, and will not borrow informally. This outcome corresponds to the farmer choosing some level of credit along the part of the credit supply curve denoted by A. The farmer's shadow price of working capital will be equal to the formal interest rate.

If the formal credit is not sufficiently large to achieve this outcome, the farmer will perceive a credit constraint, in that he/she would prefer to borrow more at the formal rate, and will perceive a shadow price of working capital that is higher than the formal interest rate. However, if this shadow price is lower than the informal interest rate made available to that specific farmer, he/she will still not borrow informally. This outcome corresponds to a level of credit along the part of the credit supply curve denoted by B. The shadow price of working capital will be higher than the formal interest rate, but lower than the informal interest rate available to that farmer.



If the demand for working capital is sufficiently high, the farmer will also borrow informally. If the amount of informal credit made available is sufficiently large to cover his/her working capital needs at the informal interest rate  $r_i$ , the farmer will perceive a shadow price of working capital that is equal to the informal interest rate. This outcome corresponds to a level of credit along the part of the credit supply curve denoted by C in Figure 1. The farmer borrows  $x_f$  formally and combines this with additional informal funds.

When the informal credit constraint is also binding, the farmer borrows the total working capital  $x_f + x_i$ . However, even at the higher informal interest rate  $r_i$ , the farmer would prefer to borrow more than this amount. He/she therefore perceives a shadow price of working capital which is higher than the informal interest rate. This corresponds to section D of the credit supply curve.

In all four cases, the cheap formal credit generates a welfare improvement for the farmer, because his/her borrowing costs are reduced. However, it is only in case A that the farmer's investment decision will be directly determined at the margin by the formal interest rate. In all the other cases, the farmer's marginal investment decision will be determined by the relationship between his/her shadow price of working capital and the informal interest rate that informal lenders offer. Since this informal rate will vary from farmer to farmer, this means that the farmer's shadow price of capital and, hence, marginal investment decision will be determined by how the farmer is perceived as a credit risk by the informal lenders.

If a farmer faces a constraint on formal credits but nonetheless chooses not to borrow informally, this is because his/her shadow price of working capital is lower than the informal rate that he/she is offered. If the farmer's shadow price is higher than the average informal interest rate, this indicates that the farmer is perceived as a poor credit risk by informal lenders – he/she would be prepared to borrow at the informal interest rates offered to other farmers, but is not offered this interest rate. In this case, the farmer does not borrow informally because informal lenders are reluctant to lend to him/her, and the formal lender has made a poor choice when lending to this borrower rather than to others.

On the other hand, if the farmer's shadow price of working capital is lower than the informal rates offered to other farmers, the farmer's main reason for not borrowing informally is that the formal credit takes care of most of his/her working capital needs. In this case, the farmer could (presumably) borrow informally at rates comparable to those offered to other farmers, but chooses not to because this would not be profitable. Thus, we can study the adverse selection issue in formal lending by looking at whether farmers who only borrow formally have higher or lower shadow prices of working capital (and, hence, are perceived as worse or better credit risks) than the farmers who also take informal loans.

In order to analyse these issues, we make an analysis of technical and allocative efficiency for shrimp farmers in a rural region in Bangladesh where formal and informal small scale credit schemes coexist. Some farmers only use small scale formal loans, a few use only informal loans, and some use both types of loans. Studying whether there are systematic differences in efficiency between the borrowers who use only formal loans, and those who also (or exclusively) use informal loans, indicates how successful the formal schemes have been in identifying the farmers who are most likely to use the borrowed funds successfully.

## Efficiency Measurement

Standard economic theory assumes that firms adopt a profit maximizing or a cost minimizing strategy. These are reasonable assumptions. But even though optimization is the main objective of the producers, it might for various reasons not always be achieved. Efficiency theory makes an extension to the standard economic theory and assumes that firms can be technically or allocatively inefficient, or both, in their production decisions. Technical inefficiency is measured in mechanical terms, and means that the firm may not choose the best possible technology. Firms might be allocatively inefficient by not choosing the combination of inputs and outputs that generates the maximum profit, or the input combination that generates the least costs.

Efficiency theory goes back at least to Koopmans (1951) who provided a definition of technical efficiency, Debreu (1951) and Shephard (1953) who provided a measure of the distance between the production point and the

optimal frontier, and Farrell (1957) who provided a computational framework for both allocative and technical efficiency.

Today, economic efficiency is evaluated using either a deterministic or a stochastic approach. The deterministic set-up has the advantage of allowing for flexible functional forms but the drawback that no inference can be made about the efficiency measurement. The stochastic set-up can be divided into at least two different categories; the stochastic frontier analysis and the shadow price approach. In the stochastic frontier analysis, efficiency is basically modelled by adding two stochastic error terms to the objective function; one symmetrical error term that allows for random noise across firms, and one skewed error term that captures the effect of inefficiency relative to the frontier. The skewed error term is negative in production and profit function setting and positive in the cost function setting. The stochastic frontier analysis is straightforward in a single equation framework, but is very difficult to estimate in a simultaneous equation framework (Kumbhakar and Lovell, 2000). Using only a single equation model, on the other hand, has the drawback that it does not allow for a distinction between allocative and technical efficiency and it does not utilise data on input quantities. In this paper, we therefore use the shadow price approach.

The basic assumption behind the shadow price approach is that firms optimize with respect to shadow prices, rather than the observed market prices. Efficiency parameters are included in the objective function and in the first order conditions. This approach, originally due to Lau and Yotopoulos (1971), will be used in this paper. The motivation behind using this approach is that it is stochastic so it will allow us to make inference about the efficiency parameters and it also allows for simultaneous equations which will make better use of our limited data. This method also permits us to estimate the farmers' perceived shadow prices of working capital directly.

We assume that the environment for the shrimp farmers in rural Bangladesh can be characterised by competitive markets, where output is demand driven so that input prices and output can be considered as exogenous. This makes the cost function an appropriate behavioural function. Cost efficiency can be modelled using either an input- or an output-oriented measure. As the input-oriented efficiency is easier to estimate (Kumbhakar and Lovell, 2000) it will be used here. In this framework, technical efficiency can be seen as the ability to minimize the input use for producing a given output. The underlying production function can then be specified as

$$y_i = f(\phi_i x_i; \beta) \exp\{v_i\} \quad (1)$$

where  $y_i$  is the scalar output of farmer  $i$ ,  $x_i$  is the input vector,  $f(x_i; \beta)$  is the deterministic part of the production function,  $\beta$  is a vector of parameters in the production function,  $v_i$  is a symmetrically distributed stochastic error term with mean zero and constant variance, and  $0 \leq \phi_i \leq 1$  is a farm specific measure of technical efficiency. The technical efficiency parameter causes the cost function to shift.

Allocative inefficiency is introduced into the model by allowing the farmers to fail in minimizing the cost with respect to the observed prices, i.e., the marginal rate of transformation is allowed to diverge from the input price ratio. Instead, the farmers are assumed to minimize cost with respect to shadow prices that are parametrically related to the observed factor prices. The first order condition for the optimization problem can then be written as

$$\frac{\frac{\partial f(\phi x, \beta)}{\partial \phi x_2}}{\frac{\partial f(\phi x, \beta)}{\partial \phi x_1}} = \theta_{21} \frac{w_2}{w_1} \quad (2)$$

where  $\theta_{21}$  is a measure of the relative allocative efficiency. If  $\theta_{21} = 1$ , the farm is allocatively efficient. If  $\theta_{21} < 1$ , it means that the farmer is optimizing with respect to a relative shadow price of factor two that is lower than the actual relative price of that factor, leading to over usage of factor two. The opposite is true if  $\theta_{21} > 1$ . In the following, the first input is set as a numeraire and the shadow price vector is written as

$$w^* = [w_1, \theta_{21} w_2, \dots, \theta_{N1} w_N] \quad (3)$$

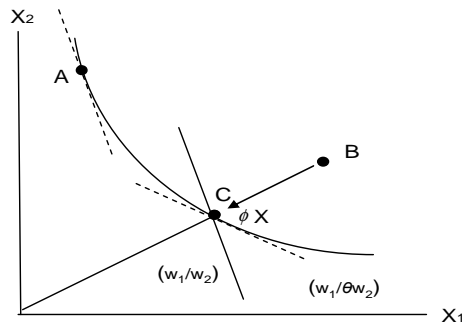


FIG. 2: INPUT-ORIENTED COST EFFICIENCY

The reasoning underlying the input-oriented cost function approach is illustrated for the two-input case in Fig. 2. The two inputs are  $x_1$  and  $x_2$ , and all input combinations along the isoquant permit production of one unit of output. Given the input prices  $w_1$  and  $w_2$ ,  $A$  is the cheapest input combination that permits production of one unit of output, and thus corresponds to efficiency in production.

If a firm uses the input combination  $B$  to produce one unit of output, it is neither technically nor allocatively efficient. If all inputs were reduced by the proportion  $\phi$ , to the input combination denoted by  $C$  in Figure 2, the firm would become technically efficient. It could still produce one unit of output, but at lower cost.  $C$  is technically efficient but is not allocatively efficient, since it is not the cost minimizing input combination. However, it would be the cost minimizing input combination if the ratio between the input prices were  $w_1 / \theta w_2$  rather than  $w_1 / w_2$ . Thus,  $\phi$  can be seen as a measure of the technical inefficiency of the firm's actual input choice, and  $\theta$  as a measure of the allocative inefficiency.

Given the discussion in the previous section, we may note that although these shadow prices are normally interpreted as measuring inefficiencies due to poor input choices, in this setting the measured shadow prices of working capital can also be interpreted as the actual shadow prices facing the individual farmers.

## Data

The study uses data from a survey of credit sources used by shrimp farmers in the Khulna district in Bangladesh (Holmgren, 2005). The survey was carried out in late 2004 and included questions on the farm's production of shrimp and other outputs and on the prices paid for these outputs. A number of questions addressed the farm households' demand and supply of inputs to production: the use of labour (own and hired) in farm production, wages paid to hired labour, the supply of labour for paid work elsewhere by the household and wages received for this; the use of land (own and leased), payment for leased land, leasing out of land and payment for this. The survey also included questions about household characteristics such as household size, education (if any) and so on. Finally, the survey asked about formal and informal loans taken, the purpose of the loans, the interest paid on each loan, and whether households were credit constrained in the sense that they would have liked to borrow more.

For the subdivision between formal and informal loans, we follow the standard practice of defining formal lenders as institutional lenders who mainly finance loans through deposits from others, while informal lenders are defined as private lenders who mainly finance loans out of their own equity. In practice, this subdivision was straightforward to make.

In all the villages surveyed, there were functioning labour markets, land rental markets, and credit markets for working capital. All households are assumed to be price takers in the sense that, although different households faced different input prices (depending, e.g., on whether they were net buyers or sellers of the input), it is assumed that none of them can affect the input prices that they pay or receive for the marginal unit purchased or sold. Thus, although some of the households had access to favourable prices on, e.g., family labour from close relatives, it was

assumed that the highest input price paid reflected the marginal input cost facing each household and that this price was unaffected by the household's demand for the input.

Similarly, it was assumed that for those households that rented out labour or leased out land, the marginal value of that labour or land in own production was the price paid for it (because, presumably, the household would have used more of the labour or land in its own production if this had been more profitable). If these price taking assumptions hold, farm production decisions will be based solely on the prices of the marginal unit of each input. Thus, although in practice the farm household is likely to make consumption, work, and production decisions jointly, the production decisions can nonetheless be analysed separately from the household's other decisions (Sadoulet and de Janvry, 1995).

Since the purpose of the study was to compare informal and formal loans for use in production, farmers who had borrowed for consumption purposes or who had not borrowed at all – approximately half the surveyed farmers – were removed from the sample. Descriptive statistics over borrowed capital, labour use, land use and agricultural production for the farmers remaining in the dataset are provided in Table 1. All farmers perceived themselves as credit constrained, in the sense that they all stated that they would have liked to borrow more money. This means they can all be assumed to have borrowed the full amount that they were able to. This simplifies the analysis considerably (see, e.g., Feder et al., 1990, for a discussion of the selection issues when this is not the case) and, with the framework used in section 2, implies that all the farmers belong either to category B (credit constrained, and financing all working capital requirements with formal loans) or category D (credit constrained, and financing at least some working capital requirements with informal loans).

61 % of the studied farmers took only formal loans, 9 % took only informal loans, while the remaining group (30 %) took both formal and informal loans. Since the crucial distinction in our analysis is that between the farmers who do not borrow informally, and the ones who do, the two groups of farmers who borrow informally (the ones who also borrow formally, and the ones who do not) are equivalent for the purposes of our study and are aggregated in the analysis.

The average rate of interest paid by the farmers taking only formal loans was 13.6 %; looking at the interest paid by each borrower on the last taka of formal loans (the marginal factor cost for formal loans), the marginal cost of capital was, on average, 14.3 %, i.e. almost the same. For farmers who also used informal loans, on the other hand, the differences in interest rates between the two types of loans meant that the marginal rate of interest on the last taka borrowed was substantially higher than the average rate of interest paid and was, on average, 35 %.

The two categories show largely similar patterns in terms of labour use. Both groups mainly use own labour, but in both groups there are also farmers who, to some extent, supplement this with hired labour. Many households also supply labour outside of agricultural production, either by doing own off-farm production as a side activity or by working for pay elsewhere. On average, labour use by the farm is roughly equal to the average labour supply by the farm household in both groups, but there is considerable variation within both groups.

For labour, it is difficult to calculate average factor costs since unpaid family labour plays an important role on most farms. However, for the last labour hour used on each farm, the two groups faced largely similar labour costs on average, but with considerable within-group variation.

Markets for land rental are well developed and both groups include farmers who rent, as well as farmers who rent out, land. On average, the surveyed farmers rent more land than they rent out, but again, the variation is considerable in both groups.

Shrimp farming was the main farming activity on all surveyed farms, though not necessarily the main economic activity of the household. Many farms supplemented shrimp production with other agricultural production during other parts of the year; the main side activity was rice production, but many farmers also devoted time and resources to fish breeding, vegetable production, or both. It may be noted that although all groups display considerable variation, the average shrimp production is lower among the farmers who cover at least some of their working capital requirements through informal loans, and that the variation is smaller in this group than among the formal borrowers.

TABLE 1: DESCRIPTIVE STATISTICS OVER BORROWED CAPITAL, LABOUR USE, LAND USE AND AGRICULTURAL PRODUCTION.

Farmer groups	Formal loans only				At least some informal loans			
Variables	Average	Standard deviation	Max	Min	Average	Standard deviation	Max	Min
Borrowed working Capital in takas (1 taka is approximately 0.015 USD)	23571	32988	150000	3500	52917	61327	190000	1000
Average rate of interest	13.6	5.3	24.2	5.0	24.4	19.2	60.0	2.6
Marginal rate of interest	14.3	5.9	28.0	5.0	34.6	19.8	60.0	6.0
Labour used in agriculture, hours per year	17065	13147	53782	3483	19419	18919	84634	2731
Own labour supply, share of total labour use	1.01	0.43	1.78	0.17	1.08	0.40	1.67	0.16
Marginal cost of labour	10.6	3.4	18.8	1.0	13.1	12.1	59.2	0.6
Land use in hectares	30.9	47.4	200.0	0.5	39.3	65.6	250.0	1.0
Own land, share of land used	0.73	0.46	1.60	0.00	0.76	0.45	1.60	0.00
Marginal cost of land in takas	357	39	430	300	344	30	400	324
Shrimp production in kgs	762	1545	8010	10	636	843	2520	20
Rice production in maunds (1 maund is approximately equal to 40 kg of rice)	149	153	640	0	86	86	280	0
Fish production in kgs	736	1534	8000	10	373	394	1280	20
Vegetable production, revenue in takas	1196	4038	20000	0	389	1145	4000	0
N	28				18			
Share of total sample	0,61				0,39			

## Econometric Specification

In this paper we assume a Cobb-Douglas cost function. In the absence of inefficiencies, this cost function can be written as

$$c(y, w; \beta) = \gamma_0 y^{1/r} \prod_n w_n^{\gamma_n} \quad (4)$$

where  $c$  is the production cost,  $y$  is the agricultural production (in order to achieve a single measure, rice, fish, and vegetables are recalculated into the number of kilograms of shrimp that would give the same revenue),  $w_i$  are the input prices ( $w_1$  is the hourly wage rate,  $w_2$  is the interest rate on borrowed working capital and  $w_3$  is the land rent), and  $r$  indicates the degree of homogeneity in the underlying production function. The restriction that  $\sum_n \gamma_n = 1$  is imposed to satisfy the assumption of homogeneity of the cost function with respect to input prices.

In the absence of inefficiencies, the input demand equations, obtained by differentiating the cost function with respect to factor prices, would be given by

$$\begin{aligned}
x_1(y, w; \beta) &= \gamma_0 \gamma_1 y^{1/r} \prod_{n>1} \left( \frac{w_n}{w_1} \right)^{\gamma_n} \\
x_2(y, w; \beta) &= \gamma_0 \gamma_2 y^{1/r} \left( \frac{w_2}{w_1} \right)^{-1} \prod_{n>1} \left( \frac{w_n}{w_1} \right)^{\gamma_n} \\
x_3(y, w; \beta) &= \gamma_0 \gamma_3 y^{1/r} \left( \frac{w_3}{w_1} \right)^{-1} \prod_{n>1} \left( \frac{w_n}{w_1} \right)^{\gamma_n}
\end{aligned} \tag{5}$$

where  $x_i$  are the quantities of inputs;  $x_1$  is total number of labour hours per year,  $x_2$  is the total amount of borrowed working capital, and  $x_3$  is the land used in production, measured in bighas (a standard unit of area used in Bangladesh; in Bangladesh, a bigha is defined as one third of an acre and hence approximately 1350 m<sup>2</sup>).

Following Kumbhakar and Lovell (2000), technical inefficiency is introduced into the model by replacing the intercept of the cost function by  $\gamma_0 \exp(-\Delta D)$ , where  $D$  is dummy variable indicating one if the farmer belongs to a particular group and zero otherwise, thus  $\exp(-\Delta)$  is the relative technical efficiency of this group compared to the other group. Allocative inefficiency enters the model through the assumption that farmers minimize costs with respect to shadow prices rather than market prices. The input demand equations are then given by

$$\begin{aligned}
\ln x_1 &= \ln \gamma_0 - \Delta D + \ln \gamma_1 + \frac{1}{r} \ln y + \gamma_2 \ln \left[ \theta_{21} \left( \frac{w_2}{w_1} \right) \right] + \gamma_3 \ln \left[ \theta_{31} \left( \frac{w_3}{w_1} \right) \right] \\
\ln x_2 &= \ln \gamma_0 - \Delta D + \ln \gamma_2 + \frac{1}{r} \ln y + (\gamma_2 - 1) \ln \left[ \theta_{21} \left( \frac{w_2}{w_1} \right) \right] + \gamma_3 \ln \left[ \theta_{31} \left( \frac{w_3}{w_1} \right) \right] \\
\ln x_3 &= \ln \gamma_0 - \Delta D + \ln \gamma_3 + \frac{1}{r} \ln y + \gamma_2 \ln \left[ \theta_{21} \left( \frac{w_2}{w_1} \right) \right] + (\gamma_3 - 1) \ln \left[ \theta_{31} \left( \frac{w_3}{w_1} \right) \right]
\end{aligned} \tag{6}$$

In order to see if there is a difference in efficiency between farmers who only take formal loans and those farmers who either take only informal loans or use both types of loans, we follow Stefanou and Saxena (1988), Kumbhakar and Bhattacharyya (1992), Bhattacharyya et al. (1994), and Wang et al. (1996), and model inefficiency as a function of firm specific variables. The technical and allocative efficiency parameters are modelled as:

$$\Delta D = \alpha \cdot \text{informal} \tag{7}$$

$$\theta_{n1} = \exp(\beta_n + \beta_{\text{inf},n} \text{informal}) \quad n = 2, 3 \tag{8}$$

$$\theta_{11} = 1$$

where *informal* is a dummy variable which is set to one if the farmer has taken any type of informal loans and zero if only formal credits have been used. The functional form used in equation (7) means that only differences in technical efficiency between the two groups, and not overall technical efficiency, can be measured; this is unavoidable when cross-sectional data are used.

To evaluate the model, and to see if there is any difference in efficiency between farmers using different types of credit schemes, a number of hypotheses regarding the parameters are tested. We start by testing the null hypothesis that there is no allocative inefficiency in either group, and no difference in technical efficiency. The null hypothesis is then written as

$$\alpha = \beta_n = \beta_{\text{inf},n} = 0 \tag{9}$$

The second hypothesis specifies that there is no significant difference in efficiency between the farmers who rely only on formal credits and those farmers who use informal credit schemes.

$$\alpha = \beta_{\text{inf},n} = 0 \quad (10)$$

Third, we test the hypothesis that the farmers in our sample are allocatively efficient.

$$\beta_n = \beta_{\text{inf},n} = 0 \quad (11)$$

Fourth, we test the hypothesis that there is no difference in relative allocative efficiency between the two groups.

$$\beta_{\text{inf},n} = 0 \quad (12)$$

The above hypotheses are tested with Wald tests. We also test the individual parameters using t-tests. Finally we calculate the cost of inefficiency for each farmer. Following Kumbhakar and Lovell (2000), the total expenditure can be written as

$$\ln E = \ln c(y, w; \beta) - \Delta D + \left\{ \sum_{n>1} \gamma_n \ln \theta_{n1} + \ln \left[ \gamma_1 + \sum_{n>1} \left( \frac{\gamma_n}{\theta_{n1}} \right) \right] \right\} \quad (13)$$

Where the first term is the natural logarithm of the minimum cost, the second term is the share of overall expenditure caused by technical inefficiency, and the expression within the brackets is the share of overall expenditure caused by allocating inefficiency.

## Results

Since the demand equations in the equation system (6) have correlated disturbances and cross-equation restrictions, the system was estimated using a nonlinear seemingly unrelated regression technique (Zellner, 1962) in TSP. The motivation for using this method is that it makes better use of the information than if the equations had been estimated separately. Table 2 shows the parameter estimates and Table 3 gives the results from the hypothesis tests.

TABLE 2: RESULTS.

Parameter	Coefficient
$\ln \gamma_0$	2.64**

	(0.84)
$\ln \gamma_1$	-2.43** (1.05)
$\ln \gamma_2$	-0.64** (0.18)
$\alpha_1$	0.091 (0.15)
$1/r$	0.66** (0.048)
$\beta_2$	2.38** (1.18)
$\beta_{inf\ 2}$	-1.29** (0.33)
$\beta_3$	1.57** (0.37)
$\beta_{inf\ 3}$	0.35 (0.28)
$R^2$ labour	0.57
$R^2$ capital	0.51
$R^2$ land	0.82
$LM$ labour	0.29
$LM$ capital	2.92*
$LM$ land	0.16

As can be seen in Table 2, the  $R^2$  measures for the individual equations range from 0.51 to 0.82. The LM test indicates that there might be a problem with heteroscedasticity in the working capital equation.

TABLE 3: HYPOTHESIS TEST

Hypothesis	$\chi^2$ statistic
$\alpha = \beta_n = \beta_{inf,n} = 0$	50.56**
$\alpha = \beta_{inf,n} = 0$	27.57**
$\beta_n = \beta_{inf,n} = 0$	44.11**
$\beta_{inf,n} = 0$	19.94**

The results suggest that there are allocative inefficiencies in shrimp farming, and that there is a significant difference in allocative (though not technical) efficiency between the farmers who only rely on loans from formal lenders and those farmers who take at least some loans from informal lenders. The estimated values of  $\theta_{21}$  and  $\theta_{31}$  are larger than unity for both groups, suggesting that the farmers over-utilise labour in relation to both land and working capital.

From the parameter estimates, it can be seen that the over-allocation of labour in relation to working capital is significantly smaller in the group using informal credits; the implicit shadow price of working capital is substantially higher in the group that only takes formal loans (154 % on average) than in the group that also uses informal loans (103 % on average), even though the market price (as seen in the descriptive statistics) is considerably lower for the formal loans.

Both groups are allocatively inefficient in the land-labour allocation, in the sense that they have implicit shadow prices for land that are considerably higher than the market price, but there is no significant difference between the two groups. Using the significant parameters to calculate the share of overall expenditure caused by allocative inefficiency, we conclude that the costs of inefficiency are approximately 70 per cent of the overall expenditure among the farmers using informal credits, while the corresponding share for those farmers using only formal loans is 77 per cent.



## Conclusions

This study has analysed efficiency differences between shrimp farmers who rely on formal credits for all their working capital needs and farmers who also borrow informally. The sample was small, and the results may not be representative for the overall formal and informal markets for small-scale credits. However, some results from the study nonetheless deserve some notice.

All the farmers in our sample perceived themselves as credit constrained; this was true both for those who financed all their working capital through formal borrowing, as well as for those who also borrowed informally. The fact that both groups act as though the shadow price of working capital is substantially higher than the price that they actually pay is further indication of this. Thus, improved access to working capital credit remains an important issue for rural smallholders, even in Bangladesh, where formal microcredit schemes have been available for a considerable length of time.

It also deserves to be noted that the farmers who borrow informally were, on average, more efficient in their use of inputs than the farmers who only borrow formally. On average, their shadow price of working capital was also considerably lower than that for the farmers who only borrowed formally. This indicates that, at least in this part of Bangladesh, the formal credit schemes currently available to smallholder farmers have not been successful in selecting the farmers who are most likely to use the borrowed funds successfully.

Formal microcredits are an important improvement compared to the previous attempts at providing formal credit to small scale rural farmers, in that repayment rates are far better. This means that, unlike previous formal credit schemes aimed at smallholder farmers, the microcredits are likely to remain financially viable and hence remain available as a source of credit for the foreseeable future. As noted in section 2, the availability of cheap working capital through formal microcredits represents a welfare improvement for farmers, even when the cheap working capital is not large enough to have a direct impact on their production decisions.

Nonetheless, the indication from our study is that work still remains to be done in identifying the most suitable borrowers, and to make sure that they have access to the amount of credit that they need. The informal lenders have better information on the individual borrowers, and therefore remain more successful than the formal credit sources in assessing what borrowers are likely to make the best use of additional funds. Finding ways of making this information available to the formal lenders remains an important issue.

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# The Microfinance: Theoretical Foundations and Evolutionary Tendencies

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## Abstract

From the half of the last century, as a result of the strong impulse offered from the theoretical research and meaningful evidences of the empiricists, the biggest international institutions dealing with development have increased their interest towards this topic in consideration of the fact that microcredit and microfinance are useful instruments to fight poverty in the PVS. In Europe and in the western countries too, the interest has grown towards microfinance. In particular, the dilemma faced by the academic world, together with the facts that operate in the field, have contributed to considering the adoption of the theoretical models of reference to the different associate-economic contexts, going also beyond the borders of the PVS, strongly industrialized and that are in reality far from the standards of poverty of the countries in the south of the world.

## Methodology

In order to collocate this topic in the wider economic field, a review on the relation between the microcredit and the microfinance with the other economic-financial disciplines has been inserted. In particular, it is necessary to inquire the economic literature with reference to the following three aspects:

- the birth and the development of traditional studies centred on the theory of the well-being economy that justifies the existence of capital assets transfer in favour of the underdeveloped countries,
- the markets' friction elements (Principal agency theory) that demonstrate the necessity of the participation of the intermediaries in the exchange of the capital assets,
- the inability of the credit institutions to perceive and satisfy the requirements of the poor and the consequent birth of the informal finance as an alternative instrument in order to satisfy their necessities of credit.

This research followed this methodology:

- inserting the slight knowledge of microcredit and microfinance in the general economic theories, identifying their operating implications and the peculiarities of the institutions that adopt them in the enterprises, banking and financial management theories;
- explaining the basic principles of the microcredit model used in the LDCs;
- canvassing the elements of the widening micro credit services and the starting of microfinance initiatives<sup>1</sup>;
- analyzing the international data that characterize the capacity of the phenomenon, not only in the LDCs but also in the industrialized countries.

In the second part of the paper, in order to re-edit the data referring to the general course of the microcredit change rate, statistical tools have been used. I employed the annual variation rate of the microcredit programs in the world as the proxy of their growth speed and the relationship between the customers and the programs activated as proxy of the dimensional growth of the interventions; ultimately, the relationship between poor and customers has been calculated, in order to verify the attitude of the microcredit to satisfy the requirements of the poor and, therefore, if it constitutes really an instrument of fight to the poverty.

## Position of the Microfinance in the Economic Literature

### The Microfinance in the Theory of the Development Economy

There are different elaborations about microfinance in the scientific literature, because of the interdisciplinary nature of the topic, the financial grip interrelation between development and the real national economic growth (Gurley and Shaw, 1955 and 1967) and of the importance of the credit function for the attainment of the economic self-sufficiency of a country (the microfinance, in fact, is considered a useful instrument of fight to the poverty).

The requirements necessary to the increase and the endogenous development of a LDCs are:

- centrality of the asset's domestic market;
- strategies of the monetary market inner choices;
- definition of the interest rate in relation with the effective money availability of a single nation (McKinnon, 1973).

In order to identify the fields and the importance assumed by the microfinance in the break-out of the economic and social underdevelopment of a country, it's useful to review the most important theoretical features of *the economy of the development*. The most important contributions in the economic literature have consequences that the monetary transfers, operating in the main world-wide organizations helping the development<sup>2</sup>, have produced in the economies of the unprivileged countries. When the aids are considered like a whichever exogenous increment of the national yield and, therefore, allotted between the savings and the consumptions in reason of the liabilities of every country, it comes that:

- The native savings are useless and negligible,
- The development is strongly linked to the capital incomes from abroad and is inadequate in relation with the employed resources (Griffin, 1961 and 1970).

Newlyn (1973) criticized the previous statements, on the base of the following observations: the capital income from abroad has remarkable multiplier effects on the internal revenue and, consequently, has positive recoils on the endogenous level of the savings; moreover, the possibility of the birth of the aids to precise investments are always underestimated.

The so called *duty-bound* aids impose to a country to save a quota of the revenue growth higher than the bare tendency of a country to the saving. Moreover, the duty-bound aids are linked to an immediate use of the inner resources and, therefore, an eventual and limited worsening of the economic conditions of the objective country in favor of a development on the long period<sup>3</sup>. The use of the microfinance as an instrument of fight to the poverty showed, therefore, the importance of the local saving for the achievement or the failure of an aid program; theoretical evidences and empiricists have underlined that<sup>4</sup>:

- The auto-development of the local intermediaries, through the mobilization of the inner resources, frees their activity from the resources of the international cooperation (auto-sustainability),
- The adaptation of the credit in relation to the absorption abilities of the local entrepreneurial field concurs to exceed the problem of the surplus of the credit deriving from the one-sided intake of external aids,
- Consequently, the intermediaries can run the best credit management and entrust the financing on the base of the merit system.

There are also other interesting contributions beginning from the ascertainment that, although in the Sixties and Seventies there were satisfactory growth rates of the PIL in some LDCs, poverty didn't diminish; this is the reason why the attention of the scientific community moved to the reasons that lead to the poverty and the contribution of the credit to its overcoming. In the Eighties, the *Washington consensus* strand developed; it is based on the *Government behaviour approach*, as a result of the following problems:

1. Public debt crisis and inability of the governments to respect the loan deadline,
2. The aids are not able to improve the living standards of the poor countries,
3. Soaring unfairness in the wealth distribution.

The *Government behaviour approach* analyzes the effectiveness of the aids on the base of a rigorous analysis of the variable fundamental for the determination of the behaviour of the beneficiary governments (Heller,

1975); this analysis has the aim to promote the importance of the markets and prices liberalization, the subsidies removal and the promotion of the private entrepreneurship. In contrast with the post-Keynesian theory that considers the development as an automatic reaction to external stimuli, the growth of a country is interpreted like the result of the removal of ineffective and inefficient social structures. The most important international development associations, in primis the World Bank and the International Monetary Fund, started programs of structural adjustment and the aids typology.

#### **The Microfinance in the Financial Intermediation Theory**

The microfinance finds valid theoretical foundations also and above all in the financial intermediation theory and, therefore, in the mastery that legitimates the existence of the financial markets and the intermediaries.

If necessary, it is remembered that the informative asymmetries and the transaction costs generate inefficiency in the financial resources direct exchange between lenders and borrowers and justify the presence of dealer settled to the credit management.

The microfinance institutions affected in evolutionary way regarding the classics credit outlines, succeeding in enter those poor countries and concurring with the so called *active poor* to obtain credit and to get a social redemption. The information is asymmetric when the important base of acquaintances is not shared between the individuals that participate to the exchange process that is when only a part of the interested agents (*principal*) has more information with respect to the rest of the participants (*agent*).

The investor can also endure the ulterior risk of opportunistic behaviours (*moral hazard*)<sup>5</sup> from the better-informed counterpart that can, therefore, take advantage from this informative surplus. The negative effects of the informative asymmetry are amplified when the financing is demanded for new unforeseeable plans, since, in such case, only the entrepreneur knows the real risks and of the investments returns (Pagano and Panunzi, 1997).

According to many scholars, the presence of informative asymmetries in the financial exchanges is a congenital phenomenon that derives from the natural availability of smaller information by the givers of resources regarding the beneficiaries (Mottura, 1991).

The conclusion of the contract, moreover, does not determine the simultaneous symmetry of the information; the investor, in fact, remains, until the loan deadline, in the risk of discretionary and opportunistic behaviours from the best – informed counterpart. The asymmetry in the acquaintance can induce also the funds borrower abstaining from the exchange for because the so called *adverse selection*<sup>6</sup> process and that, in conditions of appraisal inability of the activities, lead to the arrest of the market (Arrow, 1963; Akerlof, 1970 and Eisenhardt, 1989).

All the burdens that a subject supports in order to carry out and to manage an exchange is called “*transaction cost*”, which is absent in a perfect market in which the actors of the demand and of the offer are rational, informed and are not exposed to risks; it is present, instead, in imperfect markets characterized by uncertainty and limited information and rationality.

The most frequent expenses in the definition of the transaction cost are relative to the search of exchange opportunity, to the search/purchase of the information, to the appraisal of the reliability of the potential counterpart, to the different exchange opportunities assessment, to the exchange execution, the risk assessment and the exchange management (Boscia, 2002).

The *financial deepening* theory, having reference to Gurley and Shaw, for the first time focused the attention on the nexus between the financial activity and the transaction and information costs, demonstrating that against costs equal to zero there are economic potentialities for the genesis of an indirect asset market.

The total dimension of the financial phenomena and the articulation of the subject that concur efficient shapes of risk distribution are the base, moreover, of the economic development. Subsequently, also other authors have deepened the argument of the financial intermediation explaining that its existence is justified just with the necessity to diminish the transaction costs and, in particular, the costs of search contracting parties asserting that the banks can be considered like manufacturers of services finalized to the reduction of the transaction cost (Benston and Smith, 1976).

### **The Evolution of the Informal Finance**

The financial systems of the LDCs (in which the microfinance is born and has been developed) preview the existence of a double structure of the credit circuit, which is based on the co-existence of the *formal finance* or institutional finance and the *informal finance* (Mauri, 1966).

There is also the *semi-formal field* that comprises the informal institutions that are waiting for a public acknowledgment and all the transactions that involve at the same time the formal and the informal finance. The formal finance institutions existing in the LDCs, as well as those localized in the western countries, have the following characteristics:

- they are subject to rigid rules of structural, prudence, informative vigilance and inspecting and to the supervision of the central bank (Viganò, 1996),
- they follow the classic credit outlines, which count on the friction elements reduction in the financial resources exchange (informative asymmetries and transaction costs) through the levers: of the rise of the interest rate against the greater risks, of the emission of the reliability judgment on the base of the personal and patrimonial guarantees, of the standardization of the often inadequate credit tools with respect to the micro entrepreneur requirements.

The informal finance<sup>7</sup> is the “container” of the operators, of the intermediation operations and the non regulated and not controlled by the public rules markets. The informal finance activity is apart from the public legislation created to give the operators some guidelines; it follows, instead, the traditions and the customs recognized by the native environment and conforms to the typical cooperative behaviour of the LDCs (Adams and Fitchett, 1994).

Among the actors of the informal finance there are all the individuals and agencies that, for different reasons, lead systematically financial intermediation activities or that offer financial and insurance services without having any preventive authorization or licence by the central bank and/or by other authorities and without being subordinated to the vigilance control by the competent organs; there are, moreover, the operators involved in simple mediation processes or the exchange operations (Karkal, 1967 and Krishnan, 1979).

The target of the informal finance is into the marginal bands of the population that is those people which are not interested in the formal finance. For this reason some scholars consider the informal finance like the popular, spontaneous and creative answer to the inertia or the absence of the State, to the inefficiency of the monetary regulation, to the credit rationing and the iniquity of the formal finance (Shem and Alieno, 2001).

The acting of the informal finance actors is based on the proofed outlines, on procedures consolidated during the years and on the reliability, meant not only as the ability to *obtain the esteem of the counterpart*, but also as the ability to *preview and to estimate the behaviour of the third party* (Mauri, 2000).

Empirical facts demonstrated, moreover, that the women, usually excluded because of social and religious reasons from the active economic life, are instead the privileged customers of the informal finance. The objective of the credit risk control of every credit operation, in the informal finance (above all in the cooperative organizations) derives from the established long-lasting relationship with a narrow group of customers, that remains unchanged for years or, in some cases, for the entire duration of the activity.

The organizational structure of the informal finance operators is complex and, at the same time, flexible since it is able to adapt itself timely to the local and international environmental changes; this kind of modifications are often due to the process and product innovation (new financial tools and new financial institution's organizational orders) and are potentially in the position of being reflected positively on the community in which the operator of informal finance operates, determining the social-technological increase. The respect of the customary rules, acquainted by the entire community, generates, moreover, an exhaustive and rigid social control<sup>8</sup> to advantage of the informal lenders (Mauri, 1986).

The creation of new financial products is not derived by the imposition of models different from to the aboriginal situation; the information acquisition model, the bottom-up type, determines in fact the timely creation of tools derived from latent requirements of the customers and perceived by the informal field thanks to the continuous informative flow that alloy giver and assets borrower. The informal field quickly intercepted the important foreign currency monetary flows, deriving from the tourist field evolution and from the migrant living in the western

countries. The fosterage and approval demands, however, are often oral; there are not papery modules to underwrite neither oppressive clause to read and to comprise (Holst 1985).

Bank services do not exist, and the informal finance actors have to reach the borrower at home or at work or in the public square of the city. Against of that maximum discretion is granted of the operations and the needed amounts which, given to the customers typology (families and micro entrepreneurs) are usually modest. The loan concession, the reimbursement and the re-negotiation are flexible.

It is also interesting to analyze the operators *modus operandi* in the informal finance for the informative asymmetries and the transaction costs reduction. In the informal finance the informative asymmetries are remarkably inferior with respect to the typical asymmetries of the informal intermediaries, because of the straits interpersonal relationships, the deep customer acquaintance the strict social sentences that characterize the informal financial markets (Sarker, 1999). The informal lenders prefer, moreover, to maintain the customer number stable, not only for the credit risk control, but also in order to avoid those informative asymmetries typical of the expansion activity.

About the transaction costs, the level of the informal finance is lower than that of the formal operations (Mauri, 2000). The reasons must be attributed to the:

- Different complexity of the financial technologies,
- Simplification of the contracting procedures,
- In-observance of many implementations of the formal finance, for example the payment of the tax burdens, unprofitable deposits in the central bank.

The interaction between the transaction costs, the informative asymmetries and the credit rationing in the poor and decentralized markets provokes an ulterior disadvantage in the access to the credit by the active population lower levels. The possibility to fix lower values in the active interest rate levels by the public authorities (justified by the hypothetical will to facilitate the access to the funding system), compared with the markets, produces quantitative and qualitative credit rationing.

The quantitative rationing is due to the insufficient gains offered on the deposits, and the following lower savings influx; the qualitative rationing depends on the quantitative rationing and on the resources allocation to advantage of few customers characterized by the solvency, to the detriment, therefore, of the micro entrepreneurs.

The realization of the credit limitation happens, therefore, through the transaction costs translation from the giver to the funds borrower. The formal financial intermediaries, in front of the bonds that prevent diversification of the active interest rates politics, try to diminish this cost typology, to the detriment of those that bear down on the customers, reducing also the informative asymmetry and the credit risk.

In other words, through the transactional costs, the banks erect barriers to the entrance to the less appreciated customers selecting therefore the customers (Mauri, 2000). Here hence the necessity of the informal finance genesis.

## **The Microcredit and the Grameen's Experience**

The majority of the scholars believe that the microcredit, considered as a new financing tool in aid of the less developed countries was born in Bangladesh in the second half of the Seventies, after the project by Muhammad Yunus<sup>9</sup> of giving funding to all of the population ranges, in particular to the "poor among poor". Here-hence the *bank for the poor* was born, known as *Grameen Bank*<sup>10</sup>. The economic, social and above all humanitarian aims that professor Yunus and his *Grameen Bank* would reach through the microcredit are: the improvement of the living standard, the poverty abolition, dignified jobs and the decrease of the socio-economic diversity<sup>11</sup>.

This idea derived from the realization that the formal financial system couldn't perceive and satisfy the *active poor* requirements. Against a lack of the government, there was an informal parallel credit market, deep-rooted and prosperous, that sometimes accelerated the poverty process (De Wit, 1997).

Professor Yunus's project mixes the formal and informal finance positive elements creating a new credit tool, the microcredit, by supervising customer's behaviours and modifying its own action referring to the information of the above mentioned analysis. It also allowed to be aware of the financial needs of those customers

previously ignored (the active poor) and to create new alternative financial intermediaries in favour of those who start new economic initiatives, ask for a credit and participate to this new financial organization.

In this way it is possible to overcome the obstacles of the formal finance in giving credit to the poor people, which can be summarized as follow: the impossibility to perform a payment, high carrying costs, impossibility to give real and personal warranties. Many scholars noted that the initiative success is, however, the biggest obstacle in the functional and organizational enhancement of the LDCs microfinance organizations.

A lot of organization committed in the credit innovation dropped, in fact, the research of the financial testing originality and progress, restricting to the mere repetition of the Yunus's intervention scheme (Hulme e Mosley, 1996 da Viganò, 2004)<sup>12</sup>

## Focusing on the Grameen Model

The *Grameen bank* philosophy, in mutual opposition to the inflexibility of the formal credit system and to the informal parallel system iniquity, defined the most important characteristics of the worldwide best known and most used microcredit model (Anfosso, 2004; Brunori, 2005; Yunus, 2005).

The most important features of this model are:

- *the reference market*, the target is represented by poor people, especially exploited women, who are closet to the society borders<sup>13</sup>. The *Grameen* experience demonstrated that, on the contrary, women adapt themselves better and more quickly than men to the auto-assistance process, they are more careful in the management of the family, their first objective is the well-being of the sons and demonstrate greater constancy in the job than men (Todd, 1999);
- *bank-customer relationship*, customers don't have to go to the bank, because the bank officers reach every village in order to popularize the *Grameen* message, let new customers approach, take the receivables and collect savings;
- *documentation and warranties*, in order to chop down the carrying costs and to simplify the procedures to obtain credits, the most part of the papery documentation was abolished and loans are allotted by legal tender without any bank warranty<sup>14</sup>;
- *mutual solidarity*, the loans supply is preceded by the institution of small applicant groups - *group lending*- (at least five subjects)<sup>15</sup>, that have to work in different fields (in order to diversify the credit risk in relation with different jobs) and have to be socially mutually responsible - *peer selection, joint liability*-<sup>16</sup>;
- *social enforcement*, the exclusion, the ostracism or the expulsion from the community life are very dreaded social convictions, cohesive and supportive as those in which the microcredit phenomenon has become relevant. This fact and the mutual solidarity among the credit groups participant are alternative to the typical warranties required by the formal field *peer monitoring*-;
- *redemption*, the return is always by instalments, weekly, so that the contractor's problems are evident and let the microcredit organizations to promptly intervene (i.e. granting deferment);
- *benefit's boycott*, *Grameen* financings don't allow free grant loans nor the possibility to cancel debts, not even in case of natural calamities, because all the loans must be entirely returned seeing the gainful nature of the financial activity and that the aim of the organization is the auto-sustainability.

The *cross-selection* operation between the microcredit characteristic elements and the features of the formal and informal finance show that the *Grameen bank* financial innovation weighs on some aspects of the traditional financial system, representing an alternative to the formal and informal credit fields (matching the positive aspects of both systems).

The positive aspects of the formal financial intermediaries taken by the *Grameen bank* are:

- the adoption of market criteria in the definition of the interest rates and the respect of the economization, continuity, profit and efficiency in the management criteria,
- the fixation of a specific objective for every operation financing,
- obligatory nature of the lend restitution, presiding from the external events that condition the debtor,
- agency's auto-sustainability through the collection aboriginal capital and the reuse on the same territory,



- the refusal of generalized financial aids and not finalized by the world-wide organizations, since they often generate financial and economic dependency.

The microcredit can be considered an authentic operation of financial engineering since, through alternative financial operators; it conjugates the typical characteristics of the informal finance (tied to the community traditions and the uses) with standardized and institutionalized instruments. The capital structure of the microcredit has affected just the friction elements of the direct exchange markets which justify the financial intermediation: informative asymmetries, transaction costs and credit rationing. The creation of the *group lending*, regulated by the *peer selection* and *joint liability* principles and burdened by the *peer monitoring* and of *social enforcement* mechanism, offered the opportunity of:

- reducing the transaction costs following useful economies in the various interventions management,
- reducing the informative asymmetries at the expense of the financial resources lender, ex ante, through the auto-selection generated in the group and thanks to the social confidence role and, ex-post, through the threat of preventing every other financing against the former insolvency,
- gradually increasing the financing amount in relation to the corrected lend redemption,
- constantly exchanging information between credit and real markets.

The other typical aspects of the informal finance integrated in the microcredit system are: concession of credit to the women, vicinity of the institution to the customers (the road is the office of the financial civil employees), documentation abolition and confidence on fiduciary base, weekly redemption by instalment.

## **Microfinance: Microcredit Evolution and Development**

The evolution of the microcredit model, of the subjects that distribute it, the customers' beneficiary and the societies near which it has been diffused generated consequently a transformation also of the financial necessities of the needy and a fast demand for new products and services.

A new model was born, defined as microfinance, which is born from the microcredit presupposed, includes it but becomes the most sophisticated because of the financial instruments used and of the intervention depth.

The products and the services that allowed the microcredit organizations to become real financials institution (MFI) are the following:

1. *savings collection*, the changed environmental conditions allowed the poor people to generate saving (assets and money) and "obliged" the MFI to structure the typical microdeposit products. This activity concurred, moreover, to increase the monetary mass that will be used in the loan activity<sup>17</sup>;
2. *alternative employment instruments*, from the trade-off between the growth of the enterprises financed with the microcredit and the necessity to reduce the MFI credit risk, the *microleasing* tool was born, which allows the microfinance institutions to remain owners of the good until the integral payment of the fee;
3. *micro venture capital*, these new organizations, taking part in the microenterprises risk capital<sup>18</sup>, can assure a managerial culture that accompanies them in the increase and the development on the medium-long period;
4. *insurance products*, the improvement of the living standard and the widening of the business opportunities generated new requirements and necessity of coverage achievable through typically insurance products.

The offer of products that affect the independent savings collection and the performance of subsidiary services regarding those of the credit activity gives the MFI new auto-sustainability<sup>19</sup> opportunities. In fact, the independence from the governmental funds or the international aids funds involves the freedom in the definition of the strategic plans of development and increase of the MFI. It is not possible. However, to follow always this way because the initiatives sustainability presupposes that the interested institutions can freely collect funds among its own customers with the aim to finance its activities, and this is instead the banks task.

The consequence is that the MFI that do not have enough savings and/or a good organizational asset are excluded from the full sustainability concept.

## Microfinance in the World

### An Overview

The amazing outcomes<sup>20</sup> of the *Grameen bank* pioneering experience in Bangladesh induced the world-wide organizations that support the development of the less developed areas, many international humanitarian aids associations and Non-Governmental Organizations (NGOs) to diffuse the microfinance model in the world.

They created therefore many organisms of general interest, among which there are<sup>21</sup>:

- *Grameen Trust*, a fund created and managed by the *Grameen Bank*, financed by private and public agencies, with the aim to stimulate the creation of microfinance organizations in the world<sup>22</sup>,
- *MicroFinance Network*, a global organization that re-unites financials institution that distribute microcredits, NGOs and operators that give technical support in order to improve the experience and exchange of information between the members and to give an exhaustive modernized review of the existent initiatives in the world,,
- *Consultative Group to Assist the Poor (CGAP)*, a consortium of 33 agencies, public and private, for the development that operate in order to extend the access to the financial services to the poor people,
- *The Microcredit Summit Campaign*, an organization created in 1997, when the first world-wide microcredit summit was organized; it promotes the informative exchange between agencies in order to know the reasons and the conditions of the success of the initiatives of microcredit in the world.

### Phenomenon Evolution

In order to represent the evolution that the inquired phenomenon has introduced during the last few years, I will give a systematic statistics rework of the most outstanding data published on the report “*State of Microcredit, Summit Campaign*”, in the years 1997-2005<sup>23</sup>. The data analyzed are:

- number of the activated programs, divided in different geographic areas and of socio-economic development of different countries,
- number of the customers caught up and the number of the poor customers<sup>24</sup>.

### Analysis of the Programs Number

The following historical series reassumes the number of the active microcredit programmes in the world between 1998 and 2005 and reported on *The Microcredit Summit Campaign*.

In TABLE 1 there are the effective unitary values distinguished for intervention areas, in TABLE 2, there are the percentage variations of the number of the programs recorded every year in relation with those of the previous year. Because of the unexpected findings pointed out by the analysis of this last aspect I will insert the diagrams relative to the percentage variations of every inquired areas (FIG. 1) and to the aggregated data (FIG. 2); there is moreover the table that reassumes the percentage variations of the number of the active programs in 2005 in relation with those assets in 1997 (TABLE 3).

TABLE 1: EVOLUTION OF MICROFINANCE PROGRAMS IN THE WORLD

Areas	1998	1999	2000	2001	2002	2003	2004	2005
Africa Sub and Sahariana	377	455	613	740	811	919	994	959
Asia e Pacific	329	352	647	1075	1377	1603	1628	1652
Latin America and Caribbeans	141	152	193	230	246	261	388	439
Middle East e North Africa	14	16	17	23	23	30	34	30
<i>Development Countries Total</i>	<i>861</i>	<i>975</i>	<i>1470</i>	<i>2068</i>	<i>2457</i>	<i>2813</i>	<i>3044</i>	<i>3080</i>
North America ed West Europe	30	48	53	59	47	48	48	35
East Europe and central Asia	34	42	44	59	68	70	72	18
<i>Industrial Countries Total</i>	<i>64</i>	<i>90</i>	<i>97</i>	<i>118</i>	<i>115</i>	<i>118</i>	<i>120</i>	<i>53</i>
Global total	925	1065	1567	2186	2572	2931	3164	3133

Source: Adapted from “*State of Microcredit, Summit Campaign*”

TABLE 2: ANNUAL % PROGRAMS MICROFINANCE CHANGE

Areas	1999	2000	2001	2002	2003	2004	2005
Africa Sub and Sahariana	20.69%	34.73%	20.72%	9.59%	13.32%	8.16%	-3.52%
Asia e Pacific	6.99%	83.81%	66.15%	28.09%	16.41%	1.56%	1.47%
Latin America and Caribbeans	7.80%	26.97%	19.17%	6.96%	6.10%	48.66%	13.14%
Middle East e North Africa	14.29%	6.25%	35.29%	0.00%	30.43%	13.33%	-11.76%
Development Countries Total	13.24%	50.77%	40.68%	18.81%	14.49%	8.21%	1.18%
North America ed West Europe	60.00%	10.42%	11.32%	-20.34%	2.13%	0.00%	-27.08%
East Europe and central Asia	23.53%	4.76%	34.09%	15.25%	2.94%	2.86%	-75.00%
Industrial Countries Total	40.63%	7.78%	21.65%	-2.54%	2.61%	1.69%	-55.83%
Global total	15.14%	47.14%	39.50%	17.66%	13.96%	7.95%	-0.98%

Source: Adapted from "State of Microcredit, Summit Campaign"

Considering the number of the active programs (TABLE 1), it emerges that nowadays the microcredit is going to consolidate. In 2004 more than 3100 programs have been activated, the 98% of which in the outcast countries; the percentage variation in 2005 compared with 2004 has a negative sign and that is caused by the decrement of the number of the active programs recorded in the industrialized countries. In particular, if the participations are distinguished on the base of the country in which they are activated (in via of development or industrialized), it is possible to observe that:

- in the underdeveloped nations they constantly increased. The general value indicates an equal increase to 257,72% from 1997 to 2005. Particularly interesting are the data relative to the Asia-Pacific area, where the positive variation is of the 402.13% (the participations passed from the 329 in 1997 to the 1,652 in 2005) and to the Latin America area with equal variation of 211,35% (from 377 participations in 1997 to 959 in 2005) – TABLE 3-. Notwithstanding, the annual increase speed of the activated programs has been reduced remarkably compared with the first years analyzed (TABLE 2 and FIG. 1 and 2); the aggregate value, in fact, has been annulled nearly in 2005 (+1.18%) becoming negative if South-Saharan Africa (- 3.52%) and Middle East and North Africa (- 11.76%). See also that, instead, as in 2000 an increment in the number of the interventions activated has been recorded compared with those in 1999 all the areas inquired, greater than that one taken place in 1999 compared with 1998. In the following years, this increment took place only: in the Middle East – North Africa between 2000 and 2001 (from +6,25% to + 35.29%) and between 2002 and 2003 (from a null increase to +30,43%) and in Latin America between 2003 and 2004 (you from +6,10% to +48,66%);
- in the industrialized countries the number of the participations of microcredit is remarkably inferior compared with that found for the underdeveloped nations; it has been observed, in fact, that while in the first years the relationship was of 1 participation in the industrialized countries every 15 participations in the LDCs, in 2005 such relationship became of 1 to 60 and such tendency is valid not only for the aggregate data but also for that one of the single areas. Particularly elevated is the variation of 2005 compared with 2004 in European area of the Central – East Asia (TABLE 2 and FIG. 1 and 2) where there was to a lessening in the number of interventions equal to 54 (from 72 in 2004 to 18 in 2005; -75%) that heavily conditioned the area total value (- 55.83%) and made negative the global total (- 0.98%)<sup>25</sup>.

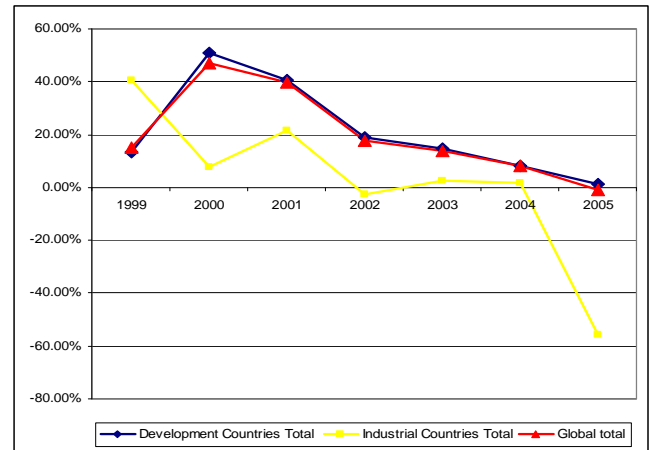
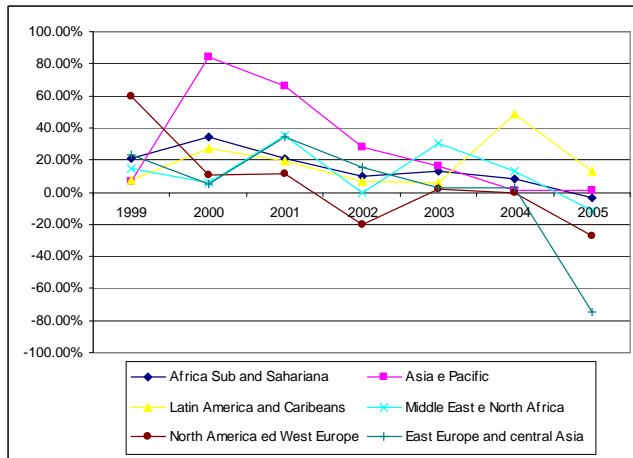


FIG. 1: VARIATION PROGRAMS FOR GEOGRAPHIC AREAS FIG. 2: GENERAL PROGRAMS CHANGE

Source: Adapted from "State of Microcredit, Summit Campaign"

TABLE 3: MICROFINACE PROGRAMS CHANGE FROM 1997 TO 2005

Areas	Change
Africa Sub and Sahariana	154.38%
Asia e Pacific	402.13%
Latin America and Caribbeans	211.35%
Middle East e North Africa	114.29%
<i>Development Countries Total</i>	<i>257.72%</i>
North America ed West Europe	16.67%
East Europe and central Asia	-47.06%
<i>Industrial Countries Total</i>	<i>-17.19%</i>
<i>Global total</i>	<i>238.70%</i>

Source: Adapted from "State of Microcredit, Summit Campaign"

### Analysis of the Involved Customers

If the microcredit phenomenon is analyzed with reference to the number of the customers caught up by the several activated programs, we can notice a positive trend.

The goal of the 100,000,000 poor people who have to be financed within 2005 (pinpointed in 1997 during the microcredit global summit), have been partially reached: the attended customers are, in fact, 113.261.390 but only 81.949.036 of them is "poor" (TABLE 4 and FIG. 3).

TABLE 4: COMPARISON MICROFINANCE PROGRAMS AND HIT CLIENTS

Years	Programs numbers	Hit clients	Hit poor clients
1997	618	13,478,797	7,600,000
1998	925	20,938,899	12,221,918
1999	1,065	23,555,689	13,779,872
2000	1,567	30,681,107	19,327,451
2001	2,186	54,932,235	26,878,332
2002	2,572	67,606,080	41,594,778
2003	2,931	80,869,343	54,785,433
2004	3,164	92,270,289	66,614,871
2005	3,133	113,261,390	81,949,036

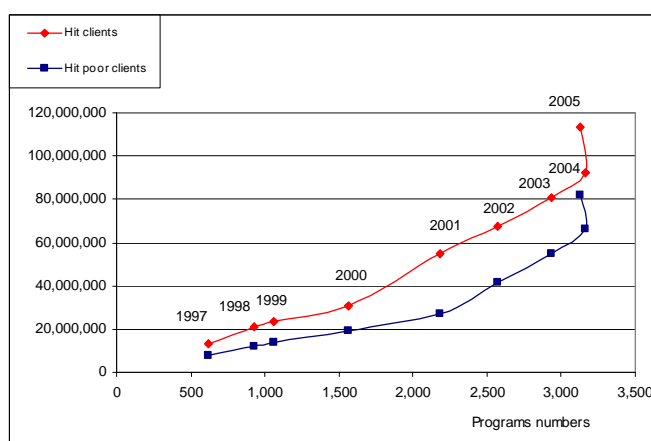


FIG. 3: COMPARISON MICROFINANCE PROGRAMS AND HIT CLIENTS

Source: Adapted from “State of Microcredit, Summit Campaign”

From the analysis of TABLE 4 and FIG. 3, it emerges that that the number of the programs, the number of the attended customers and the number of the attended poor people grew during the years. In particular, it can be observed as the last two variables grew according the number of the activated programs; this increment, however, is not proportional in the three variables and in fact the number of the attended customers grows more quickly compared with the number of the activated programs (TABLE 5 and FIG. 4).

TABLE 5: CLIENTS AND POOR IN RELATION TO PROGRAMS NUMBER

Years	Clients/Programs	Poor/Programs
1997	21,810	12,298
1998	22,637	13,213
1999	22,118	12,939
2000	19,580	12,334
2001	25,129	12,296
2002	26,285	16,172
2003	27,591	18,692
2004	29,163	21,054
2005	36,151	26,157

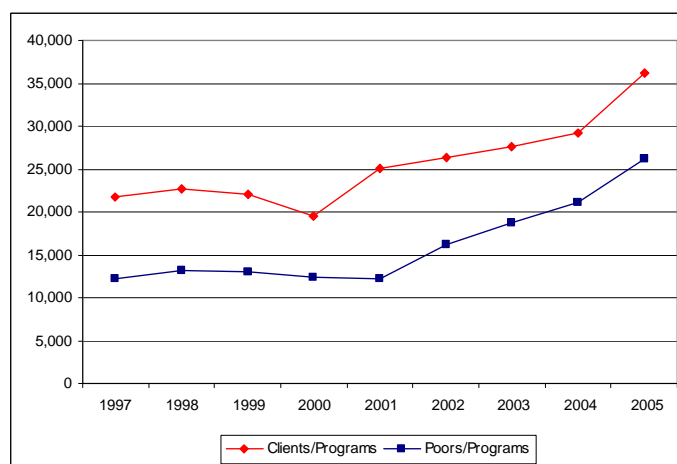


FIG. 4: CLIENTS AND POOR IN RELATION TO PROGRAMS NUMBER

Source: Adapted from “State of Microcredit, Summit Campaign”

A particular event took place in 2005 when, against a reduction of the programs number, however the number of the financed customers grew up; that is probably because of the increment in the transactions volume of every single

initiative (in that year each of them has caught up in average 36,151 persons, of which 26,157 poor people, compared with the average of the customers caught up by the several microcredit programs realized in the period 1997-2005 equal approximately to 25.000 customers, of which 15,000 poor people).

The growth speed of the number of poor customers reached by the microcredit initiatives is inferior to the growth speed of all the other customers (this is evident, in the FIG. 3, from distance between two represented curves). A pointer of the microcredit ability to reduce the poverty level appears to be the relationship between the number of poor people and the total of the attended customers (TABLE 6 and FIG. 5).

TABLE 6: POOR IN RELATION TO TOTAL CLIENTS

Years	Poor/clients
1997	56.38%
1998	58.37%
1999	58.50%
2000	62.99%
2001	48.93%
2002	61.53%
2003	67.75%
2004	72.20%
2005	72.35%

Source: Adapted from "State of Microcredit, Summit Campaign"

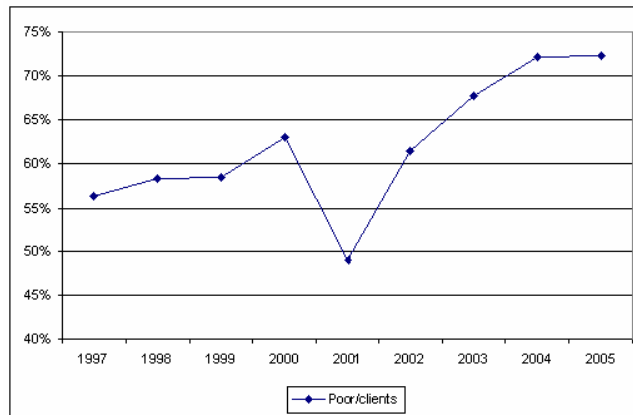


FIG- 5: POOR IN RELATION TO TOTAL CLIENTS

Source: Adapted from "State of Microcredit, Summit Campaign"

The trend of the ratio Poor/clients concurs to conclude that the microcredit programs are now able to acquitting to their function of fighting poverty and in fact the weight of the poor people on the total of the attended customers is increasing in the years and it is equal to approximately 70 poor every 100 attended customers (an anomaly is found in 2001 when the number of the poor people attended by the microcredit initiatives has been equal to 49 every 100 attended customers). There is, however, reduction in the growth speed during the last few years and in particular in 2005.

## Conclusions

The survey of the microcredit and the microfinance theoretical foundations within the general theory of the financial intermediation showed the importance that, already today, this segment covers for the credit market. Its importance, in the socio-economic development of a country, is as wide as great is the poverty level in which it pours a country.

In 2005, the partial attainment of the objective that the world-wide community has prefixed is imputable to the slowing down of the growth trend recorded during the last few years.

This circumstances let thinking on the nature of the new tool nature and on the necessity to continue maintaining high the interest towards the product and process innovation, which appears necessary to the aim of adapting the microfinance model to the various socio-economic contexts in which the programs are used.

The importance of the innovation as a tool for the adaptation of the model to the situation in which the initiative is implemented is particularly elevated when the countries to be reached are industrialized; this is because of the increment of the “new” poverty, of the widening of wraps of population that live at the margins of the society and soaring social and economic difference between rich and poor.

Poor people, in some specific situations, is demonstrated that are reliable and solved; it is therefore necessary to stimulate the use of the microcredit in order to make emerging their own will of redeem and to exceed the assistance in which they have lived up to now.

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- Contact author for the list of references

## End Notes

Microfinance includes the microcredit and enlarges its field of interest to the collection of micro-savings and to different services that financial intermediaries give to their own customers, i.e. consulting and insurance services.

<sup>2</sup> These organizations were created in the post-war period with political implication regarding the influence on the previously colonized countries classified as the Third World; afterwards, these organizations adopted humanitarian purposes. The most important are: the United Nations, the World Bank, the International Monetary Fund and the International Labour Organization.

<sup>3</sup> In other words, the population must renounce to an immediate wellbeing quota, deriving from the resources and form a part of the aids, in favour of the country development. This sacrifice would derive from the fact that the consumption expenditure, including the healthcare, the education and a better nutrition, do not determine the development.

<sup>4</sup> A.A.V.V. (1971), *The mobilization of savings in African Countries*, Record from the meeting held in Milan from 20 to 23 September 1971, about The Credit Markets of Africa, n. 3.

<sup>5</sup> The risk of moral hazard refers to the deceitful reduction of the profits that have to be shared with the bank, raising the overhead or resorting to accounting tricks.

<sup>6</sup> The risk of untoward selection refers to the possibility that the customer hides information about his own balance sheet or that of the enterprise, or to the case that the customer glosses over the real characteristics of the entrepreneurial project.

<sup>7</sup> "Informal" has been used for the first time with this meaning by Hart in 1973 in the article: Hart V.K., *Informal Income Opportunities and Urban Employment in Ghana*, March 1973.

<sup>8</sup> The social control is the condemnation and repression system for the unfair behaviours and for the isolation of the ethic and religion rule-breaking, and auto-generated into the community.

<sup>9</sup> He was winner of the Nobel Prize for Peace in 2006, thanks to his *Grameen Bank* project, which allowed the creation of a new credit typology for the less developed countries.

<sup>10</sup> This experience retrieved and repurposed different aspects and characteristics of other older initiatives. In fact, after the first and above all the second world war, in the colonial countries, especially in the French ones, rural mutual savings banks, following the example of the Caisse centrale de la France d'outremer, that were in harness with the actual microfinance situation. They tried to substitute the real warranties, such as soil, buildings and livestock, with moral warranties, bringing into play the debtors solidarity. These institutions at the beginning had reimbursement rates near to the 100% but, starting from the '60, when the decolonization led to the colonial economy crisis, the rural credit situation also got worst and then failed.

Sciortino A. (2001), *Le mille incognite del microcredito*, in *Libertaria*, n. 3, April-June.

<sup>11</sup> The microcredit conceived by Yunus can be considered a tool for the fight to the poverty, not only for the financial and economic benefit settled for the social redemption of the poor people, but also for the evolution and the behavioural changes that it implies. In the last case, he created the so called "sixteen rules" that suggest a radical transformation of the everyday way of living toward a model that gives great importance to health, hygiene, children education, job and the mutual respect.

<sup>12</sup> Comment quoted in: Hulme D., Mosley P. (1996), *Finance against poverty*, vol. 1 e 2, Routledge, London, in Viganò L. (2004), op. cit., pag. 59.

<sup>13</sup> "... Why target Women? 1.2 billion people are living on less than a dollar a day. Women are often responsible for the upbringing of the world's children and the poverty of the women generally results in the physical and social underdevelopment of their children. Experience shows that women are a good credit risk, and that women invest their income toward the well being of their families. At the same time, women themselves benefit from the higher social status they achieve within the home when they are able to provide income..", See <http://www.microcreditsummit.org>.

<sup>14</sup> The traditional economic theory suggests that loans without warranties, or with small warranties, make the allocation credit mechanism sensitive to informative asymmetries problems (adverse selection e moral hazard).



Stiglitz J.E. (1993), *Peer monitoring and credit markets*, in Hoff K., Braverman A., Stiglitz J.E., *The economics of rural organizations: theory, practice and policy*, Oxford University Press, New York.

<sup>15</sup> Family relationships within the same group are not allowed, in order to limit the cohesion among members belonging to the same family, fact that could lead to a scarce cognition of the social sanctions imposed in case of opportunist behaviors.

<sup>16</sup> Seeing that the insolvency of an individual, also called "*pari*", relapsed on all the group members, the "*peer monitoring*" process starts, which is one of the main characteristics of the high interest rates for the return of the loans. Ghatak M. (1999), *Group lending, local information and peer selection*, in *Journal of Development Economics*, vol. 60, pagg. 27-50.

<sup>17</sup> Although Italy for years on end was in bad economic conditions equal to the economic situation of the underdeveloped countries, we can find in our country experiences similar to the actual microfinance institutions. See also "*Monti frumentari, pecuniari and di pietà*" that operated until the XIX secolo.

<sup>18</sup> In this case the target is different from the typical microcredit (poor among poorer), although those enterprises that can use it can be the evolution of micro-enterprises created through previous microcredit projects.

<sup>19</sup> The auto-sustainability is the condition in which the gains fully cover fund-rising costs, the operative costs, the loss percentage foreseen on the loan portfolio and also the foreseen inflation.

<sup>20</sup> Loan reimbursement rates near to the 99%, improvement of the financed subjects living standard (these subjects, thanks to the creation of the micro activities obtained loans in order to rebuild houses and to buy new hand tools), independence from external aids and fulfilment of the economic and financial break event of the Yunus activity.

<sup>21</sup> The basic requirement for the model success is a social contest that can take and enhance the finance potentialities in favour of the poor people. In particular, we refer to the spread of the basic formation, and also to infrastructures that can lead to the creation of new entrepreneurial opportunities, to the improvement of the medical corps, ecc.

<sup>22</sup> <http://www.grameen-info.org/grameen/gtrust/index.html>

<sup>23</sup> In 2006 the report was spread during the Global Microcredit Summit, held between 12 and 15 of November in Halifax in Nova Scotia, Canada, <http://www.microcreditsummit.org/pubs/reports/socr/2006.htm>

<sup>24</sup> That is to say, all the human beings living with less than 1 \$ a day.

<sup>25</sup> Only in two cases we assisted at a bigger increment compared to the previous year in the variation in the intervention number in Europe of the central-eastern Asia between 2000 and 2001 (from +29,41% to +34,09%) and in North America-West Europe between 2002 and 2003 (from -20,34% to +2,13%).

# **Risk Management in Microfinance in Pakistan – An Empirical Assessment of the Risk of Default**

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## **Abstract**

Microfinance industry in Pakistan is rapidly growing during last few years. However, practitioners frequently refer to problems in maintaining portfolio quality which is hampering microfinance institutions sustainability and outreach. Most of these microfinance institutions are smaller and constrained capacity in portfolio and delinquency management. The increasing demand for microfinance activities calls for a need to develop a risk management model. Policy makers, at all levels are faced with new challenges of promoting benefits of microfinance support with minimum default risk. The microfinance institutions that provide loans to low-income household are concerned about defaults in future. Estimating the risk of default is important so that benefits of micro-credit are fostered with minimum risk. This paper identifies income, financial, demographic characteristics, and locational, external and institutional factors as critical determinants of future risk. A risk management model has been developed and tested to serve as useful tool for policy makers to assess the risk of default/ delinquency and develop appropriate financial management strategies to minimize risk. **Key Words:** Risk Management, Microfinance, Default Risk, And Logistic Regression **JEL Classification:** G21, G33, And G28

## **Introduction**

Microfinance industry in Pakistan is rapidly growing. More than 30 microfinance institutions of a variety of legal structures including government and NGOs are providing microfinance services in Pakistan. In terms of outreach approximately active borrowers of microfinance have crossed 600,000 clients. The total loans outstanding amount exceeds Rs. 5.5 billion while total savings is in the range of Rs. 1.25 billion (USAID, 2006). The Rural Support Programs (RSP) led by Aga Khan Rural Support Program (AKRSP), are considered as the pioneers of microfinance services in Pakistan. The RSP model, characterized by integrated development approach revolving around the institution of the community has taken microfinance to all the provinces of Pakistan through the national as well as regional institutions such as National Rural Support (NRSP), Punjab Rural Support Program (PRSP), Balochistan Rural Support Program (BRSP), Sindh Rural Support Program (SRSP) and Orangi Pilot Project (OPP) [For further details see Rasmussen et. al., 2004]. In the NGO – microfinance category KASHF and ASASA in Punjab province are most prominent and notable due to their rapid expansion and focused approach to microfinance in recent years. Since the promulgation of the State Bank of Pakistan (SBP) Microfinance Ordinance of 2000, five regulated banks have also entered the microfinance sector. These are almost similar in the basic business model to commercial banks, having been established under the new SBP Microfinance Regulatory environment (SBP, 2001). These are Khushali Bank, First Microfinance Bank, Tameer Bank, Rozgar Bank and Oman Microfinance Bank. Other regulated financial institutions such as leasing companies have also entered into the microfinance sector, with Orix leasing and Network leasing being the veterans.

Although microfinance industry in Pakistan is rapidly growing but practitioners frequently refer to problems in maintaining portfolio quality which is hampering microfinance institutions sustainability and outreach. This has been found to be particularly true for smaller microfinance institutions which have constrained capacity in portfolio and delinquency management. A comparison of profitability and portfolio quality of Pakistani microfinance institutions and international peers would clearly illustrate the delinquency problem situation. The performance of 12 microfinance institutions, members of Pakistan Microfinance Network is compared with international peers. The Pakistani microfinance sector clearly lags behind the international counterparts in the sustainability as well as portfolio quality indicators. Pakistani microfinance institutions show lowest yield (19.20%) with a wide difference as compared to international peers (46.1% in Africa; 37.30% in Asian countries and 45.20% in Latin America (PMN, 2003). We also see that Pakistani microfinance institutions are also plagued by portfolio

delinquency problem as reflected in the value of Portfolio at Risk (PAR) which is 11% as compared to international peers (1.4% in Africa; 1.6% in Asia and 1.6% in Latin America). It is established that if action is not taken by credit officers and microfinance institutions they may lose the entire loan (Rosenberg, 1999).

While the above mentioned picture presents a gloomy view of the portfolio quality of microfinance sector in Pakistan, the microfinance institutions publicly claim “100%” recovery. This signifies that the microfinance institutions either do not understand the concept of delinquency<sup>1</sup> according to the international standards or they hide the actual health of their portfolio. This situation has a negative bearing on the sustainability of the microfinance institutions in the long run. This scenario also prompts us to investigate the causes of delinquency so as to facilitate institutional development, sustainability and outreach.

Microfinance services are known for low incidence of default and good repayment behavior of the clients. However, in Pakistan, microfinance institutions are facing delinquency problem which are badly affecting their profitability and outreach. Microfinance practitioners also highlight this problem in various forums and require investigating the causes of delinquency. Another aspect of the delinquency problem has been highlighted by another study sponsored by Pakistan Financial Services Sector Reform (PFSSRP, 2006)<sup>2</sup> states that a marked unwillingness among microfinance institutions is to write off bad debts – even after the accounts remain dormant for periods ranging from three to five years. Keeping suspect loans on books means these institutions continue incurring operational / follow-up costs. The time and money spent on this unproductive endeavour could more profitably be used to increase outreach, market research and product development. Most of the studies in developing countries have highlighted the impact of microfinance services on variety of development objectives, including easing of poverty, boosting of production, and stimulation of investment (Vogel and Adams, 1999). No empirical work has been done with respect to delinquency and causes of default in Pakistan. This research attempts to empirically determine the factors of delay in repayments and default among microfinance clients.

The main objective of the study is to identify the causes of delinquency among microfinance clients in Pakistan. In addition, this research aims to estimate the likelihood of default risk associated with client, external as well as other institutional factors. The findings of the study for help policy makers to assess the risk of default/delinquency and develop appropriate financial management strategies to minimize risk. The rest of the paper is organized such that section 2 discusses the theoretical framework and building of logit model used in this study. This followed by data and discussion of results in section 3 and 4 respectively. The summary and concluding remark is provided in section 5.

## **Theoretical Framework and Econometric Model**

The microfinance programs have been accepted by development promoters in most developing countries as an effective tool for poverty alleviation. As microfinance has evolved, a better understanding has emerged of its strengths and limitations in poverty reduction, and of its potential for strengthening the risk management capacity of the poor (Wright et. al, 1999) and its benefits go beyond income poverty improvement (Gulli, 1998). Empirical and field research indicate that access to microfinance services increases poor households’ prospects of escaping poverty and at minimum stops them from falling further down the poverty line (Sebstad and Cohen, 2000; Wright, 1999; Gulli, 1998; Edgcomb and Barton, 1998). Providing microfinance services that can have sustainable impact on microfinance clients’ well being and reduced vulnerability is not an easy task, however, microfinance institutions face many risks that can adversely affect their long run operational and financial sustainability. Apart from many of these risks common to all financial institutions, the physical environment of the communities where most of the poor live, and the constraints they face in dealing with the difficult conditions that result from it, exacerbate the risks associated with delivering microfinance services (Pantoja, 2002). Among these risks external risk which includes disaster risk is of particular importance for both clients and microfinance institutions with regards to policy purposes. Many of the poor and near poor, who are typical microfinance clients, suffer from both a higher disaster risk exposure and a lower risk bearing capacity than other population groups (Sebstad and Cohen, 2000; Gulli, 1998). Poverty constraints make these individuals unable or unwilling to engage in high risk/high return activities, which limits their ability to manage risks and to escape poverty (World Bank, 2001). At the same time, the poor the

poor can not usually avoid external risk given their limited choices when deciding where to live. In fact, the unmitigated risk translates into problems of default as client's ability to repay loan are affected. On the other hand microfinance institution link external risk to their portfolio and their services delivery capacity and the sustainability of their impacts. As these institution lack and limited in helping clients to mitigate these risks (Cardona, 2001; Comfort, 1999).

Norel (2001) summarizes key causes of delinquency and suggests remedial measures. He cites examples of a number of microfinance institutions in Eastern Europe, Asia and Africa and identifies downturn in the borrower's financial position caused by family crisis as the key cause associated with the borrower's personal circumstances. He also mentions diversion of credit as another key delinquency cause and links it with the loan size. A larger than required loan is diverted to personal instead of business use resulting in failure of the borrower to increase his income and to fulfil his debt obligations. Norel (2001) also highlights the unwillingness to pay by the borrower as another obvious cause of delinquency. In this situation, borrowers might test microfinance institutions determination to collect dues and test the monitoring mechanisms of the MFI. This might specially be so when the borrowers know that the MFI is donor funded or government sponsored program following political agendas.

Lammy (2005) presents a set of case studies on Zambian micro insurance programs and also includes a section on general trends in the microfinance sector which includes identification of causes of delinquency. His analysis of the case studies presented include the following as main causes of delinquency; client dissatisfaction, business failures, multiple borrowing, health crisis, low staff morale as well as inadequate staff training and discipline. The issue of unwillingness to repay also creates problems in the group lending methodology. This creates disincentives for even the regular borrowers to avoid paying the loans. The issues associated with delinquency in group lending are discussed under a separate heading.

These factors imply all aspects that are beyond the borrower's personal circumstances. These include disasters, theft, market competition, unfavourable economic policies etc. However, the particular lending methodology imposed by the microfinance institutions and as such beyond the control of the borrower could be placed under the external factors category and seem to play a significant role in maintain borrower's repayment discipline (Stiglitz, 1990; Varian, 1990; Stearns, 1991; Banerjee et al., 1994; Besley and Coate, 1995; Hulme and Mosley, 1996; Kritikos, 1999; Armendariz and Morduch, 2003). Therefore, the research literature ignores the impact of external factors such as natural disasters and government policy aspects in their investigation of incentives to repay by microfinance borrowers and focuses on whether group lending or individual lending are better options for ensuring good repayment behaviour. The default risk literature shows borrowers may experience adverse situations, which cause difficulties for them in paying loan obligations.

## **A Logit – Model of Risk Management**

In this paper a logit model of microfinance loan default experience is estimated. From the perspective of the microfinance institution, predicting future loan delinquency is important. There are number of financial and non financial factors that are systematically used to assess the credit worthiness of microfinance clients. Nevertheless, there are other events that are difficult to foresee and therefore cannot be modeled. These comprise the unexplained random component  $u$ .

The default risk can be measured as the extent to which the default option is in-the-money. In our logit regression, a dummy variable DR assigned to measure this default risk. In our model the dependent variable default risk (DR) equals 1 if the microfinance client failed to repay its loan on schedule time and 0 if the client repaid the loan on due date. This paper identifies income, financial, demographic characteristics, locational, external and institutional factors as critical determinants of future risk. A risk management model has been developed and tested to serve as useful tool for policy makers to assess the risk of default/ delinquency and develop appropriate financial management strategies to minimize risk.

$$\ln\left[\frac{P_i}{1-P_i}\right] = \alpha_0 + \alpha_1 C_i + \alpha_2 E + \alpha_3 I_i + e_i$$

Where

$C_i$  is a matrix of variables relating clients' factors: This includes the causes of delinquency associated with the borrower's household conditions or for his/her personal actions regarding payment of debt obligations such as family income, number of earners, number of family members, are important variables. Similarly, cultural and religious ceremonies are major reasons for diversion of cash flows for a poor household. These include births, deaths, illnesses, religious festivals etc. The financial distress of a household occurs when expenditures exceed income and the household is left with no surplus cash flow to cover debt obligations. The financial distress arises when a borrower does not use the credit received from microfinance institution for the purpose it was given i.e. expanding the client business<sup>3</sup>. The other reasons include unwillingness to repay which implies the intentional refusal of the borrower to repay the debt obligations

$E_i$  is a matrix of variable relating to external factors: These include the factors which are beyond the borrower's household and personal actions. This includes disasters and factors affecting performance of his/her business as well as social interactions particularly for availing credit (being part of a credit group). This includes floods, earthquakes etc. The business loss/competition implies distressed cash flow due to problems in business such as reduces sales, reduces sales margins and cost hikes. These could also be due to higher competitive pressures in the market of the borrower. Business failure happens when borrower's business or his/her main income generating source breaks down so that his/her cash flows are in severe distress. One of important factor, inflation affects the purchasing power of the borrower and affects his/her ability to fulfil debt obligations. Unfavourable economic policy and political instability has policy impact on borrower's business costs and revenues as well as problems in conduct of business due to political instability (riots, strikes etc). With respect to group lending it is observed that group leader uses the loan instalments provided by the group members for his/her personal benefit. Borrower record is not well maintained by the group leader so that payments are mixed up and delayed. Group leader runs away with the borrower's money (loan or instalments). Other problems identified, includes improper group formation/interaction as the group is not homogeneous so that a few powerful members hijack the group and use it to their benefit. The group does not have adequate social cohesion so as to enforce repayments.

**$I_i$  is the Matrix of Institutional and Organizational Factors**

These factors attributed to the operational and policy aspects of the microfinance institution includes, credit officer's behaviour, inadequate guidance to borrower regarding the repayment procedures, late payment penalties and consequences of default. The implication of this factor is that the borrower would not know the loan conditions as well as consequences of default. The time taken from application submission to disbursement is so long that the borrower feels alienated with the microfinance institution and thinks of also "punishing" the MFI by delaying repayments. This includes situations where borrower faces time consuming and/or costly repayment process and deposit of his/her instalments. This could include longer distances from the microfinance institution etc. Microfinance institution staffs particularly the loan officers fails to perform adequate appraisal of the borrower. Moreover, high interest rate constrained the repayment capacity of the borrower. Due to lack of follow up and monitoring repayment discipline is diluted. Poor management information system caused delay in identification of delinquent borrowers to the microfinance institution staff especially the loan officers so that there is delay in follow-up and monitoring.  $e_i$  refers to error term.

Expressing differently and expanding the above equation, we can state:

$$DR_i = \beta_0 + \beta_1 EDU_i + \beta_2 MS_i + \beta_3 FS_i + \beta_4 EARNER_i + \beta_5 GROUP_i + \beta_6 FREASON_i + \beta_7 EREASON_i + \beta_8 IREASON_i + \beta_9 ACONSEQ_i + \beta_{10} ABENEFIT_i + \beta_{11} SCO_i + \beta_{12} SMFI_i + \beta_{13} EXP_i + \beta_{14} INCOM_i + \beta_{15} LSTATUS_i + \beta_{16} LSIZE_i + \beta_{17} SAV_i + \beta_{18} VA_i + e_i$$

Where

- $DR$  = Dummy { 1 = if default; 0 = otherwise }
- $EDU$  = Dummy { 1 = if literate; 0 = otherwise }
- $MS$  = Dummy { 1 = if Married; 0 = otherwise }
- $EARNER$  = Number of earners in the family

<i>GROUP</i>	=	Dummy { 1 = if belongs to Group; 0 = otherwise }
<i>FREASON</i>	=	Dummy { 1 = if delinquency is due to family reasons; 0 = otherwise }
<i>EREASON</i>	=	Dummy { 1 = if delinquency is due to external reasons; 0 = otherwise }
<i>IREASON</i>	=	Dummy { 1 = if delinquency is due to institutional reasons; 0 = otherwise }
<i>ACONSEQ</i>	=	Dummy { 1 = if client is aware of consequences of default; 0 = otherwise }
<i>ABENEFIT</i>	=	Dummy { 1 = if client is aware of benefits of no default; 0 = otherwise }
<i>SCO</i>	=	Dummy { 1 = if client is satisfied with credit officer; 0 = otherwise }
<i>SMFI</i>	=	Dummy { 1 = if client is satisfied with MFIs; 0 = otherwise }
<i>EXP</i>	=	Family Expenditure per month in Rupees
<i>INCOM</i>	=	Family Income per month in Rupees
<i>LSTATUS</i>	=	Loan status Dummy { 1 = if first loan; 0 = otherwise }
<i>LSIZE</i>	=	Amount of loan in Rupees
<i>SAV</i>	=	Amount of saving in Rupees
<i>VA</i>	=	Value of asset in Rupees
$e_i$	=	refers to the error term

The research study investigates the causes of delinquency based on a framework of variables mentioned above. These variables are explained below.

The idea for developing an econometric model emerges as to find out various factors jointly pushing the microfinance client to a delinquent. Microfinance institution clients become delinquent either when they do not have access to enough cash flow to service their microfinance institution obligations or they have access but divert the cash flow towards some other need. This lack/diversion of cash flow has further underlying reasons which form the key variables at the root cause of delinquency. In other words the delinquency variable (DR) is a random variable and restricted to whether the client is delinquent or not means the response for this variable is restricted to Yes or No or dichotomous. If the client reports that he has delayed in payment then '1' or if not then this variables take the value as '0'. This delinquent variable is a random variable while estimating a regression model explaining this delinquent behavior on the basis of various factors (explained in next paragraph) and lies between 0 and 1 hence we can estimate the likelihood or probability of client being delinquent. This qualitative response regression model will identify those variables contributing to the likelihood of clients being delinquent. This standard coefficient or beta coefficients provide the ranking or relative weights of each variables (explanatory variables) contributing to delinquency of clients. The same helps in identifying the policy variables contributing or reducing the delinquency among microfinance clients in Pakistan. The empirical examination of the influence of client factors, external factors, income variables, and credit history variables, demographic and other socio-economic variables will facilitate in determining the causes of default and credit risk among microfinance clients.

The first variable taken was education (EDU). The respondents were asked their level of education. Since we are dealing with people who are in general less educated and the variable is defined as literate versus illiterate. We expect a negative relationship between the education level and delinquency among clients. As comparatively educated person are more conscious about the in time payments and less excuses in dealing with the institution and do not depend much on the other persons to help. The impact of marital status (MS) is ambiguous as its impact on delinquency may be positive or negative. It is believed that married clients are supposed to be more responsible and chances of their default or delay in loan payment is less. However, being married he has more responsibilities and due to unforeseen circumstances a married client is under more pressure to be a delinquent as he might divert the loan in other needs rather than spending in the category for which the loan is borrowed.

Family size (FS) is also very important which is expected to have positive effect on delinquency. The higher the family size the lower the resources per person to pay back loan in time and more chances for delay or

default in loan repayments. On average if the number of earners (EARNER) are more than capacity for repayment is higher among client and hence the delinquency is less. The number of earners is expected to have negative relationship with delinquency. Moreover if the clients are self employed (OCC), we expect that he is putting all his effort in income generating activities and earn enough to pay back the loan in time.

The higher the income level (INCOM) the lesser are the chances to push the client to delay or default in repayment of the loan. It indicates the repayment capacity if compared with amount of average monthly payment of loan. We expect a negative relationship between income level and delinquency rate among clients. Similarly for clients who indicated higher level of expenditure (EXP) are expected to have more chances of difficulty in timely repayment of the loan. With this indication we expect a positive sign between the expenditure and delinquency rate among microfinance clients in Pakistan.

The saving capacity (SAV) is enquired from client directly if they save or not. In our empirical model we expect to have a negative relationship with delinquency and saving rate. Other variable is taken as value of assets (VA) owned by these clients. This indicates the relative strength of clients and we expect a negative relationship between the value of asset owned and delinquency rate among clients. The variable (GROUP) taken distinguishes the group lending versus individual lending. It is expected that in our system where collateral is not required it depend a lot on the morale and culture where client are under pressure and feel obligated for repayment of loan. The mechanism maintained under group lending requires that other group members are guarantors in case of default and this system ensure the timely repayment through peer monitoring and peer pressure. The individual borrower also provide guarantor but feel less pressure than being a group lender. We expect that a group lender has less chances of delay or default in payment than an individual client.

The clients were directly asked about their reasons for delinquency. The reasons were asked through three indices; family reason (FREASON), external reasons (EREASON) and Institutional reason (IREASON). The family reasons or client factor included family profile, events and emergencies, distress family economic conditions, conditions under which the diversion of credit and attitude of unwillingness to pay. They feel the loan as the charity from mostly NGOs and overseas donors and are not worried about repayments or any legal repercussions. We expect this index of client factors as one of the dominating factor and have positive relationship with delinquency among microfinance clients. The external factors index (EREASON) included dominantly inflation, natural disaster, business failure, unfavorable economic conditions, government policies and problems relating to group formation etc. We expect a positive and significant relationship between these external factors and delinquency rate among clients. The institutional factors as a reason (IREASON) for delinquency included all about interaction between lending agency staff, information system, guidance and poor loan appraisals and procedures etc. We expect a positive relationship between institutional factor and delinquency rate if the institutional support is not adequate or not client friendly.

The loan size (LSIZE) is one of most important variable in explaining the delinquency rate among clients. The major concerns in literature and in empirical studies are about size of the loan. In Pakistan most of the clients report that the loan amount is not matching with their needs. As a result these loans do not help much in income generating activities as expected by borrowers and hence at the time of repayment they have pressure to delay in repayment and we expect a positive sign of loan size with delinquency in Pakistan instead of theoretical negative sign.

The status of loan (LSTATUS) variable indicates whether it is first loan to client or he is in second or higher round of loan. We expect a negative relationship with the loan status of higher round with delinquency rate among clients. The other variables like consequences of default (ACONSEQ); benefits of timely repayment (ABENEFIT); satisfaction with credit officers (SCO); and satisfaction with MFI (SMFI) are expected to indicate a negative sign with delinquency rate.

## **Data**

The study is based on primary data collected through personnel interviews of 493 microfinance clients in Pakistan during September to December 2005. A stratified random sampling methodology was used to ensure the

representation of various categories of respondents which included individual clients, group borrowers, active and default clients. The selection of clients from the sampled microfinance institution was based on the outstanding loan portfolio of the microfinance institutions. This correlated the sample size with the size of the microfinance institution, taking the portfolio outstanding as proxy for size. Based on the above, the total base sample size was calculated as 600 and distributed proportionately among microfinance institutions. After scrutinizing and editing, 493 valid questionnaires were included in the empirical estimation of causes of delinquency among microfinance clients.

## Estimation and Results Interpretation

Several econometric models based on literature review, experience from local environment and cultural characteristics were estimated with various combinations. The following econometric model was identified and estimated as the best model after taking into consideration various econometric problems:

$$DR_i = \beta_0 + \beta_1 EDU_i + \beta_2 MS_i + \beta_3 FS_i + \beta_4 EARNER_i + \beta_5 GROUP_i + \beta_6 FREASON_i + \beta_7 EREASON_i + \beta_8 IREASON_i + \beta_9 ACONSEQ_i + \beta_{10} ABENEFIT_i + \beta_{11} SCO_i + \beta_{12} SMFI_i + \beta_{13} EXP_i + \beta_{14} INCOM_i + \beta_{15} LSTATUS_i + \beta_{16} LSIZE_i + e_i$$

The results of the study are discussed as follows. Table 1 gives the mean and standard error of variables used in the study. The mean value of in time loan repayment risk variable (DR) is 0.555 (standard error = 0.022) which implies that 55.5% of the microfinance clients on average delay their repayments over one day. The mean value of education variable is 0.6105 (std. error = 0.021) which indicates that 61.05% of the clients are literate who can read and write. 86.21% of the respondents are married (with std. error = 0.015). The average family size of clients is 8.07 (std. error = 0.211) which is higher than the national average family size of 5.8 person per household. The average number of earners in clients household is reported as 2.44 (std. error = 0.074). In our sample 70.99 clients (std. error = 0.020) were in the group lending scheme. 30% of the clients (with std. error = 0.021) indicated delay in repayments due to family reason; 21.9% (std. error = 0.018) indicated external factors for delay in repayments and only 3% (std. error = 0.007) indicated lack of institutional support as the cause for delay in repayments. About 73% (std. error = 0.020) and 67% (std. error = 0.022) indicated their awareness of benefits for in time repayments and consequences of delay in repayments in loans respectively. Only 1% (std. error = 0.012) of the clients indicated their occupation in business as rest of them indicated their involvement in multiple activities or other occupations like agriculture, wage earner etc. About 83% (std. error = 0.033) and 96% (std. error = 0.008) of the microfinance clients showed their satisfaction with microfinance institution and credit officers respectively. The mean value of income per household is reported as Rs. 9511.49 (std. error = 345.981) and the mean value for expenditure as Rs. 7046.22 (std. error = 151.48). The average size of the loan disbursed to clients was Rs. 13728.19 (std. error = 722.51) payable in 12 months. 65.31% (std. error = 0.023) of the clients were with first loan.



TABLE 1: DESCRIPTIVE STATISTICS FOR MICROFINANCE CLIENTS

<b>Variables</b>	<b>Mean</b>	<b>Standard Error</b>
<i>DR</i>	0.555	0.022
<i>EDU</i>	0.6105	0.021
<i>MS</i>	0.8621	0.015
<i>FS</i>	8.0709	0.211
<i>EARNER</i>	2.4448	0.074
<i>GROUP</i>	0.7099	0.020
<i>FREASON</i>	0.3002	0.021
<i>EREASON</i>	0.2190	0.018
<i>IREASON</i>	0.0283	0.007
<i>CONSEQ</i>	0.7261	0.020
<i>BENEFIT</i>	0.6734	0.022
<i>OCC</i>	0.0771	0.012
<i>SMFI</i>	0.8296	0.033
<i>EXP</i>	7046.219	1512.480
<i>INCOM</i>	9511.498	345.961
<i>LSTAUS</i>	0.6531	0.023
<i>SLOAN</i>	13728.19	722.511
<i>SCO</i>	0.9594	0.008

This section empirically identifies the factors causing the delinquency among the microfinance credit client in Pakistan. In all 493 microfinance clients were interviewed distribute all over the country during September to December 2005. Considerable effort was made to identify the microfinance clients in far flung areas of the country for proper representation and data collection.

The results of econometric model are presented in Table 2<sup>4</sup>. The empirical findings identify the factors contributing towards delinquency among microfinance clients. As indicated the major factors which pushed the client towards delinquency are family reason and external reasons. Both these factors are likely to push the clients towards defaults as these factors are positively related to default and statistically significant at 95% confidence. This infers that these factors explained the maximum loading of delinquency among microfinance clients and these factors are statistically significant at 95% confidence level. The family reasons include mainly diversion of credit for other purposes (like ceremonies and emergencies, 68.2%), attitude that unwillingness to pay as they do not face legal obligation, lack of managerial skill and many unforeseen family issues. The external reason included mainly inflation (87%) due to which they face loss in their income and in competitive environment they fail to survive. Of course the factors like political instability, unfavorable economic policy and general economic condition were also reported as problems/reasons to pay back the loan in time.

The other factors which pushed the clients for default were marital status and family size. These factors explain the level of delinquency and the coefficients of these variables are statistically significant at 95% confidence. The microfinance clients with larger family size on average are likely to default/delay in repayments than the clients with smaller family size. The clients with higher number of earners per family, has negative relationship with the chances of delay in repayments. The coefficient of number of earners is negative and statistically significant at 95 percent confidence. Statistically there is no difference delinquency behavior of group client and individual clients. Surprisingly the awareness about benefits and consequences of default play no significant role in delinquency rate.

The size of loan has positive relationship with delinquency rate as the coefficient of this variable is statistically significance. The reason that in most cases the clients reported that the amount of loan is insufficient and do not match their need and it does not help in their income generating capacity. Because our results indicate that increase in income generating capacity declines the default in repayments. The estimated results infer that the chances of high delinquency rate among first loan clients is higher than the clients with higher order of loans (second, third or fourth loan) as the coefficient of this variable is positive and statistically significant. The reason could be that clients with higher order of loans are established and possibly know the benefits of repayments within due dates. The reported income has no impact on delinquency rate. However, if an increase in expenditure by clients may significantly cause a decline in the chances of delinquency/ delay in repayments of loan as the coefficient of this variable is negative and statistically significant (the repayments installment of loan is include in the reported expenditure). The satisfaction of clients with microfinance institution has shown a negative relationship with delay in repayments but the coefficient is statistically insignificant. The institutional factor variable has not been reflected as one of main cause of delay in repayments in our findings. However, these factors are indirectly run through all other factors identified as the key cause of delinquency among microfinance clients.

## **Summary and Concluding Remarks**

The main objective of the study is to identify the causes of delinquency among microfinance clients in Pakistan. In addition, this research aims to estimate the likelihood of default risk associated with client, external as well as other institutional factors. This research study is based on primary data collected through structured questionnaire and personal interviews (494 microfinance clients) were conducted throughout Pakistan during September-December 2005. A logit model of microfinance loan default experience is estimated from the perspective of the microfinance institution for whom, the predicting future loan delinquency is important for risk management. There are number of financial and non financial factors that are systematically used to assess the credit worthiness of microfinance clients. The empirical findings identify the factors contributing towards delinquency among microfinance clients. The major factors which pushed the client towards delinquency are family reasons and external reasons explained the maximum loading of delinquency among microfinance clients. The family reasons include mainly diversion of credit for other purposes (like ceremonies and emergencies, 68.2%), attitude that unwillingness to pay as they do not face legal obligation, lack of managerial skill and many unforeseen family issues. The external reason

TABLE 2: THE DEPENDENT VARIABLE IS TAKEN AS DELINQUENCY DUMMY (DR); IF DELAY IN REPAYMENT THEN THIS DUMMY VARIABLE TAKES THE VALUE 1 AND OTHERWISE 0

Variables	coefficients	Standard error	Z-statistics	Significance
<i>constant</i>	-1.2638*	0.4729	-2.6720	0.0075
<i>EDU</i>	-0.1422	0.1838	-0.7738	0.4300
<i>MS</i>	0.4735**	0.2812	1.6834	0.0923
<i>FS</i>	0.0363***	0.0278	1.3045	0.1920
<i>EARNER</i>	-0.1272*	0.0617	-2.0587	0.0395
<i>GROUP</i>	0.0732	0.1847	0.3963	0.6918
<i>FREASON</i>	2.5004*	0.2250	11.1129	0.0000
<i>EREASON</i>	3.3811*	0.4658	7.2585	0.0000
<i>IREASON</i>	0.7224	0.6699	1.0782	0.2809
<i>CONSEQ</i>	-0.0298	0.0429	-0.6954	0.4871
<i>BENEFIT</i>	-0.0188	0.0455	-0.54131	0.6797
<i>OCC</i>	-	0.3349	-1.2846	0.1989
	0.4302***			
<i>SMFI</i>	-0.2366	0.2362	-1.0018	0.3164
<i>EXP</i>	-5.45E-05**	2.98E-05	-1.8270	0.0677
<i>INCOM</i>	-5.2E-07	1.05E-05	0.3863	0.6992
<i>LSTAUS</i>	0.4554*	0.1860	2.4479	0.0144
<i>SLOAN</i>	2.47E-05*	8.10E-06	3.0526	0.0023

<i>SCO</i>	0.0281	0.1142	0.2468	0.8052
McFadden	0.5614			
$R^2$				

\* significant at 0.05 level  
\*\* significant at 0.10 level  
\*\*\* significant at 0.20 level

included mainly inflation (87%) due to which they face loss in their income and in competitive environment they fail to survive. Of course the factors like political instability, unfavorable economic policy and general economic condition were also reported as problems/reasons to pay back the loan in time.

The microfinance clients with larger family size on average are likely to default/delay in repayments than the clients with smaller family size. The clients with higher number of earners per family, has negative relationship with the chances of delay in repayments. The results revealed that there is no difference delinquency behavior of group client and individual clients. Surprisingly the awareness about benefits and consequences of default play no significant role in delinquency rate. The size of loan indicated a positive relationship with delinquency rate among clients. The reason that in most cases the clients reported that the amount of loan is insufficient and do not match their need and it does not help in their income generating capacity. Because our results indicate that increase in income generating capacity declines the default in repayments. The estimated results infer that the chances of high delinquency rate among first loan clients is higher than the clients with higher order of loans (second, third or fourth loan). The reported income has no impact on delinquency rate. Reported expenditure is supporting the timely repayments of loan (the repayments installment of loan is included in the reported expenditure). The satisfaction of clients with microfinance institution has shown a negative relationship with delay in repayments but the coefficient is statistically insignificant. The institutional factor variable has not been reflected as one of main cause of delay in repayments in our findings. However, these factors are indirectly run through all other factors identified as the key cause of delinquency among microfinance clients.

In conclusion, for policy implications this study identifies a need for product innovation and diversification to match the need of the microfinance clients along with improved loan appraisal system. For this an efficient MIS system is required for reporting, analyzing client behavior and benchmarking.

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### **End Notes**

In this research study delinquency is defined as dues of over one day (CGAP definition). Many microfinance institutions considered overdue of a loan remained due and unpaid by more than a month. The reason that a client who is delinquent by our research framework definition, would not show up as delinquent in the MIS of participating MFIs.

<sup>2</sup> CHIP 2006 “Causes of High Rates of Borrower Dropouts in MFIs” A study sponsored by PFSSRP

<sup>3</sup> Although some MFIs also provide consumer loans to its clients, however, this research study focuses on credit provided for income generating activities.

<sup>4</sup> We estimated several econometric models on cross-sectional data of 493 microfinance clients. After incorporation of adjustment for econometric problems like heteroscedasticity and multicollinearity the best model is presented in this section.

# A GARCH-in-Mean Approach to Testing the Spot and Forward Exchange Rate: Evidence from China Foreign Exchange Market

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## Abstract

The relationship between spot and forward exchange rates has been the subject of numerous studies. However, there are not enough studies about RMB or China foreign exchange market. This paper takes a closer look at issues surrounding the relationship of the USD / RMB forward exchange rate and spot exchange rate. According to the uncovered interest parity (UIP), the forward exchange rate should be an unbiased estimate of the spot exchange rate at maturity. This paper examined whether USD / RMB forward exchange rate is unbiased estimate of RMB spot exchange rate by means of ordinary least square regression and GARCH-in-mean approaches. The results show that the spot rate has a unit root while the forward exchange rate is  $I(d)$  with  $d > 1$ , implying long memory and forward exchange rate of USD/RMB is not unbiased estimate of the future spot exchange rate. In addition, we found that a time-varying premium exists in China's foreign exchange market.

## Introduction

In the past two decades, there have been many empirical studies either supporting or opposing the unbiased forward rate hypothesis (UFH). The UFH argues that the forward rate “fully reflects” available information about the exchange rate expectations (Chiang, 1988). One view of market efficiency states that the current prices reflect all available information. When this is applied to the foreign exchange market, it implies that “economic agents’ expectations about future values of exchange rate determinants are fully reflected in the forward rates (Chiang, 1988).” In a no-arbitrage environment, both assumptions of risk neutrality and rational expectations imply that the forward foreign exchange rate should be an unbiased predictor of the corresponding spot rate.

To test this hypothesis, the conventional method is to use an OLS regression, with the spot rate as the dependent variable, while the one-period lagged forward rate as the independent variable. Unfortunately, empirical support for the UFH is unconvincing.

The aim of our paper is to test the UFH in China's foreign exchange market using the common OLS regression and the GARCH-in-mean approaches. The rest of the paper is organized as follows: Section II provides background information about forward exchange rates and reviews previous studies that have been conducted on the validity of the UFH. Section III discusses the data of USD/RMB spot and future exchange rate and the general GARCH-in-mean model. Section IV examines the relationship to the USD /RMB forward exchange rate and spot exchange rate based on the OLS regression and GARCH-in-mean model. Moreover, we describe the results from the OLS regression analysis and the GARCH-in-mean model. Section V concludes that forward exchange rate of USD/RMB is not unbiased estimate of the future spot exchange rate.

## Forward Rate Unbiasedness Hypothesis and Theoretical Review

This section presents an overview of the UFH concept and some recent works on this topic. Modern finance theory is founded upon the exclusion of arbitrage. To fully understand the UFH, one must gain a basic understanding of the difference between the spot market and the forward market. In the spot market, two parties involved in a transaction arrangement to conduct the exchange of currencies within a relatively short-term horizon. A forward transaction is a way for an individual or a business to arrange in advance to buy foreign exchange for the purpose of making a future

international payment. Purchasing or selling the foreign exchange forward allows those involved in the transaction to agree upon the exchange rate today. A forward rate can be interpreted as the sum of a premium and the expected future spot rate (Fama, 1984). More precisely the forward exchange rate  $f_t$  observed for an exchange at time  $t+k$  is the market determined certainty equivalent of the future spot exchange rate  $S_{t+k}$  (Fama, 1984).” Application of these principles results in the well-known covered interest parity condition (CIP):

$$F_t^k = S_t \times \frac{(1+i_t^k)}{(1+i_t^{k*})} \quad (1)$$

From equation (1), we know that the forward exchange rate is determined by the interaction of the spot exchange rate, the domestic interest rate and the foreign interest rate. This is usually transformed into the logarithmic approximation:

$$f_t^k - s = i_t^k - i_t^{k*} \quad (2)$$

CIP is generally accepted, at least over reasonably short investment horizons. Combining CIP with the common and seemingly innocuous assumptions of rational expectations and risk neutrality, we quickly conclude powerful results of the relationship between spot and forward rates. That is saying, when speculators are risk neutral, arbitrage should ensure that the forward rate  $f_{t+k}$  for the future date equals the expected spot rate for that same future day

$$f_t^k = s_{t+k}^e \quad (3)$$

Where a superscript  $e$  denotes a subjective expectation. This is labeled the uncovered interest parity condition (UIP). Subtracting the spot exchange rate from both sides gives

$$f_t^k - s_t = s_{t+k}^e - s_t \quad (4)$$

which implies that the forward premium is an estimate of the future change in the exchange rate. When combined with another assumption of speculator from rational expectations, UIP becomes a particularly interesting relationship. Rationality implies that the expected future spot rate from equation (3) differs only from the actual future spot rate by a random error,  $\eta_{t+k}$

$$f_t^k - s_t = s_{t+k}^e - s_t \quad (5)$$

Combining (3) and (5) gives

$$s_{t+k} = f_t^k + \eta_{t+k} \quad (6)$$

or equivalently,

$$s_{t+k} - s_t = f_t^k - s_t + \eta_{t+k} \quad (7)$$

The combination of UIP and rationality expressed in equation (7) states that the forward premium is not only an estimate of the future change in the exchange rate but that it will be an unbiased estimate. In other words, on average the forward premium, equal to the difference between domestic and foreign interest rates, correctly predicts the future change in the spot exchange rate.

Equation (6) and (7) have been used as the basis of tests of forward rate unbiasedness. Historically, the first set of tests were based on OLS levels regressions of the form

$$s_{t+k} = a + b f_t^k + \mu_{t+k} \quad (8)$$

These typically failed to reject the restrictions implied by the hypothesis of unbiasedness, named  $a=0$  and  $b=1$ . Early empirical tests of the level regression were very encouraging, since they revealed values for  $b$  statistically not different from one. Cornell (1977) and Frenkel (1977, 1981), Branston (1969), Marston (1976), and Fratianni and Wakeman (1982) performed regression-based tests of equation (2) and typically supportive of CIP. However, such tests suggest merely that CIP held on average over a period. A more informative test would be to consider whether CIP holds at each instant in time, or whether significant arbitrage opportunities exist. Frankel and

Levich (1975, 1977), and Taylor (1987,1989) all took such a cross-section approach to testing CIP. The Taylor studies, which used higher quality data sets (with interest, spot and forward rates all recorded at exactly the same instant) found that even in times of turbulent markets there are few profitable violation of CIP. The magnitude, frequency and persistence of any opportunities that did exist appeared to be increasing functions of  $k$ , the maturity of the underlying instruments. Moreover, recent developments in the time series literature indicate that standard regression-based tests of equation (8) are not valid. It is generally agreed that both  $s_{t+k}$  and  $f_t$  are non-stationary I(1) processes (see Meese & Singleton(1982) ,Doukas & Rahman(1987), Baillie& Bollerslev (1989) and Corbae, Lim & Ouliaris (1992)). Therefore there is no guarantee that  $\mu_{t+k}$  will be a stationary white noise error term unless the spot and forward rates are co integrated. Similarly, there are statistical problems with using t-test of restrictions on  $a$  or  $b$ .

The non-stationarity of the spot and the forward rates has led researchers to adopt a different version of (8) to overcome spurious regression problems. It is obtained by subtracting the log current spot rate from both sides. The second generation of tests uses regression based on equation (7):

$$s_{t+k} - s_t = \alpha + \beta(f_t^k - s_t) + \eta_{t+k} \quad (9)$$

Where the dependent variable is known to be stationary and forward premium, because it is a quasi-difference variable, is assumed to be stationary. In equation (9), unbiasedness would imply that  $\alpha = 0$  and  $\beta = 1$ . A branch of empirical investigation of the difference version has shown that  $\beta$  is not only different from one but it is also clearly negative (Bilson(1981), Hansen and Hodrick (1983), Huang (1984), Cumby and Obstfeld(1984) and Froot and Frankel (1989). Three main interpretations of this dilemma have been suggested by Fama (1984), Froot and Frankel (1989) and Cornell (1989). The two first issues concern the joint assumption of risk neutrality and rational expectations, while the third interpretation focuses on two types of measurement errors.

Fama (1984) argues that the negative slope coefficient  $\beta$  is due to the existence of a time varying risk premium ( $rp_t$ ), so that  $rp_t = f_t - E_t(s_{t+1})$ . This formulation for the risk premium follows from the idea that if agents are not risk neutral ( $f_t > E_t(s_{t+1})$ ), they incur a risk premium from purchasing the foreign currency forward at time  $t$  relative to its expected price on the spot market at time  $t+1$ . If expectations are rational, the testable relation becomes

$$s_{t+k} - s_t = \alpha + \beta(f_t^k - s_t) + \theta rp_t + \eta_{t+k} \quad (10)$$

If the risk premium is sufficiently negatively correlated with the expected depreciation, then the slope coefficient can become negative and can therefore explaining the dilemma.

Bekaert and Hodrick (1993) and Baillie and Bollerslev (1990) have estimated the following expression

$$s_{t+1} - s_t = \alpha + \beta_f f_t + \delta \text{var}_t(s_{t+1}) + \varepsilon_{t+1} \quad (11)$$

where the term  $\text{COV}(s_{t+1}; p_{t+1})$  is omitted because negligible in practice. Their estimate of the expression is obtained with a GARH-in-mean model. Bekaert and Hodrick, restricting  $\delta$  to 0.5, find that the variance term is not responsible for the negative value of  $\beta_f$ . Baillie and Bollerslev restrict  $\beta_f$  to one and test the value of  $\delta$ , they can neither reject the hypothesis that  $\delta = 0$  nor that  $\delta = -0.5$  for three European currencies relative to the US dollar. A furry of papers testing the UFH or the uncovered interest rate parity (UIP) has recently appeared. These empirical investigations adopt some up-to-date econometric techniques. Baillie and Bollerslev (2000) suggest that the forward premium puzzle is due to small sample sizes and to very persistent autocorrelation of the forward premium. They estimate a fractional integrated GARCH-in-mean (FIGARCH-M) model for the German mark /US dollar parity. Hsu and Kugler (1997), who analyse the UFH using a nonlinear approach, estimate an exponential GARCH-in-mean model and reject the unbiasedness hypothesis. Applying a nonlinear impulse-response function they find that the forward premium has a nonlinear influence on the spot rate. Roll and Yan (2000) argue that the



forward rate is an unbiased predictor of future spot rate and suggest that the puzzle arises because the forward rate, the spot rate and the forward premium follow nearly non-stationary time series processes.

Lin and Chen (1998), Lin(1999), Lin and Lin(2000), and Lin et al.(2002) provide thorough reviews of UFH empirical literature. Many of the studies in this area have considered only one sample period, one time horizon (mostly one month), and one or more currencies, so that the rejection or acceptance of the UFH may well depend on the sample periods, currencies and time horizons under study (Lin, 1999). Some tests have been performed on the basis of the argument that functional forms are exploitable UFH (e.g. Barnhart and Szakmary,1991;Lin,1999; and Lin et al.,2002). Still others believe that a number of well-cited tests of unbiasedness have suffered from specification error, such as structural homogeneity bias arising from the assumption that the slope coefficient of the UFH is invariant over time(Lin et al., 2002). Thus, to correct the bias created by the structural homogeneity assumption, Gregory and McCurdy(1984) have addressed the misspecification issue, Chiang(1988) has taken a stochastic coefficient approach, and Lin (1999) and Lin et al.(2002) have used a logarithmic change specification which is transformed into a variable mean response model estimated by a four-step generalized least squares procedure. More recently, Bhogli(2005) has employed a version of the breitung nonparametric cointegration approach used here in the investigation of the French Franc-Deutsche Mark rate. The advantage of this approach is that it does not impose any parametric specifications on the relationship.

Nevertheless, in spite of a large body of literature, the empirical tests on the UFH are inconclusive and conflicting. The UFH is supported by a few early studies(e.g., Cornell, 1977;and Kohlhagen,1979),but most of the more recent studies e.g., Levich(1979), Bilson(1981), Gregory and McCurdy(1984), Hsieh(1984), Bakshi and Naka(1997), Lin(1999), Lin et al.(2002),and Chernenko et al (2004),among others, have rejected the UFH. Similarly, other studies (e.g., Edwards,1982;Domowitz and Hakkio, 1985;Barnhardt and Szakmary,1991; and Lin and Chen,1998)have also provided mixed results for the UFH.

## Data and GARCH-M Model

### Data Description

The exchange rates data used in this paper are taken from the Center of China Economic Research Services (CCER). The data are USD / RMB basic rates. Three forward contracts (7 days, 20 days and 30 days) are used in this paper. The sampling dates are from October8, 2003 to March 16, 2007 for all the three contracts. For each sampling date, there are three variables: the forward rate ( $F_t$ ), the spot rate ( $S_t$ ), and the corresponding future spot rate ( $S_{t+1}$ ). At time  $t$ ,  $F_t$  and  $S_t$  are observed, and  $S_{t+1}$  can only be observed on the exchange day of the forward contract.

### GARCH-in-mean Model

In this section, we begin with a brief review of the ARCH family of statistical models. The ARCH model was originally designed by Engle(1982) to model and forecast the conditional variance. The process allows the condition variance to change over time as a function of past errors while the unconditional variance remains constant. Let variable  $y_t$  have the following AR(k) process:

$$y_t = \pi_0 + \sum_{i=1}^k \pi_i y_{t-i} + \varepsilon_t \quad (12)$$

$$\varepsilon_t = \sigma_t z_t \quad (13)$$

Where  $z_t$  is identical and independent distribution (i.i.d.) with  $E[z_t] = 0$  and  $E[z_t^2] = 1$ , and  $z_t$  and  $\sigma_t$  are statistically independent. It thus holds that

$$V_{t-1}[y_t^2] = E_{t-1}[(y_t - E_{t-1}(y_t))^2] = E_{t-1}[\varepsilon_t^2] \quad (14)$$

Thus, the conditional variance of  $y_t$  is equal to the conditional variance of  $\varepsilon_t$ .

The ARCH(p) model is specified as follows:

$$\sigma_t^2 = \alpha_0 + \sum_{i=1}^p \alpha_i \varepsilon_{t-i}^2, \alpha \geq 0, \alpha_i \geq 0 \quad (15)$$

The conditional variance at time  $t$  depends on two factors: a constant ( $\alpha_0$ ) and past news about volatility taken as the squared error from the past. The  $p$  of the ARCH( $p$ ) refers to the number of ARCH terms in equation(15). The condition  $\alpha \geq 0, \alpha_i \geq 0$  guarantees the non-negativity of variance. As equation(15) clearly shows, the conditional variance is the weighted average of the squared values of past errors. For the ARCH model, it holds that  $Var_{t-1}[y_t] = E_{t-1}[\varepsilon_t^2] = \sigma_t^2 E_{t-1}[z_t^2] = \sigma_t^2$ , where  $\sigma_t^2$  is the conditional variance of and  $y_t$  is called volatility.

The GARCH model developed by Bollerslev(1986) is an extension of the ARCH model. The ARCH( $p$ ) process specifies the conditional variance solely as a linear function of past sample variances, whereas the GARCH ( $p,q$ ) process allows lagged conditional variances of enter as well. This corresponds to some sort of adaptive learning mechanism. The variance dynamics is thus specified as follows:

$$\sigma_t^2 = \alpha_0 + \sum_{i=1}^p \alpha_i \varepsilon_{t-i}^2 + \sum_{i=1}^q \beta_i \sigma_{t-i}^2, \alpha_0 \geq 0, \alpha_i \geq 0, \beta_i \geq 0 \quad (16)$$

The conditional variance at time  $t$  depends on three factors: a constant ( $\alpha_0$ ), past news about volatility taken as the squared error from the past (the ARCH term, i.e.,  $\sum_{i=1}^p \alpha_i \varepsilon_{t-i}^2$ ), and past forecast variance (the GARCH term, i.e.,  $\sum_{i=1}^q \beta_i \sigma_{t-i}^2$ ). The ( $p,q$ ) in GARCH( $p,q$ ) refers to  $p$  ARCH terms and  $q$  GARCH terms. The condition  $\alpha_0 \geq 0, \alpha_i \geq 0, \beta_i \geq 0$  guarantees the non-negativity of variance<sup>1</sup>. This specification is logical since variance at time  $t$  is predicted by forming a weighted average of the forecast from the past and either a long-term average or constant variance.

The GARCH-in-mean (GARCH-M) model introduced by Engle et al. (1987) has become one of the workhorses in financial econometrics. The central innovation in comparison with the Bollerslev (1986)GARCH model is reflected by the term “in-mean”: the conditional variance --modeled as some GARCH-type equation-- is allowed to directly effect the mean, i.e. the model specifies a *risk premium*. The way in which the conditional variance affects the mean is parametrically modeled. The GARCH( $p,q$ )-in-mean model is specified as follows:

$$y_t = \pi_0 + \sum_{i=1}^k \pi_i y_{t-i} + \delta \sigma_t^2 + \varepsilon_t \quad (17)$$

$$\varepsilon_t = \sigma_t z_t \quad (18)$$

$$\sigma_t^2 = \alpha_0 + \sum_{i=1}^p \alpha_i \varepsilon_{t-i}^2 + \sum_{i=1}^q \beta_i \sigma_{t-i}^2 \quad (19)$$

## Estimation and Results

In this section, we firstly examine the effectiveness of the lagged one-period forward exchange rate in determining the spot exchange rate in China's foreign exchange market. Then, we use a GARCH (1,1)-in-Mean model to estimate the risk premium of the 7 days, 20 days and 30 days forward contracts in China's forward foreign exchange market.

### Ordinary Least Squares Method (OLS)

Firstly, we examine the effectiveness of the forward exchange rate (lagged one period) in determining the spot exchange rate. The equation utilized is:

$$\log S_{t+1} = \alpha_0 + \alpha_1 \log F_t + \varepsilon_{t+1} \quad (20)$$

Where  $S_{t+1}$  is the current spot exchange rate and  $F_t$  is the one-period lagged forward rate. The logarithm form is used to deal with the problem of Jensen Inequality. If the simple efficiency hypothesis holds,  $\alpha_0 = 0, \alpha_1 = 1$ , and  $\varepsilon_{t+1}$  is not serial-correlated.

Daily exchange rate data was used from October 8, 2003 to March 16, 2007. The most of data was taken from the Center of China Economic Research Services (CCER). And other data were taken from Bank of China and Industrial and Commercial Bank of China. Both the spot and forward exchange rates are measured as units of currency per U.S. dollar. To run the regression, we employ the Ordinary Least Squares Method (OLS), which ensures that the coefficients will be best linear unbiased estimators. The results of the OLS are contained in the below table 1.

TABLE 1: OLS RESULTS of EQUATION(20)

<i>Forward(t)</i>	$\alpha_0$	$\alpha_1$	$R^2$	<b>D-W</b>
7days	-0.023884 ( -1.141179 )	1.003548 ( 321.3312 )	0.991902	0.365187
20days	-0.151890 ( -4.106988 )	1.022584 ( 185.2967 )	0.976397	0.132712
<b>30days</b>	-0.245571 (-5.228485)	1.036515 (147.8915)	0.964289	0.093161

Note :The number under the coefficient is t-stat.

At the 5% level of significance, the estimated coefficients are statistically significant, with t-statistic values well in excess of 2. So, the null hypothesis is rejected for the 7 days, 20days, and 30 days. The constant term significantly equals zero for the 20days and 30days contracts. This assumption is essential for UFH to hold.

To test for serial correlations, we utilize the Durbin-Watson test. The low value of the Durbin-Watson statistic for four contracts is indicative of the presence of serial correlation in the residuals of the estimated equation. Serial correlation in the residuals will lead to incorrect estimates of the standard errors, and invalid statistical inference for the coefficients of the equation.

Therefore, this estimation cannot tell us if the UFH holds in China's foreign exchange market.

#### 4.2 Stationary Tests

One important assumption of the UFH is that the forward and spot rate is stationary. More sophisticated techniques in econometrics have shown that macroeconomic time series in their levels are non-stationary and hence their variances tend to increase with time. Meese and Singleton (1982), Baillie and Bollerslev (1989), Hakkio and Rush (1989), Barhart and Szakmary (1991), among others, found that the spot and forward exchange rates of major industrialized countries have one and only one unit root, i.e. the spot and forward exchange rates are indeed I(1) process. To test the stationarity in the spot and forward rate, we conducted ADF test<sup>2</sup>. The ADF test statistic value of spot and forward exchange rate for four contracts don not exceed 2, which provide evidence that we may accept the null hypothesis of a unit root.

TABLE 2: ADF TEST RESULTS OF  $\log S_{t+1}$  AND  $\log F_t$

	7days	20days	30days
$\log S_{t+1}$	ADF= 1.700	ADF= 1.658946	ADF=1.598
$\log F_t$	ADF= 1.810	ADF= 1.563987	ADF=1.364

Note: 1% critical value=-3.438

Therefore, when we rewrite equation (20) as equation (22), the dependent and independent variables in the regression equation can be transformed to be stationary.

$$\log(S_{t+1}/S_t) = \alpha_0 + \alpha_1 \log(F_t/S_t) + \varepsilon_{t+1} \quad (22)$$

As non-stationarity of the dependent and independent variables in a regression may make standard statistical inferences invalid, an augmented Dickey-Fuller (ADF) test is conducted to check if  $\log(S_{t+1}/S_t)$  and  $\log(F_t/S_t)$  in equation (22) are stationary for all three forward exchange contracts covered in this paper, namely the 7days, 20 days, and 30 days contracts.

The Phillip-Perron test with and without the trend term is applied to the rate of exchange rate depreciation,  $\log(S_{t+1}/S_t)$ , and the forward premium,  $\log(F_t/S_t)$  in equation (22) for the 7 days, 20 days, and 30 days forward contracts. The unit root null is soundly rejected at the 1% significance level for both variables of these three contracts by this test. Therefore equation (22) can be estimated without differencing the dependent and independent variables. The results for P.P. test are given in table 3.

TABLE 3: P.P.<sup>3</sup> TEST RESULTS OF  $\log(S_{t+1}/S_t)$  AND  $\log(F_t/S_t)$

	7days	20days	30days
$\log(S_{t+1}/S_t)$	P.P.= -8.057319	P.P.= -4.979340	P.P.= -4.292889
$\log(F_t/S_t)$	P.P.= -14.32158	P.P.= -10.97480	P.P.= -6.888265*

Note: 1% critical value=-2.865

1% critical value with trend term = -3.969407

- indicates that the P.P. t statistic is with trend term.
- 

The OLS estimates of equation (22) are reported in table 4. These p-values of 7 days, 20 days, 30 days contracts indicate that we can decisively reject the null hypothesis of  $\alpha_0 = 0, \alpha_1 = 1$ . The joint hypothesis of unbiasedness and zero risk premium, i.e.  $a_0 = 0$  and  $a_1 = 1$ , can be rejected by a Wald test for all forward contracts. For the three forward exchange contracts, the forward premium ( $\log(F_t/S_t)$ ) tended to mispredict the direction of the movement of the USD / RMB exchange rate in subsequent period.

On the other hand, we need examine the squares of the least squares residuals. The autocorrelations (correlations with lagged values) of the squares of the residuals provide evidence about ARCH effects. Under the null hypothesis of no ARCH effects, the statistic has a limiting chi-squared distribution with  $q$  degrees of freedom. Values larger than the critical table value give evidence of the presence of ARCH effects. By using ARCH-LM test, we find that there exists ARCH effect for all three contracts.

TABLE 4: OLS ESTIMATES OF  $\log(S_{t+1}/S_t) = \alpha_0 + \alpha_1 \log(F_t/S_t) + \varepsilon_{t+1}$

	7days	20days	30days	60days
$\alpha_0$	1.37E-05	0.000234	0.000352	0.000634
	( 0.145771 ) *	( 1.316150 ) *	( 1.562713)*	( 2.003686)*
$\alpha_1$	1.329707	1.800110	1.829291	1.594404
	( 7.029187 ) *	( 12.47874 ) *	( 14.98953)*	( 18.34903)*
Wald test for	F=2.941577	F=30.76397	F=43.55208	F=38.25397
$H_0$ :	Pro.= 0.0533	Pro.=0.0000	Pro.=0.0000	Pro.=0.0000

$$\alpha_0 = 0, \alpha_1 = 1$$

ARCH-LM test	F=378.6134	F=1354.253	F=2035.807	F=3791.378
q=5	Pro.=0.0000	Pro.= 0.0000	Pro.=0.0000	Pro.=0.0000

Notes: Pro. stands for the probability value if the null hypothesis is true.

\* denotes t-statistic; F is F-statistic.

### The GARCH and GARCH-in-Mean Model

In this section, we use a GARCH and a GARCH-in-Mean model to estimate the risk premium of the 7days, 20days, and 30 days forward contracts in China's foreign exchange market. The regression model is specified as:

$$\log(S_{t+1} / S_t) = \gamma_{t+1} + a_0 + a_1 \log(F_t / S_t) + \varepsilon_{t+1} \quad (23)$$

$$\varepsilon_{t+1} \sim N(0, h_{t+1}^2) \quad (24)$$

$$h_{t+1}^2 = \beta_0 + \beta_1 \varepsilon_t^2 + \beta_2 h_t^2 \quad (25)$$

where  $\gamma_{t+1} + a_0$  is the risk premium,  $h_{t+1}^2$  is conditional variance for the exchange rate forecast errors,  $\varepsilon_{t+1}$ . This model postulates that in a regression of the rate of exchange rate depreciation on the forward premium, the forecast error is heteroskedastic and the risk premium depends on the conditional variance of the forecast error as well as past forecast errors. There are several justifications for this particular model. For example, Cumby and Obstfeld (1982) and Hodrick and Srivastava (1984) provides evidence that the forecast error is heteroskedastic when one uses the forward premium to predict the rate of exchange rate depreciation. Besides this, Domowitz and Hakkio (1985) obtain an important result, based on the Lucas model (1982), that in a regression of the rate of depreciation on the forward premium there will be a time-varying risk premium and the error term of the regression will be heteroskedastic. Furthermore, many researchers, e.g. Musa (1979), find that exchange rates tend to have periods of quiescence followed by periods of turbulence and exchange rate changes exhibit leptokurtosis, i.e. fat tails (Friedman and Vandersteel(1982)).

The GARCH-in-Mean model is a convenient way to incorporate heteroskedasticity into the estimation procedure, and allows for direct estimates of the time-varying risk premium. It also captures the two features of exchange rates, namely periods of quiescence followed by periods of turbulence, and fat tails.

In this section, we set the GARCH process to be GARCH (1, 1) for the 7days, 20days and 30days three forward contracts .Detailed estimate results are reported in table 5.

For the 7 days, 20 days and 30 days forward contracts, both the GARCH term and ARCH term are significantly different from zero (i.e. the estimated  $\beta_1$  and  $\beta_2$  in equation (25) are significantly different from zero), and the Engle test with p being set 5 indicates that there is no remaining ARCH effects in the error terms. Thus, the GARCH (1, 1)-in-Mean model is an adequate representation for the 7 days, 20days and 30 days contracts.

The unbiasedness hypothesis ( $a_1 = 1$ ) is rejected for all contracts by a Wald test. The test statistic will be  $\chi^2$  with 1 degree of freedom under the null of  $a_1 = 1$ . For the 7 days, 20 days and 30 days contracts, the Wald test 's F-statistic is 16451.53, 25.38906 and respectively. Thus, the hypothesis that the forward rate is an unbiased predictor of the future spot rate can be rejected for the three contracts.

The probability value of the estimated  $\gamma$  of both 7 days and 30 days contracts are 0.0000. This suggests the presence of a time-varying risk premium for the 7days and 30 days contracts. The story is somewhat different from the 20 days forward contract. For this contract, the probability value of the estimated  $\gamma$  is 0.1688 and does not allow for a rejection of the absence of a time-varying risk premium. Also, the probability value of the estimated  $a_0$  for this contract is 0.5099 which does allow for a rejection of the absence of a constant risk premium. These results provide evidence of the presence of a risk premium for the 20 days contract. But the evidence of a time-varying risk premium for this contract is not very strong.



TABLE 5: GARCH-IN-MEAN ESTIMATES

**Mean equation:**  $\log(S_{t+1}/S_t) = \gamma_{t+1} + a_0 + a_1 \log(F_t/S_t) + \varepsilon_{t+1}$

**Variance equation:**  $h_{t+1}^2 = \beta_0 + \beta_1 \varepsilon_t^2 + \beta_2 h_t^2$

	7days	20days	30days
$\gamma$	-0.809116 (0.0000)	-149.2586 (0.1688)	-49.9384 (0.0000)
$a_0$	8.43E-05 (0.0000)	0.000223 (0.5099)	-6.028E-6 (0.0000)
$a_1$	0.208406 (0.0000)	0.032157 (0.8670)	0.5423 (0.0000)
$\beta_0$	2.34E-11 (0.0000)	3.72E-07 (0.1111)	1.0537E-8 (0.0000)
$\beta_1$	0.932191 (0.0000)	-0.003280 (0.0000)	1.1148 (0.0000)
$\beta_2$	0.375778 (0.0000)	0.729308 (0.0000)	0.2539 (0.0000)
R-squared	-0.316823	0.000179	0.5745
Wald test for $H_0: \alpha_1 = 1$	F=16451.53 Pro.=0.000	F=25.38906 Pro.=0.000	
ARCH test for with p=5	F=0.007795 Pro.=0.999984	F=0.003656 Pro.=0.999998	

Notes: F is F-statistic.

Pro. stands for the probability value if the null hypothesis is true.

## Conclusion

The relationship between has been the subject of numerous studies, but there are not enough studies about USD/RMB .This paper looks at issues surrounding the relationship to the USD/RMB forward exchange rate and spot exchange rate. According to the uncovered interest parity (UIP), the forward exchange rate should be an unbiased estimate of the spot exchange rate at maturity. In this paper, we have examined the relationship of spot and forward exchange rates and the existence of a time-varying premium in China's foreign exchange market using a GARCH-in-Mean model. In this model the time-varying risk premium is postulated as a function of the conditional variance of the forecast error when the forward rate is used to predict the future spot rate.

Our estimates show that the unbiasedness hypothesis is soundly rejected for all forward contracts covered in this paper. Furthermore, we found evidence of a risk premium for all the three forward contracts covered. For the 7 days and 30 days contracts, the risk premium is time-varying and the conditional variance of the exchange rate forecast errors as well as the forecast error is an important determinant of the risk premium. However, the evidence of a time-varying risk premium is not that strong for the 20 days contract. Taken together, these results indicate that the inefficient predictive performance of the forward rates of China's foreign exchange market .

Given the presence of the time-varying risk premium in China's foreign exchange market, it is very interesting to explain how it is related with economic fundamentals such as money supplies, price, and consumptions and so on. We believe that this is an important issue for future research.

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## End Notes

Nelson and Cao (1992) show that inequality constraints less severe than those commonly imposed are sufficient to keep the conditional variance non-negative. In the GARCH (2, 1) case, for example,  $\alpha_0 > 0$ ,  $\alpha_i \geq 0$ ,  $\beta_i \geq 0$ , and  $\beta_1\alpha_1 + \alpha_2 \geq 0$  are sufficient to ensure  $\sigma_t^2 > 0$ , such that  $\alpha_2$  may be negative.

<sup>2</sup>The ADF test is a test of the unit root hypothesis  $\psi=0$  in the following equation:

$$\Delta X_t = \psi X_{t-1} + \sum_{i=1}^p \alpha_i \Delta X_{t-i} + \varepsilon_t \quad (21)$$



Equation (21) with and without a trend term is estimated by ordinary least squares and the t-statistic of the  $\psi$  coefficient is corrected for serial correlation.

<sup>3</sup>P.P. test is Phillips-Perron test. When Phillips-Perron t statistic is more negative than the critical value of 5%, the unit root null can be rejected.

## **Auditor Independence and Earnings Management: Evidence of Non-audit Fees' Disclosure in Australia**

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### **Abstract**

This study uses data from 325 Australian listed firms to examine the association between the magnitude of earnings management and auditor independence. It focuses on earnings management in response to mounting pressure amongst investors, policy makers and corporate governance reformists for mechanisms to curb excessive opportunistic behaviour amongst corporate management. Auditor independence is the epicentre of this study's analysis as this factor is considered to be a key determinant of earnings management. Our findings indicate the lack of a universal association between auditor independence and earnings management attributes. We find no significant association between the non-audit fee ratio and the level of earnings management. The main result is supported by tests using alternative measures of auditor independence. This result suggests that the provision of non-audit services by the incumbent auditor does not compromise independence and, therefore, the auditor's ability to detect and constrain the practices of earnings management.

### **Introduction**

This study investigates the association between earnings management and auditor independence. It uses a sample of publicly listed firms on the Australian Stock Exchanges (ASX). The cross-sectional modified Jones (1991) model is used to measure discretionary accruals (the proxy for earnings management). Consistent with previous research (Scheiner, 1984; Firth, 1997; Gore, Pope & Singh, 2001; Frankel, Johnson & Nelson, 2002; Larcker & Richardson, 2004), this study uses the ratio of non-audit fees to total fees as a main proxy for auditor independence.

Recent high profile accounting scandals have prompted a global focus on the nature of earnings management, constraints and factors that may influence earnings management (Arya, Glover & Sunder, 2003; Imhoff, 2003). A particular facet of this attention has been the impact of auditor independence on constraining the magnitude of earnings management (Becker, DeFond, Jiambalvo & Subramanyam, 1998; Krishnan, 2003a). There is a suggestion that the practice of earnings management erodes investors' confidence in financial reporting quality and impedes the efficient flow of capital in financial markets (Jackson & Pitman, 2001). In addition, policy makers (e.g., Levitt, 1998), popular press articles (e.g., MacDonald, 2001; Liesman, Weil & Schroder, 2002) and scholarly researchers (e.g., Frankel *et al.*, 2002) have argued that the provision of more non-audit services to a client increases the economic bond, leading to the impairment of an auditor's independence. This large scale concern over earnings management and auditor independence is reflected in recent changes in Australian legislation pertaining to auditors and corporate governance. On 18 September 2002, the Australian Federal Government released the reform proposals in the *Corporate Law Economic Reform Program (CLERP 9) Discussion Paper: Corporate disclosure: Strengthening the Financial Reporting Framework*, in order to strengthen arrangements for the oversight of the accounting and auditing profession (ASIC, 2002). The proposal promised to further reshape the corporate governance framework in Australia<sup>1</sup>. The CLERP 9 Act amends a number of acts including the Corporations Act 2001, which takes effect from 1 July 2004, with the purpose of restoring public confidence in Australia. On 31 March 2003, the *Principles of Good Corporate Governance and Best Practice Recommendations* was adopted as the pivotal framework for reforming the corporate governance system<sup>2</sup>. The most important issue that is addressed in the

CLERP 9 concerning auditor independence is the requirement of disclosing non-audit services information in the director's report, which must include (Blake Dawson Waldron, 2004, p. 19):

- details of the amount paid or payable to the auditor for non-audit services provided by, or on behalf of, the auditor during the year (including the names of the auditor and the dollar amount that the listed company paid, or must pay, for each of the non-audit services);
- a statement whether the directors are satisfied that the provision of non-audit services by the auditor during the year is compatible with the general standard of independence of auditors imposed by the Corporations Act; and
- a statement of the directors' reasons for being satisfied that the auditor's independence was not compromised.

CLERP 9 also emphasises the roles of the board of directors, management, and auditors (Gay & Simnett, 2003). One result of this emphasis that affects the auditor profession has been the setting up of an audit committee as a sub-committee of the board of directors. An audit committee consists of independent and non-executive members of the governing body of the company. The audit committee represents shareholders in the key role to monitor the performance of management. Amongst other functions, it oversees the financial reporting and auditing process. For this reason, an audit committee plays important corporate governance roles (Gay & Simnett, 2003) and may have a more direct role in controlling earnings management (Xie, Davidson III & DaDalt, 2003).

Our study differs from prior research on three main fronts. First, this study provides further evidence of the relation between auditor independence and earnings management using data from a different domestic setting: Australia. Previous literature on the auditor independence – earnings management linkages using Australian data has been limited. We contribute to the international understanding of this empirical question that has in the past concentrated on data from U.S. and U.K. Second, the auditing, corporate governance and general business environment has been changing considerably since the mid-1980s. Our study provides a key contribution to the literature by using current data (year end 2004) that can assist in better generalising findings for current market conditions. Third, we enrich the literature by employing six additional possible measures of auditor independence. They are the percentile ranks of the amount of audit, non-audit and total fees by auditor; and the logarithm transformations of audit, non-audit and total fees.

The remainder of this paper is organised as follows. The next section establishes the theoretical framework underlying auditor independence–earnings management linkages. A hypothesis is also developed in the next section. Section 3 describes the research design. Primary results including descriptive statistics, correlations and regression analysis are presented in Section 4. Results of the study and implications for future research are discussed in the concluding section.

### **Theoretical Framework and Hypothesis**

The majority of the literature which seeks to explain the incentives for managing earnings draws on costly contracting theory. This study uses costly contracting theory which characterises the corporation as a 'legal nexus of contractual relationship' and assumes that corporate reporting enables principals (shareholders) to monitor agents' (managers) compliance with contractual obligations (Godfrey, Hodgson & Holmes, 2003). Jensen and Meckling (1976) identify the existence of two agency relationships: (1) the manager-shareholders relationship where the manager acts as an agent for the shareholders who are considered to be the owners; and (2) the shareholder-debtholder relationship where the manager (agent) is assumed to act on behalf of the shareholders (principal). Such relationships impose agency costs because of the existence of conflicts of interest between the agents and the principals. Bartov, Gul and Tsui (2001) note that agency costs include a manager's incentive to manage earnings. Empirical evidence from agency theory also reports that management have a preference for managing earnings numbers in order to benefit from the contracting process (Holthausen, Larcker & Sloan, 1995). Prior studies document that higher transaction costs result from greater information asymmetry among market participants. When the markets or investors have less information and cannot observe a company's performance and prospects, they then require higher rates of return and lower current company's stock prices (Bartov & Bodnar, 1996). Several studies also document evidence that the existence of information asymmetry between managers and shareholders is a necessary condition for earnings management (Dye, 1988). This is because shareholders have less information, thus management can use its' insider position to manage reported earnings (Lobo & Zhou, 2001).

Earnings management may reduce the reliability of earnings because reported earnings is biased, and misrepresents the true reporting earnings figure. Arthur Levitt, Jr. (1998), the former chairman of SEC, states that the practice of earnings management has negative effects on reliability and credibility of financial reporting. This study assumes opportunistic earnings management is best characterised via accounting method choices and discretionary accruals (McNichols & Wilson, 1988). The agency cost model draws on the role of the auditors as a monitoring mechanism to reduce agency costs (Jensen & Meckling, 1976). Hirst (1994) claims that generally auditors are sensitive to earnings management and have a propensity to focus on managerial incentives to overstate earnings numbers. Thus, auditing plays an important role both in the reduction of agency problems and information asymmetry by objectively verifying the validity of financial statements (Balsam, Krishnan & Yang, 2003; Gay & Simnett, 2003). The effectiveness of auditing and its ability to constrain the earnings management depend on the independence of auditors when performing an audit (OICU-IOSCO, 2002). Thus, the more independent the auditors the more they will constrain earnings management.

There is contradictory empirical evidence pertaining to auditor-impaired independence due to the provision of non-audit services. Frankel *et al.* (2002) find a positive and significant association between non-audit fees and the magnitude of the absolute value of discretionary accruals. Their findings imply that auditors compromised their independence due to a large portion of non-audit fees received from their audit clients. Gore *et al.* (2001) document the same results as Frankel *et al.* (2002) for non-Big five but not for Big five accounting firms. In other words, they suggest that smaller firms are more likely to compromise their independence than larger accounting firms. Antle, Gordon, Narayanamoorthy and Zhou (2002) investigate the relations among audit fees, non-audit fees, and discretionary accruals in a simultaneous equations model. After simultaneously estimating the determinants of audit fees, non-audit fees, and discretionary accruals, they find negative and significant association between non-audit fees and discretionary accruals. Using the same data sets and methodology as Frankel's *et al.* (2002), Ashbaugh, LaFond and Mayhew (2003) report that earnings management is positively and significantly associated with the purchase of non-audit services. However, after adjusting for firm performance, they fail to find any evidence of a relationship between the provision of non-audit fees and the magnitude of earnings management. Finally, both Chung and Kallapur (2003) and Reynolds, Deis and Francis (2004) find no association between measures of auditor independence and measures of earnings management. Whilst the empirical literature is mixed, we adopt the conventional view that auditor independence is impaired when the non-audit/total fee ratio increases, thereby reducing the auditor's ability to detect and constrain earning management. Thus, we test the following hypothesis:

*There is an inverse relationship between auditor independence (proxied by the non-audit to total fee ratio) and the magnitude of earnings management.*

## **Research Design**

### **Sample Selection**

The total number of Australian firms listed on the ASX as at 11 December 2004 was 1,563. Due to the large population of listed firms, we randomly collect 450 firms' annual reports from Aspect Huntley DatAnalysis database for the financial year ending on 30 June 2004. This study focuses on Australian incorporated entities listed on the ASX; thus we excluded 10 foreign incorporated firms. Consistent with prior research we then eliminated 31 all firms from the finance (this includes bank, insurance, unit trusts and finance firms) sector. Firms in this sector are subject to different regulatory requirements that could unduly affect abnormal accruals and audit fees paid. Mayhew and Wilkins (2003) report that audit fees in the first year of a firm's listing may be significantly different from years of normal business operations. Consequently, 30 IPO firms during the investigation calendar year are excluded from the sample. We were unable to collect sufficient information to calculate proxy for the control variables for 49 entities. Finally, we exclude five outliers (>4 standard deviations from the absolute discretionary accruals mean)<sup>3</sup>. Thus, the statistical analysis is based on a final useable sample of 325 companies. TABLE 1 Panel A summarises the sample selection process, whilst TABLE 1 Panel B provides an industry breakdown of the final usable sample that is employed in the statistical analysis.

TABLE 1: SAMPLE USED IN ANALYSIS AND INDUSTRY BREAKDOWN

Panel A: Sample formation	
Description:	Number
Initial sample of Australian listed companies	450
Less:	
Foreign incorporated companies listed on ASX as at 30 June 2004	10
Bank and insurance industry firms listed on ASX as at 30 June 2004	31
Companies that were IPOs during the 2004 calendar year	30
Firms with insufficient information for which to construct all proxy measures	49
Outliers	5
<i>Final sample used</i>	<i>325</i>
Panel B: Industry breakdown of final sample	
Industry type <sup>ψ</sup>	
01 Energy	27
02 Materials	85
03 Capital Goods	20
04 Commercial Services & Supplies	16
05 Automobiles & Components	11
06 Hotels, Restaurants & Leisure	10
07 Media	16
08 Retailing	12
09 Food & Staples Retailing	10
10 Health Care Equipment & Services	12
11 Pharmaceuticals & Biotechnology	20
12 Real Estate	20
13 Software & Services	27
14 Technology Hardware & Equipment	15
15 Telecommunication Services	12
16 Other-Transportation & Utilities	12
<i>Total:</i>	<i>325</i>

Legend:  $\Psi$  – Industry sectors are defined in accordance with the ASX classification schema

### Proxy for Earnings Management and Auditor Independence

Prior to estimating discretionary accruals, total accruals ( $TAC$ ) are calculated as:

$$TAC_{jt} = (\Delta CA_{jt} - \Delta Cash_{jt}) - (\Delta CL_{jt} - \Delta LTD_{jt} - \Delta ITP_{jt}) - DPA_{jt}$$

Where:  $TAC_{jt}$  = total accruals for firm  $j$  in time period  $t$ ;  $\Delta CA_{jt}$  = change current assets for firm  $j$  from time period  $t-1$  to  $t$ ;  $\Delta Cash_{jt}$  = change cash balance for firm  $j$  from time period  $t-1$  to  $t$ ;  $\Delta CL_{jt}$  = change current liabilities for firm  $j$  from time period  $t-1$  to  $t$ ;  $\Delta LTD_{jt}$  = change long-term debt included in current liabilities for firm  $j$  from time period  $t-1$  to  $t$ ;  $\Delta ITP_{jt}$  = change income tax payable for firm  $j$  from time period  $t-1$  to  $t$ ; and  $DPA_{jt}$  = depreciation & amortisation expense for firm  $j$  from time period  $t$ .

$TAC$  then is decomposed into normal accruals ( $NAC$ ) and discretionary accruals ( $DAC$ ) using the cross-sectional *modified* Jones (1991) model defined formally as:

$$TAC_{jk,t} / TA_{jk,t-1} = \alpha_{jt} [1 / TA_{jk,t-1}] + \beta_{jt} [(\Delta REV_{jk,t} - \Delta REC_{jk,t}) / TA_{jk,t-1}] + \gamma_{jt} [PPE_{jk,t} / TA_{jk,t-1}] + \varepsilon_{jk,t}$$

Where:  $TAC_{jk,t}$  = total accruals for firm  $j$  in industry  $k$  in year  $t$ ;  $TA_{jk,t-1}$  = are total assets for firm  $j$  in industry  $k$  at the end of year  $t-1$ ;  $\Delta REV_{jk,t}$  = change net sales for firm  $j$  in industry  $k$  between years  $t-1$  and  $t$ ;  $\Delta REC_{jk,t}$  = change in receivables for firm  $j$  in industry  $k$  between years  $t-1$  and  $t$ ;  $PPE_{jk,t}$  = gross property, plant and equipment for firm  $j$  in industry  $k$  in the year  $t$ ;  $\alpha_j$ ,  $\beta_j$ ,  $\gamma_j$  = industry specific estimated coefficients; and  $\varepsilon_j$  = error term.  $NAC$  is defined as the fitted values from Equation 2 whilst  $DAC$  is the residual ( $TAC$  minus  $NAC$ ).

Following past studies, this study uses the ratio of non-audit fees to total fees received by an accounting firm from an audit client as a main proxy for auditor independence (e.g., Scheiner, 1984; Firth, 1997; Gore *et al.*, 2001; Frankel *et al.*, 2002; Larcker & Richardson, 2004). This measurement is also consistent with the Securities and Exchange Commission's (SEC's) position in assessing auditor independence (SEC, 2000, Section III. C. 5). The non-audit to total fee ratio, however, is not free of criticism. The argument that the relative size of non-audit fees to total fees will be a threat to auditor independence is quite misleading. This measure does not capture the economic importance of the client to the audit firm and, thus, does not create an economic bond between the auditor and client (Ashbaugh *et al.*, 2003; Ruddock & Taylor, 2005). Accordingly, besides using non-audit to total fees ratio, this study uses other possibility proxies for measuring auditor independence. It uses the percentile ranks of the amount of

audit, non-audit and total fees by auditor, to capture the relative significance of client fees to the audit firm revenues (Frankel *et al.*, 2002; Ferguson, Seow & Young, 2004). It also employs the logarithm transformations of audit, non-audit and total fees, to capture the level of economic bonding resulting from the audit, non-audit and total fees that the auditor receives from its client (e.g., Ashbaugh *et al.*, 2003; Ferguson *et al.*, 2004; Ruddock & Taylor, 2005).

#### **Control Variables Proxies**

To control compounding influences of cross-sectional factors, this study incorporates control variables in the regression analysis. Consistent with Becker *et al.* (1998); Francis, Reichelt and Wang (2005); and Davidson, Goodwin-Stewart and Kent (2005), we include firm size (*FSize*) as prior studies indicated that litigation risk is greater for larger clients than for smaller size clients (Lys & Watts, 1994; Heninger, 2001). Large firms are less likely to engage in earnings management due to more scrutiny from financial analysts and investors (Zhou & Elder, 2001). However, Watts and Zimmerman (1990) and Christie and Zimmerman (1994) argue that large companies have a tendency to adopt income-decreasing accounting techniques to minimize political scrutiny and the effects of regulation. This study includes the absolute value of total accruals (*ABSTAccruals*) to control for a firm's 'accrual-generating potential' (Becker *et al.*, 1998). This variable is included as firms with higher absolute values of total accruals are likely to have greater discretionary accruals (Krishnan, 2003b). Leverage is included as prior studies show that firms with a higher likelihood of violating debt agreements are more likely to have an incentive to engage in earnings management to increase earnings (Healy & Palepu, 1990; DeFond & Jiambalvo, 1994; Sweeney, 1994). Previous studies (e.g., Dechow, Sloan & Sweeney, 1995; Kothari, Leone & Wasley, 2002) report discretionary accruals is dependent on a firm's financial performance. This is because financial performance may affect corporate management's opportunistic windows and incentives for managing earnings. Furthermore, financial performance may influence a firm's audit risk (e.g., Gul, Chen & Tsui, 2003; Krishnan, 2003b). *ROI* and *Losses* are used to provide control for the possible compounding influences of a firm's financial performance.

The perceived quality of the auditor is also considered to be a possible determinant of the magnitude of earnings management (e.g., Frankel *et al.*, 2002; Gul *et al.*, 2003). Prior studies usually distinguish between non Big-4 and Big-4 audit firms, arguing the latter to be of a higher quality than the former (Heninger, 2001; Mayhew & Wilkins, 2003). This study includes Big-4 firms as a control variable for perceived auditor quality. To control for any mitigating effects of ownership structure, the high ownership concentration (*OwnCon%*) is included. To ensure results are not driven by the domination of a specific industry sector, this study includes industry materials sector (*IndMat*) to control for potential industry clustering effects. Becker *et al.* (1998) and Reynolds and Francis (2001) report cash flow from operations influences corporate management actions in managing earnings. Thus, a control variable of *CashFlowOp* is incorporated to control for discretionary accruals dependence on cash flow from operations. Finally, researchers such as Skinner and Sloan (2002) and Chung and Kallapur (2003) show that growth firms have a greater incentive to engage in earnings management. Following these research, the regression model includes the market-to-book ratio (*MV*) as a control for the affects of a firm's growth pattern on the behaviour of corporate management to manage earnings. Proxy measures for the dependent, independent and control variables are defined in TABLE 2.

TABLE 2: VARIABLE DEFINITION AND DESCRIPTION

Variable Description	Variable Title
<i>Dependent Variable</i>	
Absolute discretionary accruals of firm <i>i</i> for year <i>t</i> measured by Modified Jones (1991) model	<i>AbsDAC</i>
<i>Control Variables</i>	
Absolute value of total accruals for firm <i>i</i> divided by total assets for firm <i>i</i> for year <i>t-1</i>	<i>ABSTAccruals</i>
Natural logarithm of the total book reported assets of firm <i>i</i> for their fiscal year <i>t</i>	<i>FSize</i>
Ratio of book value long-term debt of firm <i>i</i> for year <i>t</i> to book value total assets of firm <i>i</i> for year <i>t-1</i>	<i>Leverage</i>
Ratio of earnings before extraordinary items of firm <i>i</i> for year <i>t</i> to book value total assets of firm <i>i</i> for year <i>t-1</i>	<i>ROI</i>
Indicator variable with firm <i>i</i> scored one (1) if their incumbent auditor in fiscal year <i>t</i> is a Big-4; otherwise scored zero (0)	<i>Big-4</i>
Indicator variable with firm <i>i</i> scored one (1) if it has occurred a financial loss at least once in the three prior fiscal years; otherwise scored zero (0)	<i>Losses</i>
Percentage of outstanding common shares owned by top twenty shareholders of firm <i>i</i> for year <i>t</i>	<i>OwnCon%</i>
Indicator variable with firm <i>i</i> scored one (1) if from the materials industry; otherwise scored zero (0)	<i>IndMat</i>
Ratio of market value for firm <i>i</i> at end year <i>t</i> to book value of total assets for firm <i>i</i> at the end of year <i>t</i>	<i>MV</i>
Cash flow from operations for firm <i>i</i> during the year <i>t</i> deflated by total assets as at end of year <i>t-1</i>	<i>CashFlowOp</i>
<i>Independent Variables</i>	
Ratio of non-audit fees paid by firm <i>i</i> to the audit firm to total audit fees paid by firm <i>i</i> to the external auditor in year <i>t</i>	<i>AuditIndep-1</i>
Percentile rank the amount of audit fees by auditor	<i>AuditIndep-2</i>
Percentile rank the amount of non-audit fees by auditor	<i>AuditIndep-3</i>
Percentile rank the amount of total (audit and non-audit) fees by auditor	<i>AuditIndep-4</i>
Logarithm transformation of audit fees	<i>AuditIndep-5</i>
Logarithm transformation of non-audit fees	<i>AuditIndep-6</i>
Logarithm transformation of total fees	<i>AuditIndep-7</i>

### Empirical Model Equation

This study uses OLS multiple regression as the main statistical technique to test the hypothesis. The main regression model is defined in the following equation:

$$AbsDAC_i = \alpha_i + \gamma_{12} AuditIndep_i + \alpha_{i1} FSize_i + \alpha_{i2} ABSTAccruals_i + \alpha_{i3} Leverage_i + \alpha_{i4} ROI_i + \alpha_{i5} Big-4_i + \alpha_{i6} Losses_i + \alpha_{i7} CashFlowOp_i + \alpha_{i8} OwnCon\%_i + \alpha_{i9} GLC_i + \alpha_{i10} IndMan_i + \alpha_{i11} MV_i + \varepsilon_i$$

## Results

### Descriptive Statistics

TABLE 3 shows the composition of total fees paid by Australian listed firms' breakdown by the ASX industry classification and the type of accounting firms<sup>4</sup>. TABLE 3, Panel A, reports that firms in the *Food & Staples Retailing* sector paid, on average, the highest amount of total fees (AUD\$670,285) and audit fees (AUD\$411,526). These amounts are almost three times above the sample means (AUD\$261,722 and AUD\$160,896 respectively). For non-audit services, firms in the *Media* sector paid, on average, the highest amount of fees (AUD\$276,058) amongst other industry sectors. Again this amount is nearly three times the mean (AUD\$100,825) for all industry types. On average, total audit fees earned by the Australian accounting firms from the Australian capital market in the study year (AUD\$160,896) are much larger than average audit fees from previous years (1993 to 2000, which is AUD\$136,406) reported in Ruddock and Taylor (2005). On the other hand, average non-audit fees received by the Australian accounting firms is quite lower than in periods 1993-2000 (AUD\$100,825 versus AUD\$124,161) (Ruddock & Taylor, 2005). Average audit and non-audit fees of public client in international markets such as U.S.

(USD\$1,193,952 equivalent to AUD\$2,146,129 and USD\$514,601 equivalent to AUD\$924,995 respectively) and U.K. (£424,233 equivalent to AUD\$1,151,071 and £404,820 equivalent to AUD\$1,098,398 respectively) far exceeds those of the average Australian client (Ashbaugh *et al.*, 2003; Ferguson *et al.*, 2004)<sup>5</sup>. Proportionately, Australian firms in the *Energy and Hotels, Restaurants & Leisure* sectors purchase the highest relative level of non-audit services to total fees (51.92% and 53.64% respectively) from the incumbent auditor. In contrast, firms in the *Health Care Equipment & Services* and *Technology Hardware & Equipment* sectors purchase the lowest relative levels of non-audit services (25.69% and 27.25% respectively). The distribution of the relative level of non-audit services to total fees from the mean across industry sectors shows a relatively narrower range than observed in U.S. (the lowest 48.97%; mean 69%; the highest 81.05%) (Whisenant, Sankaragurusway & Raghunandan, 2003).



TABLE 3: AUSTRALIAN AUDIT AND NON-AUDIT FEES BREAKDOWN BY INDUSTRY TYPE AND ACCOUNTING FIRM

	N	Total Fee	Audit Fee						Non-Audit Fee					
		Mean (AUD\$)	Mean (AUD\$)	Median (AUD\$)	SD (AUD\$)	Min (AUD\$)	Max (AUD\$)	% Total Fee	Mean (AUD\$)	Median (AUD\$)	SD (AUD\$)	Min (AUD\$)	Max (AUD\$)	% Total Fee
Panel A-Industry Type <sup>ψ</sup>														
01 Energy	27	192,699	92,651	18,500	232,751	11,000	989,000	48.08	100,048	4,400	327,101	0	1,613,000	51.92
02 Materials	85	185,031	116,060	25,000	353,942	2,630	2,769,000	62.72	68,971	6,220	210,769	0	1,568,000	37.28
03 Capital Goods	20	349,352	217,590	78,250	406,116	32,341	1,851,000	62.28	131,761	32,848	339,756	0	1,554,000	37.72
04 Commercial Services & Supplies	16	141,355	82,323	41,522	83,219	10,346	291,452	58.24	59,031	11,200	124,467	0	497,611	41.76
05 Automobiles & Components	11	303,549	151,492	92,800	164,976	8,500	577,192	49.91	152,058	42,000	349,912	0	1,195,094	50.09
06 Hotels, Restaurants & Leisure	10	124,850	57,878	28,715	44,962	18,000	126,232	46.36	66,972	41,185	97,347	0	317,512	53.64
07 Media	16	659,067	383,010	58,815	740,678	17,600	2,921,000	58.11	276,058	8,176	524,631	0	1,598,000	41.89
08 Retailing	12	312,377	222,032	164,253	204,862	34,000	824,697	71.08	90,345	38,000	105,296	0	334,346	28.92
09 Food & Staples Retailing	10	670,285	411,526	93,808	906,014	10,535	2,951,800	61.40	258,759	13,820	603,291	0	1,905,200	38.60
10 Health Care Equipment & Services	12	284,009	211,037	59,250	304,997	17,200	1,013,000	74.31	72,972	9,090	139,356	0	461,862	25.69
11 Pharmaceuticals & Biotechnology	20	111,992	73,748	47,280	116,093	16,233	554,574	65.85	38,244	14,475	52,854	0	73,748	34.15
12 Real Estate	20	296,664	183,997	115,099	235,188	8,000	881,000	62.02	112,667	24,120	199,414	0	698,000	37.98
13 Software & Services	27	285,519	202,485	90,000	434,950	5,000	2,269,627	70.92	83,034	13,120	120,764	0	385,830	29.08
14 Technology Hardware & Equipment	15	194,354	141,393	70,000	150,212	7,000	433,982	72.75	52,962	10,000	78,694	0	232,221	27.25
15 Telecommunication Services	12	140,717	92,302	38,300	148,537	13,000	528,711	65.59	48,415	5,180	111,754	0	392,130	34.41
16 Other-Transportation & Utilities	12	450,182	226,648	83,037	428,295	20,850	1,558,389	50.35	223,534	31,199	355,841	3,000	1,209,052	49.65
<b>Total</b>	<b>325</b>	<b>261,722</b>	<b>160,896</b>	<b>49,737</b>	<b>367,449</b>	<b>2,630</b>	<b>2,951,800</b>	<b>61.48</b>	<b>100,825</b>	<b>11,600</b>	<b>260,910</b>	<b>0</b>	<b>1,905,200</b>	<b>38.52</b>
Panel B-Accounting Firm <sup>Ω</sup>														
<i>Big-4:</i>														
PWC	48	485,433	304,042	164,500	504,247	2,650	2,769,000	62.63	181,391	86,423	313,892	0	1,568,000	37.37
KPMG	48	539,660	321,291	59,222	584,828	10,870	2,951,800	59.54	218,369	17,225	434,391	0	1,905,200	40.46
EY	66	337,667	189,632	74,717	396,074	7,000	2,921,000	56.16	148,035	36,131	300,790	0	1,613,000	43.84
DT	25	206,259	134,251	55,065	219,403	8,000	1,043,000	65.09	72,007	10,790	129,064	0	556,725	34.91
Total Big-4	187	1,569,018	949,216	353,504	1,704,552	28,520	9,684,800	60.50	619,802	150,569	1,178,136	0	5,642,925	39.50
<i>Non Big-4</i>	138	60,961	46,401	30,350	44,277	2,630	215,000	76.12	14,559	3,955	27,853	0	191,000	23.88
<b>Total</b>	<b>325</b>	<b>261,722</b>	<b>160,896</b>	<b>49,737</b>	<b>367,449</b>	<b>2,630</b>	<b>2,951,800</b>	<b>61.48</b>	<b>100,825</b>	<b>11,600</b>	<b>260,910</b>	<b>0</b>	<b>1,905,200</b>	<b>38.52</b>

Legend: <sup>ψ</sup> Industry sectors are defined in accordance with the ASX classification schema. <sup>Ω</sup> Big-4 audit firms abbreviations: PWC is PriceWaterhouse Coopers; KPMG is KPMG Peat Marwick; EY is Ernst & Young; and DT is Deloitte & Touche.

Nonetheless, the evidence suggests different industries exhibit sizeable variations in the relative levels of audit and non-audit services provided by audit firms. It is noted, however, that audit fees remain the largest component (61.48%) of total fees of an Australian audit firm's revenue stream<sup>5</sup>. This figure is significantly larger than the composition of audit fees received by audit firms in U.S., which is 51% (Frankel *et al.*, 2002), U.K., which is 51.17% (Ferguson *et al.*, 2004), but lower than the composition of audit fees received by Singaporean audit firms, which is 70.99% (Rusmin, Van der Zahn, Tower & Brown, 2006).

Panel B shows that KPMG earned the largest amount of audit (AUD\$321,291), non-audit (AUD\$218,369) and, total fees (AUD\$539,660) from the Australian capital market. These amounts are approximately twice as much as the sample means of all firms. On the other hand, DT received the smallest amount of audit (AUD\$134,251), non-audit (AUD\$72,007) and total fees (AUD\$206,259) from the Australian listed clients. In term of non-audit fees, EY received a relatively larger portion (43.84%) than other accounting firms<sup>6</sup>. Fees paid by Australian listed companies for audit and non-audit services to the Big-4 accounting firms, on average, are AUD\$1,569,018 (96.26%) compared to AUD\$60,961 (3.74%) for Non Big-4 accounting firms. TABLE 4 presents the descriptive statistics for the study's dependent and control variables.

TABLE 4: DESCRIPTIVE STATISTICS OF DEPENDENT AND CONTROL VARIABLES

Variable Description	Mean	Std Dev	Median	25 Percentile	75 Percentile
<i>Dependent Variable:</i>					
Total Accruals (AUD\$,000)	-11,558	96,562	-366	-3,948	566
Deflated Total Accruals	-0.0891	0.6812	-0.0337	-0.1076	0.3195
<i>DACs</i>	-0.0090	0.8116	-0.0141	-0.4509	0.3660
<i>AbsDAC</i>	0.6061	0.5388	0.4291	0.2018	0.8480
<i>Control Variables:</i>					
Total Assets (AUD\$,000)	303,730	855,697	21,149	7,356	132,835
<i>FSize</i>	17.2301	2.1673	16.8671	15.8110	18.7046
<i>ABSTAccruals</i>	0.1908	0.6599	0.0749	0.0324	0.1858
<i>Leverage</i>	0.1524	0.2473	0.0571	0.0015	0.2314
<i>ROI</i>	-0.0702	2.5608	-0.0151	-0.2563	0.0592
<i>Big-4 (% of Sample)</i>	57.5385				
<i>Losses (% of Sample)</i>	70.4615				
<i>CashFlowOp</i>	-0.0899	0.5993	-0.0097	-0.1862	0.1029
<i>OwnCon%</i>	62.5271	19.1222	65.3200	48.4850	76.7700
<i>IndMat (% of Sample)</i>	26.1538				
<i>MV</i>	2.7096	5.2131	1.2854	0.7417	2.6196

Legend: Total accruals are defined as the difference between net income before extraordinary and abnormal items, and the cash flow from operations. Deflated total accruals are total accruals (as defined above) deflated by lagged total assets. *DACs* are the accruals prediction error; i.e., the difference between total accruals and estimated expected accruals. Total assets are the book value of total assets at the end of year zero. See TABLE 2 for full definitions and descriptions for the study's dependent, independent and control variables.

TABLE 4 indicates that average discretionary accruals are -0.90% of the beginning balance of total assets<sup>7</sup>. This value is slightly lower than reported in Singapore for the fiscal year- end 31 December 2003 (Rusmin *et al.*, 2006). The lower value of discretionary accruals for Australian companies is consistent with recent international comparative studies (e.g., Bhattacharya, Daouk & Welker, 2003; Leuz, Nanda & Wysocki, 2003) that earnings management is likely to be more prevalent in newly developed and emerging economies such as Singapore. However, the number of firms that have positive and negative discretionary accruals is virtually equal (162 and 163 firms respectively). The approximately equal percentage of positive and negative discretionary accruals firms is consistent with other research (e.g., Klein, 2002). In regard to the control variables, TABLE 4 indicates that the average firm total assets in year 2004 is AUD\$303,730,000. The average firm size (measured by the log of total

assets for year 2004) is 17.23. The average absolute value of total accruals (*ABSTAccruals*) is 19.08% of total assets at the beginning of the year. An average long-term debt to total assets ratio (*Leverage*) of the sample firms is 15.24%. In terms of ownership concentration (*OwnCon%*), 62.53% of the equity shares of the sample firms are held by the top twenty shareholders. Consistent with Holland and Ramsay (2003), Gul *et al.* (2003) and Ruddock and Taylor (2005), average ROI and cash flow from operations (scaled by the beginning total assets) are negative (-7.02% and -8.99% respectively)<sup>8</sup>. The poor financial performance as evidenced by 70.46% (229 out of 325) of the sample firms reporting a loss in the past three years suggests that firms experienced financial suffering during those fiscal periods<sup>9</sup>. Such performance, might be, affected by deteriorating world economic conditions due to the Asian financial crisis from 1997 to 1998 and the SARS epidemic in 2001-2002 (Teo, 2003; Conyon, 2004; Mak & Kusnadi, 2005). The Big-4 accounting firms audit more than half the Australian listed firms in fiscal year end 30 June 2004. Around 57.54% of the Australian listed firms engage EY, PWC, KPMG or DT. Additionally, firms classified as Materials Industry (*InMat*) make up around 26.15% of the Australian firms that included in the sample. Finally, TABLE 4 shows that average market-to-book value (*MV*) of the sample firms is around 2.71 times.

#### **Correlation Matrix**

TABLE 5 presents a correlation matrix between the dependent, independent and control variables. The upper half reports Pearson pairwise correlation coefficients ( $c_p$ ) and the lower half shows Spearman correlation coefficients ( $c_s$ ). Correlation results do not provide comprehensive support for the study's hypothesis. *AbsDAC* is negatively correlated with *AuditIndep-1* to *AuditIndep-4*, but it is positively correlated with *AuditIndep-4* and *AuditIndep-7* both for Pearson and Spearman correlations. However, these relationships are statistically not significant. The dependent variable is positively and significantly associated with *ABSTAccruals* both for Pearson and Spearman correlations ( $p < 0.01$   $c_p$  and  $c_s$ ). There are significant positive correlations ( $p < 0.01$  in  $c_p$  and  $c_s$ ) among the seven alternative measures of auditor independence, with the correlation values are ranging from 0.20 to 0.96. In respect to correlations between independent and control variables, and amongst control variables themselves, significant correlations are reported in the correlation matrix (TABLE 5). The highest correlations are between *ROI* and *CashFlowOp*, with a coefficient of -0.747 ( $p < 0.01$   $c_s$ ). This value is below the critical limit of 0.80<sup>10</sup>. Variance inflation factors calculated for all regressions reported in TABLES 6 to 8 for all independent and control variables provide further indications that multicollinearity is not a problem in the model estimations (Hair, Anderson, Tatham & Black, 1995; Greene, 1999; Cooper & Schindler, 2003).

#### **Multivariate Main Results**

The main results for testing the hypothesis are reported in TABLE 6. Regression model estimates reported in TABLE 6, Panels A to G, are all statistically significant (F-statistic  $p < 0.01$ ) with explanatory power ranging from a high of 30.20% (Panel F) to a low of 28.50% (Panels B and D). The coefficients on *AuditIndep* are all positive<sup>11</sup> but only significant (at  $p < 0.05$  and  $p < 0.01$  respectively) when using the logarithm transformation of audit and non-audit fees as a proxy for auditor independence (Panels E and F)<sup>12</sup>. Results infer that the dollar amounts of audit or non-audit fees may influence an auditor's objectivity. The larger the audit or non-audit fees that auditors' received from clients the more likely their independence will be impaired. However, the other five possible measures of auditor independence fail to confirm any significant relationship between auditor independence and earnings management. Thus, these findings do not fully support the acceptance of the hypothesis. This study fails to find compelling evidence that auditors impair their independence as a result of clients purchasing relatively more non-audit services. The findings of no relationship between the larger portion of non-audit fees and the measures of earnings management is consistent with some prior studies (e.g., Chung & Kallapur, 2003; Reynolds *et al.*, 2004).

#### **Multivariate Results for Partitioned Sub-samples**

Researchers (e.g., Frankel *et al.*, 2002; Gul *et al.*, 2003) argue that income-incentives may produce different earnings management behaviour traits. In addition, some scholars suggest client size may influence: (1) the composition of non-audit fees, thereby effecting auditor independence (e.g., Whisenant *et al.*, 2003) and (2) the magnitude of earnings management (e.g., Reynolds & Francis, 2001; Chung & Kallapur, 2003; Gul *et al.*, 2003).

TABLE 5: PEARSON AND SPEARMAN CORRELATION MATRIX

	<i>AbsDAC</i>	<i>AudIndep-1</i>	<i>AudIndep-2</i>	<i>AudIndep-3</i>	<i>AudIndep-4</i>	<i>AudIndep-5</i>	<i>AudIndep-6</i>	<i>AudIndep-7</i>	<i>BSTAccruals</i>	<i>FSize</i>	<i>Leverage</i>	<i>ROI</i>	<i>Big-4</i>	<i>Losses</i>	<i>OwnCon%</i>	<i>IndMat</i>	<i>MV</i>	<i>CashFlowOp</i>
<i>AbsDAC</i>		-.012	-0.011	-0.020	-0.037	0.081	0.086	0.010	.523*	-.022	.040	-.088	-.076	.088	.001	-.088	.034	-.058
<i>AudIndep-1</i>	-.013		0.197*	0.306*	0.249*	0.223*	0.717*	0.424*	-.113**	.359*	.204*	.123**	.263*	-.123**	.034	-.022	-.037	-.095
<i>AudIndep-2</i>	-0.005	0.237*		0.777*	0.927*	0.415*	0.299*	0.488*	-0.091	-0.411**	0.239*	0.158*	0.599*	-0.206*	0.056	-0.196*	-0.127**	-0.121**
<i>AudIndep-3</i>	-0.014	0.332*	0.742*		0.892*	0.306*	0.338*	0.468*	-0.119**	0.368*	0.134**	0.118**	0.602*	-0.162*	0.028	-0.101	-0.007	-0.132**
<i>AudIndep-4</i>	-0.010	0.269*	0.960*	0.826*		0.392*	0.317*	0.506*	-0.131**	0.431*	0.180*	0.171*	0.630*	-0.204*	0.044	-0.165*	-0.096	-0.151*
<i>AudIndep-5</i>	0.028	0.304*	0.557*	0.391*	0.538*		0.639*	0.763*	-0.082	0.644*	0.371*	0.366*	0.386*	-0.347*	0.195*	-0.147*	-0.249*	-0.272*
<i>AudIndep-6</i>	0.027	0.832*	0.429*	0.429*	0.441*	0.691*		0.670*	-0.097	0.547*	0.308*	0.267*	0.334*	-0.268*	0.131*	-0.038	-0.141**	-0.168*
<i>AudIndep-7</i>	0.028	0.463*	0.541*	0.448*	0.546*	0.915*	0.766*		-0.142**	0.766*	0.385*	0.397*	0.452*	-0.428*	0.187*	-0.250*	-0.224*	-0.270*
<i>ABSTAccruals</i>	.489*	-.090	-0.060**	-0.091	-0.084	-0.112**	-0.110**	-0.137**		-.184*	.013	-.229*	-.101	.259*	.057	-.005	.139**	.140**
<i>FSize</i>	-.045	.389*	0.459*	0.367*	0.471*	0.802*	0.651*	0.776*	-.196**		.394*	.583*	.414*	-.558*	.113**	-.163*	-.352*	-.285*
<i>Leverage</i>	.021	.247*	0.277*	0.168*	0.252*	0.541*	0.400*	0.484*	-.025	.509*		.232*	.143*	-.253*	.163*	-.104	-.289*	-.193*
<i>ROI</i>	-.045	.148*	0.205*	0.156*	0.213*	0.494*	0.350*	0.455*	-.220*	.592*	.320*		.111**	-.523*	.234*	-.118**	-.392*	-.428*
<i>Big-4</i>	-.071	.257*	0.683*	0.601*	0.697*	0.438*	0.410*	0.444*	-.106	.409*	.197*	.123**		-.186*	-.038	-.058	-.067	-.076
<i>Losses</i>	.077	-.136**	-0.200*	-0.155*	-0.207*	-0.451*	-0.322*	-0.439*	.257*	-.565*	-.315*	-.631*	-.186*		-.104	.186*	.201*	.252*
<i>OwnCon%</i>	-.019	.040	-0.056	-0.025	-0.049	0.199*	0.143**	0.187*	.062	.143*	.149*	.268*	-.045	-.112**		-.126**	.011	-.100
<i>IndMat</i>	-.091	-.017	-0.165*	-0.072	-0.164*	-0.267*	-0.104	-0.280*	.001	-.173*	-.174*	-.162*	-.058	.186*	-.126**		.003	.007
<i>MV</i>	-.009	-.054	-0.101*	-0.013	-0.083	-0.280*	-0.162*	-0.230*	.149*	-.339*	-.362*	-.282*	-.039	.204*	-.065	.058		.194*
<i>CashFlowOp</i>	.099	-.195*	-0.245*	-0.210*	-0.272*	-0.556*	-0.407*	-0.546*	.208*	-.593*	-.393*	-.747*	-.161*	.530*	-.235*	.151*	.266*	

Legend: \* and \*\* indicate significance at  $p < 0.01$  and  $p < 0.05$  respectively (based on two-tailed tests). See TABLE 2 for full definitions and descriptions for the dependent, independent and control variables.

TABLE 6: MULTIPLE REGRESSION RESULTS

	Prediction	Panel A <i>Non-audit Ratio</i>		Panel B <i>Rank audit Fees</i>		Panel C <i>Rank Non-audit Fees</i>		Panel D <i>Rank Total Fees</i>		Panel E <i>Log Audit Fees</i>		Panel F <i>Log Non-audit Fees</i>		Panel G <i>Log Audit Fees</i>	
		Beta	t-stat	Beta	t-stat	Beta	t-stat	Beta	t-stat	Beta	t-stat	Beta	t-stat	Beta	t-stat
(Constant)			3.825*		3.685*		3.830*		3.666*		3.528*		4.251*		3.348*
<i>ABSTAccruals</i>	+	0.545	10.914*	0.545	10.935*	0.547	10.970*	0.546	10.937*	0.542	10.957*	0.549	11.139*	0.547	10.963*
<i>FSize</i>	-	0.089	1.189	0.088	1.053	0.067	0.811	0.084	0.961	0.034	0.428	0.024	0.313	0.065	0.722
<i>Leverage</i>	+	-0.017	-0.326	-0.017	-0.309	-0.019	-0.360	-0.017	-0.321	-0.029	-0.543	-0.032	-0.610	-0.019	-0.352
<i>ROI</i>	-	-0.080	-1.170	-0.082	-1.196	-0.076	-1.113	-0.081	-1.180	-0.075	-1.098	-0.073	-1.083	-0.076	-1.105
<i>Big-4</i>	-	-0.077	-1.448	-0.043	-0.666	-0.046	-0.708	-0.045	-0.686	-0.056	-0.881	-0.058	-0.915	-0.047	-0.726
<i>Losses</i>	+	-0.007	-0.109	-0.002	-0.038	-0.004	-0.065	-0.003	-0.048	-0.006	-0.094	-0.010	-0.160	-0.003	-0.054
<i>OwnCon%</i>	-	-0.049	-0.992	-0.053	-1.047	-0.050	-1.000	-0.052	-1.043	-0.067	-1.342	-0.062	-1.260	-0.056	-1.107
<i>IndMat</i>	+	-0.090	-1.860***	-0.084	-1.680***	-0.090	-1.865***	-0.084	-1.690***	-0.085	-1.771***	-0.100	-2.085**	-0.082	-1.671***
<i>MV</i>	+	-0.020	-0.365	-0.013	-0.239	-0.017	-0.324	-0.014	-0.263	-0.007	-0.128	-0.022	-0.418	-0.014	-0.262
<i>CashFlowOp</i>	-	-0.148	-2.820*	-0.144	-2.725*	-0.143	-2.732*	-0.143	-2.701*	-0.132	-2.508**	-0.143	-2.760*	-0.141	-2.674*
<i>AuditIndep</i>	-	0.035	0.682	0.035	0.476	0.066	1.061	0.039	0.493	0.146	2.261**	0.162	2.834*	0.065	0.813
<b>Model Summary</b>															
R-Squared		0.310		0.312		0.313		0.312		0.322		0.328		0.312	
Adj. R-Squared		0.286		0.285		0.287		0.285		0.296		0.302		0.286	
F-Statistic		12.789*		11.764*		11.872*		11.766*		12.354*		12.708*		11.816*	
Sample Size		325		325		325		325		325		325		325	

Legend: \*, \*\*, and \*\*\* indicate significance at p<0.01, p<0.05 and p<0.10, respectively (based on two-tailed tests). See TABLE 2 for full definitions and descriptions for the dependent, independent and control variables

Following Reynolds *et al.* (2001) and Gul *et al.* (2003), this study considers the role of income-incentives and client firm size in the earnings management models.

#### Discretionary Accruals Sign

Partitioning the pooled sample into income-increasing and income-decreasing is based on the sign on their corresponding unadjusted discretionary accruals. TABLE 7 presents the multivariate results from regressions of these two groups. For brevity, findings that are reported in TABLE 7 use the ratio of non-audit fees to total fees as a proxy for auditor independence.

TABLE 7: MULTIPLE REGRESSION RESULTS FOR PARTITIONING BY DISCRETIONARY ACCRUALS SIGN

	Prediction	Discretionary Accruals Sign			
		Panel A-Income Increasing		Panel B-Income Decreasing	
		Beta	<i>t</i> -statistic	Beta	<i>t</i> -statistic
(Constant)			3.633*		-0.547
<i>ABSTAccruals</i>	+	0.564	8.481*	0.608	8.140*
<i>FSize</i>	-	0.127	1.357	0.117	1.026
<i>Leverage</i>	+	0.076	1.080	-0.168	-2.111**
<i>ROI</i>	-	-0.066	-0.722	0.010	0.101
<i>Big-4</i>	-	-0.069	-0.777	-0.161	-1.830***
<i>Losses</i>	+	0.055	0.677	-0.102	-1.211
<i>OwnCon%</i>	-	-0.151	-2.155**	0.051	0.761
<i>IndMat</i>	+	-0.098	-1.444	-0.111	-1.655***
<i>MV</i>	+	0.088	1.243	-0.159	-2.032**
<i>CashFlowOp</i>	-	-0.334	-4.835*	0.211	2.741*
<i>AuditIndep</i>	-	-0.001	-0.009	0.084	1.128
Model Summary					
R-Squared			0.428		0.385
Adj. R-Squared			0.382		0.335
F-Statistic			9.302*		7.816*
Sample Size			162		163

Legend: \*, \*\*, and \*\*\* indicate significance at  $p < 0.01$ ,  $p < 0.05$  and  $p < 0.10$  respectively (based on two-tailed tests). See TABLE 2 for full definitions and descriptions for the dependent, independent and control variables.

As shown in TABLE 7, Panel A (Panel B), the coefficient on *AuditIndep* is negative (positive) for the income-increasing (income-decreasing) Australian sub-samples. The positive sign of coefficient on *AuditIndep* for the income-decreasing sub-sample is consistent with the inferences for the absolute discretionary accruals regressions reported in TABLE 6. The negative sign of coefficient on *AuditIndep* for the income-increasing sub-sample infers that the big portion of Australian non-audit services may not impair auditors' ability to constrain the magnitude of earnings management. However, the coefficients on both income-increasing (Panel A) and decreasing (Panel B) are statistically not significant. In conclusion, the results imply that auditor independence is shown to be an insignificant factor in reducing the level of earnings management by Australian firms, regardless of whether corporate management has an incentive to increase or decrease reported earnings.

#### Client Firm Size

To examine whether a client's firm size may influence auditor's ability to constrain the magnitude of earnings management, we partition the pooled sample into small and large client firm sub-samples using the median of total assets (AUD\$21,149,000) as a basis for partitioning cut-off. For brevity, findings that are reported in TABLE 8 use the ratio of non-audit fees to total fees as a proxy for auditor independence.

TABLE 8: MULTIPLE REGRESSION RESULTS FOR PARTITIONING BY CLIENT FIRM SIZE

	Prediction	Client firm size			
		Panel A-Small Firms		Panel B-Large Firms	
		Beta	<i>t</i> -statistic	Beta	<i>t</i> -statistic
(Constant)			-0.285		3.668*
<i>ABSTAccruals</i>	+	0.547	7.663*	0.550	7.636*
<i>FSize</i>	-	0.162	1.975**	0.015	0.170
<i>Leverage</i>	+	-0.044	-0.626	0.064	0.849
<i>ROI</i>	-	0.024	0.264	-0.164	-2.024**
<i>Big-4</i>	-	0.014	0.155	-0.053	-0.623
<i>Losses</i>	+	0.011	0.146	-0.091	-1.099
<i>OwnCon%</i>	-	-0.090	-1.229	-0.004	-0.056
<i>IndMat</i>	+	-0.143	-2.076**	-0.077	-1.118
<i>MV</i>	+	0.059	0.780	-0.091	-1.223
<i>CashFlowOp</i>	-	0.052	0.667	-0.234	-3.274*
<i>AuditIndep</i>	-	0.085	1.231	-0.024	-0.330
Model Summary					
R-Squared		0.358		0.347	
Adj. R-Squared		0.307		0.294	
F-Statistic		6.971*		6.585*	
Sample Size		163		162	

Legend: \*, \*\*, and \*\*\* indicate significance at  $p < 0.01$ ,  $p < 0.05$  and  $p < 0.10$  respectively (based on two-tailed tests). See TABLE 2 for full definitions and descriptions for the dependent, independent and control variables.

As presented in TABLE 8, Panel A (Panel B), the coefficients on *AuditIndep* are positive (negative) for the small (large) firm sub-samples. The positive sign on coefficient of *AuditIndep* for the small firm sub-sample is consistent with the main Australian findings, as reported in TABLE 6. The findings from the sample partitioning by client firm size suggest that auditors are likely to impair their independence when they audit the small clients but not for the large audit clients. However, these results are statistically insignificant. It appears that client firm size does not unduly influence the association between auditor independence and the magnitude of earnings management.

## Discussion and Concluding Remarks

Using the same proxy measures as Frankel *et al.* (2002) we do not find convincing empirical evidence to support the presumption that higher non-audit to total fee ratios impairs an audit firm's ability to detect and constrain earnings management. This result is supported when tests are run using alternative proxies of auditor independence. Auditor independence is only found to have a significant influence on discretionary accruals when attempts to capture the level of economic bonding between auditors and clients into the proxy measure. Our findings have various implications for policy makers, corporate management, corporate governance reformists, investors and scholarly researchers alike. For example, there currently appears to be a preoccupation amongst corporate governance

reformists and policy makers internationally to curb the provision of non-audit services by the incumbent auditor to aid in such matters as the reduction in earnings management. Our findings suggest this preoccupation may be misplaced and that constraining the ability of firms to purchase non-audit services from the incumbent auditor could provide only limited benefits whilst increasing costs (such as any discount offered by the incumbent auditor resulting from cost savings achieved through knowledge spillover effects). Our findings provide stronger support for allowing the audit market to operate in a basic laissez-faire manner without any overbearing interference by policy makers. Restricting incumbent auditors to provide non-audit services may eliminate audit firms' abilities to gain economies of scale (Antle & Demski, 1991). In addition, the joint supply of audit and non-audit services is considered to enhance audit quality due to it improves the auditors' knowledge of the client's operation (Houghton & Jubb, 2002; Ruddock & Taylor, 2005). Therefore, the results imply that recent actions of Australian policymakers to strengthen rules governing audit independence in respect to non-audit services may have been premature.

Whilst we have attempted to maintain the integrity of our research method supported by various sensitivity and robustness checks, like any other empirical investigation, our study is not without certain caveats. Earnings management and auditor independence are unobservable so we rely on proxy measures that, whilst previously used in the research literature, are not free of criticism. For instance, discretionary accrual models measure discretionary accruals with error (see Bernard & Skinner, 1996 for a deeper discussion). These problems, however, are endemic to the earnings management literature and we are using the best currently available models and proxies. Future studies can seek to focus on refinements to the proxy measures for dependent and independent variables.

Given that the results of this study are based on a relatively new era when corporate governance and regulation have been greatly refined, it provides a useful feedback for the policymakers in evaluating the present regulations and governances pertaining to auditor independence. This study uses the Australian data that only discloses the total amounts of non-audit fees. However, starting from the financial year 1 July 2004, the CLERP 9 requires listed companies to disclose the dollar amount paid to auditors for each type of the non-audit services in a section of the directors' report. Therefore, a study that examines the relationship between each type of the non-audit fees and the level of earnings management could be a fertile ground for future research.

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## End Notes

This proposal was passed by Parliament on 25 June 2004, and received Royal Assent on 30 June 2004 under the name of the Corporate Law Economic Reform Program (Audit Reform and Corporate Disclosure) Act 2004 (CLERP 9 Act).

<sup>2</sup> The corporate governance in Australia is developed by the ASX Corporate Governance Council. It consists of 10 principles and 28 recommendations. Each principle is accompanied by a series of best practice recommendations in addition to specific guidance on disclosure.

<sup>3</sup> Our statistical tests are not influenced by the retention or removal of outliers. However, the explanatory power of models tested is lower if the influential data points are retained.

<sup>4</sup> The term 'Australian listed firms' is a generic term used to refer only to the 325 firms analysed in this study. The term should not be interpreted to mean the entire population of Australian listed firms.

<sup>5</sup> Ashbaugh *et al.* (2003) and Ferguson *et al.* (2003) use U.S. and U.K. data of financial years ends 31 December 2000 and 31 December 1998, respectively. Therefore, these amounts are converted from the USD\$ and UK£ into AUD\$ based on the 31 December 2000 and 31 December 1998 exchange rates, respectively.

<sup>6</sup> 23.38% of the full Australian samples did not purchase any non-audit services from their incumbent auditors.

<sup>7</sup> The higher the level of non-audit fees that auditors receive from their clients, the more incentives they will agree with the client' accounting choices.

<sup>8</sup> Using the same country data set, but different time periods Koh (2003) and Davidson *et al.* (2005) reported the means for discretionary accruals are 7.70% and -7%, respectively.

<sup>9</sup> using Australian data in the fiscal years 1990-2000, Holland and Ramsay (2003) reported mean of net profit after tax and cash flow from operations (scaled by the beginning-of-year book value of total assets) are -7.20% and -0.90%.

<sup>10</sup> 51.69% (168 out of 325 firms) of the sample firms experienced loss in the fiscal year end 30 June 2004.

<sup>11</sup> As a further check for multicollinearity this thesis performs the model estimations reported in TABLES 6 to 8 again after first excluding *ROI* and then *CashFlowOp*. The independent exclusion of each respective control variable does not significant alter the findings reported in the main text.

<sup>12</sup> The positive sign on *AuditIndep* implies that the larger portion of non-audit fees that auditors receive from audit clients the more likely they compromise their independence.

<sup>13</sup> This study also re-performs the tests in Panels A to G after excluding companies that have not purchased any non-audit services from their audit firms. These results are qualitatively the same as those reported in TABLE 6.

# Cross-border Company Law Issues— Some Lessons from the European Union towards a Framework for International Company Law

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## Abstract

This paper examines cross-border company law issues from a comparative perspective. The issues lie at a crossing point where private international law and national law meet. The main arguments in this paper are concerned with determination of the governing law of foreign companies, the coverage of governing law and problems with actual application, mutual recognition of companies and legal status of foreign companies. Private international law matters the arguments in the descending order. Sections I and II explore globally common theoretical issues, for instance, determination of governing law and its coverage before proceeding to particular issues. Then some problems with the Japanese legal framework concerning foreign bodies corporate/companies are analysed. Finally, development of EU legislation and case law relating to cross-border company issues is closely looked at. In the quest for the very framework which can integrate parties' different laws, some suggestions are provided for by the EU's experiences.

## Introduction

Japanese companies' legislation (*Kaisha-ho*) has changed thoroughly to new dresses since 1<sup>st</sup> May 2006<sup>1</sup>. Against this background, this paper aims to examine the Japanese legislation relevant to foreign corporations/companies as to whether and how it could respond to multinational activities of companies in the business environment which has been increasingly global. A useful framework for reference to recognise and endorse multinational migration of companies which have been set up within a specific jurisdiction will somehow be given by that of the European Union (EU). The reason why this paper chooses the EU for the comparison is that it has been progressive particularly in the areas of mutual recognition of foreign companies, free movement of establishment under the Treaty Establishing the European Communities (EC Treaty), EC legislation regarding pan-European business entities, and cross-border takeover bids and mergers, as well as a submission to the European Commission (Commission) by the High Level Group of Company Law Experts on applicable law to companies in the conflict of company laws ('incorporation theory' and 'real seat theory'), in order to meet the need for harmonisation of member states' laws.

Theoretical issues arising from foreign corporations/companies can largely be divided into those of private international law and those of national law. Section II will deal with private international law issues and explore theoretical aspects of them. Section III will review the scope which a chosen law can apply to foreign companies. This combines private international law issues with national law issues and is rather complicated as it should be considered on a case-to-case basis. This paper attempts to extract a general rule of its application and will not go any further. Section IV will examine Japanese recent development of relevant legislation. Not only company law but also civil law (*Min-po*) and the law regarding general rules of applicable law (*Ho no tekiyo ni kansuru Tsusoku-ho*) will be dealt with for this purpose. Section V will analyse the EU regimes along the above axes. Some suggestions provided with by EU's laboratorial experiences will be noted there. Following from each section's analyses and discussions, the paper will finally pursue and sketch out a framework for international company law for any companies to be borderless in support of global economy.

## **Private International Law Discourses— ‘Incorporation Theory’ and ‘Real Seat Theory’—**

The first to be noted is a divergence of theories for an applicable law to foreign companies in the conflict of company laws. An applicable law to foreign companies as determined is a law which applies to foreign companies formed under a law of a home country and ensures or restricts any activities of them within a recipient country. This particularly recognises foreign companies’ legal personality (and their cessation as a legal person), as well as their internal affairs.<sup>2</sup> Two views for the determinants have been presented.

One is the ‘incorporation theory’, where an applicable law to foreign companies is a law applied when they were incorporated. The characteristic of this theory can be that an applicable law can be freely chosen by parties at their will and any particular connecting factors (for instance a place of business etc) are not required<sup>3</sup> this theory was originated from a view that a legal person is an artificial entity and must be chartered for its incorporation. A legal person is recognised by a particular national law where it is set up; and the law of incorporation should apply consistently to that legal person irrespective of where its principal business or the centre of its administration is located. Advantages of this theory are: 1) An applicable law should be one which is clearly defined and consistently applies despite any changes of companies’ activities and affairs; 2) from a home country’s perspective, when the country exports capital to foreign countries, it can continue to control and protect companies which are set up under its national law by ensuring their activities in foreign jurisdictions. This could encourage imperialism and colonialism to enable the home country to keep executing its controlling power over its colonies.<sup>4</sup> However, this theory has encountered some criticisms. The advantage that a law can be applied by parties’ free choice motivates them to choose a less or least stringent law and they locate its real business in the other countries where a law is more stringent than the one they chose to be applied. This could ultimately undermine interests of transactions and of general society.<sup>5</sup> A fear of ‘race to the bottom’ in the EU could lead to the other theory. However, its strong policy initiative for free movement has clearly shown more of its adhesion to the incorporation theory.<sup>6</sup>

The ‘real seat theory’, on the other hand, determines an applicable law by pursuing the law where the real seat of a company is located. The meaning of ‘real seat’ cannot be clearly defined. This can thus further divide this theory into several fragments. For instance, possible places are those for a registered office, a head office, a centre of business, a centre of administration or management and residence of controlling shareholders etc. Considering today’s variety of business forms, it will be increasingly difficult to determine the ‘real seat’ of the company even if one clear definition can come out. The essence of this theory lies in the point that actual effect of the companies’ activities should be taken into account in determining an applicable law.<sup>7</sup> In addition to the above disadvantage of its ambiguity of ‘real seat’, the other major disadvantage of this theory from the practical perspective is to prevent companies from migrating between countries.<sup>8</sup> However, some supportive views for this theory argue that it can prevent arbitrary establishment of companies at parties’ autonomy in a country having a lax law. This could establish a level playing field among competing countries.<sup>9</sup>

Comparing the above two theories, when subject to the practical need for global business, it is obvious that the incorporation theory can serve more for the purpose. However, theoretically, there seems nothing to support this view as the incorporation theory does not require any particular connecting factor as a determinant. Only a factor of parties’ agreement (which does not connect to any one of particular country) might not be enough to declare that ‘this is the only law applicable to the foreign company’. At best, if we can precondition that a company is a nexus of contracts, it might not be difficult to conceive that parties (as parties to a contract) may freely choose an applicable law at their will (but there could be room for a nexus of contracts to be resolved into each contract and for an applicable law not to be conformed to the company as a whole but to be individually determined according to the nature of each contract).

To reconcile the pros and cons of the asserted theories, we propose that the two theories should be placed in the same dimension. It could be seen as a matter of a degree of public policy in each country against foreign business activities to be intervened. The incorporation theory sits at its lax end and the real seat theory is at its stringent end. The real seat theory adds more requirements from a public policy initiative. In contrast, even a country adhering to the incorporation theory normally sets a provision if a foreign company does not have any economic relationship with its home country where it was registered and has actual interdependence with the (recipient)

country that country's law may apply. These types of companies are called 'pseudo foreign companies'. Until Japan adopted its new Companies Act in 2005, according to a predominant view, pseudo foreign companies are deprived of their corporate veils<sup>10</sup> and cannot be registered as foreign companies in Japan. However, Japanese legislation, particularly provisions concerning foreign bodies incorporate under the Civil Code as well as those concerning foreign companies under the former Commercial Code<sup>11</sup> is considered to go along with the incorporation theory. The legislators in the late 19<sup>th</sup> century thought that corporate legal personality was available only within the territory, where the company was incorporated. This view inevitably connected to the adoption of incorporation theory. An applicable law should always be a law of incorporation. A provision concerning pseudo foreign companies was inserted as part of this framework. This shows, as a legislative technique, that the incorporation theory should somewhat take public policy considerations to alleviate its disadvantages. This is the point where the two theories meet.

In the Japanese private international law academia, a view which takes the incorporation theory as a combination of private international law issues with national law issues, without separating one from the other, has been proposed.<sup>12</sup> According to this view, always the law which applied to its formation should be applied to a foreign company and, when the company relocates its business, a recipient country can only recognise its legal personality (more strictly, recognise the foreign nation's act through the relevant law to incorporate) as a subject of business in that country and cannot (or need not) decide the applicable law to it (as the applicable law is automatically a law of incorporation). This view can be appreciated for its devotion to simplify the issue. However, to recognise legal personality is not everything for the legal person to control its legal relationships with all its stakeholders and management.<sup>13</sup> Thus, although this view is worth attention, it is not predominant at present.

## **The Interface between Private International Law and National Law: The Coverage of a Chosen Law**

To determine the coverage of an applicable law as chosen is one of the most complicated issues. Business motivated relationship is not simple. The old theory divided companies' activities into internal affairs and external affairs. The law of incorporation applies to the former and the latter is regulated by the law chosen by parties agreeing so by analogy of a contract. Creating and ceasing legal personality is no doubt a matter regulated by the law of incorporation.<sup>14</sup> However, some matters do not dwell in the internal or external categories of company affairs. It can be seen that some matters do not even follow the above determinants in the choice of laws rules. For instance when the matter (that threatens public interest) needs to be regulated by mandatory provisions, no matter where the company is actually seated, the mandatory provisions must apply to the company.<sup>15</sup> Preconditioned as thus, further considerations to divide areas into those which are mandatory and which are not are required at the next stage. This stage is the most difficult to go through. Though it is not more than an essay there is a useful test to classify provisions according to their natures and those considered to have a mandatory nature apply to the foreign company regardless of its governing law.

The possible categories are: those of voluntary nature, penal provisions and those of mandatory nature except penal provisions under company law. Mandatory provisions are subdivided into penal provisions and the other provisions. This is because the former is subject to a law where crimes occurred.<sup>16</sup>

However, even following the above categorisation, an actual determination of the applicable law is not easy. For instance, directors' liability to third parties is at the crossing point of company's governing law and the choice of tort laws. Shareholders' agreements are not always an object which is regulated by a chosen law from among the conflicting contract laws.<sup>17</sup> In some cases, for instance, when a shareholders' agreement modifies a division of power between shareholders and the management, it serves more for the purpose to choose a company's governing law for the application. It can be said that if matters need to treat corporate stakeholders equally and uniformly, they should be regulated by a company's governing law. A governing law should be determined not in a standardised way but on a case-to-case basis along with the legal nature of matters.

Next to be dealt with here are cases concerning the issue of determination of an applicable law for internationally established relationships between firms/companies, including parent-subsidiary relationships, cross-

border reconstructions, etc. The past years have witnessed an increasing number of cross-border merger and acquisition (M&A) cases. However, theoretical debates still seem to be immature.

International M&A issues consist of both elements of national law and private international law. They are seemingly concerned only with the former, settled with each company's governing law. However, private international law theories intervene in the determination of applicable law when the applicable law so determined does not allow its national companies to merge with any foreign companies. Discussions here are also as to how applicable laws should be determined and applied in the situation where more than two internationally established business entities have stakes. This could inevitably connect national law with private international law and require mixed considerations.

Under the former Japanese Commercial Code, there have been no provisions which expressly allow national companies to merge with foreign companies. Until very recently when practical concerns stimulated academic discussions about legal problems with cross-border M&As under Japanese law, a predominant view interpreted them as prohibiting international mergers.<sup>18</sup> However, the lack of express provisions does not necessarily mean impossibility and even prohibition. The lack of express provisions are, as we have seen above, simply due to the fact that the legislators in the late 19<sup>th</sup> century thought foreign companies should be regulated by their governing law and national law should not interfere with them. Then, it should be interpreted that international mergers are not prohibited under Japanese company law as long as a foreign company can merge with the proposed Japanese company and all legal issues arising can be clarified under its governing law. This interpretation accords with the practical need for global businesses. How to apply conflicting laws in the event of mergers, however, is a problem.

Theoretically, as mentioned, any national company can merge with any foreign company as long as the foreign company is subject to the law which allows cross-border mergers and any relevant matters are stipulated in it. Legal problems when arising in the process of (pre- and post-) mergers can be settled in accordance with national and foreign companies' governing law in proportion. Practically, it is difficult for a national company to merge with a foreign company which is governed by the law without knowing mergers as a corporate restructuring method.<sup>19</sup> Or, even though a foreign company's governing law has such provisions, if they are very different from the ones known to the law which governs a national company, it is also a problem for both companies to adjust each system to the other. A further consideration as to how it should be adjusted is unavoidable.

In the former case where one party company is subject to a law which has no provisions relating for instance to mergers, two possible views may arise: one is that cross-border mergers cannot be proceeded<sup>20</sup> and the other is that cross-border mergers can be proceeded and any legal matters can be settled by applying provisions (if any) under which nearly the same goal can be achieved in terms of protection of interested parties as well as succession of rights and duties of merged companies.<sup>21</sup> In line with the above view that the lack of provisions does not necessarily mean impossibility, the latter view is more plausible, though in recognition of the difference between the fact that there are provisions for mergers but no provisions expressly permitting cross-border mergers and the fact that there are no provisions for mergers.

In the latter case, when there is a big difference between governing laws of party companies, a circumspect determination of applicable law is necessary. Adjustment to either of the laws should not always be the case. The most effective and reasonable solution for both of them should be pursued by examining all the relevant provisions under their governing laws. Again, standardisation does not follow. Individuality and differentiation are pursued instead.

## **Foreign Corporations/Companies under Japanese Legislation**

### **Recognition of Foreign Bodies Corporate under Japanese Civil Law**

The above sections have shed more light on private international law aspects of the issues and thus discussed them from a general perspective. This section in contrast deals with national law issues particularly arising in Japan.

The question of whether a body corporate was duly incorporated under a foreign law and the question of whether it is recognised to do business activities within a recipient country is completely different. Under Japanese law, a body corporate which was duly incorporated under a foreign law cannot always be recognised with its

activities within Japan. Rather, the Japanese Civil Code delimits its legal competence for activities within its territory.

Under Section 33 (1) and (2) of the Japanese Civil Code, national bodies corporate are those which went through the formation procedures provided for by the Japanese Civil Code and any other legislation. As a consequence, bodies corporate which were established under foreign legislation are not defined as national bodies corporate (and they should be defined as foreign bodies corporate). Recognition of foreign bodies corporate under Section 35 of the Japanese Civil Code purports to treat them as legal persons and recognise their unfettered activities as bodies corporate in Japan without any additional requirements.<sup>22</sup>

Recognition of bodies corporate which have been set up under foreign laws is purely a national law issue. Section 35 (1) of the Japanese Civil Code provides that no other bodies corporate than a nation-state, an administrative region of a nation-state and a foreign company are recognised by its legal personality within the Japanese territory. The Japanese companies' act 2005 first introduced a definition of foreign companies under Section 2 [2]. The definition has extended its scope of foreign companies to that equivalent to any types of Japanese companies regardless of having legal personality. Partnerships and limited partnerships (without legal personality) under foreign laws may be interpreted foreign companies under this definition. However, the scope of recognisable bodies corporate is still too narrow. Non-profit organisations under a foreign law cannot be recognised their activities with legal personality in Japan. In future, the scope should be expanded to enable any bodies corporate which have been vested with their legal personality under foreign laws to be in principle recognised their activities as legal persons throughout Japan.<sup>23</sup>

Section 35 (2) of the Japanese Civil Code stipulates that foreign bodies corporate recognised under 35 (1) have the same legal competence as that of national bodies corporate. A predominant view has interpreted this as providing legal competence with foreign bodies corporate only when they are allowed by their governing laws and only to the extent that national bodies corporate can enjoy. The intention of legislators was to put restrictions on foreign corporations' activities<sup>24</sup> but this generally provides the principle of national treatment of foreign bodies corporate.

#### **Regulations of Foreign Companies and Pseudo Foreign Companies under Japanese Company Law**

The original text of the Japanese Commercial Code of 1890 did not include any provisions concerning foreign companies. The Japanese Commercial Code of 1899 first introduced them, by referring to legislation of Hungary, Spain, Italy, Romania, Portugal etc.,<sup>25</sup> most of which have been inherited with some modifications to date. The legislators' intention to introduce them was to protect creditors and investors of foreign companies and ultimately to maintain national security, public interest and competing power of national companies while recognising their business activities within the territory.<sup>26</sup>

The relevant provisions in the present Japanese Companies Act 2005 are found between Sections 817 and 823. Between 1899 and 1950, foreign companies pierced their corporate veils if they made transactions without registering their places of business in Japan.<sup>27</sup> From 1950 to date, it has been modified in that foreign companies cannot continue business activities without registering them as foreign companies in Japan.<sup>28</sup> Connecting factors cannot be seen as tangible material points such as an administrative or managing centre, a principal place of business, Japanese representatives or a residence of major shareholders but as 'repetitious transactions'. This is rather unusual and inconsistent within the framework of Japanese law systems. This is largely due to their wording which does not point to the subject to make transactions and this lack itself implies Japanese representatives' general and comprehensive representing power as an agent.<sup>29</sup>

However, if this could be taken as more than rhetoric, looking at today's enormous variety of business forms supported by advanced technology as indicated earlier, the meaning of setting up actual focal points for businesses is becoming less. The connecting factors set in line with practice should be more effective. This is precisely in the same direction towards which the Japanese recent amendment moved forward. The 2002 amendment abolished requirements for foreign companies to materially set up an actual place of business corresponding to the change of business environment noted above.<sup>30</sup> In this connection, practically some contractual clauses should be required for representatives' liability, any governing law, any jurisdiction in disputes, etc. just in case transactions were done without being touched by representatives.

When foreign companies were set up with the purpose of doing business mostly in Japan, they could be defined as 'pseudo foreign companies'. As noted in Section II, pseudo foreign companies are strictly regulated under the former Japanese Commercial Code as well as the present Companies Act. The legislators in the 19<sup>th</sup> Century felt it necessary to protect domestic companies from unfair competition (particularly when their laws of incorporation are laxer than Japanese law) with foreign companies. According to the legislative documents around the time the Commercial Bill was tabled at the Diet, the legislators introduced a new provision regulating pseudo foreign companies to complement a defective point of the incorporation theory, though they did not use the terminology 'incorporation theory'.<sup>31</sup> The former Commercial Code required pseudo foreign companies to follow the same requirements imposed on national companies.<sup>32</sup> A predominant view did not even recognise legal personality of pseudo foreign companies and required them to reincorporate under the Japanese formation procedures.<sup>33</sup> In practice, registrars' offices under the Ministry of Justice did not accept applications of registration made by pseudo foreign companies, based on the predominant interpretation of the provision.

The Companies Act slightly deregulates the situation. It recognises legal personality of pseudo foreign companies but makes them unable to make repetitious transactions. Any persons (not limited to representatives) who make transactions for the company could be held liable jointly and severally with the company. This liability, apart from the case with foreign companies, may be imposed on irrespective of whether the pseudo foreign company has been registered in Japan. Although it seems to have been deregulated, the ambiguity of the scope of liability imposed on any person who has violated the provision and the risk of unforeseeability for liability caused by this have been augmented.<sup>34</sup>

## **Cross-border Establishment of Corporations/Companies within the EU**

Now let us turn to EU's situations to obtain some comparative suggestions. As noted in the introduction, the EU has developed cross-border issues since its inception. This has been strongly driven by its free movement policy, realised between Articles 23 and 31 of goods, between Articles 39 and 42 of persons, between Articles 49 and 55 of services and between Articles 56 and 60 of capital under the EC Treaty. The free movement of establishment is ensured between Articles 43 and 48 of the same treaty. However, this freedom has developed less than the other free movement areas. This could partly be attributed to the fact that there have not been many cases brought before the European Court of Justice (ECJ). The practice has avoided relocating its place of business to the other member states. Instead, it has set up a new company under a foreign member state law. Also, the increased number of bilateral agreements for mutual recognition of business corporations between member states which have taken the real seat theory has alleviated possible conflicts.<sup>35</sup> Furthermore, even if cases were brought before the Court, the possibility to widen the scope of legitimacy to escape from free movement obligations under the Treaty<sup>36</sup> might have run counter to development of the free movement regime.

Today this is observed rather as the past situation. Some cases to accelerate the free movement of establishment have been 'created' by the European Commission under Article 226 of the EC Treaty.<sup>37</sup> This section of the paper traces up some recent development in EU's free movement policy. The mutual recognition of companies, conflict of laws in the modernising company law debate, case law concerning the free movement of establishment, regulations about the European company and the European cooperative society and directives about cross-border takeover bids and mergers are dealt with.

### **The Mutual Recognition of Companies**

Article 293 of the EC Treaty obliges the member states to negotiate over cross-border issues within the scope of protecting interest of member states' own nationals.

The original six member states of EEC, Belgium, France, Germany, Italy, Luxemburg and the Netherlands, all acknowledged the real seat theory. There was not much difficulty at least in adopting an applicable theory. The implication was that the real seat theory was a dominant theory which could apply to all member states.<sup>38</sup> However, the Netherlands shifted towards the incorporation theory in 1959.

Against this background, the Convention on the Mutual Recognition of Companies and Legal Persons was concluded based on Article 293 (then Article 220) between the six member states on 29 February 1968 in Brussels

(The Brussels Convention).<sup>39</sup> This Convention in principle adopted the incorporation theory<sup>40</sup>; however, there are exceptions. When their central administration of companies or legal persons is located outside the territories of the contracting states and have no genuine link with the economy of one of the territories, such companies or legal persons cannot avail themselves from the Convention (thus cannot be recognised as foreign companies or legal persons in the territories by declaration).<sup>41</sup> A contracting state may apply its 'essential' provisions to companies or legal persons when they locate their central administration in that state. Additionally, where such companies or legal persons do not provide their law of incorporation in their memorandum/articles of association or cannot prove themselves doing business in the registered country for a reasonable period of time, the contracting state where such companies or legal persons locate their central administration may also apply their 'suppletory' provisions to them.<sup>32</sup> This could allow member states a wider discretion to opt out of the principle and to apply their laws to pseudo foreign companies.

This Convention, although it made much progress for the member states adhering to the real seat of foreign companies to jointly declare mutual recognition of companies and to enhance free establishment of businesses, never came into effect. The Netherlands did not ratify it. Some wordings such as 'genuine link with the economy' and 'essential provisions' were not clear enough and a thorough agreement was not easy due to the disruption of interpretation among the member states.

#### **Conflict of Company Laws in Modernising EU Company Law**

The conflict of company law issues were discussed at the table of the High Level Group of Company Law Experts. This Group was established in September 2004 as an *ad hoc* advisory body to the European Commission. One of the Group's missions was to clarify the points necessary to modernise EU company law.<sup>33</sup> The other mission was related to a proposal to a takeovers directive, to which this section will come back later.

In the final report submitted by the Group in November 2002 specifically referred to the topic of corporate restructuring and mobility in its Chapter VI. The recommendations by the Group, however, did not give clear answers only to say that an application of the strict real seat theory that required reincorporation in a recipient country could not reconcile with the free movement of establishment. When companies move in the member state which adopts the real seat theory, the member state cannot without any reasonable cause require dissolution of the companies and reincorporate new companies under its laws; however, the report allowed the member state to apply its laws as long as they were applied in accordance with legitimacy, proportionality, minimum intervention, transparency and non-discrimination. In conclusion drawn from the report, the application of the real seat theory to corporate internal affairs, for example, capital maintenance, governance, board structures or employee involvement, should be carefully considered. When the third country has some influence from movement of companies within the EU, the incorporation theory should be respected. The factors enumerated in the report to determine the applicability of the real seat theory are those given by the case law. Now we will deal with some cases in the next part.

#### **Case law on the Free Movement of Establishment**

The first paragraph of Article 43 prohibits any restrictions on the freedom of establishment of nationals of a member state and secures formation of any agents, branches and subsidiaries by any EU nationals. Some recent development of ECJ case law points to the scope of freedom. This part of the section looks at two recent significant cases: *Überseering BV v NCC Nordic Construction Baumanagement GmbH*<sup>34</sup> and *Kamer van Koophandel en Fabrieken voor Amsterdam v Inspire Art Ltd.*<sup>36</sup> The former was the case of secondary establishment and the latter was that of primary establishment.<sup>35</sup>

In *Überseering*, whether a company established in the Netherlands, shares of which had been all transferred to Germans, could be treated as a legal person and could be a party to legal proceedings in Germany where the real seat theory was dominant, was the main argument. The ECJ, by a referral ruling from Germany, held that *Überseering* which was duly incorporated under Dutch legislation could enjoy its legal personality in Germany under Articles 43 and 48 of the EC Treaty. Thus, the inferior court decisions to deny its legal personality and its admissibility to the proceedings in Germany were not supported by the ECJ.

In *Inspire Art*, a company was incorporated in England but its actual business started up in the Netherlands. Under Netherlands law, *Inspire Art*, as a pseudo foreign company, was subject to disclosure requirements to protect Dutch stakeholders of the company. Whether such Dutch measure could constitute restrictions on free movement was the main argument. The ECJ again took the view following the precedents that Netherlands law to regulate



pseudo foreign companies could be restrictions on freedom of establishment under the EC Treaty while it recognised Inspire Art's main purpose was to avoid being regulated by Dutch laws.

The Court applied the four factor test, by which the measure could be legitimised to counterbalance the interest of free movement: non-discrimination, legitimacy under imperative requirements, suitability of the measure to its object and necessity of the measure to fulfil its object. In conclusion, the Dutch measure in question did not meet the necessity sphere of the test and could not be legitimised.<sup>37</sup>

The above two judgments ensure that a company or a legal person duly incorporated in the other member state can choose its place of registration freely regardless of where it locates its actual place of business. This applies equally to primary establishment and secondary establishment. However, the judgments did not suggest its governing law when a company's registered office does not locate in the member state of its central business.<sup>38</sup>

#### **The European Company and the European Cooperative Society**

Pan-European business entities have been pursued since the beginning of the EU's integration.<sup>39</sup> The European Company (SE) and the European Cooperative Society (SCE) are now alternatives to them.<sup>40</sup> The former can be formed only as a public limited liability company through cross-border mergers between public companies, setting up a holding or a subsidiary company by more than two companies from different member states, conversion of the existing public company and setting up a subsidiary of the existing European company. The latter can be formed through cross-border mergers and conversion of the existing national cooperative society.

As a method to establish the entities, the two regulations expressly provide cross-border mergers of the companies having different governing laws. Some matters, for instance, decision-making, publication, protection of shareholders, creditors, debenture holders or other security holders and validity of mergers are clearly stated in the regulations to be ruled by party companies' governing laws.

The other characteristic of the regulations is that SEs or SCEs can freely move its registered office<sup>41</sup>; however, the regulations require coincidence of the place of company's head office with its registered office. Winding up of the company which has violated this is also provided as an ultimate sanction.<sup>42</sup> This could undermine EU's free movement policy stated in the EC Treaty and the case law, especially their recent acceleration mentioned above.<sup>43</sup>

#### **Cross-border takeover bids (TOB) and mergers**

Up to the mid-2000s, two directives concerning cross-border corporate restructuring<sup>44</sup> were adopted with a long gestation period.

The aim of the TOB directive is to approximate member states' rules regulating TOBs and secure shareholders' equality and protection of any other stakeholders within the EU. When shares of a target company are acquired and thus controlled by a foreign acquirer, particularly when a target company was incorporated in a member state adhering to the real seat theory, its governing law could change to the foreign law governing the acquirer. Under this consideration, stakeholders of target companies should be protected in the specific context of cross-border TOBs. The TOB directive provides an applicable law as thus: An applicable law to cross-border TOBs within the EU is in principle a law of a member state where a target company was incorporated.<sup>45</sup> However, where a law of incorporation of a target company and a law which rules securities' trading of a target company are different, a law regulating securities' trading prevails. Company law matters, for instance, disclosure of information to employees, percentage of controlling voting rights, exemptions of obligations at the commencement of TOBs and any conditions on defensive measures taken by a board of a target company are governed by a law of incorporation of a target company. Those having securities' trading nature of procedures for TOBs are regulated by a law of a member where a securities' market is situated.

The cross-border mergers directive can be seen as a supplement to a European Company Statute. This has given a new possibility for a private company seeking cross-border mergers to set up its business at pan-European level. Cross-border mergers can be preceded between companies, types of which are permitted to internationally merge with under their governing laws.<sup>46</sup> Decision-making, protection of stakeholders such as shareholders, creditors and employees, publication, etc. are regulated by party companies' governing laws respectively. When the cross-border directive was adopted, there had already been the European Company/Cooperative Statutes. It seems that this directive has been drafted particularly as to the allocation of applicable laws to party companies without too much difficulty by the legislative institutions consistent with the existing European Company/Cooperative Statutes.

## Conclusion: Some Lessons from the EU

In conclusion, this paper points out the following two points as lessons from the EU's progressive cross-border regime discussed above.

Firstly, the determinant for an applicable law is in principle the incorporation theory. While the EU has been generous to those holding the real seat theory, the strict interpretation and application of that theory has no longer been supported as regards the recent acceleration of free movement policy. Winding up and reincorporation in a recipient member state should not be accepted. If we should move towards global market or, at best, global capitalism, this could suggest to us the possible harmonisation of the two theories. The principle should be the incorporation theory but there should be some rules ensuring a level playing field for all companies regardless of their nationalities.

Secondly, in case of cross-border mergers (including the case where a European Company/Cooperative is formed by a method of cross-border mergers), it can be noticed that the EU regime has expressly permitted cross-border mergers on the condition that national laws permit cross-border mergers between the types of the companies. The EU regime could provide examples for a division of the matters which should be regulated uniformly at EU level and those which should be regulated by allocating the applicable laws between the concerned parties. It should be noted that the EU regime sets out that protection of stakeholders are to be governed by party companies' governing laws. This considers and ensures that their rights will not be undermined at the event of cross-border mergers causing dramatic changes of the rules to which they must be subject. The lessons for the other jurisdictions are: The possibility of cross-border mergers should not be limitedly interpreted; and the protection of stakeholders' interests should be governed by party companies' governing laws.

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## End Notes

It was passed on 28<sup>th</sup> June 2005 and came into being as of 1<sup>st</sup> of May 2006 except the part concerning payment (extending to cash, any other shares than merging companies, etc) to shareholders of merged companies, which will be brought into force from 1<sup>st</sup> of May 2007.

<sup>2</sup> As noted below in the text, this point regarding the coverage of its application is controversial. At least the point that recognition of legal personality and internal affairs of foreign companies can be regulated by a chosen law seems to have been commonly shared.

<sup>3</sup> Sano, H., 'Kokusaikigyokatsudo to ho', in *Kokusaitorihiki* (Tokyo: Yuhikaku, 2001), p. 170. No particular requirements for connecting factors can be seen as rather unusual in the choice of laws theory.

<sup>4</sup> Kitagawa, A., *Gaikokugaisha*, (1965) 17 *Kigyokaikai* 110; Kono, T., 'Kaisha no junkyoho no ketteikijun-Honkyochihoshugi, Setsuritsujunkyo-hoshugi-', (2000) 1175 *Jurist* 2; Sakurada, Y., *Kokusaishiho* (Tokyo: Yuhikaku, 2005), p.170.

<sup>5</sup> Kono, *ibid.*, pp.2-3; Rammeloo, S., *Corporations in Private International Law: A European Perspective* (Oxford: Oxford University Press, 2001), pp. 17-18.

<sup>6</sup> Rammeloo, *ibid.*

<sup>7</sup> Sakurada, *supra* note 4, p. 170.

<sup>8</sup> Rammeloo, *supra* note 5, pp. 13,15; *Ibid.*

<sup>9</sup> See Grossfeld, B., *Praxis des Internationalen Privat- und Wirtschaftsrechts: Rechtsprobleme Multinationaler Unternehmen* (Reinbek bei Hamburg: Rowohlt, 1975) 46; Ebke, W. F., 'The "Real Seat" Doctrine in the Conflict of Corporate Laws,' (2002) 36 *The International Lawyer* 1027.

<sup>10</sup> Section 482, the Japanese Commercial Code.

<sup>11</sup> As for the incorporation theory in the context of the choice of laws, the Japanese Companies Act 2005 also takes the same theory as its standard. However, a provision concerning 'pseudo-foreign companies' was revised, under

which they are no longer deprived of their corporate veils to be registered as foreign companies. But they cannot set up any businesses in Japan and persons who make any deals for the company are severally and jointly liable with the company (Section 821).

<sup>12</sup> Dogauchi, M., *Point Kokusaishiho Kakuron* (Tokyo: Yuhikaku, 2000), pp.181-197; Dogauchi, M., 'Hojin', (2000) 233 *Hogakukyoshitsu* 115ff. This view coincides with the view which was taken by the legislators when a Japanese new modern legal system was introduced during the early Meiji era (the late 19<sup>th</sup> century). They thought that legal personality is effective only within a home country. Therefore, if a company moves in a foreign country, it is not automatically recognisable but instead recognition of its legal personality under a recipient country's authority is required.

<sup>13</sup> Sano, supra note 3, p.174; Nomura, Y., 'Gaikokugaisha no kiritsu—Kyoryuchi kara gurobaru shakai he', (2000) 1175 *Jurist* 23.

<sup>14</sup> Orishige, Y., *Kokusaishiho (Kakuron)* (Tokyo: Yuhikaku, 1972), p.55.

<sup>15</sup> Dogauchi, M., 'Kigyo no kokusaikatsudo to ho—Kaishaho no kokusaitekijian he no tekiyo—', in Iwamura, M. (ed.), *Kigyo to ho* (Tokyo: Iwanamishoten, 1998), p.153; Fujita, T., 'Kaisha no juzokuho no tekiyohani', (2000) 1175 *Jurist* 9. However, this point is controversial.

<sup>16</sup> E.g., Section 8, the Japanese Criminal Code.

<sup>17</sup> Morita, H., 'Kabunusikankeiyaku wo meguru teishokuhojo no mondai (2)', (2003) 67 *Hogaku* 177ff.

<sup>18</sup> See e.g., Tatsuta, M., 'Kokusaika to kigyososhikiho', in Takeuchi, A. and Tatsuta, M. (eds.), *Gendaikigyohokoza 2 Kigyososhiki* (Tokyo: Tokyo University Press, 1985), p.317.

<sup>19</sup> In case of mergers, most jurisdictions know mergers and have provisions concerning them. However, some jurisdictions in the USA do not have the other corporate restructuring methods such as de-mergers and share exchanges in their business corporation acts.

<sup>20</sup> See, e.g., Takakuwa, A., 'Wagakuni no shoho(kaishaho)kitei no kokusaitekitekiyo ni kansuru jakkan no mondai ni tsuite', (2000) 99 *Kokusaihogaikozasshi* 36-37.

<sup>21</sup> See, e.g., Fujita, T., 'Kokusaikaishaho no shomondai (2)', (2000) 1674 *Shojihomu* 21.

<sup>22</sup> Takakuwa, A., 'Kaishaho to shogaikankei', (1999) 1155 *Jurist* 146.

<sup>23</sup> Sakurada, supra note 4, p.177.

<sup>24</sup> Ume, K., 'Gaikokuhojin ni tsuite', (1903) 46 *Hogakushirin* 55; Ishiguro, K., *Kinyutorihiki to kokusaisosho* (Tokyo: Yuhikaku, 1983), p. 260; Sano, supra note 3, p.171.

<sup>25</sup> *Shohoshuseianriyusho* (Tokyo: Hakubunkan, 1898), p.37.

<sup>26</sup> *Ibid.*

<sup>27</sup> Section 257, the Japanese Commercial Code until 1938; Section 481, the Japanese Commercial Code until 2005. However, its wording was amended in 1950.

<sup>28</sup> Section 818 (1), the Japanese Companies Act.

<sup>29</sup> Section 817 (2), the Japanese Companies Act.

<sup>30</sup> On the arguments resulting in this amendment, see, e.g., Maeda, H., Egashira, K., Morimoto, S., Kanda, H., Ninomiya, H., Kadota, H., 'Kongo no kaishahokaisei ni kansuru kihontekinashiten', (2000) 1548 *Shojihomu* 30; 'Global na net torihiki to shoho 478jo', (2000) 1561 *Shojihomu* 38; Harada, K., 'Atarashii kaishahosei no kochiku ni mukete', (2001) 1583 *Shojihomu* 38.

<sup>31</sup> Some commentators took the view that Section 482 of the Japanese Commercial Code is based on the 'real seat theory' (see e.g., Kawamura, H., *Kokusaikaishahoronshu* (Fukuoka: Kyushu University Press, 2002), p. 20). However, in light of the legislators' comments, it might be difficult for this view to be widely accepted.

<sup>32</sup> Section 482, the Japanese Commercial Code.

<sup>33</sup> See Yamada, R., *Kokusaishiho* (new ed.) (Tokyo: Yuhikaku), p. 258 and cited materials therein. See also Tokyo District Court Decision of 10 October 1918; Daishin-in (Supreme Court) Decision of 16 December 1918; Tokyo District Court Judgment of 17 September 1927; Tokyo District Court Judgment of 4 June 1954.

<sup>34</sup> See Mitoma, H., Tamai, Y., Utsumi, K., Ishii, F., 'Soshikisaihenkoi (the second half), seisan, kabushikigaisha igai no kaisharuiki, gaikokugaisha', (2005) 1725 *Shojihomu* 24.

<sup>35</sup> See Edwards, V., *EC Company Law* (Oxford: Oxford University Press, 1999), p.375.

<sup>36</sup> Tests to consider legitimacy of the measure in question which may violate free movement provisions have been largely developed by ECJ case law concerning the free movement of goods.

<sup>37</sup> Under the second paragraph of Article 226 EC, the European Commission may refer the matter to the Court to require a member state to implement its obligations under the Treaty. See for example, Case C-232/99, *Commission v Spain*, Judgment of 16 May 2002; Case C-483/99, *Commission v France*, Judgment of 4 June 2002; Case C-367/98, *Commission v Portugal*, Judgment of 4 June 2002; Case C-463/00, *Commission v Spain*, Judgment of 13 May 2003; Case C-98/01, *Commission v Royaume-Uni*, Judgment of 13 May 2003; Case C-174/04, *Commission v Italy*, Judgment of 2 June 2005; Case C-255/04, *Commission v France*, Judgment of 15 June 2006; Case C-282/04, *Commission v the Netherlands*, Judgment of 28 September 2006; Case C-283/04, *Commission v the Netherlands*, Judgment of 28 September 2006.

<sup>38</sup> Lombardo, S., 'Conflict of Law Rules in Company Law after Überseering: An Economic and Comparative Analysis of the Allocation of Policy Competence in the European Union', (2003) 4 *European Business Organization Law Review* (hereinafter EBOR) 334.

<sup>39</sup> See Santa Maria, A., *EC Commercial Law* (The Hague: Kluwer Law, 1996), p. 51.

<sup>40</sup> Article 6 provides that a company is controlled under the law of the place where it is incorporated.

<sup>41</sup> Article 3, the Brussels Convention.

<sup>42</sup> Article 4, the Brussels Convention.

<sup>43</sup> Annex to the Report of the High Level Group of Company Law Experts on Issues Related to Takeover Bids, Brussels, 10 January 2002.

<sup>44</sup> Case C-208/00 *Überseering BV v NCC Nordic Construction Baumanagement GmbH* [2002] ECR I-9919.

<sup>45</sup> Case C-167/01 *Kamer van Koophandel en Fabrieken voor Amsterdam v Inspire Art Ltd* (2003) 49 NJW 3334.

<sup>46</sup> The literature is voluminous particularly in Germany where the change of its real seat theory is inevitable. Cerioni, L., 'The Barriers to the International Mobility of Companies within the European Community: A Re-reading of the Case Law', [1999] *Journal of Business Law* 59; Ulmer, P., 'Schutzinstrumente gegen die Gefahren aus der Geschäftstätigkeit in ländischer Zweigniederlassungen von Kapitalgesellschaften mit fiktiven Auslandsitz', (1999) 54 *Juristen-Zeitung* 662; Behrens, P., 'Das Internationale Gesellschaftsrecht nach dem Centros-Urteil des EuGH', (1999) 19 *Praxis des Internationalen Privat- und Verfahrensrechts* (hereinafter IPRax) 323; Kindler, P., 'Niederlassungsfreiheit für Scheinauslandsgesellschaften? Die 'Centros'-Entscheidung des EuGH und das internationale Privatrecht', (1999) 52 *Neue Juristische Wochenschrift* 1993; Kieninger, E.-M., 'Niederlassungsfreiheit als Rechtswahlfreiheit', (1999) 28 *Zeitschrift für Unternehmens- und Gesellschaftsrecht* 724; Sandrock, O., 'Centros: ein Etappensieg für die Überlagerungstheorie', (1999) 54 *Der Betriebs-Berater* (hereinafter BB) 1337; Zimmer, D., 'Mysterium "Centros," Von der schwierigen Suche nach der Bedeutung eines Urteils des Europäischen Gerichtshofes', (2000) 164 *Zeitschrift für das gesamte Handelsrecht und Wirtschaftsrecht* 23; Wymeersch, E., 'Centros: A Landmark decision in European Company Law', in Baums, T., Hopt, K.J. and Horn, N., (eds.), *Corporations, Capital Markets and Business in the Law* (London: Kluwer Law, 2000), p. 629; Zimmer, D., 'Private International Law of Business Organisations', (2000) 1 *EBOR* 585; Wouters, J., 'Private International Law and Companies' Freedom of Establishment', (2001) 2 *EBOR* 101; Rammeloo, supra note 5; Behrens, P., 'Centros and the Proper Law of Companies', in Ferrarini, G., Hopt, K.J. and Wymeersch, E., (eds.), *Capital Market in the Age of Euro: Cross-Border Transactions, Listed Companies and Regulation* (The Hague: Kluwer Law, 2002), p. 53; Eidenmüller, H., 'Wettbewerb der Gesellschaftsrechte in Europa', (2002) 23 *Zeitschrift für Wirtschaftsrecht und Insolvenzpraxis* 2233; Lieble, S. and Hoffmann, J., "'Überseering" und das (vermeintliche) Ende der Sitztheorie', (2002) 48 *Recht der Internationalen Wirtschaft* 925; Schulz, M. and Sester, P., 'Höchstrichterliche Harmonisierung der Kollisionsregeln im europäischen Gesellschaftsrecht: Durchbruch der Gründungstheorie nach "Überseering"', (2002) 13 *Europäisches Wirtschafts- und Steuerrecht* 545; Andenas, M., 'Free Movement of Companies', (2003) 119 *The Law Quarterly Review* 221; Behrens, P., 'Das Internationale Gesellschaftsrecht nach dem Überseering-Urteil des EuGH und den Schlussanträgen zu Inspire Art', (2003) 23 *IPRax* 193; Roth, G.-H., 'Internationales Gesellschaftsrecht nach Überseering', (2003) 23 *IPRax* 117; Lutter, M., "'Überseering" und die Folgen', (2003) 58 *BB* 7; Schanze, E. and Jüttner, A., 'Anerkennung und Kontrolle ausländischer Gesellschaften-Rechtslage und Perspektiven nach der Überseering-Entscheidung des EuGH', (2003)

48 Die Aktiengesellschaft (hereinafter AG) 30; Lieble, S. and Hoffmann, J., 'Wie inspiriert ist "Inspire Art"?' (2003) 14 Europäische Zeitschrift für Wirtschaftsrecht 677; Bayer, W., 'Die EuGH-Entscheidung "Inspire Art" und die deutsche GmbH in Wettbewerb der europäischen Rechtsordnungen', (2003) 58 BB 2357; Lombardo, supra note 38, p.301; Wymeersch, E., 'The Transfer of the Company's Seat in European Company Law', (2003) 40 Common Market Law Review (hereinafter CMLR) 661; Schanze, E. and Jüttner, A., 'Die Entscheidung für Pluralität: Kollisionsrecht und Gesellschaftsrecht nach der EuGH-Entscheidung "Inspire Art"', (2003) 48 AG 661; Looijestijn-Clearie, A., 'Have the Dikes Collapsed? Inspire Art: A Further Break-through in the Freedom of Establishment of Companies', (2004) 5 EBOR 389; Zimmer, D., 'Case Comment on Inspire Art', (2004) 41 CMLR 1127; De Kluiver, H.-J., 'Inspiring a New European Company Law?—Observations on the ECJ's Decision in Inspire Art from a Dutch Perspective and the Imminent Competition for Corporate Charters between EC Member States', (2004) 1 European Company and Financial Law Review 121; Hirte, H., 'Freedom of Establishment, International Company Law and the Comparison of European Company Law Systems after the ECJ's Decision in Inspire Art Ltd', (2004) 15 EBLR 1189; Goette, W., 'Wo steht der BGH nach "Centros" und "Inspire Art"?' (2004) 15 Deutsches Steuerrecht 197; Behrens, P., 'Gemeinschaftsrechtliche Grenzen der Anwendung ausländischen Gesellschaftsrechts auf Auslandsgesellschaften nach Inspire Art', (2004) IPRax 20; Jüttner, A., *Gesellschaftsrecht und Niederlassungsfreiheit* (Frankfurt: Verlag Recht und Wirtschaft, 2005) 36ff; Gernoth, J.P., *Pseudo Foreign Companies—Who Art Thou?: Englische Briefkastengesellschaften in Deutschland und ihre Behandlung nach englischem und deutschem Recht* (Baden-Baden: Nomos, 2005), pp.73ff.

<sup>47</sup> See Case C-167-01, paras.135-141.

<sup>48</sup> In this connection, under a proposal for the Fourteenth Company Law Directive, the Commission drafted that in this case a law of a recipient member state prevails while recognising its legal personality in that member state.

<sup>49</sup> In 1985 the European economic interest grouping (EEIG) was newly introduced based on a French business model. However, EEIG was not effective in terms of members' unlimited joint and several liability, strict governance structures, a transparency requirement for its taxation, etc. Council Regulation No.2137/85 on the European economic interest grouping (EEIG).

<sup>50</sup> Council Regulation (EC) No.2157/2001 of 8 October 2001 on the Statute for a European Company (SE); Council Directive 2001/86/EC of 8 October supplementing the Statute for a European Company with regard to the involvement of employees; Council Regulation No.1435/2003 of 22 July 2003 on the European cooperative society.

<sup>51</sup> Article 8, SE Regulation; Article 7, SCE Regulation.

<sup>52</sup> Articles 7 and 64, SE Regulation; Articles 6 and 73 (3), SCE Regulation.

<sup>53</sup> See the Report of the High Level Group of Company Law Experts on a Modern Regulatory Framework for Company Law in Europe, Brussels, 4 November 2002, pp.102-106.

<sup>54</sup> Directive 2004/25/EC of the European Parliament and of the Council of 21 April 2004 on takeover bids; Directive 2005/56/EC of the European Parliament and of the Council of 26 October 2005 on cross-border mergers of limited liability companies.

<sup>55</sup> Article 4, TOB Directive.

<sup>56</sup> Article 1, Cross-border mergers Directive

## Issues in Using Fair Value Accounting in the US

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### Abstract

The Financial Accounting Standards Board (FASB) announced in 2002 their intent to work with the International Accounting Standards Board (IASB) to make the “existing financial reporting standards fully compatible as soon as is practicable” in a memorandum of understanding jointly issued by the two bodies (now known as the Norwalk agreement<sup>1</sup>). The plan of action called for reducing individual differences between U.S. generally accepted accounting principles (GAAPs) and the International Financial Reporting Standards (IFRS). The convergence project of the FASB and IASB may result in a choice for U.S. companies to use a fair value accounting for their fixed assets, instead of the cost model currently being used. Prior to electing to choose the revaluation model, U.S. companies should consider a number of implementation issues carefully before deciding to switch to it. This paper identifies some of these implementation issues and the possible choices and their consequences to U.S. companies.

### Introduction

The Financial Accounting Standards Board (FASB), the primary standard-setting body for financial reporting by companies in U.S. announced in 2002 their intent to work with the International Accounting Standards Board (IASB) to make the “existing financial reporting standards fully compatible as soon as is practicable” in a memorandum of understanding jointly issued by the two bodies (now known as the Norwalk agreement<sup>1</sup>). The plan of action called for a short-term project aimed at reducing a number of individual differences between U.S. generally accepted accounting principles (GAAPs) and the International Financial Reporting Standards (IFRS), including the International Accounting Standards (IAS). The second stage of the plan called for both boards to work to remove whatever differences remained on January 1, 2005 through coordination of their future work. As part of the short-term project, the FASB issued in December 2004 Statement of Financial Accounting Standards (SFAS) No. 153, “Exchange of Nonmonetary Assets--an amendment of APB Opinion No. 29” that changed the method of accounting of exchanges of fixed assets in U.S. in line with what is used in the international standard (IAS 16). Major differences still exist between the FASB and the IASB regarding the accounting for costs of fixed assets after acquisition. Convergence towards the international standard by the FASB will impact all companies in U.S. dramatically as IAS 16, the applicable international accounting standard permits the revaluation of fixed assets on periodic basis to fair values, something that is not permissible in the U.S. accounting standard.

### Accounting for Fixed Assets under U.S GAAP

Currently under U.S. GAAP the accounting for fixed assets uses historical costs. The actual costs incurred in acquiring fixed assets, including all necessary costs to make the assets ready for their intended use are recorded as the costs of the asset. These costs, except for the costs of land, are depreciated over the estimated useful life of the assets using an acceptable method of depreciation; most companies choosing the simpler straight-line method for financial reporting purposes and the accelerated method for tax purposes. Under U.S. GAAP, the values reported for fixed assets in the annual financial statements are the book values of the assets; the historical costs of acquisition less the accumulated depreciation, except for land which is reported at the acquisition cost. Any alternative values for these fixed assets, such as replacement costs or fair or appraised values are considered subjective and hence not permissible alternatives to book values as book values were considered the most conservative values to report. The

only exception to this rule is if the fair value of the asset declines below book value permanently due to some impairment, then the impaired value is substituted for the book value; once again from the perspective of being conservative. Moreover, in the past, depending on the type of exchanges that occurred for fixed assets, the new fixed assets were either recorded at their fair values or at the book values of the assets being exchanged; again for conservatism purposes. As to exchanges of nonmonetary assets under SFAS 153, the method that is now required uses fair values for exchanges, for the most part, similar to the requirements under the international accounting standard.

## **Accounting for Fixed Assets under IAS 16**

Accounting for fixed assets under IAS 16 is similar to U.S. GAAP at the time of acquisition. However, in reporting the values of the fixed assets in financial statements, IAS 16 allows companies to select which classes of their assets would be reported at book values (historical costs of acquisition less accumulated depreciation), called the cost model; or at fair values, called the revaluation model. Under IAS 16 this election will have to be made for all assets in a particular class. Subsequent depreciation amounts for assets in the revaluation model will be based on the fair values. In the revaluation model, revaluation surpluses or deficits would be created which would be shown as a separate item in equity.

## **Issues to Consider for Fair Value Accounting**

Some of the issues that companies in U.S will have to consider if fair value accounting becomes an alternative include:

1. Which fixed assets should be revalued?
2. How should these fixed assets be revalued?
3. How often will these fixed assets be revalued?
4. How will the valuation surpluses or deficits be accounted for?
5. How will the valuation surpluses or deficits be reversed when assets are disposed of?

Which Fixed Assets Should be Revalued?

The first issue companies will have to consider will be the decision of which fixed assets to revalue. If the revaluation of fixed assets is not mandatory and elective, as it is under IAS 16 currently, companies will have a choice of the cost or revaluation model. While it could be argued that the book values reflected in historical cost based financial statements does not have the same information content as the current values that would be reflected in adopting the revaluation model, it is uncertain if this information would be valued at a premium by users of financial statements, especially financial analysts, to warrant the additional costs that would be necessary to revalue assets to fair values. Thus, companies would have to somehow gauge the value that users would place on current value information prior to adopting the revaluation model.

How will Fixed Assets be Revalued?

One of the important decisions to be made under fair value accounting would be the choice of values for revaluation of fixed assets. For those assets that have a ready market, such as delivery equipment including vans and trucks or office equipment including computers and copiers, a ready reference to resale values may be available in the so-called "blue books." However even with the availability of this information, decisions would have to be made about the condition of the assets and whether or not they are comparable to the assets listed in the "blue book" and whether the values for the particular assets of the company would need to be changed from the "blue book" values to reflect the actual condition of the assets. For assets that do not have a ready resale market, such as specially constructed manufacturing assets, decisions would have to be made by hiring appraisers to provide assistance in revaluing assets. If the assets are too specialized such that even appraisers are not able to render an opinion on their resale value, decisions would have to be made on whether replacement costs or a judgmental value would be considered an acceptable alternative, or for these assets only historical costs would be acceptable.

How often will Fixed Assets be Revalued?

Another decision that would have to be made would concern the regularity with which the selected fixed assets would be revalued. IAS 16 does not recommend a specific time period over which the fixed assets would be revalued, giving only the caveat that the carrying value of the fixed asset should not be materially different from the fair value at the reporting date. For assets that experience significant and volatile movements, it would be necessary to have annual revaluations; while for others the recommended frequency is every three or five years. This would thus necessitate tracking changes in the fair values of the assets to ensure that if the fair value changes dramatically, the assets are revalued for financial reporting purposes.

How will the Valuation Surpluses or Deficits be accounted for?

If the revaluation model is chosen, this would require changing the carrying values of the fixed assets to their fair values, resulting in valuation surpluses (or deficits if the fair value has declined below the carrying value). While IAS 16 permits these surpluses or deficits to be carried in equity, with the advent of the Comprehensive Income concept in U.S., these will be components of Comprehensive Income much like other unrealized holding gains or losses for other items like Investments and Foreign Currency transactions. This will impact the disclosures that will be made for the fixed assets in that the changes in the amounts of the surpluses or deficits would have to be explained in the footnotes. Companies would have to consider if this will impact their competitive position as users of financial statements may get some proprietary information that was previously unavailable and may also lead to queries from stockholders at annual general meetings, especially when some of the operating assets may have fair values that have increased or decreased materially. Another consideration in accounting for the revaluation surpluses or deficits would be the impact of impaired values of fixed assets. Under IAS 16 and U.S. GAAP currently, permanent impairments are charged to current period income. With fair value accounting, consideration should be given in accounting for changes in fair values since any increase in previously impaired fixed assets that were charged to income would be accounted for in income and not in comprehensive income. Thus, it would be important to document permanent impairments that are charged to income to avoid having the subsequent increases in fair values being accounted for in comprehensive income instead of net income.

How will the Valuation Surpluses or Deficits be reversed when Assets are disposed of?

Lastly companies will have to consider the impact of the reversals of the revaluation surpluses or deficits when assets are disposed. Under IAS 16, the difference in the net proceeds from the disposal of the asset and its carrying value is recognized as a gain or loss and the revaluation surplus, net of tax, or deficit is transferred to retained earnings. However, with the Comprehensive Income concept, the transfer of the revaluation surplus would have to be through the comprehensive income and not directly to retained earnings. Thus, this would require a reconciliation of the previously recognized unrealized holding gains/losses with the current recognition of the realized gain/loss on disposal of the asset. This would also require maintaining a detailed record of all the revaluation surpluses or deficits for that class of assets in order to ensure that the comprehensive income is not overstated or understated at the time of disposal of the asset.

## Conclusions

While it appears that the convergence project of the FASB and IASB will permit U.S. companies to use fair values in accounting for fixed assets, the costs of using the revaluation model and the subjectivity involved in implementing the model may be more than the benefit companies may derive by the use of fair values. It would be necessary for U.S. companies to gauge the reaction of their financial statement users, particularly the analysts, to see if the revaluation model would be more beneficial to them than the cost model.

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# Costs Management Practices in Inter-Organizational Exchange

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## Abstract

Collaborative efforts by buyers and seller to reduce costs are often referred to as interorganizational cost management (IOCM). While such practices find their origin in the Japanese automotive industry in the 1980s, they are quickly spreading around the globe, and increasing attention among researchers is directed towards this phenomenon. Extant research primarily argues that IOCM practices depend on characteristics of purchased components, relationship characteristics, and characteristics of the transaction. Based on a study of three Swedish buyer-supplier relationships, this paper finds that IOCM practices also vary between six phases in the exchange process. The most intense collaboration can be found in the earlier phases, especially during product development, when buyers and sellers frequently jointly use data from sellers' managerial accounting to reduce costs. In later phases, during full-speed production, cooperation is typically less intense, even if cost-reducing efforts may still be important in long-term projects.

## Introduction

In many firms, between 60 and 70 percent of manufacturing costs are made up by purchased goods and services (van Weele and van der Vossen, 1998; Ask and Ax, 1997). Therefore, a lot of buying firms around the world are looking more closely at the products and manufacturing processes of their suppliers in their efforts to reduce costs (Ansari et al., 1997; Dyer, 1996; Seal et al., 1999). Attempts to coordinate activities of buyers and suppliers to reduce costs are often referred to as *interorganizational cost management* (Cooper and Slagmulder, 1999). While highly innovative when it emerged in the 1980s, interorganizational cost management (IOCM) is now spreading around the world, changing how buyers and suppliers collaborate. In this process, both buyers and suppliers play important roles (Ellram, 2000; Cooper and Slagmulder, 1999). While studies on interorganizational cost management (IOCM) frequently recognize the significance of the supplier, research nonetheless tends to focus almost entirely on the buying firm's point of view (Ellram, 2000; Seal et al., 1999). In particular, the use of the supplier's management accounting – traditionally seen as a purely internal function (Horngren, 1995) – is largely unexplored in the context of IOCM (Puxty, 1993; Kulmala et al., 2002; Nilsson, 2004).

So far, research has primarily been concerned with the IOCM activities of Japanese firms, and to a lesser extent of US and Western European firms. These studies have mainly attempted to explain IOCM practices as a function of relationship characteristics (Cooper and Slagmulder, 2004; Kajüter and Kulmala, 2005), component characteristics (Cooper and Yoshikawa, 1994a; Cooper and Slagmulder, 1999) and characteristics of the transaction (Ansari et al., 1997; Ellram, 1996). For example, it has been found that high levels of trust are associated with intense IOCM (Cooper and Slagmulder, 2004; Seal et al., 1999). The same has been found in the case of high degrees of joint R&D as well as high component cost (Cooper and Slagmulder, 1999). Further, studies indicate that repeat purchases are more commonly associated with interorganizational cost management than single purchases (Ellram, 1996). Within relationships, in regard to individual components and in relation to specific transactions, however, a great number of *different activities* are carried out as firms go through a process of exchange (cf. Fisher, 1995). For example, suppliers' capabilities have to be matched to buyers' needs and there may be joint development work (Hameri and Paatela, 2005). Deliveries might also span long periods of time, during which products and manufacturing process may have to be refined. Throughout this, cost data of suppliers may play different roles and suppliers' management accounting may be used in different ways. In effect, the activities carried out during different phases of the exchange process may determine IOCM practices. This is sparsely addressed in the IOCM literature.

In summary there are two important gaps in the literature on IOCM. Firstly, it focuses on the role of the buyer, largely ignoring the supplier in general, and the suppliers' management accounting in particular. Secondly, extant studies have largely ignored how IOCM practices vary in different phases in the exchange process. The purpose of this paper is to address these gaps. More specifically, it aims to *identify how and when suppliers and buyers jointly utilise suppliers' management accounting for IOCM purposes in the exchange process.*

The remainder of this paper breaks down into five sections. Firstly, the literature on IOCM and the exchange process is discussed. Then, the method of an empirical inquiry into the phenomenon is presented. Subsequently, the results of that study are presented and analysed. A discussion follows and, in the final section of the paper, some conclusions are presented. Limitations and implications of the study are also addressed.

## **The Use of Suppliers' Management Accounting for IOCM**

This section discusses phases in the exchange process and addresses IOCM techniques.

### **The Exchange Process**

Various models have been proposed to describe the process of exchanging a product or service. These often take the view of the buying firm, considering the exchange to be a purchasing process (see Laois and Moschuris, 2001). When looking at exchange as a process where both buyers and sellers play important roles, though, a number of phases can be identified (e.g., Christopher, 1998; Lamming, 1993). For the purpose of this paper, we identify six phases where costs are likely to be calculated using suppliers' cost data. These phases represent a synthesis of the literature (e.g., Fisher, 1995; Nilsson, 2004) since no models of the exchange process specifically consider the suppliers' role in interorganizational cost management. (It should be noted that we ignore phases prior to and after exchange).

1. *Supplier evaluation and selection.* One difficulty in this phase lies in making offers equivalent, since different offers may be based on different solutions. Then, suppliers' cost data might be crucial (Seal et al., 1999; Rajagopal and Bernard, 1993). Supplier selection is not necessarily a question of choosing the lowest bidder, though. Rather, given cost restraints it often focuses around choosing the supplier whose business processes and solutions offer the best chances of integration with the processes and solutions of the buyer (Axelsson and Wynstra, 2002). Ellram (2000) that even points out that in case of strong time constraints or when the seller's product is unique, the selection process puts the buyer in a position of dependence on the supplier.
2. *Concept discussion.* Since supplier selection often is not a question of just choosing a complete offer from a lowest bidder, it may be necessary to more closely establish a joint basis for calculating costs (Seal et al., 1999; Nilsson, 2004). This can take place before and during the supplier selection phase. This is especially important when complex products are involved that require that buyers and sellers cooperate in R&D, i.e. when suppliers are selected based on general proposals or early prototypes (e.g., Fisher, 1995). During this phase, general or main features of the product are in focus and many details require further joint development work.
3. *Joint product design.* Even if the supplier has proposed a general solution to the buyer's problem, issues may remain before the final component is developed. The product design phase is in many cases critical for cost reduction, since a large portion of costs is determined at this time (e.g., Ansari et al., 1997). Ellram (2000) points out that activities related to design changes can, especially when a high degree of interaction is required, be among the most time and resource consuming of the entire exchange process. While joint product design has been studied (Lynch and O'Toole, 2006), few authors have looked at cost management (Fisher, 1995, is an exception).
4. *Joint process development.* Along with product design alternatives, manufacturability and related costs are addressed here. Different design decisions normally involve a number of trade-offs, concerning e.g. quality, on-time delivery, investment requirements, and cost associated with these (Ansari et al., 1997; Christopher, 1998). In this phase decisions are taken concerning machinery, tools, sub-contracting and forms of interaction between supplier and buyer. Also joint process development has been studied to some extent (Fisher, 1995).
5. *Price revisions.* Interaction between the buyer and seller during full-speed production is highly relevant (Axelsson and Wynstra, 2002; Nilsson, 1998). From the point of view of a project this phase might span years, during which the buyer and supplier may require price adjustments. The purpose is to offset costs or changes in

the market, both over longer periods of time and changes occurring between signing of initial agreement and commencement of full-speed production. Revisions can also be based on expected continuous improvements (Ansari et al., 1997).

6. *Product and process redesign.* Since deliveries might go on for years, changes may also have to be made regarding product features such as materials and design elements. Manufacturing processes may also have to be changed, either as a consequence of changes in design or as a consequence of the introduction of new manufacturing technology (e.g., Christopher, 1998). All these changes, thus, take place after full-speed production has started, during the delivery stage. To estimate the feasibility and effects of such changes, logically supplier cost data would seem to play an important role.

Naturally, in real life the exchange process is less linear than implied by the six phases. In fact, several phases may be expected to occur simultaneously and, certain phases likely do not occur at all in some exchange processes. We are less concerned with the sequence of events, though, than with the types of activities or decisions involved.

#### **IOCM Techniques**

Interorganizational cost management finds its origins in the Japanese automotive industry in the 1980s (Carr and Ng, 1995). While highly novel when it first emerged, it has since spread to the West and is now becoming common practice in many industries. It can be defined as “[...] a structured approach to coordinate the activities of firms in a supplier network so that total costs in the network are reduced” (Cooper and Slagmulder, 1999:145). IOCM is often described as a number of methods or techniques. Some of these are not used only for IOCM purposes, although they are still frequently mentioned as tools for cost management in an interorganizational context. IOCM techniques can be broken into three blocs: (1) target costing, (2) trade-off techniques and continuous improvement, and (3) techniques related to suppliers’ costs.

(1) *Target Costing.* Target costing (TC) aims to identify the cost at which a product should be manufactured by determining the expected selling price, *derived from the market* (as opposed to the costs), *before* the product is developed, and then subtracting the expected profit (Kato et al., 1995; Ellram, 2000; Sakurai, 1989). Therefore, the TC process covers the entire life cycle of a product, although the focus in the literature is on pre-production stages (Kato, 1993; Koga, 1999). Main challenges are to plan a product which satisfies customers, establish the target cost, and then realise the target costs by applying various techniques and philosophies (Monden and Sakurai, 1989). Kato (1993) points out that when designing the product to meet the cost target, detailed cost information is required. The bulk of the TC literature is based on Japanese companies. In this context not exceeding allowable costs is stressed (Sakurai, 1996).

When the target cost is broken down at component level, the supplier is usually involved (Ibusuki and Kaminski, 2007). This makes target costing one of the most important parts of IOCM; one of its most prominent characteristics is that it tends to push cost pressure further upstream in the supply chain (Tanaka et al., 1993). The importance of the supply chain is therefore often stressed in the TC literature. For example, Ansari et al. (1997:86) argue that “*An optimized supply chain is one of the most critical elements in attaining the target cost.*” Sakurai, (1996:52) even goes as far as claiming “*the primary objects of target costing are direct material costs and direct conversion costs*”. It is therefore surprising that most stage models of TC do not deal with the supplier or the purchasing function (Ellram, 2000).

In the “purest form” of TC, the price of the product is decided by the market rather than by cost. This means that the target cost at component level should be based on a broken down market price rather than the costs of the supplier (Cooper and Slagmulder, 1999). Consequently, the conventional view of TC is that it is an arms-length cost management technique (Cooper and Slagmulder, 2001). Nevertheless, Ellram (2000) underlines that the target cost should be achievable, indicating that the buyer’s design team considers suppliers’ costs. Cooper and Slagmulder (1999) identify four methods for obtaining information regarding suppliers’ costs, including review of suppliers’ early price estimates, obtaining cost information directly from the supplier, obtaining indirect cost information, and analysis of historical trends. However, they do not specify why, how or when supplier costs or cost data are used. When trying to reach the target costs at component level, the buyer can approach its suppliers in various ways and the degree of cooperation varies. Ellram (2000, 2006) points out that if the purchased component has significant economic impact, more efforts will be spent on supplier selection and changes in design and materials. Less important components lead to more distant approaches, e.g. competitive bidding. Activities related to product

development are often critical (Ellram, 2006) and during this process cooperation between buyers and sellers can become very close. It may include techniques such as quality-function-price trade-offs, interorganizational cost investigations and concurrent engineering to reach a target cost.

(2) *Trade-off Techniques and Continuous Improvements*. Due to lock-in effects of costs during the pre-production phases of a product's life cycle (e.g., Raffish, 1991), most efforts at reaching the target cost appear to be conducted while designing the product or component (Yoshikawa et al., 1989; Ibusuki and Kaminski, 2007). Techniques applied here all deal with trade-offs between product features, one of which is normally cost (Yoshikawa et al., 1989).

Quality-function-price trade-off (QFP) has been studied in a number of cases (Cooper, 1995; Cooper and Slagmulder, 1997, 1999, 2004; Cooper and Yoshikawa, 1994a, 1994b). It represents a model of how a seller attempts to negotiate with a buyer in terms of quality, target price and functionality (Cooper and Yoshikawa, 1994a). Since it deals with three dimensions, it can be used as a negotiation tool, but also to reduce the impact of the target price since three variables can be negotiated (Cooper, 1995). This increases chances of reaching a solution suitable for both parties. Koga (1999), though, claims that in many cases the QFP analysis can be modified by replacing quality with lead-time, since time to market is increasingly important, while often high quality is not a negotiable variable but a prerequisite.

Interorganizational cost investigations and concurrent engineering (also concurrent cost management) are similar to QFP analysis. The difference is the degree of joint R&D and interaction between the two parties' engineers. QFP analysis involves less dramatic changes of the product while interorganizational cost investigations reflect more fundamental changes of the product. Concurrent engineering increases the scope of design changes and involves the most intense cooperation between the parties (Cooper and Slagmulder, 2004).

Value engineering (VE) and value analysis (VA, also referred to as "kaizen" or "continuous improvements") are two further techniques mentioned in the literature as important tools for reaching the target cost. The basic logic of VE is to relate the cost to what the buyer is willing to pay for a product with certain characteristics. VE, therefore, supports efforts to manage the trade-off between the characteristics of the product and cost (Ibusuki and Kaminski, 2007). Monden (1992) points out that in this process both the purchasing department and the supplier can play important roles. The difference between VE and VA is at what stage of the product's life cycle efforts are undertaken (Ansari et al., 1997; Monden, 1992; Monden and Hamada, 1991). While there is no consensus in the literature, most authors argue that VE is carried out before the product is developed while VA takes place during production (e.g., CIMA, 1996).

Finally, minimum cost investigations (MCI) covers the phenomenon of multilevel supplier meetings when parties from different firms in the supply chain jointly investigate how the product can be designed for efficient manufacturing (Cooper, 1995; Cooper and Slagmulder, 1997, 1999, 2004; Cooper and Yoshikawa, 1994a, 1994b). In Japan, MCI is initiated by the company at the top of the supply chain when one firm is unable to meet the target cost. Cost data are then shared when negotiating about profit margins throughout the supply chain.

(3) *Techniques related to suppliers' costs*. These techniques are related to and focus on the supplier's costs for interorganizational purposes. Cost tables were originally developed to support estimation of the cost of direct material to support the purchasing function of the buyer (Tani, 1994). This technique has an interorganizational origin since cost tables have been extended to a decision support system based on different production activities undertaken by the buyer and the supplier. According to Sakurai (1996), cost tables are a valuable tool for companies using TC. They contain data regarding direct material and conversion activities, and can include very specific data on both suppliers' and buyers' manufacturing processes (Ansari et al., 1997). Major cost drivers are identified and documented, and conventional allocation bases are common (Yoshikawa et al., 1990). There are different types of cost tables, though, depending on when and where they are used (Yoshikawa et al., 1990; Tani, 1994). Some are employed at early stages of the development while others are used for purchasing and production cost management. Cost tables can also be employed to show the supplier how much more efficient it is to use the most suitable production equipment (Yoshikawa et al., 1990). It is worth noting that even if cost tables deal with the supplier's costs, calculations are carried out by the buyer.

Disclosed cost data, cost split-up and cost breakdown are alternative terms used for costs specified in certain forms designed by the buyer. The term cost analysis is occasionally also used to show the supplier's costs to

the buyer in a certain form (Bailly, 1987). The cost data provided by the supplier is presented in a certain form specifying the structure of the cost object in different categories (Cooper, 1995; Bailly, 1987; Munday, 1992a, 1992b). The way costs are calculated (e.g., depreciation or profit margin) is specified by the buyer.

Another technique is open books (also cost transparency, open book accounting, or open books policy), the purpose of which is for the buyer to help the supplier reduce costs by identifying critical areas, particularly through improved R&D (Seal et al., 1999). In effect, cost data are shared to achieving benefits for both parties (Ellram, 1996; Seal et al., 1999). Open books is therefore a way for two (or more) organizations to work together (McIvor, 2001; Mouritsen, et al., 2001), rather than a costing technique. This also means that opening the books can be seen as manifestation of two organizations moving closer through increasing transparency (Christopher, 1998). Open books, thus, requires that the supplier provides the buyer with access to accounting data, which could also be harmful to the supplier (Christopher, 1998; Ellram, 2000; Kulmala, 2004; Kajüter and Kulmala, 2005). Therefore, one can expect to find open books primarily in relationships exchanging a product offering possibilities of cost reduction through cooperation around presented cost data (Kajüter and Kulmala, 2005). According to Ellram (1996), open books are applied in long-term and/or highly critical relationships with a high degree of cooperation. Further, Carr and Ng (1995:359), argue that open books represent a continuum, from those who are “totally open book” to those who are “down right awkward” in sharing information. Cooper and Slagmulder (1999) present similar notions, referring to “partial open book” and “full open book” when discussing willingness to provide information to the buyer.

#### **IOCM and Phases in the Exchange Process**

From the review of interorganizational cost management techniques, we can see that IOCM practices tend to depend on the context (Cooper and Slagmulder, 2004). An important factor determining the application of IOCM techniques is degree of R&D (e.g., Ellram, 1996) and other pre-production activities of the particular project. This also reflects the strong focus on R&D in the IOCM literature. Degree of collaboration cannot only be studied at the level of the relationship, though. Different phases in the exchange process may also entail different levels of collaboration. We may, therefore, suspect that different IOCM practices occur in different phases. To study IOCM in the exchange process we will focus on the six phases identified above. In regard to each, the following issues are explored:

- The main purpose of costing, i.e. why suppliers' costs are calculated and presented.
- When costing is undertaken.
- The type of IOCM technique(s) involved.

## **Method of Research**

### **Research Design**

This paper investigates the use of IOCM techniques during phases in the exchange processes between organizations. Due to limited prior knowledge, a relatively open and exploratory approach was deemed appropriate (see, e.g., Ferreira and Merchant, 1992; Otley and Berry, 1994; Kaplan, 1986). To avoid what Hägg et al. (1988:535) refer to as the study of management accounting in “technical isolation”, a case approach was chosen where the relationship in question was considered the case and the main unit of analysis. Multiple cases were selected to this allowed contrasting, substantiation and replication of findings. This serves to distinguish idiosyncrasies from findings of more general prevalence.

The choice of three cases represents a trade-off between desired depth and time constraints. For the sake of comparison and analysis, certain aspects of the cases are held constant, including the fact that they are related to the Swedish automotive industry. Variation between cases was sought mainly regarding the degree of interaction, since Ellram (1996) implies that this is an important determinant of IOCM technique usage. A relatively cheap product requiring little R&D was chosen when searching for a more distant relationship with less interaction. This corresponds to the first relationship (R1). The second relationship (R2) was built on a product which required a larger degree of interaction, while the third relationship (R3) contained a product which required a significant amount of cooperation between the two parties. This approach to case selection may be referred to as theoretical replication (Yin, 1989).

### **Data Collection**

One advantage of case studies is that they allow for a variety of data collection methods (Yin, 1989). Here data were collected through semi-structured interviews, open discussions and direct observations (at meetings, manufacturing plants, discussions, products). Internal reports and other forms of written material provided by the firms and available in the public domain were also consulted. This was useful not only to generate as rich a picture of the cases as possible. It also allowed for comparisons to ensure reliability, and occasionally served to improve respondent recall. To the same end, multiple respondents were interviewed.

Nine interviews were held at supplier one (S1), eleven at supplier two (S2), and eight at supplier three (S3). Five interviews were carried out at buyer one (B1), four at buyer two (B2), and four at buyer three (B3). A total of 41 interviews were, thus, conducted. Respondents included purchasers (both of the buyer and supplier), key account managers, accountants, market managers, managing director, customer project coordinator and staff dealing with logistics and quality programs. All interviews were tape recorded. Data regarding the three cases were collected during a period of one-and-a-half years.

### **Analysis**

The extensive case material was compiled and sorted in such a way that the use of IOCM techniques within each relationship could be clearly identified. Tables were constructed and the empirical data were scoured for evidence of IOCM practices. The analysis process was greatly facilitated by the use of the semi-structured questionnaire and the analytical framework. Secondly, the findings from each case were contrasted in a process of cross-case analysis.

Several measures were taken to safeguard the quality of the analysis process and the findings. Efforts were consistently made to interview more than one respondent about the same issue, to allow for comparisons between respondents' statements. Written material from and about the firms were used to the same end. The semi-structured questionnaire ensured that respondents were interviewed about the same issues across firms. Finally, respondents were confronted with findings to improve internal validity (Yin, 1989). External validity of the study was primarily of concern in regard to its ability to allow for theoretical generalization (Yin, 1989), and no claims are laid on generalizability in a statistical sense. The structured analysis process was the main measure undertaken to safeguard theoretical generalization.

For reasons of confidentiality, no company names, specific products, turnover numbers or numbers of employees are revealed. This was a requirement from the firms for participation.

## **An Introduction to Three Relationships**

### **Relationship One**

S1 was founded in the 1940s and has 80 employees. Throughout its history, the firm has primarily worked in the automotive industry, manufacturing various forms of clamps and other fastening equipment. The manufacturing process is relatively simple with a low degree of automation, treating the component in one or a few steps. S1 sells about 45 percent of its production to B1, a large Swedish vehicle manufacturer. Joint projects usually follow a particular vehicle model, which means that they have natural start and end points.

The firms have been working together since the 1960s, and B1 helps S1 improve products and business processes. This benefits B1 as well as other buyers. B1 is heavily involved with S1's quality assurance, administrative and logistics processes as parts of B1's supplier development program. S1 faces strong competition and strict requirements from its buyers, so the value of B1's involvement is recognised by management. B1 also derives benefits from this collaboration, since poor quality or delays at S1 would cause serious problems.

In the relationship between S1 and B1, costs are presented and used occasionally. The main factor in determining this is price of the order; S1's costs in case of small orders are hardly discussed whereas large orders motivate more discussions. Another reason for discussing S1's costs is if there are reasons to suspect misunderstandings. S1 uses mainly its costing system, with occasional modifications, when preparing an offer. The price is based on the full costs calculated in a traditional way in accordance with the Swedish costing tradition.

### **Relationship Two**

S2 develops and manufactures load carrier systems for cars and supplies only the automotive industry. The firm is one of the market leaders and has a number of subsidiaries world wide. B2, a large Swedish car assembler, in turn, serves many of the largest car manufacturers. Every order corresponds to a project that lasts for about three years of development work, followed by a number of years of production related to a specific car model.

S2 possesses important information about the preferences of end customers, knowledge valued by B2. Representatives of both firms describe the relationship as “open”, “special” or “different from traditional buyer-seller relationships”. This relates largely to the intense cross-functional work carried out across company boundaries, particularly during the pre-production phases. S2 even has a member of staff permanently stationed at B2’s plant. The two firms have been working together to increase information exchange and reduce time to market with a strong focus on cost reductions. This both requires and creates a great deal of trust, and both parties claim that the relationship is characterised by a problem-solving atmosphere. Improved quality, support to find cheaper suppliers, continuous productivity improvements, and prestige are important benefits that S2 gains from working with B2. Any delays in delivery would be very costly for B2, and quality problems could prove disastrous, especially if the product fails to meet stress requirements.

In the relationship between S2 and B2, all phases in the exchange process take place in more or less every project. Choice of supplier is more of a formality than a struggle with competitors, though. This privileged position is due to the fact that B2 regards S2 as being a “favoured supplier”. During a project, two coordinators arrange meetings for pooling of interests. The most intense cooperation takes place during concept discussions, joint product design and joint process development. S2 calculates its costs frequently and in a number of different ways, depending on whether the meeting serves to solve a particular problem or if it is a “milestone meeting”.

#### **Relationship Three**

S3 manufactures a wide range of products for the automotive industry, and is part of a large company group. The firm is divided into a number of business units. The one in focus here delivers individual components and complete assemblies of gearshift systems. B3 is a large Swedish car assembler. In the relationship between S3 and B3 the project is the main building block. Nearly all commercial discussions are related to projects, the life cycles of which follow a car or truck model. Since it is difficult for competitors without previous contacts or a very strong reputation to take over a customer, the relationship has survived many projects. S3 holds a market position where they are perceived to manufacture exclusive and expensive products.

The relationship has a long history and B3 has invested a lot of time to help S3 develop a strong position as preferred supplier. Further, both parties have invested a considerable amount of time getting to know each other, intending to maintain and improve their relationship. Both are well acquainted with the other’s business processes. The relationship is relatively well regulated and formal, with tasks clearly defined by both parties.

In R3, costs play an important role, particularly at the beginning of a new project. The start-up phase is relatively formal, despite the long-term relationship. The product is expensive and complex, and requires considerable R&D. Thus, cooperation during concept discussions, joint product design and joint process development is critical and involves considerable efforts from both parties. S3 works relatively independently, though, and then presents and discusses proposed solutions with B3. Both parties stress that during the pre-production phase, specifications of the components often change dramatically as the project develops. Interestingly, S3 does not allocate indirect costs in its routine costing. As the costs discussed with B3 are normally full costs, indirect costs are allocated outside the costing system. To the extent possible, previous products or modules are also used as a basis on which changes are calculated, i.e., only changes as such are calculated.

## **Interorganizational Cost Management in the Exchange Process**

This section presents data concerning IOCM practices in the three relationships per phase of the exchange process.

### **Supplier Selection**

Not all projects start with formal supplier evaluation, but when it takes place in any of the three relationships, suppliers’ costs are presented and discussed. This is typically an important part of the offer. In R1, though, costs are calculated less frequently, and when this happens costs are typically presented in a relatively simple form. Compared to the other two relationships, costs are presented primarily when large amounts are involved or when



there is reason to believe that some kind of misunderstanding may have occurred. Small and/or repeat orders usually neither warrant presenting costs nor joint cooperation around related issues. In R2 costs are used to a greater extent on those rare occasions when competitors are invited to submit offers. When S2 is the only supplier, costs are largely treated as a formality in supplier selection. It should be noted, though, that long before any formal supplier selection decision, the two parties have been working together with rough outlines of the project and initial blue prints. During this, S2's costs are used. In R3, when a new project is initiated (as opposed to being based on previous components), S3 faces competition. Cost data are used both for evaluating S3's offer as such and to compare it with competing offers. This is most important in R3 due to greater product complexity.

The main IOCM technique observed in this phase is a form of target costing; the buyer deduces a cost, mainly derived from the market. However, the supplier plays an active role in setting target costs, since it is largely derived from suppliers' cost data presented for the project (cost split-ups). Also previous experience gained through open books is important in this. The target cost serves the purpose of setting a goal and to signal expectations. This is particularly important in R3, and to some extent in R2, since in most cases in this phase neither the buyer nor the supplier knows in detail what the finished product will look like. It would therefore be impossible or irrelevant to set a component level target cost.

#### **Concept Discussion**

R1 exchanges a relatively simple product, and therefore the parties do not discuss functions in broader terms and, accordingly, costs are not discussed. In R2 and R3, though, the product as such is open to greater discussion and its functions can be achieved in different ways. Due to time constraints, this phase is closely linked to and often carried out simultaneously with supplier selection. Also, in many cases S2 and S3 are actually the ones with knowledge about end customers' preferences. In both these relationships, costs are, therefore, of greater importance in initial discussions about design and price-function trade-offs. Depending on how the work is carried out in this phase, the frequency of cost calculations varies. In R2 the product is developed jointly. Meetings are frequent, and cost is one of many issues discussed. In R3, the early development work is carried out mainly by S3. After certain tasks are completed, though, issues relating to design and functionality are presented to B3. The buyer reviews the supplier's suggestion(s) – and costs related to these – and provides S3 with feedback. Although discussions deal with the early stages of product development, in both R2 and R3 costs of different design solutions are a main concern. B2 and B3 have a target cost they expect suppliers to reach. Nevertheless, suppliers' cost data play an important role in decisions regarding major functions. In both these relationships, the use of cost data is supported by mutual trust developed in previous transactions.

The main IOCM technique employed is a form of functional analysis. The target cost from the buyer is also used as an overall goal. In both R2 and R3, a "cost platform" is established early on. I.e., costs, often in the form of a cost split-up, are set for a product or a module with certain characteristics. When changes are discussed, the impact of those changes are added to or deducted from the platform. This is particularly frequent in R3, where changes between initial offer and finished product are often substantial, and where modules are used for multiple products when possible. The cost platform also serves other purposes. The first is to summarize costs and clarify what agreements have been made, as well as to establish what has been achieved so far within the project. S3 also stresses that this is a way of controlling costs of a product not yet designed, since future cost changes will only be accepted by the buyer if they are motivated by changes in the product. Consequently, even if the product will change dramatically during future design meetings, the supplier is committed to the platform.

#### **Joint Product Design**

In all three relationships, at least to some degree the design of the product is carried out jointly. Then, costs are a main joint concern. Differences can be noted between the relationships, however. In R1, costs are presented in connection with alternative solutions, suggested either by S1 or B1. Since the function is set from the beginning of the project while the product is relatively uncomplicated, discussions regarding design are limited. Different cost alternatives are, therefore, not discussed greatly. Rather, costs are normally just presented when the buyer, or less frequently the seller, has reason to believe that there are possibilities to reduce costs without compromising other aspects of the product. The IOCM techniques used are mainly those dealing with VE and QFP trade-offs. They are conducted in rather simple forms and only occasionally.

When it comes to R2, the design phase is more intense and the design of the component is more challenging; a number of requirements and demands have to be met. The product is also more costly than in R1. This means that greater benefits, including cost reductions, can be achieved by designing the product efficiently. In R2, this process is largely conducted jointly, and suggestions from both parties are frequently exchanged. For example, B2 keeps highly advanced quality testing equipment placed at S2's plant, since it is more practical to test proposed solutions directly. The IOCM techniques applied in this phase, simultaneous concurrent engineering, VE, cost split-ups, limited minimum cost investigations and open books, all involve intense cooperation between the two parties. Both parties perceive this phase to be the most important one in which costs are discussed. A respondent at B2 also stresses how important it is for S2 to present "honest" cost data. All those involved are under considerable pressure and "there is no time to play around".

Possibilities to reduce costs in R3 are significant. This, along with a highly complex product, places considerable pressure on S3 and B3 regarding joint design. At meetings, different trade-offs are discussed with the goal of reaching a cost target. In order to reduce costs, S3 uses components or modules from previous products, for which costs have already been established. Also, since the cost platform plays such an important role in cost calculations, typically only the costs of a particular change need to be calculated. Between meetings S3 works relatively independently and the relationship involves less intense joint cooperation around IOCM and R&D. Therefore, consistency in cost calculations is perceived as crucial, since mainly costs of adding or removing attributes are involved. The main IOCM techniques seen are parallel concurrent engineering, VE, limited minimum cost investigations and cost split-ups and, to a lesser extent, open books.

A similar approach to IOCM can, thus, be seen in all relationships in the sense that design trade-offs are discussed. However, suppliers' cost data are used differently and different IOCM techniques are relevant in the different relationships. The frequency of usage and IOCM technique refinement increase the more complex and costly the product involved.

#### **Joint Process Development**

Since different design solutions tend to be related to different manufacturing processes and purchased components, process development is closely related to product design. In R1, costs are presented and discussed only to a limited extent. Costs are studied in detail when only S1 or B1 expects that something can be manufactured or purchased differently, or when the order is very large. Then, discussions often concern a design-quality trade-off. Neither party regards the presenting of costs as playing a major role when deciding on only manufacturing processes, though, even if large cost savings have been achieved after suggestions from B1.

In R2 the main decisions in process development are connected to component design changes. Discussions regarding manufacturing processes as such do not involve cost data to any large extent. When costs are presented, the purpose is to show those differences between various manufacturing techniques. Costs are presented in relation with S2's purchasing of components and tools, which is seen as important in efforts to reach the target cost. It should be noted, though, that in regard to purely internal manufacturing decisions, S2 has a great deal of freedom and sharing costs is of less importance.

In R3, often the suppliers' suppliers are involved in manufacturing process discussions. Meetings concerning design costs take place regularly and tend to be formalized. Manufacturing costs not relating to product design are rarely shared, though, except for decisions concerning new tools that involve high costs. The cost of S3's purchased material is also often discussed since B3 is heavily involved in selection of materials. Although pure manufacturing process decisions only involve S3's cost data to a limited extent, S3 finds such discussions important since they direct attention towards potential investments needed to maintain suitable manufacturing technology.

Due to these differences in supplier-buyer interaction and different purposes of costing data, some differences in IOCM technique usage can also be noted; the IOCM technique used and use of the suppliers' costing both relate to the joint process. In the simpler collaboration in R1, costs are not discussed to such a great extent as in the other two relationships. The same can be seen when R2 and R3 are compared. R3 has a more complex supplier base, and along with this we can observe minimum cost investigations, cost split-up and open books, which are all related to the suppliers' management accounting.

#### **Price Revisions**

Decisions relating to price revisions tend to focus around profit sharing. The three relationships are similar in this respect. The contract between the buyer and the seller regulates two issues related to this: (1) expected annual price reductions, based on the assumption that the supplier should be able to increase its efficiency at a certain rate each year; (2) conditions that change during the project, such as significant deviations in number of units purchased and changes in the price of raw materials. Since all three suppliers are relatively sensitive to the latter while profit margins are slim (and open for the buyer to see!), changes in costs for raw materials and quantities are compensated for by the buyer. All parties involved perceive this as a very important phase in the exchange process, although tend to treat it mainly as a formality. The conditions are similar in most projects the suppliers are involved in, and all parties involved claim that to undertake price revisions is industry standard among vehicle assemblers.

The main IOCM techniques used in this phase are value analysis and target costing in the sense that price reductions are based on the expectation that the supplier manages to reduce costs in line with price reductions. The suppliers claim, though, that normally it is only possible to match price reductions with cost reductions the first years. After that, price reductions lead to slimmer profit margins. This technique also tends to impact on the profitability of future products, particularly if the product is largely based on modules. This is raised as a critical issue by S3; since modules from previous products have already gone through annual price reductions, it can be difficult to reach profitability for such components.

#### **Product and Process Redesign**

During full-speed production, changes often cause significant costs, not only regarding suppliers' manufacturing costs (new tools and set-up costs), but also due to new buying routines, new mounting equipment, new article numbers, etc. However, changes in manufacturing processes, supply management and product design can be seen in all three relationships. There are no major policy differences between the three suppliers. In R1, changes are easiest to implement, although potential cost savings tend to be fairly limited. In R2 and R3, where manufacturing processes are designed for larger numbers of products, changes are costly. Therefore, major changes only take place when either party believes that significant benefits can be achieved through new technology or product redesign.

Even if this type of costing situation rarely occurs, there are still joint efforts in improving suppliers' manufacturing and administrative processes. All three suppliers are involved in various supplier developments programs orchestrated by the buyers. These programs tend to have a clear focus, such as improvements in logistics, quality and manufacturing speed. The costing of the supplier apparently plays no major role in this phase in any of the three relationships, though. Therefore, only simple forms of IOCM techniques – largely drawing on previous joint costing – are used, such as simple forms of value analysis and target costing.

## **Discussion**

Although not always explicitly stated, prior research implies that potential cost benefits in a broad sense predict IOCM practices (e.g., Cooper and Yoshikawa, 1994; Cooper and Slagmulder, 2004; Hameri and Patela, 2005). Similar observations are made here. In R1, where the product is relatively cheap and there is limited joint R&D, cost savings are less obvious than in R3, which in many respects represents an opposite case. There, the product is complex and costly, there is a great deal of R&D, and potential cost savings are greater. Consequently, more efforts are spent to reduce cost and more refined IOCM practices can be observed in R3 than in R1. However, IOCM practices are not simply a function of potential cost savings at the level of the product (see, e.g., Cooper and Yoshikawa, 1994; Cooper and Slagmulder, 2004) or a function of relationship characteristics (Cooper and Slagmulder, 2004; Kajüter and Kulmala, 2005). When breaking the exchange process down into phases and looking more carefully at the role of the supplier, it becomes apparent that IOCM practices vary within relationships and in relation to specific products. More specifically, we see different degrees of collaboration around IOCM in different phases. Similarly, the extent to which suppliers' management accounting is used also seems to vary throughout the exchange process. Sometimes there is intense collaboration around IOCM, and the supplier's management accounting is used extensively. At other times, the opposite is the case. However, we also note situations where there is intense IOCM collaboration but limited use of suppliers' management accounting, and vice-versa. In effect,

four generic situations characterizing different phases can be noted. These are the starting point for our continued discussion.

#### **High Level of Cooperation and High Importance of Suppliers' Managerial Accounting**

This has been noted in the supplier selection phase, in concept discussions, and in joint design of products. It also occurs when significant changes in product or manufacturing technology are discussed during later phases.

In the case of complex products where relationships involve a great deal of joint R&D, suppliers typically have to be selected based on a proposal or prototype that everybody involved knows will change dramatically. When this is the case the supplier selection process is combined with functional analysis in order to specify main functions of the component. This also means that costs cannot be precisely calculated by any of the parties and prices cannot be set at the beginning of a joint project. Therefore, when buying firms at an early stage present an expected price or price range, cost data from suppliers' managerial accounting typically play a very important role. As an illustration, none of the sourcing decisions in the study where a simple question of suppliers accepting or rejecting a target cost. In R1 costs shared by the supplier played a relatively less important role, though, partly because they were easier to predict by the buyer than in R2 and R3, and partly because the product was less complex and less costly. In effect, it seems that willingness to accept the buyer's target cost is not the only or even the main criterion for supplier selection. Other factors such as trust, capabilities, previous experience, the seller's track record, ability to work together, and time pressure are important. In fact, these factors appear to be more important the more complex and R&D intense the project, meaning that the supplier selection phase becomes more complex for both buyer and seller than often implied by the literature.

Further, the target cost at component level facing the supplier to some extent loses its importance as it is subject to a number of trade-offs. Our study, therefore, questions the assumption that target costing is most beneficial when the product requires planning and trade-offs during pre-production phases (Fisher, 1995); high R&D levels clearly give rise to challenges when it comes to deciding on a target cost at the early stage of the project. Thereby the target cost also becomes embedded in a complex supplier selection situation, as opposed to just selecting the supplier based on willingness to accept the component target cost.

Our findings also clearly indicate that suppliers' management accounting plays an important role in supplier selection, particularly in relationships involving a high degree of R&D. Joint functional analysis is undertaken even before the supplier is formally selected, especially in the case of R2 and R3, and presented costs serve as a cost platform. In establishing and using such a platform, cooperation around suppliers' cost data is crucial.

Joint product design is carried out in different ways in the three relationships. Efforts to reach the target cost are also applied differently. Cooper and Slagmulder (1999: 224) note that "*In theory, under target costing, customers are unaware of the profits that their suppliers earn on the products they sell*". The results of this study, however, indicate a different way of cooperating around target costing. Not only cost and profit at product level are known by the buyers, but the costs of virtually every single operation, process, material, module etc. are disclosed through the suppliers' costing. By using supplier cost data, the target cost broken down to component level by the buyer is further broken down in a cost hierarchy at single operation and component level, occasionally even involving suppliers' suppliers. From a pricing point of view, this contrasts to the market-based target-costing which is one of the main foundations of target costing (e.g., Sakurai, 1989). In effect, here we see a cost-based pricing approach that considers virtually every single cost item of the component.

It is apparent how suppliers' management accounting supports IOCM techniques. In R1, basic forms of trade-offs are occasionally discussed and cost data then play a much smaller role compared to R2, where S2's managerial accounting is involved in frequent meetings supporting simultaneous concurrent engineering. The use is relatively informal, though, as opposed to R3 where the product is mainly designed by S3. R3 involves a number of milestone meetings at which different suggestions are presented and decided. This is a form of parallel concurrent engineering, where cost data take on a formal character. The importance of accuracy is especially pertinent, since S3 is strongly committed to presented costs.

#### **Low Level of Cooperation and Low Importance of Suppliers' Managerial Accounting**

The findings suggest that some phases, given certain relationship characteristics, are relevant here. The first deals with price revisions during full-speed production in all three relationships. The second includes the earlier phases of R1, where there is less collaboration.

Continuous improvements are an important part of target costing (Sakurai, 1989) and the literature points out that buyers support cost reduction efforts in the supply chain. E.g., Carr and Ng (1995:360) state that buyers “reduce costs by reducing our costs”. Interestingly, in all three cases buyers are hardly involved in this at all. Instead, such improvements are delegated to the supplier. Nonetheless, expected price revisions are supposed to be based on cost reductions. What we see here are examples of value analysis/kaizen philosophy (e.g., Ansari et al., 1997), even if the parties do not find detailed discussions useful. It is also worth noting that cost tables, which can be used as a reference point concerning use of state of the art manufacturing technology (Yoshikawa et al., 1990; Sakurai, 1996; Tani, 1994) and thereby indicate possible improvements, are not used in any of the relationships. The reason is that the buyers are well acquainted with the suppliers’ machinery and procedures. Consequently, the suppliers’ managerial accounting would add little not already known by the buyer.

We also see this situation occurring in the earlier phases of the exchange process in R1. Limited cooperation and use of S1’s managerial accounting can be explained by the small size of the order and the limited R&D involved. S1 gets the order based on a proposed “fair” price, which is easy to predict, or occasionally when B1 states a price they are willing to pay. When the product is inexpensive, it is simply not worth spending resources on supplier screening. It is also often perceived as risky to simply accept the lowest bid from an unknown supplier. This could be called black-box target costing and is in line with the view that the buyer simply sets a target cost, leaving meeting it up to the supplier (Caputo and Zirpoli, 2002).

#### **High Level of Cooperation and Low Importance of Suppliers’ Managerial Accounting**

Based on earlier discussions, it might be tempting to draw the conclusion that a high degree of cooperation around interorganizational cost management should automatically lead to a higher degree of use of supplier’s cost data. However, our results indicate that it is possible to find intense cooperation around cost reduction in which suppliers’ managerial accounting is hardly used at all. This occurs mainly in joint process development and in the full-speed production phases when carrying out extensive supplier development (SD) programs (cf. Monden, 1992). Joint process development is largely a consequence of joint product design and therefore cost data are less important even if there is intense IOCM cooperation.

Two types of SD programs have been identified in the study: (1) There are improvements of a particular component, e.g. concerning speed of production, quality and investments in special equipment. This can be seen in all three relationships. Then, sharing costs between the parties appears to be the only function of suppliers’ managerial accounting. (2) There are also more general SD programs that do not focus on solving a specific problem. Rather, such projects may concern logistics, quality levels, administrative issues, certain supplier policies, reporting standards etc. Suppliers’ managerial accounting plays a very minor role in this, and such programs are infrequent. Interestingly, the literature on IOCM has not explicitly dealt with this. Since it occurs after the initiation of full-speed production, however, it might be seen as a form of kaizen or value analysis (cf. Tani, 1994; Sakurai, 1996). On the other hand, our findings indicate that this is carried out in project form and often has a dramatic effect, while kaizen is a continuous process characterized by minor improvements.

#### **Low Level of Cooperation and High Importance of Suppliers’ Managerial Accounting**

This is an uncommon situation in all three relationships, and the main purpose is to inform buyers about cost issues rather than to trigger any specific action. This can be seen in two different situations. Firstly, at the very beginning of a project in R1 cost data are presented along with blue prints and other parts of the offer. S1 presents how costs are calculated and structured. This is done mainly in case of large orders or if B1 suspects that there has been some misunderstanding. It is, thus, part of the first phase of the exchange process, and usually takes the form of cost tables, representing a simple type of open books.

The second situation can be seen in all three relationships; costs are calculated with the purpose of assuring the buyer that costs are reasonable. The purpose is mainly to foster a good working environment. Although this may occur in any phase in the exchange process, all three suppliers note that this is relatively unusual and it is not perceived as very important. The use of suppliers’ management accounting with the sole purpose of building trust is, thus, limited and the significance of open books in building trust as attested to in the literature (e.g., Kajüter and Kulmala; 2005; Mouritsen et al., 2001) finds limited support in our study.

#### **Summary**

Based on the discussions above, a two-by-two matrix of interorganizational cost management practices in the exchange process can be created (see Table 1).

TABLE 1: IOCM PRACTICES IN PHASES IN THE EXCHANGE PROCESS

		Degree of cooperation around IOCM issues	
		High	Low
Importance of suppliers' management accounting in IOCM	High	<ul style="list-style-type: none"> <li>- Supplier selection<sup>1</sup></li> <li>- Concept discussion<sup>1</sup></li> <li>- Joint product design</li> <li>- Product and process redesign<sup>2</sup></li> </ul>	<ul style="list-style-type: none"> <li>- Supplier section<sup>4</sup></li> <li>- Relationship development<sup>3</sup></li> </ul>
	Low	<ul style="list-style-type: none"> <li>- Joint process development</li> <li>- Supplier development projects<sup>3</sup></li> </ul>	<ul style="list-style-type: none"> <li>- Price revisions</li> <li>- Supplier selection<sup>5</sup></li> <li>- Joint product design<sup>5</sup></li> <li>- Joint process development<sup>5</sup></li> <li>- Product and process redesign<sup>5</sup></li> </ul>

Notes: <sup>1</sup>When complex product, <sup>2</sup>When significant changes, <sup>3</sup>Throughout process, <sup>4</sup>Part of offer package, <sup>5</sup>When mainly carried out by supplier and alternatives are presented along with cost data.

Additionally, we find two important activities that are not related to any specific phase. These are supplier development programs where supplier's managerial accounting may play a minor role even if collaboration around IOCM is intense. Also, activities relate to the development of the relationship between buyer and seller – although occurring relatively infrequently in the studied firms – entails limited IOCM cooperation but suppliers' managerial accounting plays a large role. This is, for example, done to ensure buyers that sellers charge a reasonable price.

## Conclusion

This study makes five main points regarding interorganizational cost management; First, IOCM practices vary not just with different types of components, relationship characteristics, and type of transaction. In different phases in the exchange process, different IOCM techniques are used, the extent to which suppliers' managerial accounting is used varies, and collaboration around issues relating to IOCM differs significantly.

Second, there is no automatic connection between the degree of cooperation around IOCM and the extent to which suppliers' managerial accounting is used in this process. While the most common situation entail either high or low levels of cooperation and use of suppliers' managerial accounting, we find both situations where high levels of collaboration are associated with limited use of suppliers' managerial accounting and vice-versa.

Third, IOCM practices in different phases of the process are clearly a function of several factors. Overall, those phases perceived as offering the greatest opportunities for cost savings and those phases that have the greatest impact on the final cost of the product, motivate the deepest collaboration on IOCM issues and the greatest joint use of supplier's management accounting. This typically occurs in earlier phases of the exchange process. In later phases, during full-speed production, suppliers' managerial accounting appears to play a lesser role.

Fourth, even if the nature of the relationship and component complexity by themselves do not necessarily determine how IOCM is implemented, they still moderate practices in different phases of the exchange process. Low degree of product complexity and, consequently, lower degrees of interaction required in product development imply that collaboration around interorganizational cost management is less intense, and that suppliers' cost data play a less important role in the exchange process. More superficial relationships - a possible consequence of less complexity - have similar effects.

Fifth, unlike much of prior research we find that IOCM is not something that is only implemented by the buyer for the buyer's benefit. Rather, suppliers play important and active roles in interorganizational cost

management. Management accounting of the supplier clearly supports joint work around IOCM. Sharing cost data through the use of various IOCM techniques benefit sellers as well as buyers.

This study has implications for management. It shows that negative perceptions among many suppliers towards IOCM may often be unwarranted. It also shows that applying target costing is more problematic than implied by the literature. Many authors argue that target costing is especially appropriate in the case of selecting suppliers for complex components that require a great deal of R&D. To the contrary, our findings indicate that this situation presents serious difficulties in applying the “pure” target costing logic, since neither party can specify the component in detail in this phase. Consequently, pushing the market-derived price further up the supply chain is almost impossible.

The study also has limitations that may be addressed in future research. The three relationships studied here all involve Swedish firms. Sweden is often described as having an open, cooperative and relatively trusting business climate with comparatively low degree of reliance on formal contracts. This would seem especially beneficial for the development of IOCM practices. Firms in other countries, where there is more reliance on formal contracts and where the business climate is less cooperative, might act very differently in regard to IOCM. It is, thus, difficult to establish the relevance of our findings for other firms and contexts. We, therefore, suggest that the external validity of our findings be tested on a large sample of relationships involving firms from a variety of countries.

This study has also focused on relationships as they are relevant for particular projects. An important issue for future research is whether IOCM is relevant for firms in the wider context of relationship building. The sharing and joint use of cost data may serve purposes outside specific projects. Additionally, future studies should continue to recognise that IOCM is a joint process that involves, can be driven by and benefits both parties in the relationship.

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# The Autonomy and Effectiveness of Chinese Monetary Policy under Conventional Fixed Peg Arrangement

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## Abstract

This paper examines the autonomy and effectiveness of monetary policy in China under the conventional fixed peg arrangement from 1998 to 2005 with vector Error Correction Model and Granger Causality Tests. The results based on quarterly data indicates that (1) money stock does not Granger cause GDP and CPI while loan interest rate affects GDP negatively and (2) the change of interest rate does not have positive relationship with money stock and the change of foreign exchange reserves does not Granger cause the change of money supply, so this paper does not support the hypothesis that conventional fixed peg arrangement have already had systematic restriction effect on China's monetary policy autonomy. In this light, this paper delivers alternative strategies to improve the effectiveness of monetary policy to accelerate the reforms of financial system, and to improve managerial mechanism of enterprise to enhance the sensitiveness of market agencies to monetary policies but not abandon the policy to maintain the yuan's basic stability. Key Words: Autonomy of Monetary Policy, sterilization, Granger Causality Tests JEL Classification Numbers: F41, E52

## The Autonomy and Effectiveness Issues of Monetary Policy in China

The People's Bank of China declared that China adopted a managed floating exchange rate regime based on market supply and demand with reference to a basket of currencies on July 21, 2005. This reform was executing undoubtedly under great external pressure, and was universally deemed that the best benefit of giving up fixed peg arrangement for China was "the enhancement of monetary policy autonomy ( Greenspan, 2005). Following this logic, for China's own benefit, it' should widen the range of RMB (O'Driscoll and Hoskins, 2005; Eichengreen, 2005; Goodfriend and Prasad, 2006). While as looking forward to holding the "autonomy of monetary policy", it's very meaningful for choosing and adjusting strategy and process of financial scheme reform in the near future to answer the following two questions: (1) whether conventional fixed peg arrangement seriously restricted the autonomy of monetary policy or not and (2) whether autonomic monetary policy works as text books describe. Only the answers of these questions are "yes" there could be a fundamental tradeoff for giving up stability of currency at present in China.

The most supportive argument of giving up exchange rate stability to gain autonomy of monetary policy is the *Impossible Trinity*, the hypothesis that it is not possible to have a fixed exchange rate, perfect capital movement, an autonomous monetary policy simultaneously. But the logic, however, can only exclude the simultaneity of the three corners on the "Impossible Trinity" and cannot ensure the coexistence of any two of the corners: e.g., we have no way to draw from the "Impossible Trinity" whether the autonomy of monetary policy will be definitely ensured under the fixed exchange rate regime if we give up the freedom of capital movement, or, whether the independence of monetary policy will be definitely ensured with the perfect capital mobility if we abandon the fixed exchange rate regime. In fact there are many evidences that floating exchange rate cannot guarantee the monetary policy independence (Frankel, et al., 2004; Mundell and Zak, 2002; Visco, 2001; Hausmann, et al., 1999). Therefore, the Impossible Trinity cannot serve as the basis for china to choose the exchange rate regime (Sun, 2004).

Under the condition of imperfect capital mobility and fixed peg arrangement only in the long term the monetary authority may fail to deal with huge and continuous one way external shocks (Sun and Ma, 2004, 2005). The monetary authority may keep its autonomy and exchange rate stable with short-term, random, limit-scale external shocks while sterilization operations work. As China's capital account is not fairly open and substitutability between assets denominated in domestic currency and assets denominated in foreign currencies is imperfect, there may be a safeguard in a way to shield the autonomy of monetary policy under fixed peg arrangement in China.

For the study of monetary policy's effects, whether it can affect real economic activities is one of the issues

that Monetarists and Keynesians' debate focus on in the history of western economics theory. It refers to that from which channel the policy stimulators transmit to economy agencies and how effective is the influence of monetary policy. The general opinion is that in the short term, monetary policy can affect the output and price; while in the long run, it may influence the price but not the output. Literatures on effects of monetary policy in China are abundant, but the conclusions are different correspondingly to the choice of the sample period, policy tools, policy targets and analyzing measures (Sun and Ma, 2005; Burdekin and Siklos, 2005; Mehrotra, 2005). Generally, most studies deem that the imperfection of micro economic basis such as the imperfection of enterprise managerial structure, the local government's intervention in commercial bank credits, over high personal saving propensity and the absence of social credit checking system, etc. cause the ineffective transmission of monetary policy, and the insensitivity of micro economic entities to the changes of policies (Zhan and Li, 2005; Cargill and Parker, 2006).

The ultimate goal of China's financial system reform is not monetary policy autonomy itself but monetary policy effects on economy, such as price stability, full employment and economic growth. The autonomy of monetary policy can not ensure the effect of monetary policy (Sun, 2004a, 2004b) while non-autonomy of monetary policy does not mean monetary target can not be reached, since foreign exchange rate stable itself could stabilize price and accelerate economic growth (Stiglitz, 2005; McKinnon, 2004). It uses the "anchor" of exchange rate to stabilize the domestic price, and reduce the costs of trade and uncertainties. Thus it will promote the international trade and investment, and accelerate economic growth eventually. Some scholars (Hanke, 2005, Clifford, 2002; Mundell, 2004; Frankel, 2005) show a great concern about that widening the floating range of exchange rate will bring more uncertainties, decay economic stability. Without external anchor's restriction, there is a greater possibility of distortion by "blind act" for monetary policy. Even the Chinese economy will tread the Japanese footsteps to fall into liquidity trap. (McKinnon, 2006)

This paper examines the state of monetary policy in China: its autonomy and effectiveness under conventional fixed peg arrangement from 1998 to 2005. If the effectiveness of the policy on the output and price are significant and the external shocks restrict monetary policy severely, to widen the floating range of exchange rate will be a rational choice to insulate the external shocks and facilitate monetary policy to control macro economy; if not, the first order of business will not be to move towards a flexible exchange rate but to strengthen financial system, consummate structure of Chinese corporate governance and set up social credit checking system, etc., to develop a mature price mechanism to ensure market prices reflect the total costs of production. In this way, a solid micro economic basis will be built for effective monetary policy transmission.

The following parts of this paper are arranged as follows: the second part is the introduction of the measure of autonomy of monetary policy and sterilization operation in China; the third part gives the sources of data; the fourth part is the report of the test; at the end, it is the conclusion of this paper.

## **The Measure of Autonomy of Monetary Policy and Sterilizer Operation in China**

In real world, central banks in some countries with well-developed banking and financial systems, e.g., the U.S. Federal Reserve, employ interest rates to target low inflation, largely ignoring money growth in the process (Goodfriend and Prasad, 2006) since the central bank cannot achieve interest rate targets and money targets simultaneously. Among many, there are two main reasons of doing so: (1) money demand and the money multiplier are not stable the central banks have to choose interest rate targets to stimulate the economy according the well known William Poole's work (1970), and (2) while the central bank has fairly good control over monetary base, it cannot control money stock in time and accurately and the correlation between money stock and policy goal is weak.

In western academic works, the definition of monetary policy autonomy usually means that domestic interest rate is adjusted freely by domestic monetary authority to counteract business-cycle fluctuations, not just passively fluctuates with foreign interest rate (Frankel, et al, 2004; Obstfeld and Taylor, 2003; Rose, 1996). In China where the market-oriented economic reform has not accomplished and the central bank sets up both the primary lending rates and money growth target as tools of monetary policy. RMB lending rates are not sensitive to foreign interest rate since THE PEOPLE'S BANK OF CHINA only adjusts them slowly following the change of inflation rate in China and the inflation rates in China usually are different from the U.S. and Europe. Therefore, the gap

between RMB lending rate and foreign interest rate mainly depends on changes of foreign interest rate (as Figure 1. shows). In this sense, the conclusion must be that monetary policy in China is independent from foreign monetary policy.

Figure 1. shows that the gap between Federal Funds Rate in the U.S. and Benchmark Lending Rate in China is unstable. There is no evidence to support that the prime interest rates in China have been following Federal Funds Rate during fixed exchange rate period.

However, Chinese economists and policies-makers elaborate monetary policy focusing on the money supply and measure the dependence of China's monetary policy on external forces by the proportion of RMB counterpart of foreign exchange reserves to the base money. Currently, they argue that excessive inflows create inflationary money growth (THE PEOPLE'S BANK OF CHINS, 2005; Xie, 2004). This perspective neglects the effects of central bank's sterilization operations.

According the central bank's balance sheet, the interaction between base money and foreign exchange reserve can be expressed as the following:

$$BM = OR + DD - CB \text{ or } \Delta BM = \Delta OR + \Delta DD - \Delta CB$$

Where BM is base money, OR is official exchange reserves denominated by domestic currency (Foreign assets in Balance Sheet of Monetary Authority of BPC), DD is domestic debts (including Claims on government and financial institutions and non-financial institutions), CB is central bank's bond issue. Obviously, when  $\Delta DD = 0$  and  $\Delta CB = 0$ , then  $\Delta BM = \Delta OR$ . This indicates that monetary authorities indulge the reserves to affect money base without any sterilization operation. If  $\Delta DD - \Delta CB = -\Delta OR$ , the monetary authorities neutralize all the foreign reserves changing effects on base money, maintaining the money stock stable while reserves are changing. Monetary authorities also can do partial sterilization or over sterilization accommodate the domestic economic needs.

The typical open market operations (OMO) are central bank buying/selling government securities from/to public. The THE PEOPLE'S BANK OF CHINS started open market operations by using Treasury bonds in 1996 (Xie, 2001). Since the quantity of the Treasury bonds issued by government was quite limited OMO was paused in 1997. In May of 1998, THE PEOPLE'S BANK OF CHINS restarted OMO. However, by September 2002, the quantity of Treasury bonds held by The People's Bank of Chins was not enough to make repo transactions. To resolve this, the central bank determined that all outstanding repo contracts issued between June 26<sup>th</sup> and September 24<sup>th</sup> would be converted into a new instrument, The People's Bank of Chins bills. The conversion resulted in bills worth CNY193.8bn (USD23.3bn), which appears on the central bank's balance sheet in September 2002. The first auction of 'new' central bank bills took place in May 2003. Since then, central bank bills have become the primary instrument for sterilization of capital inflows and, with the surge in inflows, the stock of outstanding central bank bills has increased rapidly (Figure 2). In June 2006, the balance of outstanding bond issue in Balance Sheet of Monetary Authority of the People's Bank of China was CNY1634.2bn.

Besides the sterilization operations in open market, the central bank could also adjust the required reserve ratio to change the relationship between money supply and base money, the monetary multiplier. In the period of conventional fixed exchange rates, the People's Bank of Chins has adjusted required reserve ratio four times. The the People's Bank of China reduced this ratio twice in the late 1990s to enlarge the money supply when there were lower foreign exchange reserve growths. On Sep. 21, 2003, the ratio was raised from 6% to 7%; on Apr. 25, 2004 the People's Bank of Chins carried out a difference reserve ratio system in which the financial institutions whose capital adequacy ratios below certain standards level would have to hold 8% reserves while the standard level is 7.5%. Rural and urban credit co-operative institutions were exempted from this rule for the time being (The People's Bank of Chins, 2004). The last two adjustments it raised the ratio to constrict the money supply growth as there were higher foreign exchange reserve growths.

In 1998, the traditional measure to control economy, national bank credit quota was scrapped. Since then, the The People's Bank of Chins has tried to develop the influence of the interest rate and money stock. However, they are not yet as effective as they need to be to enable the The People's Bank of Chins to run an effective monetary policy. In the second half of 2001, it appears that the The People's Bank of Chins had to resort to administrative suasion, to enlarge loan and stimulate the slow down economic growth. Fearing that SARS could lead to a drastic slowing of the economy, the The People's Bank of Chins (under the guidance of the State Council) decided to raise the targets for broad money growth and credit expansion to 18 percent and RMB 2.0 trillion respectively in the first

quarter of 2003 (People's Bank of China 2003a: 32). With an unexpected domestic boom underway and large FX inflow, the The People's Bank of Chins began 'window guidance' to calm aggregate demand and slow credit and monetary growth in August 2003. Since then, moral suasion has been using as one of the major tools to manage the volume of credit.

According to the analysis above, monetary authorities can be independence finally even money supply could be affected initially by the balance of payments. While the sterilization operations have effects and the costs of sterilization operation can be afforded, the domestic monetary policy still is autonomous. The effects of short-term, random, limit-scale external shocks can be eliminated by some sterilization operations, which is the common situation under fixed peg arrangement. Only when the effects of external shocks still can not be eliminated after all of the sterilization measures have been done, monetary policy could not be autonomous actually. Thus, under fixed peg arrangement, to judge whether monetary policy is autonomous or not, it is necessary to do some systematic analyses beside to catch the evidence of money stock and foreign exchange reserves rising simultaneously.

There are two channels which are not clarified unequivocally in the existing literature to transfer fixed exchange rate regime restrict on domestic money supply: (1) for ironing out domestic economic cycle, central bank raises (lowers) interest rate, conducts capital inflow (outflow), which results in the increase (decrease) of foreign exchange reserves and increase (decrease) of money supply. That money supply and interest rate change in the same direction violates the original intention of central bank so that central bank cannot implement autonomous policy; and (2) Changes of real exchange rate, internal and external income, consumption preference, etc. cause the current account surplus (deficit); changes of foreign interest rate or expected revenue on FDI, etc. cause the capital account surplus (deficit). The surplus (deficit) of current account and capital account make foreign exchange reserves increase (decrease), therefore, results in the increase (decrease) of domestic money supply. That means exogenous forces determine domestic money supply. Figure 3 illustrates these two channels.

We could see the most essential factor to judge the peg arrangement's restriction on monetary policy in China is whether the changes of foreign exchange reserves is the determinant factor of money quantity changes. If the central bank cannot counterbalance the impact of the change in foreign exchange reserves on the money supply the foreign exchange reserves' changes ought to explain the changes of money stock effectively. That's the reason why this paper chooses Granger Causality tests to examine whether changes of foreign exchange reserves is the cause of the changes of money stock. Besides, if we could find the evidences that the changes of money supply move with the changes of interest rate in the same direction we could also deem that the of peg arrangement has restricted domestic monetary policy.

## **Data and Examine Steps**

From 1994 to 1998 China had adopted a single and managed floating exchange rate regime based on supply and demand. Facing the impact of the Asian financial crisis since 1997, the Chinese government has declared that it will maintain the exchange rate of the RMB, stating that the RMB will not be devaluated, and the size of floating bands has been reduced. In April 1999, IMF classified China's exchange rate regime as a conventional pegged arrangement. Beginning from July 21, 2005, China implements a regulated, managed floating exchange rate system based on market supply and demand and in reference to a package of currencies. This paper uses the data from January 1998 to June 2005, testifies the performance of Chinese monetary policy under the conventional fixed peg arrangement.

The Law of the People's Bank of China adopted on March 18, 1995, defines the objective of the monetary policy is to maintain the stability of the value of the currency and thereby promote economic growth. As a matter of fact, China's monetary policy had dual goals: price level stabilization and real output growth. In the empirical research of this paper, Consumer Price Index (CPI) stands for price level and real Gross Domestic Product (real GDP) stands for real output.

The The People's Bank of Chins began to set base money and money supply as monitoring target in 1994, and officially set M1 as intermediate target of monetary policy, M0 and M2 as monitoring target in 1996 (Xia, Liao, 2001), but it also set the benchmark lending rates and deposit rates of the financial institutions simultaneously. So in

fact there are two monetary policy tools: money stock and interest rate, which is different from Fed which only set up Federal funds rate and let market to decide money quantity and structure. To reflect this Chinese characteristic, this paper designs to test how M0, M1, M2 and the benchmark lending rate influence real GDP and consumer price index (CPI).

Since only quarterly time series of nominal GDP and GDP growth rate at comparable prices are available from Economic Information Center of National Bureau of Statistics in China, the real GDP variable is a derivate from nominal GDP and GDP growth rate. The CPI is redefined as index with the first quarter in 1998 as the base period used the monthly data over same period last year and month to month data published by China Monthly Economic Indicators. M0, M1, M2 and foreign exchange reserves and interest rate data come from the The People's Bank of Chins. The date frequency is quarterly. We take log of all the data, except interest rate. Let  $y = \log(\text{real GDP})$ ;  $p = \log(\text{CPI})$ ;  $f = \log(\text{foreign exchange reserves})$ ;  $r = \text{interest rate}$ ;  $m_i = \log(M_i)$ ,  $i=0,1,2$ .

To avoid spurious regression problem, we test every variable series for unit root. If they are integrated of order zero, or  $I(0)$ , we do OLS test; If they are integrated of order one, or  $I(1)$ , then we do two tests separately: (1) Cointegration Test on variable  $(y, p, m_i, r)$ ,  $i=0, 1, 2$  to examine if there is long-run relationship among these variables. This is a standard specification of the VAR model for monetary research in the existing literature (among many, see Stock and Watson (1989); Friedman & Kuttner (1992); Estrella and Mishkin (1997) ). It has both solid theoretical and empirical foundations. (2) Examine whether foreign exchange reserves Granger cause money supply with  $\Delta f$  and  $\Delta m_i$ ,  $i=0,1,2$ .

If  $y, p, m_i, r$  ( $i=0, 1, 2$ ) are cointegrated, then we use these cointegration equations to specify Vector Error Correction estimation to find out if interest rate Granger cause money supply.

## Test Result

### Unit Root Test

Table 1 shows the Phillips-Perron Unit root test results. All the variables are integrated of order one.

As all the variables are integrated of order one, we next do Cointegration and Granger Causality tests as discussed earlier.

### Cointegration and Vector Error Correction Test

Through Johansen Cointegration Test, we may test that  $m_i$  ( $i=0,1,2$ ) and interest rate has cointegrated relation with real output and price. The cointegrated equation is: From the Johansen cointegration test, we found real GDP ( $y$ ), price level ( $p$ ), money supply ( $m_i$ ,  $i=0,1,2$ ) and interest rate ( $r$ ) have cointegration relationship. The cointegrations equations are :

$$y = \begin{matrix} 2.50p & +0.64m_0 & -0.27r & -5.65 & (1) \\ (-6.65) & (-7.88) & (1.70) & & \end{matrix}$$

$$y = \begin{matrix} 2.66 & +0.40m_1 & -0.21r & -5.27 & (2) \\ (-11.04) & (-14.93) & ( 2.39) & & \end{matrix}$$

$$y = \begin{matrix} 2.29p & +0.38m_2 & - 0.32r & -3.52 & (3) \\ (-7.46) & (-10.62) & (3.10) & & \end{matrix}$$

t-statistics in ( ).

The results of cointegration test indicate that output is positively related to money, while negatively related to interest rate; price is negatively related to money, while positively related to interest rate. However, this can't prove that policy variables ( $m, r$ ) are exogenous, and determine output and price. That's because we couldn't reject the possibility that these results only mean money demand changes with income in the same direction, while in the reverse direction with interest rate (Sun and Ma, 2004). So we have to check whether there is causal relation between policy target variables ( $y, p$ ) and policy tool variables ( $m, r$ ).

Because the variables are unstable and have cointegrated relations, this paper set vector error correction model (VECM) according to Feldstein and Stock (1994) to verify whether changes of output and price could be explained by changes of money supply and interest rate, and whether changes of interest rate could cause money

stock moving in the same direction. We build three VECM and denoted them VECM 0, VECM 1, VECM 2 corresponding to M0, M1 and M2 respectively. Each VECM has four variables: y, p, mi (i=0, 1, 2) and r, which represent log of real GDP, price, money supply and interest rate.

We report the estimated coefficient of error-correction equations in matrix and present standard OLS regression statistics for each equation in table at the very bottom of the matrix. The estimation results of VECM0 are the following:

$$\begin{bmatrix} \Delta y \\ \Delta p \\ \Delta m_0 \\ \Delta r \end{bmatrix} = \begin{bmatrix} -1.86209 \\ -0.03841 \\ -0.23774 \\ -0.55977 \end{bmatrix} e_{0_{-1}} + \begin{bmatrix} 0.38 & -5.51 & 0.52 & -0.64 \\ 0.07 & -0.16 & 0.00 & 0.06 \\ 0.16 & -0.31 & 0.04 & -0.07 \\ 0.38 & -0.81 & 0.07 & -0.10 \end{bmatrix} \begin{bmatrix} \Delta y_{-1} \\ \Delta p_{-1} \\ \Delta m_{0_{-1}} \\ \Delta r_{-1} \end{bmatrix} \\ + \begin{bmatrix} 0.20 & -4.77 & -1.29 & -0.49 \\ 0.01 & -0.09 & 0.03 & 0.02 \\ -0.11 & -1.52 & -0.16 & -0.26 \\ 0.07 & -0.88 & 0.51 & -0.01 \end{bmatrix} \begin{bmatrix} \Delta y_{-2} \\ \Delta p_{-2} \\ \Delta m_{0_{-2}} \\ \Delta r_{-2} \end{bmatrix} + \begin{bmatrix} 0.03 \\ 0.00 \\ 0.03 \\ -0.03 \end{bmatrix} \quad (4)$$

Where  $e_{0_{-1}}$  is the error correction term, the first order lag of cointegrated equation with y, p, m0 and r (equation (1)). Though all the coefficients of error terms are negative, only the coefficients of error term in income and interest rate equations are significant (t -statistic is -5.04 and -3.09 respectively). There are auto-correction mechanisms to restore long-term equilibrium of income and interest rate. In the income equation, first order lag of money stock changing influence on changes of income is positive and insignificant; while second order lag of money stock changing influence on changes of income is negative and significant (t - statistic is -2.86), and thus results in the negative money elasticity of income in the short term. This indicates that The People's Bank of Chins cannot achieve expected output target by controlling m0. First order lag of interest rate changing influence on changes of income is negative and significant; while second order lag of interest rate changing influence on changes of income is insignificant but still negative. Therefore the short run effect of changing interest rate on changing income must be negative. This means interest rate plays the role of policy tool to regulate output in some way. In the price equation, neither money nor interest rate's parameters are significant; in the money equation, the coefficient of interest rate is negative and insignificant which indicates that channel 1 does not work to raise M0 when interest rates increase.

VECM1 is following:

$$\begin{bmatrix} \Delta y \\ \Delta p \\ \Delta m_1 \\ \Delta r \end{bmatrix} = \begin{bmatrix} -2.46 \\ -0.03 \\ -0.07 \\ -0.22 \end{bmatrix} e_{1_{-1}} + \begin{bmatrix} 0.87 & -6.23 & 0.52 & 0.05 \\ 0.06 & -0.16 & 0.02 & 0.06 \\ -0.06 & 0.45 & 0.21 & 0.08 \\ 0.17 & 0.23 & 0.12 & 0.11 \end{bmatrix} \begin{bmatrix} \Delta y_{-1} \\ \Delta p_{-1} \\ \Delta m_{1_{-1}} \\ \Delta r_{-1} \end{bmatrix} \\ + \begin{bmatrix} 0.51 & -7.26 & -0.81 & -0.41 \\ -0.02 & -0.06 & 0.10 & -0.08 \\ -0.06 & -1.19 & -0.31 & -0.08 \\ 0.03 & 0.12 & 0.23 & 0.18 \end{bmatrix} \begin{bmatrix} \Delta y_{-2} \\ \Delta p_{-2} \\ \Delta m_{1_{-2}} \\ \Delta r_{-2} \end{bmatrix} + \begin{bmatrix} 0.02 \\ 0.00 \\ 0.04 \\ -0.02 \end{bmatrix} \quad (5)$$

Where  $e_{1_{-1}}$  is the error correction term, the first order lag of cointegrated equation with y, p, m1 and r (equation (2)). The coefficients of error term are all negative but only significant in the output equation (t statistic is -10.87). In the equation of output and price, the coefficients of m1 and interest rate are both insignificant, which

shows that these monetary policy tools do not work well. In the m1 equation, the coefficient of the first order lag of interest rate is positive, and the second order lag is negative, but neither is significant and the sum of these coefficients is 0. Thus, this indicates that there is no evidence that M1 is responded to interest rates in the way described as channel 1.

The results of examine of VECM2 displaying in (6) are similar as the result of VECM1. It shows that neither M2 nor interest rate has significant affect on real GDP and CPI. The total short run effect of interest rate on M2 is zero.

$$\begin{aligned}
 \begin{bmatrix} \Delta y \\ \Delta p \\ \Delta m2 \\ \Delta r \end{bmatrix} &= \begin{bmatrix} -2.95 \\ -0.03 \\ 0.04 \\ -0.22 \end{bmatrix} e_{2_{-1}} + \begin{bmatrix} 1.39 & -7.04 & 0.28 & -0.17 \\ 0.07 & -0.14 & -0.05 & 0.06 \\ -0.02 & 0.20 & 0.12 & -0.03 \\ 0.19 & 0.32 & -0.08 & 0.15 \end{bmatrix} \begin{bmatrix} \Delta y_{-1} \\ \Delta p_{-1} \\ \Delta m2_{-1} \\ \Delta r_{-1} \end{bmatrix} \\
 + \begin{bmatrix} 0.78 & -5.75 & -0.74 & 0.06 \\ -0.00 & 0.029 & 0.17 & 0.04 \\ -0.01 & -0.09 & 0.00 & 0.03 \\ 0.07 & 0.32 & 0.32 & 0.13 \end{bmatrix} \begin{bmatrix} \Delta y_{-2} \\ \Delta p_{-2} \\ \Delta m2_{-2} \\ \Delta r_{-2} \end{bmatrix} + \begin{bmatrix} 0.01 \\ -0.00 \\ 0.03 \\ 0.00 \end{bmatrix} \quad (6)
 \end{aligned}$$

In conclusion, the vector error correction model test results show that the effectiveness of money supply on output and price is not significant in China from 1998 to 2005.

In general, there are two main transmission channels through which money supply affect output: (1) regulating credit supply, (2) adjusting interest rate to play the role of cost effect. Generally speaking, the credit scale is tightly linked with the money supply, but since The People's Bank of Chins stopped its issuing credit plan in 1996, the gap between deposit and lending in commercial bank system is more and more large. With excess liquidity, the credit scale is determined by the government's goals of macro-economic control, thus money can not restrict credit at all (Sun, 2000; Zhou and Jiang, 2002). The test result of this paper testifies this judgment once again. The affects of monetary policy on interest rate is supposed to be negative, while in this paper, results of m0, m1, m2 affects on interest rate are mostly positive (Only the coefficient of the second order lag of m2 changes  $\Delta m2_{-2}$ 's affect on interest rate changes  $\Delta r$  is significant.). This indicates that the transmission channel through which money stock affects output is blocked severely, conflicting with the judgment that monetary policy affects on interest rate is negative. So it's consequential that money stock doesn't have much affects on output.

For the policy effect on price level, because of the imperfective social security system and uncertain expectations about future income, the increase of money supply all result in increase saving but not much increase consumption expenditure. In this context, the money supply influence CPI little. The test result of the examination above is a reflection of this economic environment.

Generally speaking, interest rate policy affects investment and consumption-saving decisions mainly by regulating credit cost, and the relative price of consumption and saving. In China, enterprises all long for investment, bank system all tend to credit cautiously and the local governments direct credit distribution. Hence the economic entities are not sensitive to the change of interest rate, and the interest rate effects on investment are reduced. Since personal consumption loans are not popular in China, lending rate impact on consumption cannot be observed. Mehrotra (2005) identify insignificantly influence of interest rate shocks on price developments. In this paper, we only find the evidence that change of interest rate cause change of income in VECM0.

#### Granger Causality Tests on Changes of Foreign Exchange Reserves and Money Stock

The vector error correction model results already show that that domestic monetary policy isn't restricted by conventional fixed peg arrangement via Channel (1) in Diagram 1. In the following part, we study whether the changes of foreign exchange reserves induced by exogenous forces Granger cause the change of money supply.

Figure 4 shows developments of foreign exchange reserves and M1, M2, M3 during the period of 1998 to 2005.

M0, M1, M2 and foreign exchange reserves have been rising since 1998. If we use least square method to test the relationship between money supply and foreign exchange reserves, we can find out that there's positive correlation between them. This is a popular proof of money supply of China is dependent on foreign exchange reserves. But maybe this is a classic spurious regression. That is because central bank in China often adopts an adaptive monetary policy, money stock is always rising as national income increases, every year National Development and Reform Commission of China publishes money growth plan in Drafting of National Economic and Social Development Plan of the P. R. China, which is basically designed in the following way:  
money growth rate = expected GDP growth rate + expected inflation rate + 5%

Trade surplus, FDI and hot money that are the main component of foreign exchange reserves are somewhat related with national income: international trade surplus, FDI are the main drive of economy growth of China, while the revaluation expectation held by hot money also base on China's economy growth. When the two variables (money supply and foreign exchange reserves) are related with the third variable (GDP), the least square regression on them may be a spurious regression. Therefore, we cannot argue that the increase of money supply in China is caused by foreign exchange reserves simply because money supply rise as foreign exchange reserves rise.

This paper uses the first order difference of money stock and foreign exchange reserves to do Granger Causality tests in order to avoid spurious regression problem. Since foreign exchange reserves and money stock are all integrated of order one and their first order differences are stable, we could do Granger Causality tests which is based on VAR model. Table 2 records the result of Granger Causality tests. It can not refuse the null hypothesis that changes of foreign exchange reserves do not cause the changes of money stock, thus denies that changes of foreign exchange reserves granger causes changes of money supply.

As the result of Granger Causality tests is sensitive to how many lags are included in the model, this paper has verified each case from one to six lags. All the results accept null hypothesis that  $\Delta f$  do not cause  $\Delta M0$ ,  $\Delta M1$ ,  $\Delta M2$ . Concisely, this paper just reports the results of the one, two, four and six lags model respectively.

If central bank only manipulates foreign exchange rate in the foreign exchange market, let foreign exchange reserves to change alone, then money supply must change following the changing of foreign exchange reserves (Sun and Ma, 2005). However, if central bank sterilizes effectively in domestic money market, then money supply will change independently. The People's Bank of Chins has issued enormous central bank's bill and raised required reserve ratio, isolated the foreign exchange reserves' impact on money supply. The empirical results of Granger causality tests are consistent with the operation which The People's Bank of Chins engaged. Similarly Burdekin and Siklos (2005) find money base's growth rate falls when foreign reserve rise above trend and suggest that The People's Bank of Chins successfully sterilized inflows of foreign exchange through band sales and other measure from 1990 to 2003.

## Conclusion

In this paper, we formally investigate the autonomy and effectiveness of monetary policy in the regime of conventional fixed peg arrangement in China during the period from 1998 to 2005, to tackle the question of whether it is the urgent affairs for China to move to a free floating exchange rate regime. We apply the Granger causality test based on vector auto-regressive (VAR) models to achieve this objective.

The results of test on monetary policy's effectiveness are that (1) money supply is ineffective in influencing real GDP and CPI; and (2) the impacts of interest rate on economy are dubious. There is no evidence that the changes of lending rate can affect CPI in all models and GDP in VECM1 and VECM2 but they affect GDP in VECM0. That imply that interest rate may have more influence on economy and the strategy of financial system reform in China should put more attention on improving the sensitivity of economic entities to the changes of interest rate (Sun, 2004).

For autonomy of monetary policy, this paper argues that, the avenue transfer impacts of foreign exchange reserves on money supply under conventional fixed peg arrangement may be blocked by sterilization operation. Since the results of vector error correction model show that changes of interest rate cannot drive money supply



move in the same direction, and Granger causality test can't reject foreign exchange reserves changes is not the cause of changes of money supply, this paper doesn't support the common point that conventional fixed peg arrangement already has systematic restrictions on autonomy of monetary policy in China.

Many literatures refer to capital controls providing room for monetary policy to move domestic interest rates somewhat independently of foreign interest rates. Even though capital controls exist in China, they are not fully effective to prevent the hot money surge in or out China. The key tool that China uses to keep monetary policy autonomous under conventional fixed peg arrangement is the sterilization operation.

Currently the expected return rates of RMB assets are higher than foreign assets. These differentials are aroused by the anticipated RMB appreciation and the extra national treatment for FDI, while China's interest rates remain low. Hot money inflows caused by anticipated RMB appreciation, FDI inflows aroused by super-normal profit, and the export increases stirred by FDI, which are driving factors of foreign exchange reserves accumulations. Because China's reserves increase is not the consequences of the implementation of monetary policy using interest tools, the vector error correction model in this paper finds out that changes of interest rate do not Granger cause changes of money stock in the same direction just reflects the economic reality in China

Both capital account and current account have the possibility to affect money supply via foreign exchange reserves, but this transfer avenue may be blocked by sterilization operations. The Granger causality test in this paper can't reject that the reserves changes don't Granger cause money stock changes, which means money supply do not systematically depend on foreign reserves, the sterilization operated by The People's Bank of Chins effectively safeguarded the autonomy of monetary policy.

In conclusion, the inefficacy of monetary policy on China's economy cannot be imputed to conventional fixed peg arrangement. Under immature market circumstance economic entities are not sensitive to market-oriented policy instruments, abandoning the exchange rate stability and widening floating range will not instantly improve the effectiveness of monetary policy. The strategies in the temporal agenda of the The People's Bank of Chins to make China's monetary policy to work should be accelerating the reforms of financial system, perfecting managerial mechanism of enterprise, enhancing the sensitiveness of market agencies to policies.

## References

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## **The New Chinese Bankruptcy Law – Creditor Friendly?**

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### **Abstract**

**On 27 August 2006 China promulgated its new bankruptcy law. The new law has been generally welcomed by the legal and business community. A key feature of the new law is its move to a more creditors-friendly framework. This paper examines those aspects of the new law intended to safeguard the position of enterprise creditors and considers their efficiency. To achieve the goal, this paper adopts a comparative study methodology by benchmarking the new Chinese bankruptcy law against the equivalent provisions of Australian insolvency legislation.**

### **Introduction**

After thirteen marathon years of legislative process, the new Chinese bankruptcy law (The People's Republic of China Enterprise Bankruptcy Law) was enacted in 27 August 2006 and will come into effect on 1 June 2007<sup>1</sup> It replaces the People's Republic of China State Enterprise Bankruptcy Law (for Trial Implementation) of 1986 (the Trial Law).<sup>2</sup> As one commentator notes: "The last decade has witnessed a seismic shift in the approach of the Chinese authorities towards insolvency and insolvent enterprises..."<sup>3</sup> Benefiting from the introduction of internationally accepted insolvency concepts and from overseas insolvency models, the new law has been generally welcomed by the business and legal communities. Despite this, some commentators have concerns, for example: "...whether there are adequately trained judges and professionals in China to implement this complex piece of commercial legislation."<sup>4</sup>

The new law has several novel features: priority payment for secured creditors, a corporate rescue regime and an independent administrator. These new features have been described by commentators as a significant breakthrough for the Chinese bankruptcy regime. This paper focuses on those aspects of the new law that enhance the position of creditors in the Chinese insolvency framework. The topic will be of interest not only to comparative law scholars but also, on a more practical level, to investors in the Chinese economy. The paper adopts a comparative study methodology by benchmarking the new Chinese bankruptcy law against the relevant provisions of the Australian Corporations Act 2001 (Cth). The first section provides an overview of the new legislation while highlighting those aspects intended to safeguard the position of enterprise creditors. The second section compares the mechanisms for the protection of the creditors of corporations in insolvency available under Australia's insolvency law framework.

### **The People's Republic of China Enterprise Bankruptcy Law (the New Bankruptcy Law)<sup>5</sup>**

#### **Scope and Application of the New Law**

The New Bankruptcy Law is composed of 136 provisions, divided into 12 Parts. A clear distinction between the New Bankruptcy Law and its predecessor legislation is the scope of its application. As its long title suggests, the New Bankruptcy Law applies to all types of enterprises with the status of legal entity, irrespective of their ownership ie state-owned as well as private (foreign and domestic) enterprises. Article 133 provides that until implementation of the Law, the relevant provisions of State Council will apply to the bankruptcy of state-owned enterprises. Some commentators indicate this is a more general exemption.<sup>6</sup>

Special provisions are stipulated for financial institutions (Article 134). The article provides that where the Article 2 factors arise in the context of a commercial bank, securities company, insurance company or other such

financial institution, the financial regulatory authority may petition the People's court for reorganisation or bankruptcy of the distressed financial institution.

Although the drafters of the New Bankruptcy Law have not explicitly legislated for the treatment of other insolvent enterprises, where other laws provide for the liquidation of such other organisations (e.g. partnerships<sup>7</sup>), Article 135 states that the new law is to apply with appropriate amendments. There is no current law covering personal bankruptcy.<sup>8</sup>

The legislative intention of the new law is set out in Article 1:

This Law has been formulated in order to regulate the enterprise bankruptcy procedure, equitably liquidate claims and debts, protect the lawful rights and interests of creditors and debtors, and maintain order in the socialist market economy.

One objective of the New Bankruptcy Law is to unify the bankruptcy statutory framework. The Law applies when an enterprise legal person becomes insolvent and its assets are insufficient to satisfy all its liabilities (balance sheet test) or it clearly lacks the ability to discharge its debts (cash flow test) (Article 2). These provisions assist creditors in understanding when an enterprise enters into the last phase of its business cycle, ie insolvency.

#### **Bankruptcy Petition Procedure**

A detailed procedure is prescribed for debtors and creditors of a distressed enterprise to petition for bankruptcy (Chapter 2).

Under Article 7, a creditor may apply to a People's court for the reorganisation or bankruptcy (not conciliation) of the debtor enterprise when the debtor is not able to pay its debts. Application is to be made in writing (Article 8) to the People's court where the debtor is domiciled (Article 3). The application may be withdrawn before it is accepted by the People's court (Article 9). The creditor is required to substantiate its petition with evidence and to address in its petition specified matters such as basic details about the creditor and the debtor, the objective of the petition and the facts and grounds of the petition (Article 8).

The debtor may also file a petition with the People's court for its own bankruptcy or for reorganisation or conciliation (settlement/composition) (Article 7). In the case of a voluntary petition brought by the debtor enterprise, its creditors will benefit from additional documentation the debtor is required to submit along with its application. This includes relevant financial accounting reports, a contingency plan for its workers and so on (Article 8).

A new timeframe has been set for the People's court to make its ruling in respect of the application. For a contentious petition, the People's court must make its ruling within 10 days after the objection period for the debtor has expired.<sup>9</sup> In the case of a non-contentious petition, the People's court must decide on the petition within 15 days after receiving it. Under special circumstances, an extension of 15 days after the general deadline may be granted by the People's court at the next higher level to both contentious and non-contentious applications (Article 10). The criteria upon which the court makes its decision are not specified.<sup>10</sup> Under the new law, creditors will receive swift notification of the acceptance of the bankruptcy application i.e. within 5 days from the date the ruling (Article 11). The notice period under the previous law was 10 days. (Article 9(1))

New appeal procedures in the case of the People's court rejecting the application are also provided for in the new law. Where the application is rejected by the People's court, the petitioner (a creditor or the enterprise) can appeal to the People's court at the upper level within 10 days after the rejection ruling is served (Article 12). The petitioner can use the same appeal route in circumstances where the court has accepted the petition, but before declaring the debtor bankrupt, it has discovered Article 2 does not apply to the debtor, and it then decides to reject the application (Article 12).

All other known creditors of the enterprise must be informed of the acceptance of the bankruptcy petition within 25 days after the ruling of acceptance is made. These other creditors will be better informed by the detailed public announcement the People's court is required to make under Article 14. The People's court announcement must include various details such as the time limit for declaring creditor claims, details about the administrator and the time and venue for the first creditors' meeting. To protect the interests of creditors, the New Bankruptcy Law obliges the relevant persons of the debtor enterprise to safely keep the property, be cooperative in the bankruptcy proceedings and at the creditors' meetings, to remain at their place of domicile, as well as not to accept managerial positions at other enterprises (Article 15).

### **Independent Administrator**

Under the previous law the debtor's assets were managed by a liquidation committee made up of government officials and the debtor's management.<sup>11</sup> Now creditors' interests are safeguarded further in the new law's provisions strengthening the court's power over the appointment of the bankruptcy administrator and in the provisions to do with the administrator's responsibilities. The People's court has the exclusive power to appoint, replace (Article 22) and accept the resignation of an administrator (Article 29). Key matters such as the procedures for the appointment and the determination of the administrator's remuneration are left for stipulations issued by the Supreme People's court (Article 22).

Under the new law, creditors undoubtedly benefit from having an administrator appointed to the enterprise so there is a higher degree of independence and accountability than was previously the case.<sup>12</sup> Article 24 allows the People's court to appoint as administrator the liquidation committee (comprising personnel from relevant departments and agencies) or an intermediary organisation such as a law firm, accounting firm or bankruptcy liquidation firm. After seeking the opinion of the intermediary organisation, the court may appoint a member of the organisation "with the requisite professional knowledge and professional qualifications" as administrator (Article 24). There are several grounds on which a person will be disqualified from acting as administrator. They include circumstances where the proposed administrator "has a material interest in the case" or where the court deems the circumstances to make the proposed administrator "unfit to serve" in the position (Article 24). If an individual accepts the appointment, he or she is required to take out insurance for professional liability (Article 24).

The administrator is entrusted with the duties and functions of taking custody, investigating the status, managing and disposal of the debtor's property (Article 25). The administrator is also responsible for the day-to-day management of the debtor enterprise, for representing the debtor in any legal proceedings and for calling creditor's meetings.

An administrator is required to report to the People's court on its work and is subject to the supervision of the creditors' meeting and the creditors' committee (Article 23). The creditors' committee may apply to the People's court for a replacement (Articles 22 and 61(2)). The administrator is obliged to inform the creditors' committee of the various activities listed in Article 69, including the transfer of property rights.

In the case of reorganisation, the administrator plays a supervisory or management role with respect to the debtor's property and business (Articles 73 and 74).

### **Claim and Declaration**

On acceptance of the bankruptcy petition by the People's court, the creditors are no longer able to take action against the debtor's property (a stay-Articles 19, 21). The creditors must now make claims in accordance with the bankruptcy procedures. But civil litigation commenced before the acceptance of the petition can be resumed after the administrator takes possession of the debtor's property (Article 20).

The New Bankruptcy Law provides more efficient and effective procedures for the making of claims by creditors (Chapter 6). It unifies the timeframe for all creditors in submitting their claims (i.e. not less than thirty days but no more than three months commencing from the day of the People's court's announcement of acceptance of the bankruptcy petition (Article 45). Unlike the previous law (Article 9 of the Trial Law), the timeframe in the new law operates without reference to whether a creditor has received the court's notification. Creditors can submit in writing (Article 49), a wide range of claims to the administrator (Article 48), including claims against the debtor enterprise current at the date of the bankruptcy (Article 44), unmatured claims deemed to have fallen due at the time of the bankruptcy (Article 46), conditional claims, claims subject to time limits and claims pending in legal actions and arbitration procedures (Article 47). The New Bankruptcy Law has simplified the process for claims by joint creditors. It allows a joint claim to be made by one of them (Article 50).

At the same time, the New Bankruptcy Law recognises other forms of claims. These include claims from the guarantor or joint debtor of the debtor (Article 51), remedial claims from an aggrieved party whose contract has been terminated by the administrator or the debtor pursuant to the law (Article 53), indemnity claims from the debtor's agent who incurred liability without knowledge of the agency contract being subject to the bankruptcy proceedings (Article 54), and claims from those who have accepted or honoured a negotiable instrument drawn by the debtor (Article 55).

New provisions also improve creditors' rights if they fail to file their claim within the timeframe as approved by the People's court. Creditors can submit a delayed claim before the final distribution takes place, but have to bear the costs incurred by their delay and are not entitled to any retrospective distribution (Article 56). Creditors ("materially interested parties") also have the right to inspect the claims record compiled and kept by the administrator (Article 57). The list of claims must be submitted to the first creditor's meeting for verification and to the People's court for confirmation (Article 58). Any dispute over the claims recorded in the list of claims can be submitted to the People's court that accepted the original bankruptcy petition (Article 58). Creditors should take note that Article 59 allows the debtor's workers and their union representatives to attend creditors' meetings and "express their opinions on relevant matters".

#### **Creditors' Meetings and Creditors' Committee**

Key provisions that safeguard the interests of creditors are those relating to creditors' meetings and the formation of the creditors' committee.

Creditors who have submitted their claims in the bankruptcy enjoy a voting right at the creditors' meeting (Article 59). A creditor with a claim that has not been determined cannot exercise the right to vote unless the People's court provisionally determines the amount of the claim for the purpose of exercising that right (Article 59). Article 59 further disqualifies any secured creditors who have not relinquished their priority right from voting on the adoption of settlement agreements (Article 61(7)) or on the distribution plan for bankrupt assets (Article 61(10)). Creditors can cast their vote by proxy provided that a power of attorney is submitted to the People's court and to the chairperson of the creditors' meeting (Article 59). The chairperson of the creditors' meeting is chosen by the People's court from creditors with voting rights. The main duty of a chairperson is to lead the creditors' meetings (Article 60).

The functions and powers of the creditors' meetings have expanded from three aspects under the previous law to eleven areas under the new law (Article 61). These functions and powers are verifying claims (Article 61(1)), seeking court replacement of the administrator and examining the administrator's expenses and remuneration (Article 61(2)), supervising the administrator (Article 61(3)), selecting and replacing members of the creditors' committee (Article 61(4)), deciding on the continuation or termination of the debtor's business (Article 61(5)), adopting a reorganisation plan (Article 61(6)), approving settlement agreements (Article 61(7)), adopting plans for the management of the debtor's property (Article 61(8)), adopting plans for the sale of property (Article 61(9)) and the distribution of the debtor's property (Article 61(10)), and any matter the People's court thinks fit to be decided by the creditors' meeting (Article 61(11)). The New Bankruptcy Law also stipulates that the first creditors' meeting shall be convened by the People's court within fifteen days after the period for the declaration of claims expires (Article 62). Subsequent meetings can be called when the People's court considers them necessary, or when a request is made to the chairperson by the administrator, by the creditors' committee or by the creditors whose debts amount to more than 25 percent of the total claims (Article 62). Fifteen days advance notice of the creditors' meeting shall be given to identified creditors (Article 63).

To reinforce the protection of creditors' interests, a resolution passed at a creditors' meeting has two prerequisites i.e. as to the number of creditors voting at the meeting and the value of their claims. Apart from resolutions for reorganisation and conciliation, resolutions of a creditors' meeting require a majority of creditors who have voting rights, present at the meeting and the amount of their claims must comprise more than one half of the total claims (Article 64). Resolutions of creditors' meetings are binding on all creditors (Article 64). The New Bankruptcy Law has doubled the time (ie 15 days from the date the resolution is passed) within which creditors may apply for the court's annulment of resolutions that have violated the law and damaged creditors' interests and for a court order that the creditors meeting adopt a new resolution in accordance with the law (Article 64).

Mechanisms exist in the new law to facilitate the progress of the bankruptcy procedures. After two voting attempts, a deadlock with respect to managing or selling the bankrupt's asset or distributing the bankrupt's property, can be resolved by the People's court (Article 65). Disgruntled creditors<sup>13</sup> can apply for judicial review after the announcement of the ruling or within 15 days upon receipt of notice (Article 66). However, review of the People's court ruling does not stay its enforcement (Article 66).

A new advancement for creditors' interests in bankruptcy is the establishment of the creditors' committee. Under Article 67 the creditors' meeting may decide to establish a creditors' committee with no more than nine

members. The committee is made up of creditors' representatives selected by the creditors' meeting and a representative from the debtor's staff or the labour union and the membership requires written approval from the People's court (Article 67). The functions and powers of the creditors' committee are stipulated in Article 68. They include supervision of the management and the disposal of the debtor's property, supervision of the distribution of the bankrupt's property, proposing the convening of a creditors' meeting, and carrying out any functions or powers delegated by the creditors' meeting. To facilitate the creditors' committee exercising its functions, Article 68 vests the creditors' committee with the power to demand explanations or relevant documents from the administrator and the relevant persons of the debtor. The creditors' committee is further authorised to seek court assistance with respect to the administrator or the relevant person of the debtor if they refuse to accept supervision in accordance with the law. The People's court is required to render a ruling within five days (Article 68). Article 69 obliges the administrator to make a timely report to the creditors' committee, or to the People's court where there is no creditors' committee, if the administrator engages in any of the activities set out in the article. These activities include transfers in various forms of rights such as immovable property rights, exploration rights, mining rights, and intellectual property rights, transfer of all business stocks or operations, obtaining a loan, creating collateral, assigning credit claims or marketable securities, performing a contractual obligation due by the debtor and his counterparty, relinquishing a right, retrieving a security, and carrying out an act of disposing of property that materially affects the interests of creditors.

#### **The Liquidation of the Bankrupt Enterprise**

##### **Bankruptcy Property**

When an enterprise is declared bankrupt, unsecured creditors will be concerned about the availability and recovery of assets in the bankruptcy. To address this concern, Chapter 4 of the New Bankruptcy Law stipulates the scope of the debtor's assets and extends the previous period of relation back (during which time assets may be clawed back into the bankrupt estate for the benefit of all creditors) for some transactions from six months to twelve months (Article 31). There are also provisions directed to preserving the debtor's property (Articles 16 and 20), and coverage of the debtor's overseas property (Article 5).

Property the debtor owns or obtains during the period between acceptance of the petition and conclusion of the bankruptcy procedure is considered part of the debtor's estate available for distribution (Article 30). Accordingly, once the People's court accepts the bankruptcy petition, debtors of the bankrupt enterprise are obliged to repay their debts to the administrator and persons in possession of the debtor's property are required to deliver the property to the administrator (Article 17). Those intentionally breaching these obligations by making the repayment or delivery to the debtor, instead of the administrator, and causing creditors to suffer loss will not have their obligations discharged (Article 17). Article 20 adjourns civil action or arbitration procedures involving the debtor until the administrator is in full charge of the debtor's assets.

The doctrine of relation back allows the administrator to claw back the debtor's property that has been transferred without consideration or at a significant undervalue, within twelve months prior to the acceptance of a bankruptcy petition by way of application to the People's court (Article 31). The new law also makes invalid various acts including the transfer or concealment of property to avoid debts (Article 33(1)) and allows the administrator to recover them (Article 34). Irregular income and property obtained or misappropriated by senior managerial staff are retrievable by administrator (Article 36). The administrator can demand redemption of property on pledge (Article 37) and delivery of the subject matter of a sale (Article 39) after payment in full. The administrator can also call upon investors of the debtor's enterprise for their total capital contribution irrespective of the original agreed deadline (Article 35).

To ensure a fair distribution of bankrupt property amongst all creditors, the administrator has the right to apply to the People's court to have revoked payments made to individual creditors who received the payments six months prior to the acceptance of the bankruptcy petition, and while the debtor was insolvent, unless the repayment has been beneficial to the debtor's property (Article 32). Preferential payments made to creditors after the acceptance of the bankruptcy petition are void (Article 16).

##### **Cross-border Insolvency**

A novel provision for creditors is Article 5 which extends the application of the New Bankruptcy Law to the debtor's property located outside China. At the same time, Article 5 allows recognition and enforcement of foreign

court judgements against a debtor's assets located within China. This may occur provided the People's court, after receiving the application and carrying out an examination in accordance with international agreements or in accordance with the principle of reciprocity, is satisfied the recognition would not impair the legitimate rights and interests of creditors in China, would not prejudice state sovereignty, state security and public interests, and would not violate the fundamental principles of the Chinese laws.

Although addressing cross-border insolvency for the first time, the law does not follow the UNCITRAL Model Law adopted by countries such as the US (Chapter 15, US Bankruptcy Code) and also planned for adoption in Australia.

#### **Bankruptcy Expenses and Debts**

Creditors of a bankrupt enterprise will be equally concerned about the amount of bankruptcy expenses and debts needed to be satisfied by recourse to the bankrupt property (Chapter 5). Article 41 specifies the bankruptcy expenses as People's court proceedings fees, the costs of managing, selling and distributing the debtor's property, remuneration for the administrator and other staff, and the expenses incurred in the administrator's performance of his or her duties. Article 42 recognises six other types of debt (debts of common interest) which are incurred after the bankruptcy petition is accepted. They include debts incurred by the administrator or debtor in requiring the other parties to contracts with the debtor to perform the contract and debts incurred in connection with the bankruptcy property but other than those relating to the management of the property. Both expenses and debts of common interest are to be paid off from the debtor's property as they arise (Article 43). If the property of the debtor is insufficient to discharge all the bankruptcy expenses and debts of common interest, the former are to be settled first. If the debtor's property is not enough to discharge all the bankruptcy expenses or all the debts, they are to be paid pro rata (Article 43). Creditors should take note that where the debtor's property is not sufficient to satisfy the bankruptcy expenses, the administrator will then petition the People's court to terminate the bankrupt proceedings (Article 43).

#### **Repayment Ranking**

It is the task of the administrator, without undue delay, to propose a realisation plan for the bankrupt estate at the creditors' meeting for its discussion and to sell the bankrupt property wholly or in part by auction (Article 112) in accordance with the creditors' meeting resolution or the People's court's ruling by virtue of Article 65 (Article 111). The main concern of all creditors is their position in repayment.

A landmark provision to uphold secured creditors' rights is Article 109. The article provides secured creditors with priority repayment over employees and other creditors with respect to specific property. The position under the former legislative framework gave employees priority over secured creditors over the secured property where the assets of the bankrupt enterprise were insufficient.<sup>14</sup> If the property is not sufficient to pay the full claim of the secured creditor, any shortfall due to the creditor is treated as a general claim (Article 110). However, Article 109 has to be read in conjunction with Article 132 which limits the application of Article 109 so that the priority of the secured creditor only applies to employees' claims that are incurred after the implementation of the Law.

Despite losing priority over secured creditors, some employee entitlements are given preferred status in the bankruptcy distribution. Article 113 stipulates three tiers of repayment in respect of other types of creditors. After deduction of bankruptcy expenses and debts of common interest (Articles 41 and 42), wages due, medical and disability allowances, families' subsidies, labour insurance and the like are paid first. Next payable are the social insurance premiums and taxes; and the final repayment is for ordinary creditors. Pro-rata distribution, in monetary form unless otherwise stipulated (Article 114), is to be made if the bankrupt property is insufficient to satisfy all the claims within a single tier. Wages for staff at managerial level are computed according to the average wage of the bankrupt enterprise.

The administrator is required to submit a distribution plan, outlining the creditors' details, the amount of claims, the distributable assets, priority and proportion as well as the mode of distribution, to the creditors' meeting for discussion, and present the endorsed plan to the People's court for approval (Article 115). Distribution can be made by instalment (Article 116). Article 117 requires the administrator to set aside property to satisfy conditional claims. If the conditions are not fulfilled after the final distribution, the reserved property is to be distributed to other relevant creditors. Uncollected distributions are to be kept for two months after which they will be re-distributed to other creditors (Article 118). Property reserved for claims pending litigation or arbitration will be

redistributed to other creditors if not collected two years after the conclusion of the bankruptcy procedure (Article 119).

Upon the petition of the administrator, the People's court will conclude the bankruptcy procedure when the bankrupt has no more property to distribute or the last distribution is made (Article 120). After the conclusion of the bankruptcy procedure, the bankrupt enterprise is de-registered (Article 121). This will bring the administrator's duty to an end (Article 122). Within two years after the termination of the bankruptcy procedure, creditors can petition the People's court for additional distributions of property retrieved under Articles 31, 32, 33 and 36, or of distributable property, if the value of the recovered property outweighs the distribution cost (Article 123). Residual bankrupt property is to be handed over to the State (Article 123). The repayment liability of the bankrupt's guarantor and the bankrupt's joint debtor continue on completion of the bankruptcy procedure (Article 124).

#### **Civil and Criminal Liability for Enterprise Management**

An additional measure employed by the New Bankruptcy Law to enhance creditors' rights and interests is to increase accountability. Article 125 imposes potential civil and criminal liability on senior staff, relevant personnel of the debtor, the debtor, and the administrator. Directors, managers or senior managerial staff of the bankrupt enterprise are civilly liable for any breach of their fiduciary duty that caused the enterprise to go bankrupt, and may be banned from accepting a similar management position for three years from the conclusion of the bankruptcy procedure (Article 125). The relevant personnel of the debtor who fail to comply with the obligations under Article 15, such as attending creditors' meetings, truthfully responding to queries and staying in their place of domicile, may be subjected to a fine (Article 126), warning, and/or detention (Article 129). The debtor is obliged to submit to the People's court an account of its financial status, an inventory of debts, inventory of credits, a financial accounting report, wage payment report, and report of social insurance payments and so on (Article 11). When the debtor fails to make submissions or makes false submissions to the People's court, refuses to transfer property, company seals, account books or documents to the administrator, fabricates or destroys evidence that creates uncertainty in relation to the status of the property, the directly responsible personnel of the enterprise may be subject to a fine (Article 127). Furthermore, the enterprise's legal representative and other directly related personnel are accountable for the debtor's violation of acts specified in Articles 31 to 33 which damage creditors' interests (Article 128). Similarly, the administrator may be liable for any loss caused to creditors, the debtor or third parties through his failure to act diligently or to perform honestly the obligations set out in Article 27.<sup>15</sup> When the violation of the Bankruptcy Law constitutes a crime, criminal liability shall be pursued in accordance with the law (Article 131).

#### **Corporate Rescue**

In line with developments in various overseas insolvency systems (eg Chapter 11 US Bankruptcy Code), the New Bankruptcy Law recognises that winding up a financial distressed enterprise is not always the best option in protecting creditors' interests. The new law introduces a comprehensive system of reorganisation and conciliation for rescuing viable businesses. Reorganisation is not new to the Chinese bankruptcy regime, but it appeared only in a sketchy form under the previous legal framework.

#### **Reorganisation**

Under the new law, a creditor or the debtor enterprise may petition directly for the reorganisation of the debtor enterprise (Article 70). Also, where a creditor has petitioned for the bankruptcy of the debtor enterprise, during the period between the acceptance of the petition by the People's court and the declaration of bankruptcy of the enterprise, the debtor or an investor who holds ten percent or more of the debtor's registered capital, may petition for reorganisation.

Under a reorganisation plan, with the People's court's permission, the debtor can continue to manage its property and operate its business during the period of the reorganisation (Article 73). This arrangement can be beneficial to creditors as it provides an opportunity for the enterprise to trade out of its current financial difficulties. In order to safeguard creditors' interests, the debtor's management has to be under the supervision of the administrator. However, in order to give the enterprise an opportunity to restructure, there are restrictions imposed on the exercise of certain rights by creditors during the period of the reorganisation. During the period secured creditors are unable to exercise security rights over specific property unless they can convince the People's court to permit them to do so because their collateral could be damaged or its value decrease markedly (Article 75).



The rights of investors are also affected. During the restructure period investors cannot request any distribution of returns on investment (Article 77). Shares in the enterprise held by its directors, supervisors and senior management personnel may not be transferred to a third party, unless consent is given by the People's court (Article 77).

If the debtor's business and property are deteriorating to an extent beyond rescue, or the debtor has fraudulently reduced his property or committed acts which are conspicuously detrimental to the creditors, or the debtor's conduct has hindered the administrator in carrying out his duty, then the administrator or any interested party can petition the People's court for termination of the reorganisation and a declaration of bankruptcy (Article 78).

Creditors are given a new and significant role in the adoption of the reorganisation plan. Within six months or an extended nine months (if there are legitimate grounds) after the reorganisation application is approved, the People's court and the creditors' meeting are to receive from the debtor or the administrator (Article 80) a draft reorganisation plan (Article 79). If the debtor or administrator fail to submit the draft plan by the deadline as required by the law, the People's court will terminate the reorganisation procedure and declare the debtor bankrupt (Article 79).

Creditors vote on the restructure plan according to their class of claim (eg secured creditors, tax debts, common claims - Article 82) at the first creditors' meeting convened by the People's court within 30 days after the court receives the reorganisation plan (Article 84). Adoption of the reorganisation plan requires majority approval from creditors the value of whose debt represents two-thirds or more of the total claim in that class (Article 84). When all the classes endorse the reorganisation plan, it is deemed to have been adopted (Article 86). The plan is then submitted to the People's court for final approval (Article 86). If a voting group fails to endorse the plan, the administrator or debtor may negotiate with the creditors of that group (Article 87) and the agreement reached should not disadvantage the interests of other voting groups (Article 87). If endorsement still cannot be obtained after negotiation, the administrator or debtor can submit the reorganisation plan directly to the People's court for approval, subject to the fulfilment of the conditions stipulated in Article 87. Where a reorganisation plan fails to get both creditor and People's court approval in accordance with Article 87, or gets creditor approval but not court approval, the People's court will terminate the reorganisation procedure and declare the debtor bankrupt (Article 88). The reorganisation plan is implemented by the debtor (Article 89) under the administrator's supervision (Article 90).

An approved reorganisation plan is binding on the debtor and all creditors (Article 92). Creditors should take note that failure to file their claims in accordance with the law restricts them from exercising their rights during the period of the reorganisation (Article 92). On completion of the execution of the reorganisation plan, the debtor is discharged from any debts that were reduced or forgiven under the plan (Article 94). Where the debtor is unable or fails to carry out the plan, the People's court will terminate the execution of the reorganisation plan and declare the debtor bankrupt (Article 93). Upon termination of the restructure, the creditor's commitment with respect to adjusting its claims against the debtor, are no longer valid. However, any discharge of the creditor's claim effected as a result of the implementation of the reorganisation, remains valid. Only that part of the claim not discharged is deemed now to be a claim in the bankruptcy (Article 93).

#### **Conciliation (Settlement/Composition)**

The debtor may directly petition the People's court for conciliation or may petition for conciliation during the period between the court's acceptance of the bankruptcy petition and the declaration of the bankruptcy of the debtor enterprise (Articles 7 and 95). Conciliation "allows for a quick compromise of unsecured claims without the need for a protracted bankruptcy proceeding."<sup>16</sup> When petitioning for conciliation, the debtor is required to submit a draft plan. Although conciliation can only be initiated by the debtor, it is the unsecured creditors who have control over the approval of the settlement plan.

Once the People's court is satisfied with the debtor's draft settlement agreement and it rules in favour of the settlement, it then convenes a creditors' meeting to discuss the draft agreement (Article 96). Like reorganisation discussed above, the settlement agreement requires the creditors' consent to adopt the plan (Article 97) and the court's final approval (Article 98). When the settlement agreement fails to obtain the required consents or approvals, the People's court terminates the procedure and declares the debtor bankrupt (Article 99).

Unlike reorganisation, the settlement agreement is binding on the debtor and the unsecured creditors only (Article 100). Its binding force also does not extend to unsecured creditors' rights against the debtor's guarantor or other debtors undertaking joint and several liabilities with the debtor (Article 101).

Under the settlement, the debtor is obliged to repay the debts according to the agreed terms (Article 102). Unsecured creditors who fail to file their claims in accordance with the law are restrained from exercising their rights during the period of the settlement agreement (Article 100). When the conciliation agreement is fully executed, the debtor's liability is wholly discharged, including the liability that has been foregone by the agreement (Article 106).

Under Article 103 the People's court may decide the settlement agreement, if concluded as a result of fraud or other illegal act, is void and declare the debtor bankrupt. If the agreement is avoided, any repayments made to creditors during the period of the settlement agreement, remain valid. As with reorganisation, if the debtor is unable to or fails to carry out the settlement agreement, a creditor covered by the agreement may petition the People's court for the termination of the agreement and a declaration that the debtor is bankrupt (Article 104). On termination of the agreement, creditors are no longer bound by its terms but any repayment creditors received by virtue of the agreement remains valid (Article 104). After termination any outstanding debts are now deemed to be claims in the bankruptcy (Article 104).

## **Comparing Australian Insolvency Law**

### **Introduction**

The Australian legal framework for insolvency has a separate legislative regime for personal insolvency (Bankruptcy Act 1966 (Cth)-covering individual debtors and joint debtors such as the members of a partnership) and corporate insolvency (Corporations Act 2001 (Cth)). The current legislation for corporate insolvency came into operation in 1993.<sup>17</sup> The provisions in the Corporations Act are quite detailed and are supplemented by regulations (Corporations Regulations 2001).<sup>18</sup> The legislation is also supplemented by case law.

A company in financial difficulty has several options available under the Corporations Act. Outside of liquidation, is receivership, a scheme of arrangement and voluntary administration. A receivership<sup>19</sup> is a court-ordered administration appointed over the property of the company or, more usually, an insolvency administrator acting for a secured creditor, who is appointed under a contractual arrangement between the secured creditor and the company.<sup>20</sup> A scheme of arrangement<sup>21</sup> is a court affirmed settlement or compromise between the company and its unsecured creditors. A form of reorganisation was introduced in 1993. Under voluntary administration an insolvency administrator is appointed for a period (about a month) to investigate the financial position of the company and to recommend to creditors whether they should proceed to a reorganisation (under a Deed of Company Arrangement), place the company into liquidation or return the company's operation to the current management. During the period of investigation a statutory moratorium<sup>22</sup> operates to prevent secured and unsecured creditors and owners from enforcing their rights against the property used by the company without the consent of the court or the administrator. If creditors representing a majority in number and value of the debts owed agree to the arrangement, a Deed of Arrangement is entered into and binds all the unsecured creditors and those secured creditors that voted in its favour (Section 444D). Alternatively, the creditors may decide on a winding up of the company (creditors' voluntary winding up). If so, the administration proceeds immediately as a liquidation (Section 446A).

The winding up of a company may be initiated by its members, but if the company is insolvent, the creditors then take charge of the liquidation (creditors' voluntary winding up).<sup>23</sup> Alternatively, a court may order the compulsory winding up of a company on the application of various parties, but most frequently, a creditor, on the basis of evidence of insolvency (compulsory winding up).<sup>24</sup> In the past, liquidation would most frequently be affected by way of compulsory winding up order. These days, however, it is more likely the company will come under voluntary administration and then proceed to a voluntary winding up on the vote of the general meeting of creditors.

### **Comparison of Chinese and Australian Insolvency Regulation**

In order to compare the insolvency structures of China and Australia, the following section concentrates on a few key provisions and aspects of insolvency administration that seek to enhance the position of creditors in the insolvency process.

#### **Independent Administration**

The corporate insolvency framework depends upon having insolvency practitioners who are independent of the company to manage the company's affairs during the insolvency administration for the benefit of creditors. For the most part, in order to be appointed a receiver, voluntary administrator or liquidator, the administrator must be a registered liquidator.<sup>25</sup> The registration process is administered by the corporate regulator (Australian Securities and Investments Commission)<sup>26</sup> and requires the practitioners to have accounting qualifications and certain levels of insolvency administration experience. A registered liquidator may act in all insolvency administrations, except a compulsory winding up, which requires a slightly higher level position known as an Official Liquidator. In the various administrations certain levels of creditor vote may lead to a change of administrator and on certain grounds an application may be made to the court to remove and replace the administrator.

The issue of independence of the administrator is a key one. There is currently being discussed legislative proposals to require a statement of independence from the administrator on appointment.<sup>27</sup> The statement will contain details of any relevant relationships that may affect his or her independence. Although not required to be a member of one of the professional accounting bodies (Institute of Chartered Accountants in Australia, CPA Australia) or the insolvency practitioner organisation (Insolvency Practitioners Association of Australia), many insolvency practitioners are members and therefore are also subject to the codes of ethics of these organisation which address matters such as independence.

Insolvency practitioners have come under scrutiny not only in relation to their independence but also in relation to their levels of remuneration and the processes by which the remuneration is agreed to by the creditors.<sup>28</sup> One issue has been the use of hourly rates for remuneration without an indication as to a maximum or capping of the remuneration. Another issue has been ensuring creditors are given sufficient information to be able to agree to the arrangements about remuneration. For several years the insolvency profession has also been subject to pressure to open up the area, at least in relation to the less complex administrations, to persons with business experience and to the legal profession.<sup>29</sup>

#### **Ranking of Creditors**

The Australian insolvency framework also seeks to enhance the position of creditors by way of the ranking of creditor claims but this is another area of continuing controversy. The basic ranking is established by the liquidation provisions. Other forms of administration such as voluntary administration are influenced by these basic principles; creditors that have a preferred status in a liquidation will usually need to be provided for in similar ways in order to convince them to join in the decision in favour of reorganisation.

In the context of liquidation, the basic premise upon which distribution occurs is that there will be an equal sharing in the funds available (*pari passu*—"with equal step") and if the assets are insufficient, the creditors will be paid in proportion to the debts owed to them.<sup>30</sup> However, there are numerous exceptions to these general principles.

One key exception is that secured creditors are generally unaffected by the liquidation and may take the benefit of their security.<sup>31</sup> This position has been under some pressure. In the case of one form of security, a floating charge, certain debts gain preference over the secured creditor, including some debts owed to employees.<sup>32</sup> After the secured creditors, come the costs and expensed of the liquidation. Then comes a series of preferred creditors, including certain claims in respect of employee entitlements (Section 556).

The issue of employee entitlements has been a controversial one in recent years. Some well-publicised corporate failures have emphasised the precarious position of employee entitlements even with its preferred status. There were some suggestions that secured creditors might lose their position in favour of employee entitlements,<sup>33</sup> but this proposal has not been generally supported. Instead, the government has introduced an administrative scheme<sup>34</sup> under which it guarantees certain employee entitlements and after paying out funds to cover such entitlements, then stands in the shoes of the employees in respect of their preferred status in the winding up. Corporate group restructures that have sought to reduce liability for employee entitlements by transferring assets

away from those group companies employing staff, have been met with legislative changes which prohibit this conduct.<sup>35</sup>

### **Reorganisation**

Like several other jurisdictions, Australia has recognised the benefit to creditors of the reorganisation of a corporate enterprise otherwise facing liquidation. The voluntary administration procedure has proved a very popular mechanism. Its legislative purpose is to provide for an administration that:

- (a) maximises the chances of the company, or as much as possible of its business, continuing in existence; or
- (b) if it is not possible for the company or its business to continue in existence—results in a better return for the company’s creditors and members than would result from an immediate winding up of the company” (Section 435A).

It now means that most companies in financial difficulty prefer to use this mechanism even where the ultimate result is a winding up of the company. A key part of the framework is to take the management of the company out of the hands of its board of directors and place it in the hands of an independent, experienced insolvency practitioner whilst a statutory moratorium operates. The ability of the administration to move smoothly either to a Deed of Company Arrangement or a winding up, is an attractive feature of voluntary administration.

Despite its success, there have been several issues which have proved controversial over its relatively short life. One of these is whether the necessary investigation of the company’s finances can be carried out in such a relatively short time frame (there is provision for an extension), especially where there is a large enterprise involved. The current framework has been compared with other similar reorganisation structures, for example in the US with its longer time period and process which leaves control in the hands of management.<sup>36</sup> There have been some attempts to circumvent the tight time frame. One model uses a trust structure which allows the company to transit through voluntary administration within the time limits and yet enables a further period to put a reorganisation in place.<sup>37</sup> Government regulators have warned insolvency practitioners about their obligations in informing the creditors so the creditors are able to take part in the decision making process and have the benefit of the legislative framework put in place for voluntary administration.

### **Cross-border Insolvency**

Corporate insolvency administrations more frequently involve overseas assets and overseas creditors so another important area of comparison between Chinese and Australian insolvency law is that to do with cross-border insolvency. Up to now, the Australian provisions for both corporate and personal insolvency have depended upon a system of mandatory recognition of an insolvency administration originating in a prescribed country (eg UK, US) and a court discretion to recognise an administration originating in a non-prescribed country. The procedure involves a letter of request from a foreign court addressed to the Australian court under which the court is asked to act in aid of the foreign court (Bankruptcy Act 1966 Section 29, Corporations Act 2001 Sections 580 and 581).

This current framework is now under review and the government has announced its intention to adopt provisions along the lines of the UNCITRAL Model Law. These have yet to be drafted.

## **Conclusions**

There are several principles of insolvency law recognised as generally applicable across very different legal systems.<sup>38</sup> It is therefore unsurprising to find many points of similarity between the new Chinese law and the current framework for corporate insolvency in Australia. Several aspects of both legal frameworks illustrate the importance of effective insolvency structures within both economies.

The new insolvency law in China indicates China is embarking upon several important legal experiments: the ranking of creditor claims and the appointment of an independent insolvency administrator. There have also been recent changes in Australian insolvency law (eg voluntary administration) and further significant changes are currently being discussed (eg pooling of assets on a group collapse). Both jurisdictions will find it beneficial to examine each others experiences in order to be better able to meet current and developing business practices in the corporate sphere.

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- <sup>2</sup> Falke, M "China's New Law on Enterprise Bankruptcy: A Story with a Happy Ending?" (2007) 16 *International Insolvency Review* 63 at 64. Other types of enterprise are subject to provisions in the Company Law and the Civil Procedure Law: Tomasic, R, Little P, Francis, A, Kamarul, K and Wang K "Insolvency Law Administration and Culture in Six Asian Legal Systems" (1996) 6 *Australian Journal of Corporate Law* p 4.
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- <sup>3</sup> White & Case "An Outline of the Proposed New Insolvency Regime in the PRC" January 2006 at [www.whitecase.com](http://www.whitecase.com). P 2.
- <sup>4</sup>Palmer & Rapisardi above n 1 p 4.
- <sup>5</sup> n 1.
- <sup>6</sup>Palmer & Rapisardi interpret this provision as a wider "carve out" relating to State-owned enterprises participating in the Policy Bankruptcy Program (he identifies some 2,116 of them): Palmer & Rapisardi above n 1 p 4
- <sup>7</sup>The People's Republic of China Partnership Act (2006), Article 92 which states that when the partnership cannot repay due debts, creditors can accordance to law petition to People's court for its liquidation or request its general

partners for repayment. When a partnership is being declared bankrupt accordance to law, its general partners shall continue to bear the several and joint liabilities.

<sup>8</sup>Chua, Eu Jin “China’s New Bankruptcy Law: A Legislative Innovation” (2006) *China Law and Practice* p 1.

<sup>9</sup>The People’s court must notify the debtor enterprise within 5 days after receiving the bankruptcy petition. The debtor has 7 days from receipt of the notice to make its objection to the petition known to the court. (Article 10)

<sup>10</sup>Falke above n 2 p 67.

<sup>11</sup>Morrison & Foerster “New Law Ushers in Sweeping Changes to Bankruptcy Regime in China” 2006 p 3 at [www.mofo.com](http://www.mofo.com)

<sup>12</sup>The Trial Law, Article 24 stipulates the members of the liquidation team shall come from the superior department in charge of the insolvent state-owned enterprise, government finance departments, and other relevant departments and professional personnel.

<sup>13</sup>Judicial review for ruling regards distribution of bankrupt asset can only be applied by creditors whose claims account for more than half of the total unsecured claims.

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<sup>15</sup>Article 130

<sup>16</sup>Palmer & Rapisardi above n 1 p 4.

<sup>17</sup>Corporate Law Reform Act 1992 (Cth).

<sup>18</sup>The regulations cover areas such as creditors meetings and the handling of creditors’ claims against the company: Corporations Regulations 2001, regs 5.1.01-5.6.74.

<sup>19</sup>Corporations Act 2001 Part 5.2.

<sup>20</sup>Most often appointed under a floating charge.

<sup>21</sup>Corporations Act 2001 Part 5.1.

<sup>22</sup>Corporations Act 2001 Part 5.3A, Division 6.

<sup>23</sup>Corporations Act 2001 Part 5.5.

<sup>24</sup>Corporation Act 2001 Part 5.4.

<sup>25</sup>There is a separate registration regime for administrators in bankruptcy (registered trustees).

<sup>26</sup>Corporations Act 2001 Part 9.2.

<sup>27</sup>Exposure Draft Corporations Amendment (Insolvency) Bill 2007: Part 2.

<sup>28</sup>Parliamentary Joint Committee on Corporations and Financial Services *Corporate Insolvency Laws: A Stocktake* June 2004 Ch 7.

<sup>29</sup>Parliamentary Joint Committee on Corporations and Financial Services *Corporate Insolvency Laws: A Stocktake* June 2004 Ch 2.

<sup>30</sup>Corporations Act 2001 s 555.

<sup>31</sup>Corporations Act 2001 s 471C.

<sup>32</sup>Corporations Act 2001 s 561. A similar loss of priority operates in a receivership where the company is not in liquidation: s 433.

<sup>33</sup>Parliamentary Joint Committee on Corporations and Financial Services *Corporate Insolvency Laws: A Stocktake* June 2004 Ch 10.

<sup>34</sup>General Employee Entitlements and Redundancy Scheme (GEERS).

<sup>35</sup>Corporations Act 2001 Part 5.8A.

<sup>36</sup>Corporations and Markets Advisory Committee *Rehabilitating Large and Complex Enterprises in Financial Difficulties* October 2004.

<sup>37</sup>Creditors’ trust.

<sup>38</sup>See eg UNCITRAL *Legislative Guide on Insolvency Law*, 2005.

# The Arrival of Public Information and Emerging Stock Market: A Case of Karachi Stock Exchange

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## Abstract

The objective of the study is to investigate the role of information on stock market at firm level. The role of information related to semi-strong form of efficiency is tested. It investigates the relationship between publicly reported news in daily Dawn and Business Recorder and measurement of market activity, i.e., returns and trading volume at firm level. It is found that at firm level the news surprises are positively related to stock market activity in few firms during study periods in Pakistan. This relationship is statistically significant in case of stock returns and trading volume in FFC and KESC respectively. Most of the firms show insignificant relationship between returns and volume at firm level. This shows the difficulty in linking return, volume and volatility to observed measure of information. At the same time it indicates the importance of factors other than public information in driving the stock market activity.

## Introduction

“Informationally efficient market provides” the basis for efficient market hypothesis in which any new information relevant to the market is spontaneously reflected in the stock prices. An implication of this hypothesis is that present prices cannot have any predictive power for future prices once the current prices have been used as an explanatory variable. It implies that the change in future prices depend only on arrival of new information that was unpredictable today hence it is based on surprised information. Another implication of this hypothesis is that arbitrage opportunities are wiped out instantaneously.

Empirical tests of the efficient market hypothesis actually the test for these implications in many ways. These tests generally could not conclusively accept the random-walk hypothesis of stock returns even when GARCH effects were accounted for. Many studies have found empirical irregularities that are contrary to the efficient market hypothesis. For example, the monthly, weekly and holy-days effects of daily returns on stocks tend to exhibit discernable patterns, such as seasonal affects, month of the year affect, day of the week affect, hourly affect etc. In case of Pakistan’s stock markets too such affects are identified, such as the day of the week effect (Hussain: 1999, Choudhry: 2000, and Nishat and Mustafa 2003), Ramadan effect (Hussain 1998) and size effect and liquidity effect (Nishat 1999). Further, the wide spread use of “technical analysis” among stock traders and their ability to predict to some extent the direction of movements in the prices of individual stocks over medium term testifies to the existence of patterns and seasonal trends.

The existence of these systematic affects may imply informational inefficiency of the stock markets as markets take long time to adjust to new information. But there is another possible explanation too. That is that the markets are informationally efficient and adjust quickly and fully to any new piece of information but the information arrives in a systematic pattern, hence the observed systematic pattern in stock returns.

A direct investigation of this possibility is to look for any link between pattern of information arrival and pattern of market activity variables. For this we will need some measure of information as well as measures for market activity. We also would have to decide whether to perform this analysis at firm level or at aggregate market level. In this paper we ask this direct and simple question of whether the amount of publicly available information affects daily stock returns and trading volume at firm level.

Such studies are not uncommon for stock markets of developed countries, although each such study is subject to its own limitations. Most recent and important study in this line of research is that of Mitchell and Mulherin [1994] that focused on market level aggregate variables of daily market returns and trading volume on one hand and on the other hand a broad based information variable of number of daily publicly announced news items. Another study with slightly different emphasis is that of Berry and Howe [1994] who looked for link in pattern of hourly public information arrival and aggregate measures of intraday market activity. An early seminal study was that of Rozeff and Kinney [1976] who investigated a relationship between information flow and stock market activity stating that abnormal stock returns in the month of January may be due to above-average flow of information generated by firms in that month. Other later studies include Penman [1987] and Atkin and Basu [1991] who looked at distribution of corporate earnings news and aggregate stock returns. Even the event study analysis in context of financial markets pioneered by Fama [1965] can also be counted towards this line of research.

One fundamental issue in all such studies is the definition that what constitutes information and its measurement. Researcher bias is bound to come into play in it. In order to minimize this bias we resorted to a broad measure of information that includes financial, macroeconomic, political, and other types of information. To collect data on “information” we have gathered news that made headlines in the national newspapers the daily “Business Recorder” and the daily “Dawn”. The details are given in appendix.

Another issue in such studies is how to know the relative importance of various kinds of information because not all news items are equally important in the consideration of market participants. Moreover, some news announcements may be expected news therefore these may not impact the market returns if the markets are efficient. To be precise, the affect of news depends upon change in market valuation times 1 minus probability of announcement. To the extent the announcement is already anticipated the probability of surprise tends to zero and hence the affect of news on the market tends to zero. This creates an attenuation bias in the test of market efficiency. To take into account this factor we have extracted deviations from average information. And to account for differences in relative importance of various kinds of information we have used two newspapers as proxies for relative importance of information. Yet another issue is of the endogeneity of information, that some news items may be generated due to abnormal behaviour of the market. Our methodology does not provide control on this.

The present study would be important from three perspectives. First, it would provide a direct test of semi-strong form of efficient market hypothesis at firm level in context of an emerging stock market that of Pakistan. Second, it can be used to check the importance of private information – i.e. the information that is generated during the process of trade – in Pakistan’s stock markets. Third, it will help discern the relative importance of different categories of information – a result that may be of interest to stock traders.

## **Data Description**

### **The Information Variable**

The data on information is collected on daily basis from the headlines of front-page news of daily “Dawn” and “Business Recorder”. Dawn is a general newspaper whereas the Business Recorder is more business and economic oriented newspaper. This difference in the nature of newspaper is expected to capture the relative importance of market relevant information. The length of data period is July 01, 1998 to Dec.31, 2000. Total 15772 news headlines are collected in which 10510 are taken from Business Recorder and 5262 from Dawn. During this sample period there are 619 days in which Karachi Stock exchange was opened and trading took place. However, this study based on firm level study that is why we selected those firms, which have traded at least 530 days (which is 85% of trading days) out of 619 days. This study is continuation of the paper of “Testing Semi-strong Form Efficiency of Stock Market (Ali and Mustafa 2001) which was presented in 17<sup>th</sup> annual general meeting and conference of Pakistan Society of Development Economics held on January 14-16 2002 in Islamabad. Ali and Mustafa (2001) study based on the role of arrival of information about stock returns and trading volume of KSE-100 index, whereas this study based on the role of arrival of information on the stock returns and trading volume at firm level.



This sample period is interesting in that diverse kinds of information were generated during this period. Three major events that took place during this period had implications for the stock market. First, the nuclear tests of May 28, 1998 by Pakistan; It created deep effect on the financial sector in two ways: (i) the imposition of economic sanctions by foreign countries, (ii) internal handling of affairs by declaration of emergency under article 232 and freezing of foreign currency accounts. Second, the controversy between IPP's (Independent Power Producers) and Government of Pakistan regarding the HUBCO project peaked during this time. The contribution of HUBCO in the total trading volume of KSE is large so is its importance in KSE-100 index. Therefore any factor that affects HUBCO can significantly affect the aggregate activity in stock market. Consequently, any news regarding HUBCO affects the activity of stock exchange. Third, Military regime came into Power. This resulted in uncertainty in domestic business environment accompanied by further economic sanctions by foreign governments. Furthermore, efforts to increase the tax base of the country by the government but which were opposed by the business also affected the stock market.

#### **Rational for Using Daily Data**

The aim of this study is to check for relationship between public arrival of information and stock returns and trading volume at firm level. The short term and immediate effects of information can be easily observed in daily data. Some times information affects the share price and trading volume on same day. However, if the market is not informationally efficient then it may affect after one day, two days, and three days. This insight is not provided with monthly or weekly data. Moreover, long horizon data create difficulties in measuring stock return. It may be undetectable when the two or three days of stock returns mix. Real effects might be missed when broad based or long horizon data is used. Monthly data get adjusted to the new information much easily as compared to the weekly and daily data on stock market activity and it may falsely portray efficient stock market. Jun and Uppal (1994) pointed that monthly data creates spurious conclusion about the efficiency of market due to adjustment of information. Khilji (1993), and Uppal (1993) have used monthly data and their results are limited by this fact. About his own study Khilji (1993) indicates the surprising result and suggests the same study on the basis of weekly data or daily data.

#### **Summary of News Statistics**

Summary statistics of news information is given in Table 1. The news, which is taken from Business Recorder and Daily dawn, published on front page.

TABLE 1: SUMMARY STATISTICS FOR DAILY NEWS ANNOUNCEMENT

News published by News papers	Number of News	Mean number of News	Standard Deviation	Coefficient of Variation	Maximum News	Minimum News
Total news	15772	25.48	3.43	0.135	34	16
Business Recorder	10510	16.98	3.06	0.180	25	08
Dawn	5262	8.497	1.50	0.177	14	05

In this statistics the mean of total daily news is 25.48 and standard deviation is 3.43. The total minimum news items on any day are 16 and the maximum news on any day is 36. Analyzing each newspaper separately the average of the total Business Recorder news is 16.98 and standard deviation is 3.06. The maximum news items are 25 published on and minimum news items are 08. The average of total Dawn news is 8.47 and standard deviation is 1.50. The maximum daily news items are 14 and minimum daily news items are 5. The standard deviation of total news is larger which shows that the arrival of news is quite variable on day-to-day basis. The standard deviation of Dawn news is 1.50, which shows the consistency in the arrival of news. Adjusting the variance for differences in means by calculating the coefficient of variation, there is not much difference in the daily variability of news arrival between Dawn and Business Recorder. There is some common news in both newspapers. The nature of news of Dawn is general, economic and political news whereas the nature of Business Recorder news is economics and business.

Table 2 shows the trend in news information by months. Based of selected sample data the largest means of total news is 26.93 per day reported in November and the lowest average of news is 24.92 per day reported in

March. Regarding to Business Recorder the largest and smallest news information is in the same months of means total news. Pertaining to Dawn the largest mean news were published in January (9.26 per day) and lowest in May (7.93). Average daily number of news increased during the first six months of fiscal year and declined during the last six months. The pattern may be due to various news items explaining the budget, mini budgets, and company performance news (for most of the companies end year is June or September around it the companies release information on their business performance), income and sales tax news etc.

Moreover, we also analyse the means of total information by the day of the week. Table 3 shows the same. The mean of total news information rise from Monday to Thursday but slightly decrease on Friday, which show the number of news announcements is smaller on the days before holiday.

TABLE 2: SUMMARY STATISTICS FOR MONTHLY NEWS ANNOUNCEMENT

Month	Trading days	Average total news	Average news of Business Recorder	Average news of Dawn
January.	34	25.23	16.97	9.26
February.	40	25.96	16.80	9.15
March.	40	24.92	16.47	8.45
April.	40	25.37	17.17	8.20
May.	43	25.27	17.34	7.93
June.	43	24.97	16.62	8.27
July.	66	25.06	16.78	8.46
August.	64	25.34	17.02	8.32
September.	63	25.53	16.96	8.57
October.	64	25.70	17.21	8.48
November	62	26.93	18.32	8.61
December	61	24.95	16.50	8.44

TABLE 3: SUMMARY STATISTICS FOR DAY OF THE WEEK NEWS ANNOUNCEMENT

Days	Trading days	Means of total news	Means of news Bus. Recorder	Means of news Dawn	Max.	Min
Monday	123	23.40	14.95	8.43	33	16
Tuesday	123	25.52	16.83	8.68	33	19
Wednesday	124	26.06	17.65	8.41	34	20
Thursday	127	26.87	17.50	8.37	34	18
Friday	113	26.66	18.08	8.58	34	20

The summary statistics in Tables 1, 2 and 3 showed that there is consistency in daily variability of news across the two newspapers and that the daily average number of news/information exhibits some systematic pattern. This pattern will draw the spurious result if there is some common environment that is responsible for generating a pattern in information as well as in the measures of stock price or market activity. To avoid such spurious result a general econometric technique is to work with the differenced data.

But there is a bigger problem, as mentioned earlier, in using the raw data on number of daily news items as information variable. It is that some news items may be only the publication of already anticipated news, which is not likely to impact market valuation of stocks on the day of publication. The raw data on number of daily news items does not differentiate between anticipated and unanticipated announcements. Moreover, news around a certain event may come in clusters and some times repeated for more than one day.

To account for all the three factors mentioned above we define information as difference between numbers of daily news items from its twenty-day moving average. The idea is that this method will capture innovations or

unanticipated element in news. Figure-1 shows the raw data on number of daily news items and Figure-2 shows deviation in number of daily news from its twenty day moving average.

#### **Measurement of Market Activity**

For the purpose of this study market activities are considered at firm level. We utilized two measures: (i) returns at firm level (ii) trading volume at firm level. The returns at firm level are obtained by taking first difference of natural logarithm of daily stock prices at firm level. Another measure of market activity i.e., the abnormal daily trading volume is obtained by first taking the natural logarithm of volume and then, subtracting it from its twenty day moving average

### **Evidence on Systematic Pattern in Returns and Volume**

#### **Evidence of Systematic Pattern in Return and Volume**

Before we embark on our main task of relating information to returns and volume at firm level it is important to check weak form efficiency of Pakistan's stock market and to check for systematic patterns in returns, e.g., the day of the week, and month of the year effects in our data. Such patterns are wide spread in other stock markets and reported extensively in the literature. In context of Pakistan, Hussain: (1999), Choudhry: (2000), and Nishat and Mustafa (2003), have shown the existence of day of the week effect, Hussain (1998) reported the existence of Ramadan effect and Nishat (1999) pointed out size effect and liquidity effect. For this study it constitutes sufficient evidence for existence of pattern, but we want to know the existence of such patterns in the daily data as well that we are using. For this purpose we start with the test of random walk model.

According to random walk model hypothesis the successive returns in an individual stock returns are independent. To test this hypothesis we compute the differences of two successive prices in natural logarithms, which is the stock returns at firm level and then calculate the correlation with different lags. Table 5 shows the correlation coefficient between stock returns with different lags. This table shows that there is serial dependence between two successive returns in all selected firms. However, the coefficients of correlation are positive and statistically significant with lag 1 in case of ACBL, BOP, ENGRO, FFC and PSO. It implies that there is slow adjustment of prices of these stocks to new information and insider information. The coefficients of correlation are negative and statistically significant with same lag in case of AICL, FABL, and SEPCO. It implies that the firms are wide fluctuations with price changes. These show that one-day-old return has predictive power for today's stock return. Where as the coefficients of correlation is positive and statistically significant with lag 2 in case of DSFL, ICI, PSO and SEPCO. These coefficients of correlation show that two-day-old return has predictive power for today's stock return in case of other firms it is observed that the correlation coefficients are significant at higher lags<sup>1</sup>. It is noted that 13 out of 20 selected firms have significant coefficient correlation. It indicates that the returns in most of the selected firms do not follow the random walk. This runs against the weak form efficiency of the stock market, which predicts that past returns should not have any explanatory power for current returns once immediate past returns are taken into consideration

TABLE 5: RANDOM WALK TEST CORRELATION COEFFICIENT OF SUCCESSIVE RETURNS

Firms		Lag1	Lag2	Lag3	Lag4	Lag5	Lag6	Lag7	Lag8
ACBL	Coeff.	0.212*	0.027	-0.021	-0.033	0.043	0.006	0.059	0.032
	p-value	0.000	0.506	0.606	0.422	0.302	0.887	0.150	0.432
AICL	Coeff.	-0.107*	0.059	-0.007	-0.032	0.021	-0.017	0.005	0.048
	p-value	0.008	0.145	0.858	0.432	0.597	0.681	0.900	0.237
BOP	Coeff.	0.116**	0.117**	0.077	0.063	-0.033	-0.035	-0.051	0.044
	p-value	0.005	0.005	0.066	0.131	0.438	0.405	0.228	0.300
DGK	Coeff.	-0.067	0.018	0.018	-0.030	0.071	-0.015	-0.069	0.002
	p-value	0.120	0.684	0.682	0.496	0.102	0.734	0.113	0.972
DSFL	Coeff.	-0.016	0.122*	0.092*	0.015	0.009	-0.022	-0.024	-0.074
	p-value	0.696	0.003	0.026	0.710	0.819	0.588	0.570	0.074
Engro	Coeff.	0.071**	-0.024	0.021	-0.016	-	-0.038	0.077	0.021
	p-value	0.083	0.561	0.601	0.692	0.078**	0.36	0.059	0.608
FABL	Coeff.	-0.123*	0.034	-0.059	-0.042	0.037	-0.036	0.027	-0.059
	p-value	0.004	0.437	0.172	0.332	0.394	0.400	0.528	0.174
FFC	Coeff.	0.130*	-0.024	-0.023	0.026	0.010	-0.042	0.006	0.063
	p-value	0.002	0.562	0.574	0.533	0.817	0.304	0.882	0.127
FFCJ	Coeff.	-0.015	0.018	0.016	-0.087*	0.035	-0.051	-0.013	0.011
	p-value	0.726	0.677	0.700	0.042	0.414	0.227	0.763	0.805
Hub Co	Coeff.	0.058	0.052	-0.024	0.029	-0.066	-0.053	0.034	0.017
	p-value	0.154	0.203	0.559	0.468	0.104	0.190	0.404	0.676
ICI	Coeff.	0.056	0.116*	0.076*	0.019	0.005	0.050	-0.044	-0.032
	p-value	0.189	0.006	0.073	0.649	0.903	0.244	0.307	0.451
JPGL	Coeff.	-0.070	0.033	-0.043	0.038	-0.026	-0.031	0.034	-0.002
	p-value	0.107	0.455	0.328	0.379	0.550	0.479	0.436	0.957
KESC	Coeff.	-0.007	0.022	-0.065	0.028	0.112*	-0.069	0.004	-0.017
	p-value	0.861	0.595	0.124	0.516	0.008	0.103	0.916	0.685
MCB	Coeff.	-0.001	0.014	-0.030	-0.085*	0.043	-0.041	0.026	-0.003
	p-value	0.985	0.729	0.472	0.042	0.300	0.324	0.529	0.942
PGF	Coeff.	-0.038	0.026	0.007	0.025	-0.038	-0.001	-0.002	-0.031
	p-value	0.373	0.534	0.867	0.560	0.379	0.975	0.960	0.464
PSO	Coeff.	0.168*	0.086*	0.011	0.038	-0.003	0.005	-0.007	0.013
	p-value	0.000	0.035	0.786	0.357	0.947	0.908	0.872	0.750
PTCL	Coeff.	0.048	0.017	-0.034	0.004	0.009	-0.062	0.068	0.058
	p-value	0.249	0.689	0.409	0.920	0.832	0.139	0.103	0.166
SEPC O	Coeff.	-0.157*	0.140*	-0.109	-0.040	0.014	0.024	0.049	0.061
	p-value	0.000	0.001	0.011	0.356	0.744	0.576	0.259	0.159
SNGC	Coeff.	-0.004	0.046	-0.034	0.006	0.033	-0.005	0.024	-0.049
	p-value	0.931	0.272	0.416	0.894	0.435	0.897	0.573	0.249
SSGC	Coeff.	-0.062	0.069	-0.091	0.001	0.056	-0.008	0.062	-0.076
	p-value	0.137	0.101	0.029	0.976	0.187	0.850	0.139	0.072

Table 6 shows day-of-week trend in the market activity at firm's level. It is estimated on the day-of-week dummy variables with trading volume and stock returns, which indicate the deviation of returns and volume on particular day from the mean value of the given variable. It is observed that there is a systematic pattern in stock returns on Monday in case of AICL, DGK, DSFL FFCJ, KESC, MCB, SEPCO and SNGC: on Wednesday in case of FFC: on Thursday in case of KESC and on Firday in case FFCJ, KESC, MCB, PTCL SEPCO, SNGC and SSGC. A significant and positive returns are observed on Monday and Wednesday and significant and negative returns are observed on Thursday and Firday. The largest increase in return is 1.5 percent in Monday in DGK and largest decrease in return is 1.3 percent on Friday in KESC. The consistently less than average daily stock returns on Friday may be attributed to short trading hours due to Jumma prayers. The trading volume exhibits a pattern that on Monday in case of DSFL, FABL, HUBCO, JPGL, and PSO: Tuesday in case of AICL, DGK FFC FFCJ PSO, PTCL and SEPCO: on Wednesdays in case of JPGL, on Thursday in case of BOP and on Friday in case of AICL, DSFL JPGL, PSO and SEPCO. The largest increase in volume is 29.8 percent on Friday and largest decrease in volume is 38.9 percent on Monday in case of FABL.

## Analysis of Relation between Information and Market Activity

### Correlation between News Information and Market Activity

Most of the statistical tests for the stock market efficiency with respect to information are based on correlation coefficients and their transformations. A standard process is to test the null hypothesis that coefficient of correlation between information and stock prices is zero. If new information immediately reflects in stock prices then, the correlation coefficient would be +1 (or -1) indicating that the market is fully efficient. Additionally we have also used regression analysis to test for informational efficiency.

As discussed earlier we have focused only on the public information. Informational efficiency in this context means that public information is fairly rapidly incorporated in security prices. An implication of efficient market is that it is not easy to manipulate, hence small investors will also take interest in investment in stock market. Attempts to earn excess returns on the basis of public information in standard ways are unlikely to be successful. All techniques and all forms of public information have not been tested in this paper for excess returns. However, sufficient numbers have been tested to indicate that an investor should be cautious about selecting stocks simply on the basis of new publicly available information.

TABLE 6: DAYS OF WEEK TRENDS IN MARKET ACTIVITY

Firms		Monday		Tuesday		Wednesday		Thursday		Friday	
		Return	Volume	Return	Volume	Return	Volume	Return	Volume	Return	Volume
AC BL	Coeff.	-0.002	-0.080	0.002	0.010	-0.001	-0.038	0.002	-0.011	-0.001	0.128
	t-value	-0.596	-1.006	0.633	0.133	-0.478	-0.470	0.754	-0.139	-0.184	1.506
AI CL	Coeff.	0.009**	0.009	-0.003	-0.144*	-0.001	0.011	-0.001	-0.005	-0.004	0.207**
	t-value	3.264	-0.004	-1.279	-1.708	-0.415	0.138	-0.297	-0.066	-1.571	2.332
BO P	Coeff.	0.005	-0.123	-0.001	-0.131	-0.003	-0.163	-0.001	0.388*	-0.004	0.042
	t-value	0.929	-1.225	-0.332	-1.281	-0.644	-1.609	-0.172	3.885	-0.767	0.391
D G K	Coeff.	0.015*	-0.046	-0.002	-0.184*	0.001	-0.004	-0.007	0.0961	-0.007	0.1763
	t-value	3.357	-0.444	-0.540	-1.774	0.373	-0.038	-1.646	0.922	-1.470	1.577
DS FL	Coeff.	0.012**	0.228**	-0.004	0.040	0.001	-0.082	-0.003	-0.060	-0.006	-0.153*
	t-value	3.168	3.161	-1.100	0.554	0.232	-1.110	-0.818	-0.837	-1.550	-2.002
En	Coeff.	0.004	0.032	-0.004	-0.110	0.001	0.072	-0.004	-0.040	-0.001	0.030

gro	t-value	1.422	0.446	-1.447	-1.435	0.573	0.995	-1.457	-0.557	-0.042	0.415	
FA BL	Coeff.	-0.002	-0.386*	0.001	-0.146	-0.005	0.095	0.005	-0.0721	0.001	0.570*	0.570*
	t-value	-0.846	-2.922	0.302	-1.071	-1.460	0.703	1.581	-0.547	0.306	4.174	4.174
FF C	Coeff.	-0.002	0.022	-0.001	-0.125*	0.004**	0.102	-0.001	0.010	-0.001	-0.001	
	t-value	-1.061	0.345	-0.372	-2.017	1.795	1.618	-0.820	0.172	-0.408	-0.028	
FF CJ	Coeff.	0.008*	0.122	-0.001	-0.165*	0.001	-0.091	-0.004	-0.015	-0.006*	0.164*	
	t-value	3.233	1.653	-0.307	-2.271	0.362	-1.227	-1.517	-0.209	-2.438	2.076	
H UB CO	Coeff.	-0.003	-0.135*	0.001	0.051	-0.000	0.031	0.004	0.024	-0.003	-0.003	
	t-value	0.003	-2.700	0.003	1.039	0.003	0.636	0.003	0.486	0.003	-0.072	
ICI	Coeff.	0.003	0.040	-0.002	-0.012	0.003	0.077	-0.003	-0.057	-0.001	-0.001	
	t-value	1.177	0.547	-0.813	-0.165	0.958	1.043	-1.195	-0.778	-0.599	-0.966	
JP GL	Coeff.	-0.002	-0.245*	0.001	-0.093	-0.005	0.148**	0.005	-0.037	0.001	0.298*	
	t-value	-0.846	-2.874	0.302	-1.051	-1.460	1.666	1.581	-0.452	0.306	3.283	
KE SC	Coeff.	0.018*	0.027	0.000	-0.028	0.000	-0.026	-0.008*	-0.031	-0.013*	0.074	
	t-value	4.795	0.343	0.103	-0.338	0.019	-0.331	-2.232	-0.388	-3.250	0.864	
M CB	Coeff.	0.006*	0.032	-0.001	-0.016	0.003	0.072	-0.003	-0.044	-0.006*	-0.038	
	t-value	2.100	0.370	-0.474	-0.189	0.935	0.828	-0.992	-0.511	-1.864	-0.416	
PG F	Coeff.	0.002	-0.025	0.001	0.001	-0.001	0.084	-0.002	-0.052	-0.002	-0.0163	
	t-value	0.861	-0.258	0.516	0.013	-0.529	0.833	-0.770	-0.549	-0.678	-0.153	
PS O	Coeff.	0.003	0.091*	-0.001	0.155*	-0.001	-0.015	-0.003	-0.039	-0.002	-0.158*	
	t-value	0.958	1.684	-0.619	2.830	-0.554	-0.295	-1.040	-0.741	-0.721	-2.814	
PT CL	Coeff.	0.003	0.043	-0.001	0.097**	0.000	0.067	0.000	-0.043	-0.007*	-0.143*	
	t-value	1.224	0.853	-0.368	1.876	0.045	1.275	0.302	-0.852	-2.412	-2.597	
SE PC O	Coeff.	0.012*	-0.103	-0.002	-0.179*	0.002	0.009	-0.006	0.1037	-0.009*	0.197*	
	t-value	3.180	-1.092	-0.660	-1.936	0.702	0.103	-1.661	1.132	-2.371	2.006	
SN GC	Coeff.	0.006*	0.021	-0.001	-0.034	0.003	0.063	-0.004	-0.031	-0.008*	0.028	
	t-value	1.805	0.284	-0.046	-0.451	0.835	0.819	-1.106	-0.414	-2.161	0.357	
SS GC	Coeff.	0.003	0.027	0.001	-0.076	0.003	-0.004	-0.002	0.039	-0.008*	0.032	
	t-value	1.028	0.306	0.276	-0.855	0.803	-0.046	-0.744	0.447	-2.178	0.342	

The news information, excess trading volume and return variables are computed as defined in the data section. The results on correlation coefficients are shown in Table 7-A. The coefficient of correlation for news information and

returns is significant and positive in case of FFC and SEPCO only, those are 0.075 and 0.097 respectively. For separate news sources the coefficient of correlation between news in Business Recorder and returns is negative and statistically significant in case of ACBL and KESC, those are  $-0.070$  and  $-0.072$  while that between news in Dawn and return is positive and statistically significant in case of PTCL and SEPCO. Those are 0.070 and 0.087. The coefficient of correlation for news information and volume is significant and positive in case of KESC only that is 0.074. For separate news sources the coefficient of correlation between news in Business Recorder and volumes is positive and statistically significant in case of FABL and HUBCO those are 0.073 and 0.073. While that between news in Dawn and volume is statistically significant in all selected firms. It implies that information does impact on stock returns and trading volume in few firms. It shows that the role of information at firm's level is limited. To capture the day of the week effect, we calculated correlation coefficients separately for each day of the week. The results are reported Table 7-B. The highest number of firms has significant coefficient of correlation in stock returns on Monday. In some case the coefficient of correlation is positive (FABL and KESC) and in some case this is negative (ACBL, JPGL and SEPCO). On Friday the coefficient of correlation in trading volume is highest negative but significant. In other days a few firms found systematic patterns in return and volume. If we compare table 6 and 7-B, we found that the stock returns and trading volume does not only follow the systematic patterns in week days but arrival of information is also in systematic trend. However, the relationship is a relative weak between news information and stock returns and news information and trading volume. There are various reasons for it. First, much of the news information may be firm specific and does not impact on the performance of all other firms. Second, Public information news does not possess the importance of particular news information. Third, KSE does not link with foreign stock market, which is why impact of news information cannot be incorporated in stock returns and trading volume at firm level. Fourth, KSE is the emerging market, which casts down on the validity of the model regarding to information. Fifth, The data on information is collected from Business Recorder and Dawn and the news therein are imperfect substitute for new information. That is, these news items are settled information hence could not convey sudden and abrupt reaction on trading activity.

The table shows the correlation coefficients: (i) between excess trading volume and news surprises (ii) between news surprises and stock returns (column-2). News surprises are defined as deviations of number of news from its past twenty-day moving average. Excess volume is defined as deviation of log trading volume from its twenty-day moving average. Stock returns are difference between log of daily stock prices. Results are reported for total news, news from Business Recorder only, and news from Dawn only.

TABLE 7A: CORRELATION COEFFICIENT WITH NEWS ANNOUNCEMENT

Firms		Total News		Business Recorder		Dawn	
		Return	Volume	Return	Volume	Return	Volume
ACBL	Coeff.	-0.041	-0.038	-0.070**	-0.040	0.022	-0.014
	p-value	0.330	0.366	0.092	0.342	0.597	0.742
AICL	Coeff.	-0.038	0.041	-0.043	0.034	0.012	0.028
	p-value	0.360	0.316	0.291	0.412	0.775	0.491
BOP	Coeff.	-0.039	0.015	-0.038	0.020	-0.009	-0.010
	p-value	0.357	0.730	0.370	0.640	0.835	0.815
DGK	Coeff.	-0.061	0.047	-0.002	-0.012	-0.061	0.054
	p-value	0.168	0.281	0.962	0.783	0.164	0.217
DSFL	Coeff.	-0.006	-0.052	-0.002	-0.067	-0.015	0.024
	p-value	0.881	0.217	0.969	0.111	0.713	0.561
Engro	Coeff.	0.020	-0.046	0.023	-0.043	-0.002	-0.023
	p-value	0.635	0.268	0.584	0.304	0.960	0.581
FABL	Coeff.	0.024	0.063	0.017	0.073**	0.022	-0.013
	p-value	0.586	0.148	0.701	0.094	0.617	0.760
FFC	Coeff.	0.075**	0.017	0.059	0.004	0.053	0.030
	p-value	0.073	0.689	0.157	0.916	0.207	0.477
FFCJ	Coeff.	-.051	.071	-.062	.058	.017	.044
	p-value	0.240	0.102	0.150	0.175	0.695	0.310
Hub Co	Coeff.	0.020	0.046	0.001	0.073**	0.036	-0.058
	p-value	0.627	0.266	0.987	0.075	0.384	0.155
ICI	Coeff.	0.008	0.035	-0.012	0.050	0.051	-0.018
	p-value	0.860	0.413	0.778	0.246	0.233	0.675
JPGL	Coeff.	-0.065	0.008	-0.071	0.020	-0.010	-0.021
	p-value	0.145	0.848	0.111	0.658	0.817	0.637
KESC	Coeff.	-0.057	0.074**	-0.072**	0.061	0.012	0.053
	p-value	0.187	0.083	0.092	0.156	0.788	0.220
MCB	Coeff.	0.026	-0.030	0.001	-0.045	0.062	0.031
	p-value	0.543	0.483	0.980	0.283	0.143	0.461
PGF	Coeff.	-0.022	0.055	-0.028	0.050	-0.022	0.055
	p-value	0.605	0.203	0.511	0.249	0.605	0.203
PSO	Coeff.	-0.022	-0.001	-0.028	0.005	0.007	-0.015
	p-value	0.597	0.990	0.503	0.897	0.871	0.725
PTCL	Coeff.	-0.007	0.024	-0.042	0.030	0.070***	-0.001
	p-value	0.874	0.574	0.321	0.478	0.094	0.990
SEPCO	Coeff.	-0.054	0.018	0.061	0.019	0.087*	.015
	p-value	0.216	0.676	0.164	0.669	0.045	.740
SNGC	Coeff.	-0.030	0.028	-0.066	0.024	0.065	0.015
	p-value	0.475	0.513	0.119	0.578	0.125	0.721
SSGC	Coeff.	-0.030	0.021	-0.051	0.037	0.040	-0.027
	p-value	0.476	0.625	0.230	0.383	0.346	0.527



The table shows, for each day of the week, the correlation coefficients: (i) between excess trading volume and news surprises (column-1); (ii) between news surprises and stock returns (column-2). News surprises are defined as deviations of number of news from its past twenty-day moving average. Excess volume is defined as deviation of log trading volume from its twenty-day moving average. Numbers in parentheses are p-values/levels.

TABLE 7B: DAYS OF THE WEEK AND CORRELATION COEFFICIENTS WITH NEWS

		Monday		Tuesday		Wednesday		Thursday		Friday	
Firms		Return	Volume	Return	Volume	Return	Volume	Return	Volume	Return	Volume
ACBL	Coeff.	-0.074*	0.018	-0.064	-0.056	0.044	-0.043	0.003	-0.020	0.017	0.006
	p-value	0.074	0.660	0.124	0.175	0.291	0.306	0.947	0.636	0.681	0.877
AICL	Coeff.	-0.061	-0.017	0.058	0.059	-0.051	0.001	-0.003	-0.026	-0.048	.076*
	p-value	0.140	0.672	0.157	0.149	0.214	0.982	0.948	0.528	0.241	0.063
BOP	Coeff.	-0.068	0.018	0.075*	-0.017	-0.022	-0.035	-0.041	0.035	-0.039	0.000
	p-value	0.108	0.668	0.078	0.696	0.611	0.411	0.333	0.412	0.357	0.996
DGK	Coeff.	-0.063	-0.006	0.050	-0.011	-0.007	0.029	-0.042	0.032	-0.088*	0.045
	p-value	0.149	0.893	0.252	0.802	0.865	0.506	0.334	0.473	0.046	0.306
DSFL	Coeff.	-0.043	0.021	0.054	-0.030	-0.016	0.037	0.022	-0.081*	-0.043	-0.092*
	p-value	0.300	0.621	0.201	0.478	0.710	0.377	0.595	0.053	0.309	0.028
Engro	Coeff.	-0.001	-0.101*	-0.018	-0.035	0.080*	0.037	-0.024	0.012	0.017	0.013
	p-value	0.976	0.014	0.670	0.404	0.053	0.379	0.559	0.775	0.683	0.751
FABL	Coeff.	0.108**	0.070	-0.018	0.082*	0.013	-0.038	-0.073*	-0.059	-0.007	0.084*
	p-value	0.014	0.109	0.675	0.060	0.765	0.383	0.095	0.181	0.865	0.055
FFC	Coeff.	0.034	0.058	0.064	-0.015	0.023	-0.005	0.006	0.011	0.067	-0.033
	p-value	0.414	0.168	0.124	0.717	0.580	0.904	0.881	0.798	0.107	0.431
FFCJ	Coeff.	-0.054	0.020	0.012	0.043	-0.005	0.012	-0.007	0.035	-0.074*	0.033
	p-value	0.214	0.642	0.790	0.318	0.912	0.772	0.873	0.410	0.084	0.439
Hub co	Coeff.	0.011	0.097*	-0.043	-0.072*	0.045	0.055	0.017	-0.013	-0.015	0.013
	p-value	0.788	0.017	0.299	0.081	0.274	0.183	0.683	0.749	0.723	0.758
ICI	Coeff.	-0.016	-0.042	-0.016	-0.040	-0.001	0.044	-0.029	0.034	0.038	0.032
	p-value	0.714	0.334	0.709	0.356	0.988	0.309	0.503	0.427	0.379	0.458
JPGL	Coeff.	-0.110*	0.024	0.051	-0.029	-0.012	0.029	-0.057	-0.069	-0.026	0.065
	p-value	0.013	0.583	0.250	0.519	0.791	0.511	0.197	0.119	0.553	0.145
KESC	Coeff.	0.219*	0.019	0.010	-0.007	0.000	-0.010	-0.109*	-0.026	-0.152*	0.046
	p-value	0.000	0.664	0.816	0.875	0.995	0.814	0.011	0.539	0.000	0.283
MCB	Coeff.	0.018	-0.035	0.006	-0.031	0.006	0.013	-0.002	-0.024	0.041	0.000
	p-value	0.673	0.411	0.894	0.462	0.880	0.766	0.955	0.565	0.334	0.998
PGF	Coeff.	0.004	0.001	0.016	0.064	-0.017	0.004	-0.040	0.025	-0.025	0.020
	p-value	0.917	0.973	0.713	0.140	0.698	0.928	0.356	0.557	0.568	0.641
PSO	Coeff.	-0.062	0.002	0.036	0.052	0.005	-0.009	-0.001	0.013	-0.006	-0.041
	p-value	0.138	0.961	0.389	0.208	0.896	0.825	0.983	0.760	0.881	0.319
PTCL	Coeff.	-0.063	-0.031	0.050	0.041	0.031	0.010	-0.012	0.000	0.006	0.015
	p-value	0.134	0.464	0.236	0.333	0.468	0.813	0.782	0.994	0.881	0.720
SEPC	Coeff.	-0.113*	0.000	0.084*	0.011	-0.014	0.033	-0.021	0.052	-0.051	0.033
	p-value	0.010	0.994	0.054	0.804	0.754	0.447	0.637	0.230	0.242	0.448
SNGC	Coeff.	-0.067	-0.012	0.049	0.014	-0.068	0.041	-0.010	0.006	-0.023	-0.036

	p-value	0.117	0.779	0.253	0.735	0.113	0.332	0.810	0.880	0.582	0.399
SSGC	Coeff.	-0.031	-0.008	0.070	0.060	-0.112*	0.025	0.002	0.064	-0.045	-0.013
	p-value	0.471	0.843	0.101	0.160	0.008	0.551	0.969	0.131	0.295	0.754

## Regression Analysis between News Information and Market Activity

Regression shows the casual relationship between dependent variable and independent variable. We regress the model on stock returns and trading volume at firm level as dependent variable and news information as independent variable. The regression analysis focuses on the returns and excess volume and total number of news per day as public information. Regression analysis is given in table 8.

The second column of table 8 shows the univariate regression between stock returns and news information. The coefficient of news is positive and significant in case of FFC only at 5 percent level. The third column shows the univariate regression between trading volume and news information. The news coefficient is positive and significant at 5% level in case of KESC only.

The day of the week effect shows regression of the news and market activity that includes dummy variable for each day of the week. The univariate significant regression is between stock return and information on Monday in highest number of firms. The coefficient of news information to trading volume found on Friday in highest number of firms.

From the above analysis of correlation coefficients and univariate regressions we have seen that there are some cases of direct relation and other cases of inverse relation. On a closure look we find that this relation explains the common day of the week trends of information, volume and return. For example compare the signs of coefficients for day of the week effect in tables 6, 7-B, and 8I and note that they change in coherence. The most common day related to stock returns and trading volume is Monday in which stock activity is comparatively high. The investors do not sell equity on last trading day of the week and expect that they will be able to earn more profit on Monday. That is why trading is slightly more on Mondays as compared to other days. The contrasting results between relationship of volume and returns with publicly available news are consistent with the French-Roll (1986) opinion that public information can be incorporated into prices without significant trading volume.

## Further Checks

So far we have shown that the relationship between broad-based definition of information and market activity exists in few firms. However, this relationship is weak. The reasons are: the news used in this study as information could not capture the sudden and abrupt nature of information. We have selected simply the headlines on front page news published in the daily Dawn and Business Recorder. Unexpected or shocking news e.g., war, dispute between India and Pakistan about Kashmir matters, dispute between Pakistan and HUBCO authorities, IMF and World Bank news etc may have greater effect on trading activity of stock market as compared to the company news, dividend announcement etc.

Table shows the results of univariate regressions of stock returns on total news and excess trading volume on total news.

TABLE 8: REGRESSION OF NEWS INFORMATION AND MARKET ACTIVITY

Firms		Return	Volume
ACBL	Coeff.	-0.013	-0.254
	t-value	-0.974	-0.904
AICL	Coeff.	-0.009	0.298
	t-value	-0.916	1.003
BOP	Coeff.	-0.017	0.123
	t-value	-0.921	0.345
DGK	Coeff.	-0.022	0.396
	t-value	-1.379	1.079
DSFL	Coeff.	-0.002	-0.320
	t-value	-0.149	-1.236
Engro	Coeff.	0.005	-0.281
	t-value	0.475	-1.108
FABL	Coeff.	0.006	0.680
	t-value	0.544	1.450
FFC	Coeff.	0.015***	0.081
	t-value	1.841	0.364
FFCJ	Coeff.	-0.011	0.427
	t-value	-1.175	1.640
Hub c	Coeff.	0.006	0.195
	t-value	0.486	1.114
ICI	Coeff.	-0.004	0.020
	t-value	-0.440	0.076
JPGL	Coeff.	-0.022	0.058
	t-value	-1.459	0.191
KESC	Coeff.	-0.016	0.446***
	t-value	-1.322	1.736
MCB	Coeff.	0.007	-0.214
	t-value	0.608	-0.701
PGF	Coeff.	-0.005	0.443
	t-value	-0.517	1.274
PSO	Coeff.	-0.005	-0.002
	t-value	-0.528	-0.013
PTCL	Coeff.	-0.001	0.104
	t-value	-0.158	0.562
SEPCO	Coeff.	-0.017	0.471
	t-value	-1.237	1.423
SNGC	Coeff.	-0.016	-0.214
	t-value	-1.252	0.380
SSGC	Coeff.	-0.012	0.480
	t-value	-0.992	1.557

Table shows the results of univariate regressions of stock returns on total news and excess trading volume on total news. with multiplicative dummies for each day of the week and without dummies. Stock Returns = a + b1 (Total Number of News) \* D1 + b2 (Total Number of News) \* D2 + b3 (Total Number of News) \* D3 + b4 (Total Number of News) \* D4 + b5 (Total Number of News) \* D5. Similarly, Ln(Excess Trading Volume) = c + g1 (Total Number of News) \* D1 + g2 (Total Number of News) \* D2 + g3 (Total Number of News) \* D3 + g4 (Total Number of News) \* D4 + g5 (Total Number of News) \* D5, where D1 to D5 are dummy variables for each day of the week Monday to Friday.

TABLE 9: REGRESSION OF NEWS INFORMATION AND MARKET ACTIVITY

		Monday		Tuesday		Wednesday		Thursday		Friday	
Firms		Return	Volume	Return	Volume	Return	Volume	Return	Volume	Return	Volume
ACBL	Coeff.	-0.043*	0.218	-0.052	-0.949	0.036	-0.722	0.002	-0.299	0.015	0.103
	t-value	-1.753	0.425	-1.542	-1.355	1.060	-1.019	0.069	-0.473	0.437	0.147
AICL	Coeff.	-0.026	-0.254	0.034	1.060	-0.030	0.025	-0.001	-0.415	-0.027	1.380*
	t-value	-1.451	-0.464	1.418	1.448	-1.230	0.034	-0.058	-0.625	-1.124	1.863
BOP	Coeff.	-0.053	0.259	0.084*	-0.352	-0.024	-0.753	-0.040	0.649	-0.041	0.005
	t-value	-1.564	0.403	1.764	-0.391	-0.498	-0.810	-0.967	0.820	-0.884	0.005
DGK	Coeff.	-0.042	-0.104	0.044	-0.219	-0.006	0.626	-0.0343	0.587	-0.080*	0.969
	t-value	-1.42	-0.155	1.153	-0.250	-0.148	0.665	-0.959	0.719	-1.918	1.016
DSFL	Coeff.	-0.025	0.244	0.043	-0.454	-0.012	0.571	0.016	-1.124	-0.034	-1.414*
	t-value	-1.012	0.515	1.280	-0.714	-0.362	0.882	0.535	-1.942	-0.973	-2.178
Engro	Coeff.	-0.000	-1.104*	-0.011	-0.515	0.050*	0.549	-0.013	0.162	0.010	0.204
	t-value	-0.003	-2.369	-0.436	-0.813	1.930	0.883	-0.589	0.287	0.398	0.318
FABL	Coeff.	0.050*	1.286	-0.012	2.214*	0.009	-1.049	-0.043*	-1.391	-0.005	2.204*
	t-value	2.362	1.522	-0.414	1.897	0.313	-0.870	-1.662	-1.343	-0.170	1.892
FFC	Coeff.	0.012	0.565	0.031	-0.194	0.011	-0.069	0.002	0.126	0.033	-0.451
	t-value	0.806	1.357	1.537	-0.363	0.540	-0.123	0.145	0.254	1.560	-0.801
FFCJ	Coeff.	-0.020	0.206	0.006	0.637	-0.002	0.187	-0.003	0.496	-0.040*	0.502
	t-value	-1.210	0.434	0.267	0.998	-0.093	0.288	-0.154	0.822	-1.669	0.760
Hub co	Coeff.	0.006	0.744*	-0.032	-0.753*	0.034	0.586	0.011	-0.126	-0.011	0.118
	t-value	0.266	2.316	-1.039	-1.752	1.087	1.329	0.406	-0.324	-0.353	0.272
ICI	Coeff.	-0.008	-0.473	-0.010	-0.602	0.000	0.679	-0.016	0.457	0.024	0.478
	t-value	-0.412	-0.946	-0.374	-0.923	0.000	1.014	-0.659	0.794	0.903	0.746
JPGL	Coeff.	-0.068*	0.274	0.045	-0.501	-0.009	0.521	-0.042	-1.042	-0.018	1.060
	t-value	-2.464	0.495	1.163	-0.644	-0.251	0.660	-1.281	-1.556	-0.516	1.443
KESC	Coeff.	0.017*	0.033	0.001	-0.006	0.000	-0.010	-0.007*	-0.034	-0.011*	0.075
	t-value	4.846	0.429	0.285	-0.085	0.076	-0.153	-2.278	-0.491	-3.318	1.018
MCB	Coeff.	0.010	-0.576	0.004	-0.526	0.004	0.212	-0.002	-0.334	0.028	0.033
	t-value	0.379	-0.821	0.151	-0.728	0.178	0.301	-0.098	-0.572	0.947	0.0436
PGF	Coeff.	0.002	0.013	0.0095	1.259	-0.011	0.085	-0.023	0.467	-0.015	0.410
	t-value	0.109	0.020	0.367	1.474	-0.388	0.093	-0.922	0.588	-0.566	0.465
PSO	Coeff.	-0.027	0.015	0.023	0.602	0.002	-0.103	-0.001	0.132	-0.005	-0.462
	t-value	-1.340	0.043	0.855	1.259	0.092	-0.213	-0.041	0.308	-0.193	-0.972

PTCL	Coeff.	-0.026	-0.244	0.030	0.441	0.018	0.113	-0.006	-0.001	0.003	0.176
	t-value	-1.403	-0.724	1.182	0.967	0.709	0.240	-0.287	-0.003	0.140	0.370
SEPCO	Coeff.	-0.065*	-0.014	0.064*	0.195	-0.011	0.652	-0.014	0.869	-0.040	0.641
	t-value	-2.494	-0.023	1.939	0.248	-0.317	0.757	-0.476	1.199	-1.137	0.752
SNGC	Coeff.	-0.036	-0.135	0.036	0.218	-0.052	0.658	-0.006	0.091	-0.016	-0.532
	t-value	-1.542	-0.282	1.148	0.338	-1.572	0.972	-0.235	0.154	-0.509	-0.816
SSGC	Coeff.	-0.015	-0.111	0.052*	1.063	-0.085*	0.460	0.000	1.047	-0.034	-0.238
	t-value	-0.656	-0.197	1.649	1.405	-2.645	0.597	0.031	1.509	-1.055	-0.302

For this purpose we narrowed the definition of information from its broad-based version. We, therefore, selected some particular news to see the reflection of information on stock activity at firm level. This method is expected to use prior information about importance of news stories. For this purpose dummy variable is introduced. Dummy variable takes the value of 1 for having at least one news item about IPP and related issues on a given day published in the newspapers and zero otherwise. This is done because news about IPPs is expected to affect at energy sector that is why we haven taken those firms that are related to energy sector. In selected firms, such firms are HUBCO, (which constitutes about 36%), JPGL, KESC and SEPCO. This approach is in line with the method of Niederhoffer (1971), and Cutler, Poterba, and Summers (1989) to study the impact of particular news that researchers think important.

Table 9 shows the number of news involving IPP by day of the week. Tuesdays and Friday have less than average news as compared to other days. Much of news pertaining to the above topics was published on Saturday and Sunday when the stock markets were closed.

TABLE 9: NUMBER OF NEWS RELATED TO IPP BY DAY OF THE WEEK

Days	News of IPP
Monday	57
Tuesday	47
Wednesday	66
Thursday	72
Friday	54

Table 10 shows the results of four separate regressions of stock returns and excess trading volume on dummy variable for IPP-HUBCO news.

TABLE 10: REGRESSIONS OF ABOVE AVERAGE NEWS AND IMPORTANCE OF NEWS WITH PROXIES

		Return	Volume
<b>Hub Co</b>	Coeff.	0.0011	-0.0102
	t-value	0.4816	-0.3127
<b>JPGL</b>	Coeff.	0.0006	-0.0039
	t-value	0.2382	-0.0719
<b>KESC</b>	Coeff.	0.0004	0.0154
	t-value	0.1748	0.2989
<b>SEPCO</b>	Coeff.	0.0010	0.0201
	t-value	0.4004	0.3424

It shows that the news of IPPs has no significant effect on stock returns and trading volume at firm level. These results are in contrast to French-Roll (1986) who argued that the importance of news has significant effect on return rather than trading volume.

## Conclusion

In this study we have examined the linkage of news published in daily Business Recorder and Dawn with stock market activity measured by market returns and trading volume at firm level. It is found that at firm level the news surprises are positively related to stock market activity in few firms during study periods in Pakistan. This relationship is statistically significant in case of stock returns and trading volume in FFC and KESC respectively.

It is also found the day of the week patterns in these relationships. This relation (market activity and news) is also determined with news importance. The news of IPP has no significant impact on volume and return in case of HUBCO, JPGL, KESC and SEPCO.

The analysis points to the fact that in Karachi Stock Exchange public information does not play as important role in day to day variation in stock returns than the role played by private information (and non-informational reasons). Here the term private information is used to denote all non-public information such as insider information as well as the information generated by the process of trade itself.

The analysis points to the difficulties in finding observable relationship between public information and market activity at firm level and that this relationship may not be simple. There is a possibility that the news, which we have taken as informational variable, does not cover all important and surprising news. But we have tried to control for this as much as we could by broad-basing the definition of news as well as by focussing on a narrower definition of information.

We also note an interesting point regarding day of the week pattern in market activity. From return point of view Monday is the day in which mostly firms has found a systematic patterns in returns. In some case return is significant and positive (FABL, KESC) and in other case the returns are significant and negative (ACBL, JPGL and SEPCO). However, Friday it is worst, which show losses in returns (DGK, FFCJ and KESC). From trading volume point of view different days are most prominent in different firms.

## Recommendations and Suggestions

The focus of the securities markets regulations and practices should be to enhance the role of public information and reduce the role of private information.

1. There is a need to improve the quantity, quality and credibility of information that companies disclose to the investing public. This should be in the shape of establishment of an online information service, issuance, by the companies, of regular and detailed reports besides usual annual reports. Insisting on regular distribution of dividends in cash.
2. Investors' protection from sharp brokerage practices such as insiders trading and excessive speculation should be made possible by implementation of laws against such practices.
3. At present credibility of many listed companies is low because their boards of directors consist of their own family members. This is likely to give greater weight to the interest of select groups. Securities and exchange committee is reportedly taking up this matter.
4. Regulating the stock traders and improving the payment and settlement system of trade such that no one trades beyond his net wealth to reduce speculative trade and the liquidity motivated trade.
5. Promotion of research and development in all brokerage firms could also help in informed investment and reduce the sharp fluctuations.

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## Appendix

### Summary of News Headlines as Information Variable

This study uses publicly available news as public information and relates it to stock market activity. Therefore the news covered belongs to international and domestic events, political and macroeconomic news, as well as company performance news and events. Following are some major categories of news along with some description that were published during our sample period.

During 1998-2000 the confidence of foreign and local investors remained subdued because of variety of reasons including: the impact of freezing of foreign currency accounts, the IPP issues, economic sanctions and slow down of economic activities. The confidence level stood up to 42%. On Economic front all development led towards the uplifts of the economy i.e. the release of funds by IMF and World Bank and rescheduling of loans by Paris club but it could not evoke a strong response from investors. The much-awaited decisions by Lahore High Court on frozen currency accounts and immediate deferment of action by the Supreme Court of Pakistan also had deepening effect on investor’s confidence. Investors’ confidence that got a major blow after the post nuclear development could not be restored during the Fiscal Years 1998-2000. Consequently the confidence level remained in the lower categories.

IMF and World Bank related news had been important news regarding to stock market activity. Usually the news regarding these two institutions had been about release of loans. Because Pakistan did nuclear tests, the USA and other developed countries imposed economic restriction on Pakistan. That is why whenever delegations of IMF and World Bank were due to come to Pakistan, the investors in stock exchange felt that these institutions would release the funds, which would have good impact on the economy and consequently on stock market. IMF also

interferes between the IPP and the Government of Pakistan (GOP) matters. When there is no positive result drawn from negotiations between the government and IPP KSE-100 index goes down.

The news about HUBCO and IPP had been important news for stock market during this sample period. The contribution of HUBCO project in Karachi Stock Exchange was 36% of total exchange shares. Any negative news regarding HUBCO and IPP has adverse effects. In inverse case the index increases. Even a rumor about whether the negotiations between GOP and HUBCO are going to continue or break down influences the KSE-100 index.

Foreign currency account was third burning issues during 1998-2000. After the nuclear test Pakistan had frozen foreign currency accounts. The foreign reserves fell by Rs. 101million to about Rs. 1.27 billion within three days of nuclear test. The public have sued in Supreme Court against the freezing of foreign currency accounts. It also had negative impact on KSE index.

CTBT (comprehensive test ban territory) and the news relating to nuclear test were also the hot issues during 1998-2000. The news items regarding these two hot issues were 40. India and Pakistan have conducted nuclear tests on May 11,1998 and May 28, 1998 respectively. After these tests the USA and other developed countries including the multilateral institutions like IMF and World Bank were pressing both countries for signing on the CTBT. Moreover, Pakistan and India also conducted Missile tests. When Pakistan fired Hataf V the KSE index went down for the reason that investors conjectured that India would also fire missile. When India test fired multi-barrelled rocket and N-capable Agni missile, Pakistan responded by test firing Ghauri II and Shaheen missiles. The news about missile tests made the KSE-100 index go down because investors guessed that the USA and other developed countries might put severe sanctions on Pakistan, funds will flow out and the condition of Pakistan's economy will deteriorate.

News about aid from other countries was another crucial news category regarding economic activity in Pakistan. After the imposition of economic sanctions, the economic condition of Pakistan deteriorated. World Bank, IMF, USA and other developed countries had banned the economic aid to Pakistan. In this situation Saudi Arabia, Islamic Development Bank, and Japan gave aid on soft terms to support the Pakistan's economy. Some countries gave aid directly and some countries gave it in the form of projects. Kuwait, Saudi Arabia, IDB offered \$250, \$610, and \$1.5billion respectively. While in project forms, the aid was \$30million for Ghazi Brotha Dam by Kuwait, ¥75.211million for debt by Japan, and \$228625 for welfare project by China. All these have positive impact on stock market.

Law and order remained one of the major problems in Pakistan especially in Karachi during this sample period. When there was any disturbance in Karachi it had negative effect on the KSE index. In this situation the confidence of people weakens and they don't take interest in investment in stock market. When the situation of law and order improves the confidence regain and KSE index goes up. News about law and order situation pertains to killing, violence and strikes were therefore considered.

Devaluation and foreign exchange reserve position are also the factors that influence on stock market. After the nuclear test, the Foreign exchange reserve decreased. Government tried to increase the reserves by devaluation of currency. Devaluation increases the export and reduces the import, which can increase the foreign exchange reserve. But our exports and imports are price inelastic which have results in very small effect on foreign exchange reserves. Consequently, the government relies on foreign debt to make up the finance gap, our debt burden increases and overall effect on the economy is negative and thus on KSE-100 index. Government also purchases the foreign currency from foreign markets. Whenever the foreign exchange reserve situation improves the KSE-100 index goes up.

Kashmir and Kargil issues were most disputed and important issues between Pakistan and India. Due to disturbance in occupied Kashmir India attacked on Azad Kashmir of Pakistan. Whenever tension increases at the Line of Control in Kashmir, it also affects KSE-100 index. In May -June 1999 the Kargil issue aroused, which had adverse affect on KSE-100 index.

For the betterment of stock market the government of Pakistan took different measures during this sample period. For example, five major banks agreed to inject liquidity in share markets, which impacted positively on the stock market.



Political news is one of the major factors that influences stock market. Some important political developments during our sample period were: resignation of General Janghir Karamat as Chief of Army Staff, quitting of MQM ministers from the Sind Government, suspension of Sind assembly, change of the Governor in Sind, Supreme Court's decision about arrest of Benazir Bhutto, dissolution of Muslim League's government, military regime came into government, change of Governor of Sind and NWFP are the major political news during 1998—2000. Some political steps had been taken for the betterment of situation of Sind, which also have positive impact on KSE-100 index.

There was also some international news, which had influenced stock market. For example, recession of Japan which impact on its exports, US President Clinton's message to the Prime Minister of Pakistan, about dialogue with India, shut down of US embassy, US strikes at targets in Afghanistan and Sudan, Clinton's visit to Pakistan and India, dispute about presidential elections of USA between the two political parties. These were some news at international level, which influenced stock exchange.

### **End Notes**

For Example, FFCJ and MCB has four lags relations and KESC has five lags relation.

# Nonlinear Keynesian Dynamics and Chaos: an Application of Liénard's differential Equation to Economics

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## Abstract

It is my purpose to examine a stability/instability of the nonlinear Keynesian Dynamics mathematically, consequently whether that model would include chaos or not. The development of our discussion is made as follows: nonlinear Keynesian Dynamics can be shown with a second order differential equation — that is, Liénard's differential equation— in relation to a real national income  $Y$ , the simplest case of Liénard's differential equation is the Van der Pol differential equation, the properties of solution and the limit cycle in relation to the Van der Pol differential equation, if an exogenous oscillation could be given to the Van der Pol differential equation which is the Keynesian Dynamical Model, the synchronization phenomena would have occurred, as a result of it, whether the nonlinear dynamic system would arouse chaos or not. These issues are discussed.

## Introduction

There has been a common understanding among economists that the Japanese economy during the post-war period has been much influenced by the theories and policies of the Keynesian Economics. However, in the decade of 1990's the Japanese economy had a sudden collapse, and the Japanese economy has stayed in the stage of a so-called lost decade. Then, economists have become aware of the fact that the effectiveness of the Keynesian Economics has become to be much weak upon the Japanese economy.

Nothing to say that it is quite usual up to now to make an analysis of this real economy with linear dynamics. The Keynesian Economics did so too. However, it is very important for economists to make an analysis of a complicated real economy to use a nonlinear dynamics based on mathematics. Because, it is not too much to say that the essence of this world is nonlinear. Accordingly, I would like to present this paper as one of nonlinear dynamics

It is my purpose in this paper to examine a stability/instability of the Keynesian Dynamics mathematically, consequently whether that model would include chaos or not. The analysis begins from regarding Keynesian Dynamics as the three differential equations system in section II. And, it would be shown that the three differential equations system could be changed to a second order differential equation in relations to a real national income  $Y$ . If we would insert a simple assumption to a second order differential equation of  $Y$ , we could get a general Liénard's differential equation of  $Y$ .

In general, Liénard's differential equation<sup>[1]</sup> can be shown as follows:

$$\ddot{Y} + A(Y)\dot{Y} + B(Y) = 0$$

Here,  $A(Y)$  is an even function and  $B(Y)$  is an odd function.

In section III, we will investigate Liénard's differential equation as a quite simple case, for example,

$A(Y)$  is a quadratic polynomial;  $A(Y) = Y^2 - 1$ , and

$B(Y)$  is a linear polynomial;  $B(Y) = Y$ .

Thus, Liénard's differential equation comes into the typical Van der Pol differential equation<sup>[2]</sup>,

That is, my purpose to examine the stability/instability of the Keynesian Dynamics mathematically leads to a mathematical investigation of the Van der Pol differential equation. Therefore, in section IV, we will investigate in detail the properties of the solution and the limit cycle of the Van der Pol differential equation. Finally, in section V, we will examine that if an exogenous oscillation were given to the Van der Pol differential equation which is the Keynesian Dynamical Model, whether the synchronization phenomena would occur, and as a result of it, whether

the nonlinear dynamical system would arouse chaos or not.

### Transformation<sup>[3]</sup> of Keynesian Dynamics into Liénard's Differential Equation

First of all, it is considered that Keynesian Dynamics consists of the following three differential equations:

$$\left\{ \begin{array}{l} \dot{Y} = \alpha [I(Y, r) - S(Y, r)], \bar{\alpha} > 0 \quad \dots\dots\dots (1) \\ \dot{r} = \beta [L(Y, r) - \bar{M}^S / P], \bar{\beta} > 0 \quad \dots\dots\dots (2) \\ \dot{P} = \gamma [Y - \bar{Y}_n], \bar{\gamma} > 0 \quad \dots\dots\dots (3) \end{array} \right.$$

[ Notation ]

$Y$  : real notional income,  $r$  : the rate of interest,  $I(Y, r)$  : Investment function,  $S(Y, r)$  : Saving function,  $L(Y, r)$  : demand function for money,  $\bar{M}^S$  : nominal money supply,  $p$  : the level of general prices,  $\bar{Y}_n$  : full employment national income which correspond to the rate of natural unemployment,  $\bar{\alpha} > 0, \bar{\beta} > 0, \bar{\gamma} > 0$  : positive parameter as a constant.

Equation (1) means a dynamical demand and supply equilibrium condition in a goods and services market, and at the same time, means that real national income  $Y$  is constantly arranged in relation to time  $t$ , so  $I(Y, r)$  as to equal to  $S(Y, r)$ .

Equation (2) means a dynamical demand and supply equilibrium condition in a money market, and at the same time, means that the rate of interest  $r$  would be constantly arranged in relation to time  $t$ , so as to realize equilibrium in a money market.

Equation (3) is the so-called Phillips curve, and means that the level of general prices  $p$  would be constantly arranged in relation to time  $t$ , so real national income  $Y$  as to equal full employment national income  $\bar{Y}_n$  which correspond to the rate of natural unemployment  $Y$ .

Here, we assume the next function (4) which satisfies constantly  $\dot{r} = 0$  in equation (2).

$$r = r(Y, P) \quad \dots\dots\dots (4)$$

By substituting equation (4) into equations (1) and (2), we get the next two equations, that is, equations (5) and (3). For instance, the Keynesian Dynamics, that is, equations (1)~(3) have been changed to equations (5) and (3).

$$\dot{Y} = \alpha [I(Y, r(Y, p)) - S(Y, r(Y, p))] \quad \dots\dots\dots (5)$$

$$\dot{P} = \gamma (Y - \bar{Y}_n) \quad \dots\dots\dots (3)$$

If we differentiate equation (5) with respect to time  $t$ , and consider equation (3), we can get the equation (6) which is a second order differential equation with respect to  $Y$ .

$$\ddot{Y} - \alpha (I_Y + I_r \cdot r_Y - S_Y - S_r \cdot r_Y) \dot{Y} - \alpha \gamma (I_r \cdot r_p - S_r \cdot r_p) (Y - \bar{Y}_n) = 0 \quad \dots\dots\dots (6)$$

Here, if we assume equations (7) and (8), we can get equation (9).

$$-\alpha (I_Y + I_r \cdot r_Y - S_Y - S_r \cdot r_Y) = A(Y) \quad \dots\dots\dots (7)$$

$$-\alpha \gamma (I_r \cdot r_p - S_r \cdot r_p) (Y - \bar{Y}_n) = B(Y) \quad \dots\dots\dots (8)$$

$$\ddot{Y} + A(Y) \dot{Y} + B(Y) = 0 \quad \dots\dots\dots (9)$$

Here, we assume that  $A(Y)$  is an even function and  $B(Y)$  is an odd function. Then, equation (9) as a dynamical system becomes a generalized Liénard's differential equation which causes a endogenous oscillatory movement.

Whether the endogenous oscillatory movement in equation (9) causes a limit cycle (i.e. self sustained oscillation) or not depends on what function we assume for the even function  $A(Y)$  and the odd function  $B(Y)$ .

### The Van der Pol Differential Equation as a Simple Case of Liénard's Differential Equation

For investigating the concrete movements of the dynamic solution in equation (9), it is very useful for us to decide concrete functions  $A(Y), B(Y)$ . If we assume  $A(Y)$  is a quadratic polynomial;  $A(Y) = Y^2 - 1$  and  $B(Y)$  is a linear polynomial;  $B(Y) = Y$  as a quite simple case, the equation (9) which is a general form of Liénard's differential equation has been changed into the following Van der Pol differential equation:

$$\ddot{Y} + (Y^2 - 1)\dot{Y} + Y = 0 \tag{11}$$

In order to get a first order differential equation with respect to equation (11), if we assume that  $\dot{Y} = Z$ , we can get the following dynamic systems:

$$\begin{cases} \dot{Y} = Z & (11) - 1 \\ \dot{Z} = -(Y^2 - 1)Z - Y = -Y + Z - Y^2Z & (11) - 2 \end{cases}$$

Paying attention to the first order term of this system, we express it in terms of a matrix as follows.

$$\begin{pmatrix} \dot{Y} \\ \dot{Z} \end{pmatrix} = \begin{pmatrix} 0 & 1 \\ -1 & 1 \end{pmatrix} \begin{pmatrix} Y \\ Z \end{pmatrix}$$

Let us find out the eigenvalues of this dynamic system from the coefficient matrix of the first order term.

$$\begin{vmatrix} -\lambda & 1 \\ -1 & 1-\lambda \end{vmatrix} = 0$$

$$\text{From } \lambda^2 - \lambda + 1 = 0$$

$$\text{Eigenvalues } \lambda = \frac{1 \pm \sqrt{3}i}{2}$$

On the other hand, it is very easy to find out the singular point that satisfies  $\dot{Y} = 0, \dot{Z} = 0$  of the equation (11) - 1, (11) - 2.

The singular point is origin;  $(Y, Z) = (0, 0)$ .

From the above analysis, it is understood that this dynamic solutions of equation (11) - 1, and (11) - 2 emerges from around the outside of the origin.

Which direction do the dynamic solutions rotate? In order to decide the direction of the rotation, it is useful for us to inspect the transversality of the dynamic solutions which across the circle in the neighborhood of the singular point.

Let us take a quite small circle where the radius is  $\varepsilon$  in the neighborhood of the singular point. Here,

( i ) tangent vector of the circle  $(-Z, Y)$

( ii ) solution vector of the dynamic systems  $(\dot{Y}, \dot{Z}) = (Z, -Y + Z - Y^2Z)$

By taking the inner product of the tangent vector and the solution vector, let us inspect the sign.

$$\begin{aligned}
& \langle (-Z, Y), (Z, -Y + Z - Y^2 Z) \rangle \\
& = -Z^2 - Y^2 + ZY - Y^3 Z \\
& = -\varepsilon^2 + YZ(1 - Y^2) < 0^{[4]}
\end{aligned}$$

Therefore, the direction of rotation of the dynamical solution is clockwise.

## Van der Pol Differential Equations and the Limit Cycle

### The Vector Field of Van der Pol Differential Equations

$$\left. \begin{aligned}
& \dot{Y} = Z \quad \dots\dots\dots(11) - 1 \\
& \dot{Z} = -(Y^2 - 1)Z - Y \quad \dots\dots\dots(11) - 2 \\
& \dot{Z} = -(Y^2 - 1)Z - Y = 0 \quad \dots\dots\dots(11) - 2'
\end{aligned} \right\}$$

(i) On the  $Y$  coordinate axes ( $Z = 0$ ),  $\dot{Y} = 0$ ,  $\dot{Z} = -Y$  }  
(ii) On the  $Z$  coordinate axes ( $Y = 0$ ),  $\dot{Y} = Z$ ,  $\dot{Z} = Z$  }

Let's think of the vector field which satisfies the equations (11) - 1 and (11) - 2' at the  $Y - Z$  coordinate axes. From the equation (11) - 2':

$$Z = \frac{1}{2} \left( \frac{-1}{Y+1} + \frac{-1}{Y-1} \right) \dots\dots\dots(12)$$

[Fig. 3] graphs the equation (12).

Taking into considerations equation (11) - 1 and (11) - 2, we can get [Fig. 4] as the vector field of [Fig. 3].

In order to have a limit cycle in [Fig.4], it is necessary for  $Y-Z$  plain in [Fig.4] to be formed Poincaré-Bendixson theorem<sup>[6]</sup>. We can find out an area as one sample.

With computer analysis, we can get the locus of the dynamic solutions of equation (11) and the limit cycle in [Fig. 5 - a], and of the endogenous self sustained oscillation of the variable  $Y$  in relation to time  $t$  in [Fig. 5 - b]. It is very clear that the dynamic system of Keynesian Economics is quite stable.

[ *endogenous self oscillation of Van der Pol equation* ]

From [Fig.5-a] and [Fig.5-b], we can understand that the amplitude  $A \cong 2$ , period  $T = 70/11 \cong 6.36$  (sec/wave).

From the definition, period  $T$  (sec/wave) · frequency (wave/sec) = 1 and so, frequency  $\omega$  (radian/sec) =  $2\pi \cdot f = 2\pi / T = 6.28 / 6.36 \cong 1$

### The Effect of the Change of $\varepsilon$ to the Shape of the Limit Circle

$$\ddot{Y} + \varepsilon(Y^2 - 1)\dot{Y} + Y = 0, \quad \varepsilon^{[6]} > 0 \dots\dots\dots(11)'$$

Let's investigate the shape of the limit cycle, when we take the  $\varepsilon$  gradually from 0.1 to 3.0.

From the above figures, it is understood that the larger the values of  $\varepsilon$ , the bigger the change of shape of the limit cycle.

## The Van der Pol Differential Equation, Exogenous Oscillation and Chaos

$$\ddot{Y} + \varepsilon(Y^2 - 1)\dot{Y} + Y = A \sin \omega t, \quad \varepsilon = 1 \dots\dots\dots(13)$$

Equation (13) is a Van der Pol differential equation in the case of suffering from exogenous oscillation.

It is an ordinary Van der Pol equation that if (i) the size of amplitude  $A=0$ , frequency  $\omega=1$  or (ii) the size of amplitude  $A=1$ , frequency  $\omega=0$ , the right side of equation (13) becomes zero.

In other words, the closer the exogenous oscillation to the case of (i) or (ii), the synchronization more easily occurs, because the endogenous oscillation being included with the Van der Pol equation itself comes to facilitate the synchronizing to the exogenous oscillation.

First of all, let's us investigate the topological movement of equation (13) in  $Y-Z$  space when we make the frequency  $\omega$  move from 0.1 to  $0.99 \approx 1$ , but keep amplitude  $A=0.1$  (quite nearly zero) constant.

As a result of numerical analysis, synchronization has almost occurred in all cases, contrary to theoretical expectations. It is the fundamental reason why it occurs, that the value of amplitude  $A$  of exogenous oscillation are fixed at 0.1 so small as to be nearly to zero in comparison with the oscillation of the Van der Pol equation which moves  $-2 < Y < 2$ ,  $-3 < Z < 3$  as you can see in figures 5 - a.

Next, let's investigate the topological movement of equation (13) in  $Y - Z$  space, when we make the frequency  $\omega$  move from 0.99 (nearly 1) to 0.1 (nearly zero), but keep the amplitude  $A=1$  constant.

As a result of numerical analysis, we can understand the following. (all cases,  $A=1$ ).

- $\omega = 0.99$  (nearly 1) figures 13 - a,b .....synchronization phenomena
- $\omega = 0.95$  figures 14 - a,b.....almost synchronization phenomena
- $\omega = 0.5$  figures 15 - a,b..... almost chaos movement
- $\omega = 0.3$  figures 16 - a,b.....complicated periodic movement
- $\omega = 0.1$  (not  $\omega=0$ ) figures 17 - a,b.....perfect chaos movement

## Conclusion

At closing this paper, we would like to point out some fact findings from our analysis as follows.

- (1). The most simplified form of the Liénard's differential equation can be seen in the Van der Pol differential equation. The Keynesian dynamics which is expressed in the form of the Van der Pole equation shows a quite stable limit cycle as shown in [Fig.5-a] and at the same time, a self sustained oscillation as shown in [Fig.5-b]. However, there is no reason that the Keynesian dynamics being expressed by the Liénard's differential equation, which consists of all even functions and of all odd functions, is always stable. This issues remains unsolved problem yet.
- (2).  $\varepsilon$  is a positive parameter which indicates some kind of frictional or resistible power in nonlinear dynamics. The effects of the change of  $\varepsilon$  to the shape of the limit cycle are shown in [Fig.6],[Fig.7], and [Fig.8]. We can understand that the larger the values of  $\varepsilon$ , the bigger the change of shape of the limit cycle.
- (3). If people look at the following figures [Fig.9], [Fig.10], [Fig.11] and [Fig.12], they could understand a interesting result that the right side of equation (13) should be equal almost to zero, because of assuming the value of  $A$  to 0.1 (almost zero). And so, the endogenous oscillation of the left side of equation (13) synchronizes easily to the quite small exogenous oscillation with any values of  $\omega$ .
- (4). We have mentioned at the end of (1) in section IV that the frequency  $\omega$  (radian/sec)of the Van der pol equation is supposed to be 1. And so, if the values of  $c$  of exogenous oscillation are 0.99 or 0.95, we can say that 0.99 or 0.95 should be 1, synchronization phenomena have easy occurred as shown in [Fig.13-a], [Fig.13-b] and [Fig.14.-a], [Fig.14-b].
- (5). Finally, it is natural for us to have a fact that equation(13) may arouse chaos when the synchronization doesn't occur under the assumptions that  $\omega$  is so small as to 0.5, 0.3, and 0.1.

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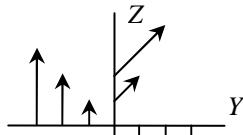
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## End Notes

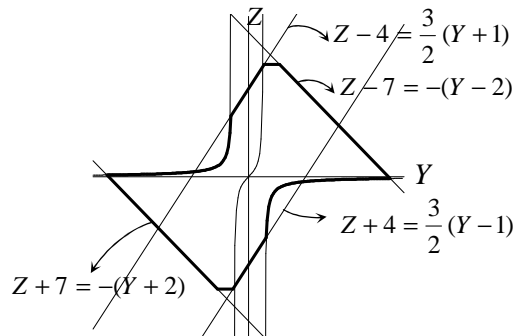
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- [3] Lorenz, H.W.(1997). *Nonlinear Dynamical Economics and Chaotic Motion*, Second, Revised and Enlarged Edition, Springer-Verlag, 187-192.
- [4] We substitute  $Y = \varepsilon \cos \theta$ ,  $Z = \varepsilon \sin \theta$  for the inner product of the tangent vector and the solution vector.

$$\begin{aligned}
 &< (-Z, Y), (Z, -Y+Z - Y^2 Z) > \\
 &= -Z^2 - Y^2 + ZY - Y^3 Z = -\varepsilon^2 + YZ(1 - Y^2) = -\varepsilon^2 + (\varepsilon \cos \theta)(\varepsilon \sin \theta)(1 - \varepsilon^2 \cos^2 \theta) \\
 &= -\varepsilon^2 + \frac{1}{2} \varepsilon^2 \sin 2\theta(1 - \varepsilon^2 \cos^2 \theta) \leq -\varepsilon^2 + \frac{1}{2} \varepsilon^2 = -\frac{1}{2} \varepsilon^2 < 0
 \end{aligned}$$

[5]



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[7]  $\varepsilon$  is a positive parameter which indicates some kind of frictional or resistible power in nonlinear dynamics.

NOTE: Due to space limitations the figures were not published. Please contact authors to obtain figures



# Facilitators for Socially Responsible Investments: A Study of Hong Kong

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## Abstract

Shareholders are increasingly seeking to influence corporate norms and practices regarding environmental and social responsibility. This is referred to as “socially responsible investment” or SRI. This paper focuses SRI in one of the world’s most prominent financial centres, Hong Kong. The paper aims to analyse why the role of SRI as a way of influencing corporate social and environmental responsibility in Hong Kong is so limited today. The study finds that many of the institutional aspects that have facilitated SRI in North America and Europe are not in place in Hong Kong. The paper also suggests that the market logic that dominates Hong Kong’s corporate and financial sectors has hitherto not been receptive to the logic of environmental and social protection to any larger extent, and that this is an impediment to the idea of SRI gaining a foothold here.

## Introduction

Corporate social responsibility, or CSR, has become a strategic component for many multinational corporations today, and is increasingly attended to by the literature on global business as well as economic development (e.g. Barrientos, 2000; Baron, 2001; Welford & Starkey, 2001; Zadek, 2001, Doh & Guay, 2006). CSR broadly means that a company addresses “the legal, ethical, commercial and other expectations society has for business, and making decisions that fairly balance the claims of all key stakeholders” (BSR, n.d.). Areas of responsibility typically include the environment, human rights, labour conditions and corruption.

Increasingly, norms about corporate social and environmental responsibility are formed in corporate interaction with financial actors, for example through shareholders’ explicit actions aiming at changing corporate behaviour (e.g. O’Rourke, 2003; Sparkes & Cowton, 2004; Avanzi, 2006; SIF, 2006; Sjöström & Sweet, 2006; Sjöström, 2007). Activities on the capital market that aim towards supporting or fostering corporate social and environmental responsibility are often referred to as “socially responsible investments” or SRI.

SRI is an umbrella term for various ways of including social and environmental aspects into an investment process. It often entails that investors’ financial evaluation criteria are complemented with environmental and social ditto; in other words to apply an environmental and social screen to companies that can be included in an investment portfolio. SRI can also involve shareholder engagement through dialogue with corporate management, or “shareholder activism”, for example by proposing formal shareholder resolutions<sup>1</sup> at annual general meetings. Sometimes civil society organisations such as environmental or human rights groups form a coalition with investors in order to pass a joint shareholder resolution.

Investors are attracted to SRI not only because of its potential to influence corporate norms and practices, but for some it is also related to a belief that it can yield higher returns, while yet other investors use it as a way to align their portfolio with certain ethical values by systematically excluding controversial sectors (e.g. Kinder & Domini, 1997; Schueth, 2003; Beal et al, 2005; SIF, 2006).

In Europe and North America, the methods of SRI have been employed by parts of the financial community for many years. The number of publicly available investment funds and market indices with a social and/or environmental screen has increased exponentially since the 1990s, as has the number of shareholder resolutions regarding corporate social and environmental responsibility (Avanzi, 2006; SIF, 2006; ISS 2006; Sjöström, in review). In Asia, there are comparably less investments with an SRI approach, with Australia and Japan as exceptions (AsriA, 2003a). In Hong Kong, which harbours Asia’s second largest and the world’s ninth largest stock exchange, there are only two domestic SRI funds, launched in 2002 and 2006 respectively, and a low degree of shareholder activism with regards to environmental and social matters.

There is limited (English language) academic research on SRI in Asia. Exceptions include research on the development of SRI in Japan (Kawamura, 2002); what Japan can learn from the SRI experience in UK (Solomon, Solomon & Suto, 2004); corporate environmental reporting to the financial sector in Hong Kong (Chan & Welford, 2005); the performance of Australian ethical funds (Bauer et al, 2006); and risk and return patterns of SRI indices for Japanese pension plans (Jin et al, 2006). This paper adds to this scarce research by addressing one of Asia's most prominent financial centres, Hong Kong, and more specifically by analysing *why the role of the financial market in Hong Kong for influencing corporate social and environmental responsibility is so limited today*. We will do this by first identifying facilitating factors for SRI in general, based on trends in countries where SRI has a comparably stronger foothold, and subsequently analysing how these factors apply to Hong Kong.

This is a highly relevant research topic for two main reasons: First, Hong Kong has a well developed financial market, and shareholders therefore hypothetically have great potential to influence corporate norms and behaviour due to the large amount of capital that is invested in corporations via the stock market. Invested capital can function as a lever for shareholders who want to influence corporations to address environmental and social issues. Second, encouraging corporate social and environmental responsibility is highly relevant in China, which has not only become known as "the world's factory", but which harbours major environmental problems as well as labour conditions that oftentimes violate Chinese regulations and/or international agreements. Given that an estimated 63,000 factories in mainland China's Guangdong province<sup>2</sup> are Hong Kong owned (Federation of Hong Kong Industries, 2003) and many companies listed on the Hong Kong stock exchange are Chinese, shareholders could potentially have a significant role to play in influencing companies to improve the quality of their environmental and social performance. Yet, anecdotal evidence indicate that shareholder interest in social and environmental dimensions of Hong Kong listed companies is low, which makes it relevant to understand more about barriers and potential facilitators for SRI in Hong Kong.

The paper is structured as follows: In the next section we contextualise the study by providing a background about the financial market and corporate social and environmental responsibility in Hong Kong. Next, we describe the methodology for the study. Thereafter, we identify facilitators for SRI from our literature review. This leads us to a section on how these factors apply to the context of Hong Kong. This is followed by an additional layer of analysis regarding institutional logics. Finally, we summarise and reflect on our findings.

## **Background: Hong Kong, the Financial Market, and CSR**

In 1997, Hong Kong was handed over to China after 155 years of British rule. Hong Kong is now enjoying a status as a "Special Administrative Region" (SAR) with its own government (lead by a Chief Executive), legal system, and administrative authority.

Hong Kong is the world's 11<sup>th</sup> largest trading entity and 13<sup>th</sup> largest banking centre (Hong Kong in brief, n.d.). It has a laissez-faire capitalist system, and is allegedly the "freest economy on earth" (Heritage Foundation 2006, Gwartney & Lawson 2006). The government has a long-established philosophy of "maximum help and minimum interference" for business (Hong Kong in brief, n.d.).

Hong Kong has a large financial sector. In 2004, financial services accounted for 12, 2% of GDP in terms of value added (Tdctrade.com, 2006). The Hong Kong stock exchange was founded in 1891 and is the second largest in Asia and the ninth in the world, based on market capitalisation (tdctrade.com, 2006).

There are strong linkages between Hong Kong and mainland China in terms of trade. Hong Kong is the largest investor in the Chinese mainland (UNCTAD, 2006) and nearly half of Hong Kong's exports are made to the mainland (tdctrade.com, 2006). China is at the same time a country that harbours a lot of environmental and labour right challenges. Labour issues that tend to not meet national and/or international regulations include working hours, wages, safety standards, and the opportunity to organise labour unions (AsriA, 2002). China is also the world's second largest emitter of greenhouse gases, and has the world's second largest total ecological footprint<sup>3</sup> (WWF, 2006). Further, the environmental situation in Hong Kong is largely affected by air-borne pollution from factories in the neighbouring Guangdong province in mainland China (Barron et al, 2006).

Two domestic SRI funds are available in Hong Kong. One was incepted in 2002, and the other in 2006, by two different companies. One of these was set up because the CEO at the time had a general interest in giving back to the community, and saw the fund as a way of doing that. It consists of 30 companies, and uses both negative and positive screening, meaning that it excludes industries that are deemed socially harmful, and includes companies that live up to the funds requirements on social justice and a healthy environment, in addition to conventional financial criteria. The research is done in-house.

The other investment fund specifically focuses the environment. It is a pension fund, and is included in Hong Kong's pension system, the "MPF". The selection of corporations to include in the fund is based on environmental ratings that are carried out by an independent international research organisation.

Shareholder activism as a way to influence corporations does not seem to be common in Hong Kong, except for a few individuals who are vocal in pursuing corporate governance issues (Asria, 2003a: 17).

## **Methodology**

In order to identify the main facilitators of SRI, we have synthesised previous literature on this topic. As there is no research to date that solely focuses this particular question on a more general level, we have had to analyse and synthesise findings from a broad range of academic research on SRI. Articles have been identified through searches in databases for academic literature, and categorised as per their main findings regarding factors that are identified as facilitators (or enablers) for SRI, even as this was not the main focus of the studies. By "facilitators" we mean factors that have helped and stimulated the emergence and growth of SRI. As there is no journal that solely focuses SRI, we have searched for articles in a broad range of journals, with the common thread that articles address the following topics: Socially responsible investment, Ethical investment, Green investment, Shareholder activism, Shareholder engagement. We have also looked to literature from interest organisations for SRI and non-academic research houses as a way to analyse current and historical trends. These organisations include Avanzi SRI Research, Social Investment Forum, Eurosif, UK SIF, and AsriA, as they appear to be among the leading organisations within this field.

For the Hong Kong specific context, we have collected primary data through interviews. This method was chosen because it allows for complex data to be generated, since the respondent has opportunity to explain matters in detail and to bring up aspects that she or he finds most relevant and appropriate (rather than to be confined to the data collector's definitions of the matter, which may be the case in surveys). This qualitative method was deemed appropriate since our study is of an exploratory nature.

Twelve semi-structured interviews were conducted in 2006. Ten of the interviews were conducted face-to-face, one by phone and one via email. Seven respondents are investor relations officers (or the equivalent) for seven different corporations listed on the Hong Kong stock exchange. Investor relations officers function as a "window" between the company and the financial market (Hockerts & Moir, 2004), hence their relevancy for this study. Further, one interview was made with a senior manager at the MPF, which is Hong Kong's public pension scheme. One respondent is a financial consultant in Hong Kong, and was involved in setting up the MPF. One respondent is director of an interest organisation for corporate governance in Asia. One respondent is chief investment officer at an SRI investment fund in Hong Kong. One respondent is senior research analysts at an Australian SRI research organisation (meaning that they provide research to SRI investors) who also researches Hong Kong-listed companies.

## **Facilitators for Socially Responsible Investments**

In this section, we will summarise evidence from previous research regarding factors that facilitate the growth of SRI. While research on the facilitators for SRI is scarce, a number of factors emerge as particularly central.

Firstly, several studies emphasise the role of pension funds for the increase in SRI oriented investments. Friedman & Miles (2001) maintain that pension funds regulation in the UK represents a significant growth opportunity for SRI in the country, and that it may lead more conventional investors to take on an SRI based

approach as they compete for institutional money. Almaric (2006) points to pension funds' motivation to care about ecological and social sustainability given that they care about the long-term performance of the economies in which they invest.

The role of pension funds for SRI is supported by empirical evidence. In the US, pension funds constitute the largest segment of institutional SRI investors, and are also some of the most active filers of shareholder resolutions (SIF, 2006). In the UK 59% of the largest pension funds invest with an SRI approach (UKSIF 2000). Overall, pension funds tend to account for a large part of all investment assets in developed countries, which means that if pension funds invest with an SRI approach it will represent a comparably large part of total invested assets. The trend for pension funds to turn to SRI is spurred not only by their long-term investment horizon and subsequent interest in the well-being of the economy, but also by the fact that in several countries there is now regulation that requires pension funds to take ethical consideration in their investment decisions, and/or to disclose the extent of such considerations. These countries include Australia, Austria, Belgium, Italy, Germany, Netherlands, Norway, UK, Spain, Sweden, and Switzerland.

A second factor which spurs SRI is the increased presence of non-governmental organisations, NGOs, on the financial arena (Waygood & Wehrmeyer, 2003; Guay et al, 2004; Sjöström, 2007). As NGOs enter the financial market and pursue their causes there, one of the effects is that their activities can educate other investors, who become aware of the financial links to the matter and which may then create a further momentum around the question at hand – NGOs then function as catalysts for SRI (Sjöström, 2007). Waygood and Wehrmeyer (2003) as well as Guay et al (2004) find evidence that capital market intervention by NGOs can successfully change corporate strategy, and that the influence of NGO capital market activities is growing. Additionally, NGOs can facilitate SRI by non-financial, more traditional activities, through their influence on public opinion and through their role as watch dogs (c.f. Zadek 2001). Friedman & Miles (2001) maintain that “a wider social movement has already led to exponential growth within the SRI sector” (2001:542).

Thirdly, some studies highlight that in many Western countries religious groups have provided a market for SRI oriented investment for a long time, and that the religious movement still manages considerable assets (Sparkes 2001, Kreander 2001, Kreander et al 2004, Williams 2005), thus facilitating the growth for SRI. Markets that do not have the same long history of SRI have comparably fewer SRI funds. SRI as an investment approach started already in the 18<sup>th</sup> century with the Methodist Church in the UK, and later with Quakers and other groups in both the UK and US. The Swedish Church is also pointed out as a pioneering force for SRI in Europe (Kreander, 2001). SRI remained largely religious until the 1960s, when the stock market was also starting to be used for stating political values (Sparkes, 2002). The Vietnam War and the anti-Apartheid-movement are examples of this, particularly in the US. It is only in the last twenty years that SRI has come to focus corporate responsibility for an environmentally and socially sustainable development to a significant extent (Sparkes 2002), and now also religious groups are turning to these kinds of issues (e.g. SIF 2006). In other words, groups that have historically been involved in SRI have contributed to carrying this investment approach forward over time, also as its content has somewhat changed.

A fourth facilitator for SRI, which is not explicitly highlighted in academic literature on SRI, but for which there is empirical evidence, is corporate governance, which clarifies the roles and responsibilities of shareholders, companies, and company boards (Eurosif 2004:8). A particularly important dimension for SRI is the rights of minority shareholders, which influence with which ease shareholders can pursue environmental and social aspects of corporate matters via the stock market. In the US, every shareholder has the right to pass a shareholder resolution at a company's annual general meeting, provided that they hold a certain amount of shares over a certain amount of time. This means that shareholders have the opportunity to exercise shareholder activism. Here, shareholders tend to be active filers of resolutions with regards to social and environmental matters (Monks et al, 2004; SIF, 2006). In the UK, there are similar laws, which make it possible also for minority shareholders to voice concern at company annual general meetings, and which has spurred an established culture for shareholder activism (Eurosif, 2006). In a number of other European countries, such as Germany, Netherlands, Sweden and France, shareholder activism is driven by a limited number but often powerful minority owners (Eurosif, 2006).

Finally, another enabler for SRI which is not emphasised in academic literature, but for which there is empirical evidence, is that SRI is facilitated by the corporate sector's embracement of the components of corporate social and environmental responsibility, or CSR. This is due to the fact that it is only possible to invest in socially

responsible companies if companies are indeed taking social and environmental responsibility. A crucial part of this is CSR disclosure (again, a corporate governance issue), since investors must be able to base their analysis on available data. Solomon & Solomon (2006) find that investors consider corporate disclosure on social and environmental matters to be “decision-useful”, and wanting more of it as it is considered important to the investment process. According to Eurosif (2004:8), disclosure is an important enabler for SRI as it makes it possible for shareholders to ground a dialogue with companies based on facts rather than assumptions.

Table 1 here below summarises the main factors that facilitate the growth of SRI, based on our literature review. The next section will address these in the context of the market in Hong Kong.

TABLE 1: FACTORS THAT FACILITATE THE GROWTH OF SRI

Pension funds
NGO movement
Historical roots
Minority shareholder rights / opportunities for shareholder activism
CSR + disclosure

Taken together, we find that most factors that have facilitated SRI in markets where this investment approach is more prevalent are of an institutional character. These institutional factors include regulatory elements (pension fund regulation, corporate governance) and strong norm-setting groups and activities (NGOs, religious groups, corporate voluntary initiatives).

We also suggest that the facilitators can strengthen each other – an NGO movement which actively uses the financial market for its purposes is helped by strong minority shareholder rights, while interventions by pension funds to some extent relies on relevant corporate disclosure, which in turn might be improved through NGO pressure for transparency. It is also possible that not all facilitators are of equal power for SRI – it is for example possible for SRI to get rooted without a previous history, if for example pension fund regulation regarding SRI is in place or if minority shareholder are vocal, and perhaps disclosure is more central to SRI than whether NGOs are using financial market campaigning or not.

Next, we turn to the Hong Kong-specific context.

## **Facilitators of SRI in a Hong Kong Context**

In this section, we will explore how the main facilitators for SRI, identified here above, translate to the market in Hong Kong.

### **Pension funds**

In Hong Kong, a new pension system was introduced in 2000. It is called the Mandatory Provident Fund (MPF). It is expected to give an increase of USD2-3 billion per year to Hong Kong’s fund industry over the next 30 years (AsriA, 2001). Before the implementation of the MPF System, only about one-third of the Hong Kong workforce had some form of retirement protection. With the MPF System put in place, around 85% of the total employed population are covered under either this or other pension schemes (MPFA 2006).

When asked if there had been any discussion about including ethical guidelines in the new scheme, the answer from the representative at the MPF Authority is “no”:

*When we designed the MPF we looked to systems in other countries, and particularly the one in Australia. /.../ As for including environmental or social dimensions in the investments, we leave it to the market. (Interview, senior manager at the MPF Authority)*

Within the MPF scheme, there are over 300 funds to choose from, and of these, one is SRI oriented. It can thus be concluded that the pension system is not a driver for SRI in Hong Kong, and will not be so unless there is either a surge in SRI funds to choose from, or a decision to legally enforce SRI methods in the investment process.

### **NGO Movement**

The lack of a shareholder activism culture, which we have mentioned earlier, also means that the presence of environmental groups or other civil society organisations at AGMs is rare. In Hong Kong, NGOs tend to be

dependent on corporate funding, which is an additional reason why they would not seek to influence corporate environmental and social behaviour, via the stock market or in other ways.

*All NGOs target government. They feel that they have to monitor them. Business in Hong Kong is very powerful so the NGOs don't want to be on their bad side. Many of them get funding from business.* (Interview, IRO)

One exception is Greenpeace China, which has attended the AGM of a utility company in Hong Kong, where the organisation posed questions regarding the company's extensive use of coal. The general perception from the company is that Greenpeace's approach was not constructive, since they chose a confrontative tactic that upset many shareholders (Interview, IRO). In addition to attending the AGM, Greenpeace hung a banner on the façade of the hotel where the meeting was held, and handed out flyers outside. The activities have not had any effect on the company's use of coal.

It appears that the role of NGOs for corporate targeting in general is too weak for it to have spread to the financial market, but might potentially be an opening to an increase in shareholder pressure if tactics are changed towards more corporation-focused work.

#### **Historical Roots**

In Hong Kong, the concept of SRI is not sprung from the same historical, church-based process, or its political antecedents, as in many Western countries. The process of establishing SRI on the financial market of Hong Kong is therefore different to the one that takes place in regions where SRI has a longer history. SRI can be viewed as "history-less", if we look only to the Hong Kong context, and might therefore have a harder time to be rooted, as it doesn't have a previous development to fall back on, but is translated from its present-day-version in other countries. The market for SRI that in some other countries has been created and sustained over a long time due to the investment approach of religious or other groups has not developed in Hong Kong. It should be noted, though, that there are indeed religious groups in Hong Kong, albeit not in a role as active shareholders.

#### **Minority Shareholder Rights and Shareholder Activism**

In Hong Kong there is an ownership structure which disfavours minority shareholders. Family ownership, conglomerates, and cross holdings are common among the companies listed on the Hong Kong stock exchange. This means that for many companies, the majority of shares are held by one person, family or company, which leaves little room for minority shareholders to forward views that differ from those of the major shareholder.

Further, if a shareholder in Hong Kong wants to attend an annual general meeting (AGM) they would have to be appointed as a proxy (a representative, or a replacement) by the nominee, which is the company through which the shareholder bought the shares (for example a bank). This contributes to shareholder meetings often-times being attended by only a few number of investors, and not functioning as an arena for interested actors to for example express concern over environmental or social matters. Several of the interviewed Investor Relations Officers for this study express that their AGMs are typically only attended by a small number of shareholders:

*Very few people come to our AGMs. Maybe 20 people or so, and mostly people who have been shareholders for ages.* (Interview, IRO)

An interviewed representative for one of Hong Kong's domestic SRI funds expresses that it does not see itself in the same role as more confrontative types of actors, and estimates that its potential impact on corporations in terms of CSR is limited:

*It is difficult in Asia. We want to allocate capital and support certain principles, but we are not playing the role of Greenpeace or WWF. We don't have the status of them. It would be fruitless. We are a mid-sized company. We can't tell companies to plant more trees. Even when those groups try to influence companies it goes in one ear and out the other. We can pronounce what we believe in, but we are always a minority shareholder.* (Interview, Chief investment officer)

The role of minority shareholders is thus too limited today for it to be an enabler for SRI in Hong Kong, not only because of factual circumstances such as ownership structures, but our interviews also indicate that there is a *perception* among shareholders (or fund managers) themselves that minority shareholder voices will not be heard.

### CSR and Disclosure

Whereas there is little data to support whether the level of CSR practice in Hong Kong is as extensive as in Europe and North America or not, the Hong Kong corporate sector does not seem inclined to address CSR issues through corporate voluntarism (e.g. China CSR, 2006). There is consensus among the respondents that the major motivation for addressing corporate social responsibilities is formal regulation, rather than voluntary initiatives:

*Regulation is the main guideline for us. We would not overdo it, and we would not go under it.*

*Regulation must be a benchmark to which we adjust when it changes. (Interview, IRO a)*

*People look to standards. And they are set by the government. If the government doesn't lead, it won't happen. A company won't do something that is not profitable. Particularly with China right next to you. Hong Kong standards are higher than in China. A profit oriented company would not spend extra on meeting a level that is beyond the limits of the standard. (Interview, IRO b)*

*In all honesty, most business would do it for regulatory reasons. It is a compliance issue. (Interview, IRO c)*

As for disclosure, a recent study finds that Hong Kong trails behind other Asian economies when it comes to having written policies on typical CSR areas, such as protection of human rights within corporate operations or its sphere of influence, statement on normal working hours and maximum overtime, policy on labour standards adopted by suppliers, and restrictions on the use of child labour by its suppliers (Welford, 2004). Subsequent studies also show that few of the Hong Kong listed companies publicly report on social and environmental issues (Chan & Welford, 2005; China CSR, 2006), or disclose such matters in their IPO documents<sup>4</sup> (AsriA, 2006).

Disclosure tends to be viewed by corporations as a compliance issue rather than a strategic tool for example for risk management (Interview, Director of interest organisation for corporate governance in Asia). Also, many Chinese companies are listed on the Hong Kong stock exchange, and these tend to have even lower levels of disclosure than Hong Kong companies (Interview, Chief investment officer). The low level of corporate disclosure is an obstacle for the investor that would like to include a CSR perspective in the analysis. When asked which is the biggest challenge in assessing Hong Kong-listed corporations, a representative of a foreign SRI analyst organisation responds:

*Just general lack of information. There aren't many companies publishing CSR reports or dedicated publication. Plus, it is difficult to get feedback from the companies. The companies do not have a dedicated division or department and we need to contact Public Relations or Investor Relations which are unlikely to respond.*

...

*In general, information disclosure on human rights and labour issues is very poor. For most Hong Kong companies, information disclosure seems to be limited to financial aspects plus some corporate governance information included in the annual report. ... Lack of the companies' willingness to address or publish labour issues may be due to that they don't feel necessity - that is, there is no pressure from investors, consumers, and government or regulators. (Interview, Senior research analyst)*

We can conclude that the low disclosure level of CSR is an impediment to SRI in Hong Kong.

To end this section, Table 2 here below summarises our findings.

TABLE 2: SRI FACILITATORS AND THEIR PRESENCE IN THE HONG KONG CONTEXT

SRI facilitators (internationally)	Hong Kong specifics
Pension funds	Large assets invested in pension funds, but so far only one fund with SRI profile, and no SRI regulation.
NGO movement	HK:s NGO movement in general does not target the business sector and does not use the financial market for campaigning.
Historical roots	As opposed to many countries where SRI is widespread, HK does not have a history of religious or other strong groups applying their values to financial investments.
Minority shareholder rights / opportunities for shareholder activism	In practice, minority shareholders have a difficult time to make their voice heard due to majority of shares often-times held by single person/family/company. Low attendance at AGMs, which are generally not used for shareholder activism.
CSR + disclosure	Corporate disclosure on CSR is weak, making it difficult for investors to assess companies on CSR parameters.

We find that the facilitators for SRI that we identified in the previous section are for the most part missing in Hong Kong. This is something which is not necessarily market-bound, but perhaps culture-bound, or tied to a particular institutional context, which we will expand on here below. As discussed in the previous section, many of the facilitators are inter-related, which can explain why so many of them are not in place in Hong Kong, but which at the same time creates opportunity for SRI in the sense that if only one or a few of these factors gain a stronger foothold in the Hong Kong market they may function as catalysts for other facilitators as well, and ultimately strengthen the position for SRI overall.

In the next section, we will take our analysis further by introducing the concept of *institutional logics*, which may shed light on the lack institutional facilitating factors that we have found so far.

## Institutional Logics

In this section, we will add an analytical layer regarding institutional logics and its role for SRI in general and in Hong Kong in particular. This is a dimension that has hitherto not been addressed by previous researchers on SRI, but that we find helpful for further understanding the limited role of SRI in Hong Kong.

For analytical reasons, the financial and business sectors of the industrialised world (of which Hong Kong is part) can be viewed as an “organisational field”. An organisational field is signified by dense interaction and information flow between organisations and a notion that the organisations are parts in the same institutional context – they “constitute a recognized area of institutional life” (DiMaggio & Powell, 1983:148). An organisational field is not the same as industry (although it can coincide) but is constituted by all relevant actors in an institutionalised structure.

Within an organisational field there are taken-for-granted norms that portray certain structures as suitable and natural, and these norms therefore contribute to uniformity. Such norms can be part of an institutional logic. An institutional logic is defined in literature as “the socially constructed, historical pattern of material practices, assumptions, values, beliefs, and rules by which individuals produce and reproduce their material subsistence, organize time and space, and provide meaning to their social reality” (Thornton & Ocasio, 1999: 804). The dominant logic “permeates a field to the extent that it is being taken for granted as the most appropriate means to pursue a collectively valued goal” (Boxenbaum, 2005: 20). The logic and its associated practices create a certain identity, and are upheld by choosing to follow and enact agreed-upon norms and standards (Ahrne & Brunsson, 2006).

For this study, it is useful to view the financial and business sectors in Hong Kong as a separate organisational field, although it is at the same time part of a more global organisational field together with financial and business sectors in other parts of the world. We can think of it as a regional organisational field. SRI can also be viewed as an organisational field (Louche, 2004), although it is yet in a stabilising phase (meaning that there is not a



full-fledged consensus about what exactly SRI is or should be). These two organisational fields are not entirely guided by the same institutional logics. The corporate and financial sectors (and also the governmental sector) in Hong Kong are dominated by market logic. This in itself does not distinguish it from most other such sectors, but this logic is here reinforced by the fact that Hong Kong prides itself on being a free market economy<sup>5</sup>, largely ruled by market forces. SRI, in turn, is centred on a combination of market logic which hones profit maximization and shareholder value, and of a social and environmental protection logic, which is based on notions such as common interests and values, a shared responsibility towards future generations, and to some extent also on a view that the economic system is not decoupled from ecosystems or from basic human rights (see Table 3 here below).

**TABLE 3: INSTITUTIONAL LOGICS**

Market logic	SRI	Social and environmental protection logic
Goal = economic profit	Goal = economic profit AND sustainable development	Goal = a sustainable development
Shareholder value = maximised financial return on investment is the sole focus	Shareholder value = stakeholder value = financial aspects are complemented or integrated with environmental and social concerns	Shareholder value = not central to this logic

As mentioned before, Hong Kong stands out as a free market, which entails that the market logic is taken to an extreme. Our interviews further indicate that representatives of Hong Kong’s corporate and financial sectors tend to view financial and economic dimensions as *separate* from environmental and social ditto (rather than integrated, or dependent on each other), and that CSR beyond legal enforcements is perceived to be a cost which is not affordable in a competitive business environment unless it enhances brand value or the like. This means that there is a perceived trade-off between for example financial and environmental parameters. Many respondents refer to investors and residents as prioritising money over the environment and labour conditions, again indicating that these are separate and not necessarily reconcilable dimensions.

*I think the reason Hong Kong investors never ask [us] about the environment is the culture. /.../*

*People in Hong Kong are very concerned with money. (Interview, IRO a)*

*We are very seldom contacted by investors about CSR. Investors are primarily interested in growth, and how we work on our business model. /.../ I don’t think that investors see any financial materiality of CSR. (Interview, IRO b)*

*It cost money to protect the environment, and costs eat away profits, and ultimately shareholder value. So it is always a balance, between financial and environmental interests. (Interview, IRO b)*

*There is so much money in this place. Hong Kong is too rich for its own good. It got rich so quickly. That is one reason why Hong Kong doesn’t deal with the environment. (Interview, Director of interest organisation for corporate governance in Asia)*

Mature organisational fields, such as the business and financial sectors in Hong Kong, are generally not receptive to foreign institutions, particularly if these are informed by a different logic (Boxenbaum, 2005). Since SRI is based on a somewhat different logic than the financial and business sectors in Hong Kong, SRI is not part of what is viewed as legitimate in this field. In order for SRI to become legitimate in Hong Kong, it would need to be translated by actors who are motivated to do so (Czarniawska & Joerges 1996), and to deinstitutionalise the norms that hinder the adoption of SRI, so that it fits with the logic upon which the focal field is built (Boxenbaum, 2005).

SRI does however not stand in opposition to a free market (c.f. AsriA, 2003b: 37-38). Liberal economics promotes that people are free to do what they want with their own assets. So if shareholders want to invest their money with environmental and social principles, they should do so. If shareholders want the corporations in which they have invested money to take more social responsibility, they can ask this of the company. So the clash is not in

what kinds of principles are possible to purport within one or the other logic, in this case. The market logic implies that it is appropriate by corporations to put profit first, and it is appropriate by investors to put return on investment first. In fact, anything else would be controversial. This in itself is not what stops SRI from entering the financial market in Hong Kong. Rather, it is that the market logic as it unfolds in Hong Kong has hitherto not been receptive to the influence of any other logic. It has not made much room for the idea that environmental and social prosperity does not stand in opposition to economic prosperity (e.g. Porter & van der Linde, 1995), or that economic value is integrated with or even dependent on environmental and social prosperity (c.f. Schumacher, 1973; Gladwin et al, 1995; Common and Stagl, 2005; Stern 2006). “Profit” is understood as purely economic. Hence, an organisational field which is dominated by market logic will not automatically embrace SRI, given its foundation upon a different logic. As per the argument above, the cultural and ideological embeddedness of the organisational field in Hong Kong entails that the market logic is hegemonising the business and financial sectors.

## Conclusions

Through this study, we have identified five factors that have facilitated SRI in markets where SRI is comparably prevalent today: Pension funds because they represent a major part of SRI assets and activity, due to legislation as well voluntary initiatives (pension funds have a long-term interest in the economy in which they invest); minority shareholder rights which is necessary in order to effectively use the financial market for shareholder activism; an active NGO movement, both because it may use the financial market directly for its own purposes and because it influences investors’ opinions; adoption of CSR by the business sector, and corporate disclosure of CSR which enables investors to make corporate assessments on such dimensions; and lastly historical roots of SRI, meaning that a long history of SRI, especially among religious groups, has created a market for this type of investment over time.

We also find that these institutional factors are not in place in Hong Kong, which can explain why the role of the financial market in Hong Kong for influencing corporate social and environmental responsibility is so limited today: It lacks pension fund regulations and pension funds that voluntarily invest with an SRI approach; minority shareholders have limited opportunity to exercise shareholder activism; the NGO sector is not active in targeting business, nor in using the financial market for its purposes; the corporate sector has a low level of disclosure of CSR aspects to financial actors; and there are no historical roots of SRI such as religious investing or the like to fall back on. This means that it far too easy to ascribe the limited role of the financial market for advancing CSR in Hong Kong to “a lack of interest” on behalf of shareholders, but that it is rather a lack of institutional facilitators that can explain this.

Finally, we also suggest that one of the major reasons for the limited role of shareholders in influencing Hong Kong corporations is that the market logic that dominates Hong Kong’s corporate and financial sectors is not particularly receptive to the logic of environmental and social protection. This is potentially a powerful explanation to why the idea of “socially responsible investments” has not been diffused to Hong Kong in spite of its prevalence in other markets. The dominating institutional logic does also to some extent stand in the way for CSR to fully take off in Hong Kong, and this in itself is an obstacle to SRI, since an investor that wants to invest with an SRI approach is dependent on there being socially and environmentally “responsible” companies to invest in.

A potential opening for environmental and social aspects to be incorporated into business operations in Hong Kong to a larger extent via pressures from the financial sector may be that both the idea of SRI and of CSR can be framed as profit-related; if the environment, labour conditions and human rights are not only viewed and talked about as moral issues and thus treated as add-ons, but are instead framed as components of risk management and strategic decision from a financial perspective, there is a better fit with the dominating institutional logic of Hong Kong’s corporate, financial and governmental sectors today. A change towards such financial framing can for example be achieved by education of investors about the financial materiality of environmental and social matters, by a larger part of foreign SRI-oriented shareholders expressing environmental and social expectations on Hong Kong-listed companies, and/or by local shareholder activists shifting much of its current focus from moral to financial arguments (e.g. Sjöström, 2007). Also, NGOs may if not influence the *logic* of business and financial actors, at least influence their *practice* (Zadek, 2001; Ählström & Egels, in press), and more activism directed at Hong

Kong-listed corporations by NGOs may therefore be another inroad to increase the extent to which environmental and social aspects become part of the business and financial agendas.

With this in mind, future studies may want to explore the attitudes towards corporate social and environmental responsibility of investors and corporate leaders in Hong Kong, which can provide interesting insights into the “institutional logics” of the financial and corporate sector in this vibrant market place.

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Please contact the author for the list of references.

## Acknowledgements

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## End Notes

A shareholder resolution is a formal proposal that shareholders can vote on. The rules for how to propose resolutions differ between countries, and not all countries employ this method. Shareholder resolutions are most common in the US and the UK. A CSR-related resolution can for example ask a corporation to disclose how they plan to mitigate CO2 risks, or to publish a policy on human rights, or to establish an ethical code of conduct for suppliers.

<sup>2</sup> The Guangdong province borders Hong Kong and is situated on the Pear River Delta. The lion share of China's factories are located here.

<sup>3</sup> Ecological footprint is a measurement of the area of biologically productive land and water that is needed to provide ecological resources (food, fibre, timber, land on which to build, land to absorb carbon dioxide released by burning fossil fuel) (WWF, 2006).

<sup>4</sup> IPO means Initial Public Offering and refers to when a company becomes listed at a stock exchange. The Hong Kong stock exchange requires the company prospectus to include information which "is necessary to enable an investor to make an informed assessment of activities, assets and liabilities, financial position, management and prospectus of the issuer and of its profits and losses and of the rights attaching to such securities" (AsriA, 2006: 1).

<sup>5</sup> According to neo-classical economics, the "free market" is the most efficient way of allocating resources (Craven 1990). In an absolutely free market economy, all capital, goods, services, and money flow transfers are unregulated by the government except to stop collusion that may take place among market participants.



### **Section 3: International Management: Organizational Issues**

# Risks, Gaps, and Global Issues of Project Management

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## Abstract

Project management is the discipline of defining and achieving targets while optimizing (or just allocating) the use of resources—time, money, people, materials, energy, space, etc. over the course of a project (a set of activities of finite duration). In contrast to ongoing, functional work, a project is a temporary endeavor undertaken to achieve or create a unique product or service(s). The project management knowledge and practices are best described as component processes—initiating, planning, executing, controlling and closing. We have taken a closer look at project management by reviewing the types of methodologies and tools that exist in business today. We observed the major existing risk factors facing project management practices. We also evaluated the unique issues in delivering projects brought about by globalization. As we were extracting the information, it became apparent that there should be measures taken related to the project management process that could alleviate the some major risk factors in some way. Our paper illustrates a solution idea for the project management process, which may close the issue gap with regard to many globalization issues and other identified risks.

## Introduction

A comprehensive management of employee, resources, analytics, CRM, supply chain and project management is of paramount important for modern corporations. Businesses can plan, track and analyze time and labor through applications for scheduling, time and attendance, leave and labor. While companies can focus on a number of areas in their efforts to become high performance organizations, this paper discusses the role that effective project management practices play in this process.

Project management is the discipline of defining and achieving targets while optimizing (or just allocating) the use of resources—time, money, people, materials, energy, space, etc. over the course of a project (a set of activities of finite duration). In contrast to ongoing, functional work, a project is a temporary endeavor undertaken to achieve or create a unique product or service(s). The project management knowledge and practices are best described as component processes—initiating, planning, executing, controlling and closing (Westland, 2006; Jin, Koskela, & King, 2007).

We have taken a closer look at project management by reviewing the types of methodologies and tools that exist in business today. We observed the major existing risk factors facing project management practices. As we were extracting the information, it became apparent that there should be measures taken related to the project management process that could alleviate the some major risk factors in some way. Our paper illustrates a solution idea for the project management process, which may close the issue gap with regard to many globalization issues and other identified risks. The idea is to include a sub-process for project management as it applies to the project life cycle, that would benefit an organization internally for a parent organization, and also externally for their client's benefit.

## Background

There are various methods of project management, which differ, based on the scope and the complexity of the project undertaken. The Gantt chart is a well known standard in project management. Henry Gantt (1861-1919), studied in great detail the order of operations in work. His studies of management focused on Navy ship construction during WWI (Mintzer, 2002). His charts complete with tasks bars and milestone markers, outlined the sequence and duration of all tasks in a process. These chart diagrams proved to be very powerful analytical tool for managers that

they remained virtually unchanged for nearly a hundred years. The chart plots a number of tasks across a horizontal time scale. It is easy to understand and it allows all team members to maintain the status of their tasks against the projected progress.

Many new techniques have been developed, which emerged from two major network systems, the program evaluation and review technique (PERT) and critical path method (CPM) (Punmia & Khandelwal, 2005). PERT is the method of project scheduling and coordination based on an integrated logic network, first developed by the U.S. Navy in 1958 to plan and control the Polaris missile project (Burgher, 1964). PERT allows for randomness in activity completion times. PERT has the potential of reducing total project lead time as well as reducing the cost of the project. CPM, a graphical view of a project, was developed at about the same time, by Remington Rand and DuPont and is very similar differing only in the way in which they arrive at time estimates (Dalcher, 2004; Lechler & Ronen, 2005). In the history of management methods, it would be difficult to find any other techniques which have received as much widespread attention as that of these network methods for planning, scheduling, and controlling. These methods are still very widely used today to achieve the earliest possible completion time at the least possible cost.

Project managers now more than ever need to possess knowledge, skill and expertise in every aspect of project management methodology. Of the many certifications, Project Management Institute's (PMI) project management professional (PMP) is the most widely recognized of any project management credential (Carbone & Gholston, 2004).

We have explored the existing methods of project management and their effects on overall implementations. It is evident that there may be a gap with the normal process that we believe is an important factor in successful implementations. Secondly, we would like to evaluate what the prevalent risks factors are related to project management in addition to the issues brought about by globalization, a need for process training. Next, our paper discusses change management related to project success, how it is measured today in complex project-centric industries. We will discuss a theory where we would apply a strategic (for infrastructure) and an operational process (for client operations), based on the need for change control measures. When change is needed, either within an organization, or within a client project, it should be addressed in a consistent, procedure driven way, so the company can reduce ambiguity, and learn from its past mistakes by amicably agreeing on what is a best. With our evaluation, we will assert a commonality with the various risks and propose an idea for improvement through change control. Finally, we touch upon a future trend which may perhaps change the landscape of project management and the overall future role of the project manager.

## **Risk Associated with Project Management**

In today's environment risk is associated with every aspect of life; there is healthy risk and unhealthy risk--resulting in numerous reasons for failure in project management (Peters, 1987; Chua & Lam, 2005). Failure continues to be viewed as an organizational taboo even though corporate values such as learning and active experimentation for growth and profitability are increasingly exposed in this modern economy.

However, the fear and intolerance of failure go against the tenets of organizational learning and continuous improvement (Thorne, 2000). If failure is ignored, denied, or repressed, the opportunity to learn from past mistakes is lost. So when failure is embraced as an integral part of learning and development, much deeper insights into success can be gained (Chua & Lam, 2005).

The main reasons for failures in project management are often thought to be over-cost, behind schedule, and not meeting the users needs (Aiyer, Rajkumar, & Havelka, 2005). It is evident that intervention is an integral part of project management and is important in the prevention of project failures. The complexity of projects should determine the types of monitoring and the frequency. It may require periodic checks. Early detection of a problem allows the project manager to escalate or de-escalate commitment to the project. In escalating, additional resources may be all that is needed to prevent a potentially catastrophic business failure. In reexamining the project it allows an alternative course of action or the implementation of an exit strategy (Ivory & Aderman, 2005). Below are some types of risk leading to the failure of project management practices (Aiyer, Rajkumar, & Havelka, 2005):

- Problems are denied
- Denial in detection of problems
- Lack of communication to stakeholders defining the nature and magnitude

Also, organizational issues may originate from selecting team members from different areas. This sometimes results in rigid points of view, lack of collaboration, lack of trust usually because the project is short term and on a temporary basis resulting in minimal cooperation from participants.

In addition to these, the project manager may have difficulty communicating upstream and downstream without having sufficient authority over either group (Kuhl, Schnelle, & Tillmann, 2005). Causes of technology failures, as originally stated by Perrow (1984) and confirmed by Ivory & Alderman (2005), are:

- Multiple interactions (linear and non-linear)
- Internal contradictions
- Multiple sites of control and influence
- Some interactions occur deep within the system and are hidden
- Low quality service from suppliers resulted from the fact that the project would not result in a long-term stream of work for the suppliers
- Contradictory demands of safety and speed need to co-exist and as such, complex systems can never be entirely coherent. This was originally stated by Law and confirmed by Ivory & Alderman (2005)

An example of this is with a complex system implementation. When there are many linked tasks to complete a milestone, the impact one task has on a group might overlook some important aspects needed for a future task that depends on it. This could have downstream effects on the usability of the final product, causing a defect not foreseen by the original resource. This could add additional costs to de-bug or identify the cause of original failure. These risks are generic to most projects and we agree that they still exist today.

From our observation, most employees are reluctant to share ideas to help foster needed change, due to fear that they might lose their jobs to outsourcing or outside consultants. Most improvements via technology usually result in staff reduction; as a result, many employees and some managers are very reluctant to share ideas that will eliminate their jobs and return profit to the company at their expense.

## **Change Management and Project Success**

While we can infer that standardization is important for consistency with operational project management. We can see by the issues observed that project management process steps need a closer look to help identify where the process is broken, to see if missing steps or oversight helped to generate or promote any of these risks.

Project success has many challenges. What determines success? Do we limit the definition of success to the implementation phase? Do we need to gain consensus from the stakeholders to determine success? This topic is important because it has bearings on the future direction of project management in the strategic context (Jugdev & Müller, 2005). With that said, one option is to integrate an application process flow, a change management process, (strategically, for infrastructure) and then operationally (for clients), based upon the need to repress ambiguity in the organization, and to contain scope creep. We prefer to include a “change management process” as a subset of the overall project management process, regardless of what type of methodology is suited and chosen. Change management is a planned approach to deal with change in an institution. This will ensure maximized benefits for all stakeholders involved, employees and clients alike. This will minimize the risk of project failure.

Organizations often experience difficulty when taking on new projects, especially when important work needs to be coordinated across different geographical locations. Managers can take practical steps to identify critical commitments within the organization and should locate, diagnose and intervene to fix them. Managing by commitment increases flexibility because managers and employees can exercise in selecting the best people to work with and negotiate terms tailored to the task. Employees see a promise as personal security and they work harder to honor that commitment (Sull & Spinosa, 2005). Organizations should establish procedures to manage these criticalities or risk events in a repetitive fashion. The organization, especially global entities, should consider becoming a *learning organization* to disseminate those procedures to all affected functional personnel, by recording



and teaching the new process steps of project management. This will solidify the internal tasks necessary to bring about the required change. Commitment to instill learning/teaching to introduce the new process is key.

Project management is the result of managing people, not managing work. Up until now, it was commonly thought that valued project managers stayed within the iron triangle (cost, time, and scope) optimizing these efficiencies, eluding the function to an operational role. As Jugdev & Müller (2005) emphasized that in fact, the project management function is really more strategic in nature. Organizations need to realize that they must adjust their infrastructure to deliver projects through best practice tools within their organizations. Whether it is by adding dashboard reviews; risk, action item, or gap metrics reporting; stakeholder or status meetings, project managers must draw attention toward heightened awareness of the importance of presenting input from and to the customer and effectively feed back results with the clients input into the equation. The strategy and mission statement of an organization should include functionality that embraces *change* for all stakeholders, clients, and employees. Definitely, in addition to people, resources, equipment, working capital, etc. are also important entities of project management.

In Dewett's research (2003), the main benefits that IT affords organizations have been considered and then applied to the requirements for creative production, the stages of the individual creative process, the process of organizational learning as related to creativity, and the creative process within large-scale project-based work. In keeping with Bromberg (2005), Thomas Edison held 1,093 patents. He guaranteed productivity by giving himself and his assistants idea quotas. In a study of 2,036 scientists throughout history, Dean Keith Simonton of the University of California at Davis found that the most respected scientists produced not only great works, but also many "bad" projects. They weren't afraid to fail, or to produce mediocre in order to arrive at excellence.

In the case study of the British Library, Harris (2006) suggests that the bureaucratic context offers a more propitious environment for innovation than has been suggested by managerialist accounts of the "post-bureaucratic organization" in project management. Recently, Hodgson & Cicmil (2007) take as the focus of their analysis a specific management model which has a significant and growing impact on many sectors of contemporary industry; that of project management. Their discovery shows that the suppression of creativity, innovation in organizations may come from the standardization of contemporary management knowledge.

Groupthink, term coined by psychologist Irving Janis in 1972, is another barrier for a successful project management. Groupthink is a situation where people think alike and new ideas are not tolerated. Therefore, creativity, innovation and/or individual responsibility are discouraged and critical thinking is suspended during the decision making process.

Creativity and innovation are vital to organizational success. Project management and knowledge management have increasingly become a major influence on organizational efficiency and effectiveness. We should begin to fill this gap by exploring the ways that project management might influence creativity and innovation in organizations. This is very important for organizational studies, given that knowledge and information are among the most important ingredients for creativity and innovation.

## **Globalization**

In today's working environments, new developments often require cross-functional team members living and working on separate continents to communicate accurately and effectively. Different languages, cultures, and time zones added complexity to the already difficult task of managing project team members with different perspectives and backgrounds.

In the current environment, companies have to globalize in order to achieve success in the business. Most large corporations deal with international companies directly or indirectly. No American corporation is immune from the impact of globalization. The fact is American corporations must cope with diverse cross-cultural employees, customers, suppliers, competitors, and creditors if they are to become and/or remain successful. People are often not aware of the tremendous impact different cultures have on their vision and interpretation of the world.

Team members cannot fulfill their roles and responsibilities if they do not have necessary information about the project. The project leaders need to share relevant project information with all team members even if they

are not directly affected. By sharing important information with all team members, the project manager also keeps them motivated and committed to the project. This type of sharing is more important in some countries than others because in some countries employees feel an obligatory sense of responsibility that necessitates a closer relationship with their managers.

Project management strategies are the key elements for corporations when dealing domestically or globally. The best business models and associated processes were those that were fully documented and incorporated within the company's quality management systems. "Good leaders do inspire confidence in themselves, but a truly great leader inspires confidence within the people they lead to exceed their normal performance level" (Prabhakar, 2005, p.53). Idealized influence is an important leadership quality that has an impact on a successful project anywhere in the world. With these combinations of global integration practices, success is imminent and measurable.

## **Future Trends**

Much research has been done on the methods of project management, but it is evident that more attention is needed on best practice standard methods, namely, the delivery of change control in client projects (operationally) and in project management infrastructure procedures alike. Ambiguity caused by change is probably the single-most derailing element that leads to project failure today. "There is a lack of research that explores the micro-processes of organizational change and their effects on the development and emergence of organizational routines" (Bresnen, Goussevskaia, & Swan, 2005, p.28).

There is much resistance to change and less willingness with sharing knowledge for fear of having one's position eliminated. If a procedure or uniform planning mechanism were established across all projects, there would be accountability and acceptability on all fronts. Today there exists best practice management (BPM) software that is an example of such a learning vehicle for intercontinental organizations willing to optimize processes. What we foresee is the software to incorporate a process evaluation for us. While this may prove to be a daunting invention, we see this as a very real possibility. BPM is different from conventional approaches in that it hinges on continuous process improvement (CPI) as their core competency and philosophy (Miers, 2006). We see a future trend as similar learning software as having the capability to detect or "alert" organizations when breakthrough developments emerge which are closely related to the current organizational process or technological application(s). This would ultimately change the role of the project manager to a less administrative role, task pusher, risk mitigator, to the people manager, with less emphasis paid to issues and risks related to "missing" steps, or overlooking the quality of a task performed.

## **Conclusion**

With the risks today, all organizations must realize the value of our mistakes. With all projects, success needs to be defined, and overall project lessons learned must be admitted and documented. Mistakes or risks in projects should be raised as soon as they are found, and in conjunction with the client involvement. This will alleviate catastrophic failure. Failure in any way should be embraced, not punished or looked upon as negative. With global knowledge database incorporation, organizations could capture these lessons and improve upon their processes to correct any future actions. This emphasis on risk identification, process documentation, and overall communication, must be emphasized from the top stakeholder down to the last functional team members, especially important with global team members. This will ensure a vehicle for organizations to always keep up with the ever-changing organization strategy and vision.

Then change management is an additional sub-process step, which might be a consideration for the project management process overall to help capture the ever-present change requests, whether it be out of scope (scope creep) items or in scope (overlooked) items needed for any client projects, or actual organizational process steps. Any of these items cause additional work and may be a root cause for not having tasks completed on time. With globalization, having people work on projects in functional roles across continents is an added constraint. To

break down restrictions with borders, it is important for organizations to relay all necessary information about a project to these global constituents, including the methods of project management and the steps necessary to complete the project. Communication and learning is the key.

We can always fix technical failures, however it is more challenging to understand the cause of the problems and how people factors are impacted in the ultimate success of a system implementation in an organization. A careful and continuous analysis of risks, gaps, and issues will minimize problems in the future.

## **References**

Contact the authors for the list of references.

# Supervisory Work by New Means: Can Teams Act as Substitutes for Leadership?

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## Abstract

This paper focuses on supervisory work in situations where supervisors have changed from acting as close foremen to facilitators. The aim is to outline a comprehensive framework of sufficient and good supervisory work with regard to both juridical requirements and means of management. The central Finnish labour legislation is used as a normative basis for the concept of sufficient and good supervisory work. The concept of teams and the concept of substitutes for leadership (following Howell, Dorfman & Kerr 1986 [17], Howell et al. 1990 [16] and Jermier & Kerr 1997 [24]) form the management point of view. The status of teams as substitutes for leadership within organizations that make use of computer-aided management system will be analyzed. Preliminary results of empirical research will be introduced as evidence of employees' images of sufficient and good supervisory work in a team organization where several computer-aided management systems are used. Finally, some conclusions and ideas for further investigation will be offered. **Keywords:** juridical terms, substitutes for employers, substitutes for leadership, sufficient and good supervisory work, teams

## Introduction

In modern day organizations, supervisors have changed from acting as close foremen to facilitators. The aim of this paper is to make use of both juridical premises and means of management and leadership to constitute the background for defining sufficient and good supervisory work. Finnish Employment Contracts Act and the orders set out in the Finnish Occupational Safety and Health Act concerning employer's substitutes are used as normative bases for exploring the concepts of 'sufficient and good supervisory work'. These bases suggest that leadership at least partly derives from hierarchy.

The argument regarding the change in supervisory work is based on a historical review. This review will be explained in order to provide evidence for the topicality of the chosen issue as well as to illustrate some of the stages of this change from close supervisors to facilitators (Mintzberg 1975 [35], Nilakant 1991 [37], Routamaa et al. 1992 [38], Lowe 1993 [30], Jackson & Humble 1994 [23], McKenna 1994 [33], House 1996 [15], Appelbaum et al. 1999 [2], Bunning 2000 [6], Benders et al. 2001 [5], MacNeil 2001 [31], Davis & Fisher 2002 [9], Holden & Roberts 2004 [14]). The role of a supervisor or a substitute for the employer as a facilitator is discussed alongside theories regarding substitutes for leadership in order to determine the status of teams. Teams are included in this investigation as an example of modern day means of arranging work.

Theories that address substitutes for leadership include the idea of moderators that have different kinds of effects on the actions of leaders and leaders' substitutes. Research on leadership substitutes contributes to a legal approach as it "focuses on whether subordinates are receiving needed task guidance and incentives without taking it for granted that the formal leader is the primary supplier" (Howell et al. 1990; 23 [16]). From an organization theory point of view, this paper preliminarily takes into consideration that the legislative background is based on quite Tayloristic suppositions, while theories of substitutes for leadership and ideas of teams include rather symbolic-interpretative elements (Hatch 1997 [12]).

Companies use different kinds of direction systems to handle planning, supervising and gathering data of achievements (Marginson 2002 [32]). As an organization provides solutions through computer-aided management systems, the role of management is emphasized (Huusko 2006c [22]). Hence, the role of leadership finds itself in a new situation and it seeks solutions for both new executives and new ways of operating.

From an empirical side, this paper focuses on workers' views and definitions of sufficient and good supervisory work. Preliminary results of one portion of a research project concerning changes in supervisory work<sup>1</sup> can be introduced now, which have been able to highlight some clear patterns of responses. The data collection notes from these responses were gathered in accordance with Kotter's (1990 [27]) division of management and leadership. Three of the four notes refer to leadership. The respondents regard personal contacts, incentives, feedback and moderate targets as elements of sufficient and good supervisory work. Moreover, several kinds of enterprise direction systems were not considered to be sufficient tools for supervisory work. The data included only a few mentions of teams or teams' meaning as a source of support or feedback. Hence, neither teams nor systems act comprehensively as substitutes for leadership. Both the preliminary theoretical framework and the empirical results demonstrate that it is useful to continue with the question of sufficient and good supervisory work and with substitutes for leadership. The challenge is to develop proper means for both theoretical and empirical investigations of these topics.

### **Main Concepts for the Research**

The Finnish Employment Contracts Act as well as the Finnish Occupational Safety and Health Act include clear directives concerning persons who aim to substitute employers. In this paper, these basic acts compose the normative basis for addressing substitutes for leadership. These norms are understood as compulsory elements within management arrangements such as the use of teams and direction systems. Several arrangements in post-modern organizations have blurred earlier roles of supervisors and subordinates. The aim of teams is to take on more managerial tasks and replace supervisors (Bacon & Blyton 2005 [3]).

Teams and direction systems can act as moderators, as Howell et al. (1990 [16]) state in their substitutes for leadership theory. Four moderators can be identified: neutralizers, enhancers, supplements and substitutes. Neutralizers are attributes of subordinates, tasks and organizations that interfere with a leader's aims to influence workers. Enhancers amplify a leader's impact on employees, while supplements complete it. Actual substitutes work to such a degree that they virtually negate a leader's ability to either improve or impair workers' performance (Howell et al. 1990 3 [16]). According to Howell et al. (1990, 27 [16]), the trick is "to develop such norms and structures that consistently produce feedback when feedback is needed, rather than merely an occasional spontaneous outburst when circumstances become intolerable".

This paper makes use of a particular concept of a team that has been developed from an earlier, well-known team's concept. The initial concept described by Katzenbach and Smith (1994 [26]) is used as a basis and Huusko's (2003 [18]) concept of a suitable team is used as an advanced version. Katzenbach and Smith (1994, 59 [26]) have provided a clear and demanding definition: "A team is a small number of people with complementary skills who are committed to a common purpose, performance goals, and working approach for which they hold themselves accountable." In spite of the criticism that has been directed at this definition (e.g. Kuipers 2005 [28]), it nonetheless can be found as a basis for many other definitions. Especially from the point of view of management and changes in supervisory work, this basis proves to be promising. Consequently, it forms the basis for the concept of a suitable team: "A suitable team is both suitable and empowered for addressing the tasks that are given to it and competent to act as a part of a working contract" (Huusko 2003 [18]). The basic idea of a suitable team includes two conditions. Firstly, a team must be a suitable way for working and arranging the duties of employees, and secondly, a team must have an established rank such that it is accepted as able to act as part of a working contract.

Types of computer-aided management systems are vast, both in research and in practice. In this paper, the concept of enterprise resource planning (ERP) is used for wide-ranging programs (following Shehab et al. 2004 [41] and Dillard & Yuthas 2005 [10]). Other narrower systems used for certain purposes in the target organization will be introduced within the case study.

## Historical Review of Changes in Supervisors' Work

A historical review of the duties of supervisors reveals that the relation between supervisors and workers has changed during the last five decades. According to several researchers (Mintzberg 1975 [35], Nilakant 1991 [37], Routamaa, Hakuli & Ryhänen 1992 [38], Lowe 1993 [30], Jackson & Humble 1994 [23], McKenna 1994 [33], House 1996 [15], Appelbaum, Abdallah & Shapiro 1999 [2], Bunning 2000 [6], Benders, Huijgen & Pekruhl 2001 rsid13372555 [5], Holden & Roberts 2004 [14], MacNeil 2001 [31]), the main duties of supervisors can be highlighted by decade:

During the 1960s: to declare the rules of work, to plan, organize and supervise the work of subordinates;

During the 1970s: to declare the duties, to take care of implementation, to motivate, to activate workers;

During the 1980s: to encourage, creating the necessary resources for action, to develop a positive atmosphere and possibilities for growth;

During the 1990s: to clarify the objectives and working approaches, to plan, timetable and organize work, to build, support and manage teams;

During the 2000s: to support and develop HRM actions, to act as a coach and a supporter, to manage from a distance, to implement quality systems, to carry out development discussions as part of a reward system.

A couple of clear features are evident from this review. Firstly, the main duties of supervisors have changed from giving direct orders and supervising to taking care of the common circumstances of workers. Secondly, and resulting from the first, the review reveals that relations between supervisors and subordinates have become more distant. Managers work more with systems than with workers. This supports the argument that different kinds of systems – e.g. control, quality or reward systems – are ‘sub-supervisors’ (Howell et al. 1990 [16], Huusko [21]). Is this phenomenon even more noteworthy as teams are used? This question will be preliminarily answered here by addressing the functions and emphases of management and leadership.

The main elements for further consideration are: a change from close foreman to facilitators, the distance between supervisors and subordinates, and systems as sub-supervisors.

## Legislative Background as a Normative Basis for Supervisory Work

Chapter two of the Employment Contracts Act (55/2001) states the following about an employer's general obligations:

*The employer shall in all respects work to improve employer/employee relations and relations among the employees. The employer shall ensure that employees are able to carry out their work even when the enterprise's operations, the work carried out or the work methods are changed or developed. The employer shall strive to further the employees' opportunities to develop themselves according to their abilities so that they can advance in their careers.*

In addition, the Occupational Safety and Health Act orders workplaces to take care of delegation procedures and, within them, also the skills and premises of supervisors at all stages. A section of law 16 states:

*Employer's substitute*

*The employer may place another person to represent him or her (employer's substitute) and take care of the duties imposed on employers in this Act. The duties of the employer's substitute shall be defined accurately enough taking into account the employer's line of business, the nature of the work or activities and the size of the workplace. The employer shall ensure that the substitute is sufficiently competent, he or she has received an adequate orientation to the duties and that he or she also otherwise has appropriate capabilities for attending to the duties referred to here.*

This paper is based on the supposition that the orders mentioned above include a normative basis for the concept of sufficient and good supervisory work. The supposition means that an employer cannot avoid the demands that have been defined by legislation. The normative background that represents the modern paradigm will be tested by workers' conceptions that represent the symbolic-interpretative paradigm (Hatch 1997 [12]). As an employer or an employer's substitute aims to use new means of management and leadership, he or she has to assure

that these means are suitable and sufficient. In addition, the skills needed in new positions must be assured (Huusko 2006a [12]). In this paper, supervisory work is understood as the duties that are at least partly addressed by the person who represents the employer. In this sense, the definition matches with the legislative concept of 'employer's substitute'. In fact, the Employment Contracts Act (1<sup>st</sup> paragraph) uses the phrase "under consideration of employer". Therefore, a person must be identifiable behind decisions within personnel management if there are plans to use other instruments than people. By evaluating the chosen definition of supervisory work by organization theories, one can say that it belongs to a modern paradigm as it addresses employer and employees in quite a Tayloristic way (Hatch 1997 [12]). That is, the parties of employment recognize each other well or, simply expressed, an employee knows who the substitute for his/her employer is and supervisors know their subordinates.

However, in many cases, responsibilities are diffused as organizations aim to get flatter with the use of teams (Huusko 2003 [18], Kuipers 2005 [28]). At the same time, subordinates may lack face-to-face contact and feedback in their everyday work. Besides teams, organizations also utilize many other substitutes for supervisory duties such as ICT, computed-aided direction systems, TQM, as well as new 20 appraisal and reward systems.

The main aspect for further consideration comes from a legislative background: exploring a requisite, skilled person who makes plans for arrangements concerning employees and delegations as well as a requisite, skilled person who acts with employees. This basis suggests that leadership, at least partly, derives from hierarchy.

### **Team Organization as a Context**

Large amounts of earlier research concerning groups and stages in the movement from groups to teams emphasize internal relations that can both advance or hinder teamwork (Tuckman 1965 [44], Sinclair 1992 [42], Van Amelsvoort & Benders 1996 [1], Sheard & Kakbadse 2002 [40], Chen & Klimonski 2003 [7], Mills & Ungson 2003 [34]). Teams are also used as a means of lowering hierarchies and shifting duties. In such cases, supervisors are often let go with the notion that their duties can be covered within teams. Indeed, the skills needed at every level in an organization may be forgotten (Katz 1955 [25], Hamde 2000 [11], Marginson 2002 [32], Huusko 2003 [18], Huusko 2005 33 [19], Kuipers 2005 [28], Bacon & Blyton 2005 [3]). These findings hint at the moderators found by Howell et al. (1990 [16]). They match partly with the concept of the suitable team as well. Both concepts call for time within research processes concerning developing substitutes and teams. Jermier and Kerr (1997, 99 [24]) wrote: "We need to know more about how people respond to various substitutes. Thus, detailed fieldwork which examines the development of substitutes over a period of a time and the subjective meaning the substitutes are given by people in the setting would be informative, as would be work aimed at understanding how substitutes affect a variety of reactions by participants in the settings".

If the team structure is a strategic choice in an organization, what results is a transfer of responsibilities from supervisors to team members. These shifts of responsibilities include some kind of stance regarding the skills needed at different levels and different posts of an organization (Katzenbach & Smith 1993 [26], Van Amelsvoort & Benders 1996 [1], Hamde 2000 [11], Huusko 2003 [18], 2006 a, b, c [20, 21, 22]). As using teams concerns both supervisors and middle managers, it would be useful to remember what Katz (1955 [25]) wrote over 50 years ago. Katz argued that technical, human and conceptual skills are needed at every level of an organization. An additional point is offered by Sinclair (1992 [42]), who brings attention to team members' experiences of being abandoned.

Teams have been seen as a means of broadening duties, enriching work, enabling feedback by interaction, using rotation of work and providing feelings of comprehensive work and common goals. These elements refer to the feelings of satisfaction in work and partly to interaction in groups and teams (Kuipers & Witte 2005 [29], Conny 2005 [8], Bacon & Blyton 2005 [3]). Feelings of well-rounded work and common goals may cause "feelings of erased job classifications and un-defined positions" (Morgan 1989, 131 e1035 [36]). In addition, Morgan (1989, 131 [36]) argues, that "the whole notion of job enrichment and job enlightenment has probably been somewhat oversold. As somebody said recently, it really isn't much of an enrichment of the job if what you do is wash the spoons on Monday and wash the glassware on Tuesday". Many of these features refer to moderators within substitutes for leadership theories. As such, situations are examined using Kotter's (1990 [27]) division and

attention must be given to change processes as well is useful to note that different points of view concerning teams work at least partly against each other.

Bacon and Blyton (2005 [3]) have conducted well-founded research concerning employees' views of why and how managers introduced teamwork at several sites within a steel company. The classification of motivating aspects shown by Bacon and Blyton seem interesting. The categories were: economic, political, institutional and cultural. Examples of economic rationales were comments such as using teamwork to improve returns to shareholders and facilitating job cuts. Political rationales included managers introducing teamwork to advance their own careers and to protect their existing jobs. Following company fads as well as launching initiatives were considered to fall under the institutional rationales or motivations. Finally, rationales that fell into the cultural category included the aim of breaking up traditional crews or when managers were seen to enforce greater consent (Bacon & Blyton 2005 [3]).

Using teams is based on many assumptions, expectations and results that dovetail with discussions about substitutes for leadership. The planning and implementation of change processes should provide team members with sufficient means and capabilities to cope with broadening tasks (Hamde 2000 [11], Huusko 2003 [18]). Both the conflicting elements described earlier and misleading definitions within planning and implementing teamwork (following Benders & Hootegem 1999 [4]) constitute the basis for the idea to address how teamwork could be used to substitute leadership. 33 Different kinds of enhancers, neutralizers, substitutes and supplements of leadership can be recognized. In this paper, a team organization is explored as both a remedy for satisfying the challenges of modern work life and with respect to legislation. Therefore, the imaginable substitutes for leadership include a need for personal measures and activities but also possibilities for enhancers or neutralizers. Hence, internal supervision and feedback, feelings of working toward a common goal, job satisfaction and feelings of being left aside must be taken into consideration.

The definition of a suitable team described above involves an assumption that using teams results in clear changes in the organization of work. Reorganizing means going through the trouble of clarifying both the responsibilities to be shifted and the skills needed in new positions. Shifts in the positions between actors depend on the depth of the changes in the decision structure and how the top management sees and wants to see teams and their authority (Hamde 2000 [11], Huusko 2003 [18]). Van der Vegt, Van de Vliert & Oosterhof (2003 [45]) have argued that creating the right match between task and goal interdependence is a big and important challenge for supervisors. Hence, a suitable team represents a very demanding concept. This paper argues that if the concept is implemented carefully it can act as a substitute for leadership. Therefore, conditions for teams as substitutes for leadership can be summarized as follows. Team members are dependent on each other in a positive sense, through such things as feedback within every day duties. They take their broadening duties as a source of incentives. In addition, they are competent and ready to act as partners in their working contract, including the meeting of targets and objectives.

## **Computers as Supervisors**

As stated previously, companies use different kinds of direction systems to handle planning, supervising and gathering data of achievements (Marginson 2002 [32]). This paper will employ the concept of enterprise resource planning (ERP) for a wide range of programs, while other, narrower systems like Outlook or target cards are discussed as tools for more specific purposes.

Following the division of Kotter (1990 [27]), management refers to ERP and other computer-aided direction systems and their 'duties'. Dillard and Yuthas (2005, 212 [10], see also Shehab et al. 2004 [41]) summarize by stating that

*...enterprise resource planning systems are a powerful means for imposing business processes within a work organization. Their applications appear to be justified on a narrow-defined, economically focused perspective articulated in terms of competitive market pressures and technological determinism. In general, these systems represent constitutive steering mechanisms that are motivated and controlled by top management.*



Both management and leadership areas will be affected by changes as organizations make use of new technology, while different kinds of substitutes will arise alongside them. According to Edward E. Lawler (cited by Howell et. al 1990, 25-26 [16]),

*...companies with computer-integrated manufacturing and networked computer systems rely on computers to take over many of the supervisor's leadership functions. Feedback is provided by computerized productivity and quality data; directions for certain tasks are entered into the information system; even error detection and goal setting are incorporated in some interactive systems. When individual workers have access to operating data and to a network that allows them to ask employees at other locations to help solve problems, they become more independent of their managers and arrive at solutions among themselves. Spans of control greater than 100 are not unheard of in these organizations. Computerized information technology is therefore providing a substitute for certain types of managerial leadership.*

This can be summarized and further considered by stated it in another way: the role of leadership finds itself in a new situation and it seeks solutions for both new executives and new ways of operating.

### **Case Study: Material Collection and Analysis**

The empirical approach of this research is based on a case study of a large company within the Finnish forest industry that makes use of teams as well as computer-aided management systems. Many tasks that earlier belonged to supervisors have been shifted to tea ms. These teams have their own targets to be achieved. In this case, computer-aided management systems refer to enterprise resource planning at the company level and three computer-aided systems at the local level. The target organization is a company that is divided into five areas. Those five areas each have local executives that operate with computer-aided management systems and teams. The main systems at the ERP level are common for the whole company. The most important of these is the forest information system that consists of information, plans and terms of reference concerning forests (i.e. the main substance). In addition to this, there are three computer-aided systems at the local level: Outlook for email and calendar, SAP for vacation follow-up data and target cards for monitoring the performance of team processes and personnel as well as monitoring profits from customers and market forces. The target cards include targets for the teams, the measures of success of the teams in achieving the targets as well as the follow-up of how the merit pays have developed in the teams. One local executive can even have more than 70 subordinates who work in teams. In practice, this means that some teams work far away from their supervisors.

In this company, team members have entered the workforce during different decades. They have worked in teams for over ten years and some of them have been participants in earlier studies conducted by the author. The data was collected during the summer of 2006 as part of a bigger investigation carried out by two students. The material for this paper was collected by a questionnaire, specifically through responses to two open-ended questions: 1. "In your opinion, which tasks are included in sufficient and good supervisory work?" and 2. "In your opinion, what kinds of aspects from a supervisor's duties are not suitable to be taken care of by business operation systems?"<sup>2</sup>

Responses were considered by using qualitative analysis of themes and types. The responses were read several times to identify and check the elements and contents of sufficient and good supervisory work. The responses for the first question (total 103) were analyzed by u sing the division by Kotter (1990 [27]) as a framework. The response notes (total 187<sup>3</sup>) were qualified by themes raised from the division and quantified under the subtopics.

Figure 1 shows the shares of management and leadership. This illustration covers all respondents. The darker area (L) refers to leadership and the lighter area (M) refers to management. The third, smaller share refers to some comments that included different kinds of characteristics of supervisors (such as intelligence).

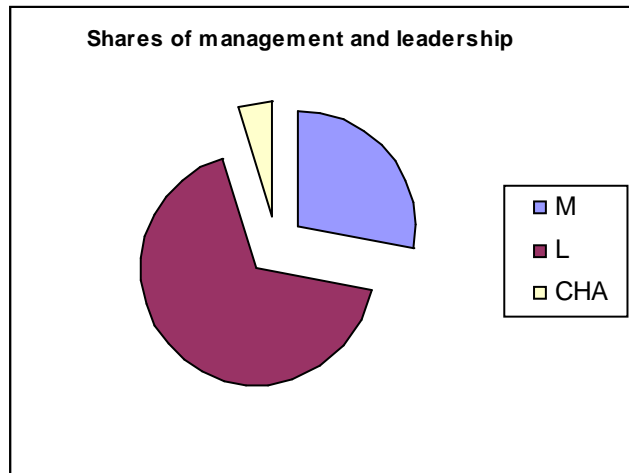


FIG. 1: THE EXPECTATIONS OF TEAM MEMBERS SHOWN IN MANAGEMENT AND LEADERSHIP SHARES

When the notes are classified according to the ages of the respondents an interesting illustration can be made. Respondents from the youngest group (under 30 years) and the oldest group (over 60 years) differ clearly from the 'middle' groups. These same findings have also been reached in an earlier investigation by the author (Huusko 2006b [21]). The collection of figures is shown below. The biggest share in any figure refers to leadership, the second to management and the smallest to separate features of management and leadership that were given in the responses.

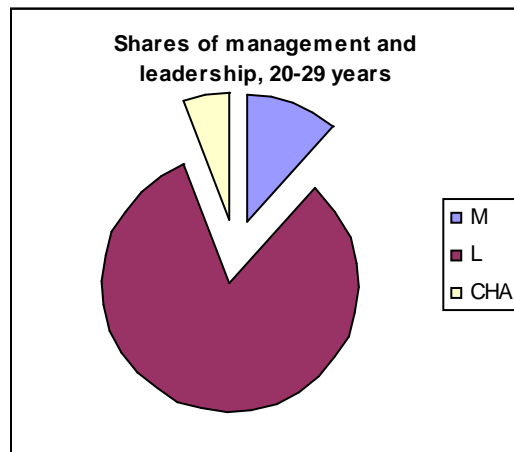


FIG. 2: THE EXPECTATIONS OF TEAM MEMBERS SHOWN IN MANAGEMENT AND LEADERSHIP SHARES BY AGE GROUP OF RESPONDENTS

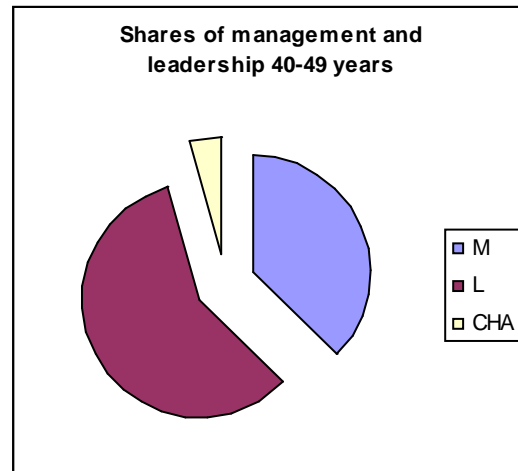


FIG. 3: THE EXPECTATIONS OF TEAM MEMBERS SHOWN IN MANAGEMENT AND LEADERSHIP SHARES BY AGE GROUP OF RESPONDENTS

The notes that belong to the management field refer to arrangements and elements such as structures, tasks and resources. They refer to some factors that, in theories of substitutes for leadership, are identified as moderators. According to Howell et al. (1986 [17], 1990 [16]), different kinds of moderators can act as neutralizers, enhancers, supplements and substitutes (Schriesheim & Kerr 1977, according to Schriesheim 1997 [39]). These elements can be recognized in various combinations within the response notes. Three different kinds of examples can be given to demonstrate this.

*“Sufficient and good supervisory work includes the supervisor knowing the possibilities of his subordinates, their capabilities and skills to carry out their duties by moderate exertions. The supervisor ensures that work skills correspond to the level demanded, tools and other resources are in good condition and rewards are given at an appropriate level. The employer follows the well-being of his subordinates as well as encourages them.” (man, 59 years old)*

*“I guess today, it’s more about keeping up-to-date. In the forest industry, one supervisor (such as us) has such a large amount of subordinates in a large area that personal contacts are minimal. It would be good if we met once in three months. I would consider a good supervisor to be supportive and one who supports people in the field by giving clear advice.” (Male, 30 year sold)*

*“Adequate contact so that the supervisor knows how it’s going and knows the circumstances in which the subordinate works.” (woman, 42 years)*

The emphasis on leadership activities sharpens as the notes are organized under more specific topics. Elements and contents of sufficient and good supervisory work in team members’ responses are shown in Table 2. What results is that the nature of leadership is opened up, as Higgs (2003 [13]) has argued. It is possible that the form of the question, “What kinds of things do you see as being sufficient and good work by your superior?” encouraged certain kinds of responses from the respondents. In any case, the notes revealed the need for personal contact, highlighted from a legislative point of view.

Respondents consider sufficient and good supervisory work to include certain planning, organizing and controlling duties as well as establishing direction but particularly, aligning people and motivating and inspiring duties. As most of the notes fall under 5a., ‘communicating goals’, and 6a., ‘inspiring and energizing’, the content of these categories will now be further explored.

The ‘communicate goals’ category includes different kinds of statements that refer to a need for personal contact. The responses were put into this category box if they included words that referred to aligning a person/people and/or references to communication or contact. Some examples of key words relevant for this group are: “(sufficient) communicating with subordinates” (man 46 years, man 25 years, man 41 years), “open discussion

about issues" (man 49), "attainable as the need arises" (woman 29), "flow of information and information is most important" (man 57), "easy to approach" (man 47), "(more) appointments with supervisor (man 54), "continuous personal contact" (man 48), and "listen sufficiently to his subordinate" (man 62).

The full response notes are shown below:

*"A supervisor is accessible as the need arises, he listens to his subordinates and his issues ... He has time for his subordinates. The physical distance is not a problem as far as there are no bigger problems. But if problems arise, the distance from the supervisor causes a large amount of responsibility to be placed onto the team and onto the closest co-workers ... How does a man act if the problems are due to co-workers and the team (for example, discriminating, tormenting, etc.)? Then you do not have a superior to pay attention to or to intervene in the situation; then the one who is tormented has to tell on his co-workers to the supervisor." (man "Personal contact. A supervisor should know what a subordinate generally does and how well. Discussions of development" (man 52) "Also, personal meetings, listening and individual treatment. Feedback. Correctly intervening in issues not marked in minutes. Solutions" (woman 27)*

The lack of notes referring to teams as a source of feedback, support or supervision is clear. For this reason, the need for personal contact and interaction with a hierarchical superior is emphasized. Some responses seem to be realistic with the prevailing situation while some seem to have hope for more intensive action from supervisors.

The other distinguishing group of responses was for category 6a., 'inspire and energize', which got 70 notes. Most of them were short impressions about "feedback quote (man 56, man 26, man 29, man 53, man 60), "feedback when it is justified" (man 46) and "clear and continuous feedback" (man 45). When addressed as a whole, 'inspire and energize' included responses such as the following:

*"A supervisor has to be equitable to everybody and understand different kinds of people. Goal setting must be proportioned to an employee's mental and physical capabilities to work. Encouragement in a suitable situation can save the day." (man 39)*

*"Good manners and requisite quick and firm feedback as needed. Good motivating skills." (man 40)*

*"Matter-of-fact feedback. Also, pointing out what needs development." (man 50)*

*"Knows and is familiar with the strengths and weaknesses of subordinates. Gives praise for success and feedback on things that they are doing poorly (man 64)*

The analysis reveals that supervisors along with the supervision that results from a hierarchy are still needed. In an organization with long distances and teams, expectations of any remaining managers are clear: to encourage, motivating, to give more time for personal issues. Subordinates need feedback and incentives. These aspects seem to be very important elements of sufficient and good supervisory duties. What seems almost completely lacking in category 6a. ('Inspire and energize') are comments concerning teams or the intrinsic satisfaction that employees derive from their work, as discussed earlier. In addition, none of the respondents mention computer-aided systems, networks or ability combined with experience, which are suggested as supplements or substitutes for leadership, and as feedback or incentive methods (Howell et al. 1990 [16], Huusko 2006c [22]).

The aim of teams is to take on more managerial tasks and replace supervisors (Bacon & Blyton 2005 [3]). These arrangements act as moderators, as Howell et al. (1990 [16]) state in their substitutes for leadership theory. Some findings fit into the four moderators discussed earlier that are considered by teams. Actual substitutes work to such a degree that they virtually negate a leader's ability to either improve or impair workers' performance. As no respondent mentioned his/her team or team members as a source of feedback, incentives or rules, it can be concluded that teams do not act as actual substitutes for leadership. Instead, the results refer to "promises that are too good by teams". Consequently, it seems that teams work, if anything, as neutralizers. That is, teams even have attributes of subordinates, tasks and organizations that interfere with a leader's aims to influence workers.

The answers given to the second question give reference to supplements that can complete a leader's impact on employees (Howell et al. 1990 [16]). These answers were analyzed to check whether or not they support the conclusions above. The question was: "In your opinion, in what kinds of issues are business operation systems insufficient for addressing supervisory duties?" The total number of responses was 73 and the general impression was supportive of the conclusions to the first question. The lack of responses was considerable (just over 40%).

This is possibly attributable to the troublesome nature of the questionnaire, which had somewhat overlapping questions. However, the responses to the second question refer clearly to several elements of employment. Two of three notes included issues identified in the Finnish Employment Contracts Act or in the Finnish Occupational Safety and Health Act as central duties of employers' substitutes, which included duties such as dealing with personal issues through personal contact, taking care of workers and their health and managing uncommon situations. In addition, the notes referred to special issues concerning every day work as well as to problematic situations. As a whole, the responses were classified into four categories: employment-related, work-related, problematic situations and meet the case.

The scale of issues that, according to the respondents, are not suitable to be addressed by computer-aided direction systems is large. However, it is in line with the conclusions to the first question. Workers expect personal contact and feedback from their supervisors. These issues cannot be addressed by systems. The following quotes will describe the contents of the categories further.

*"For example, the workers' capabilities for progression in their careers will be evaluated. One can be, however, a (an unsuitable word has been taken away) person to his/her environment but on paper everything proves to be in order. Conflicts at workplaces do not appear" and "Local conditions, to consider the possible problems and conflicts in the work community."* (employment-related)

*"To unite the quality of completed duties."* and *"The direction of transport is not yet ready in every dimension."* (work-related)

*"Troublesome, exceptional cases."* and *"Within issues that require negotiations and all-round solutions."* (Problematic situations)

*"Ok."* and *"Everything has been sufficient."* (No problem)

*"In fact, I do not understand this point. It is an odd thought to be merely a subordinate of a system."* and *"Every time somebody sits in a meeting, making connections do not work."* (Common comment)

One more note (that was included in the common comments and situations that differ from routines) is: *"Something is out of joint, for example time, the measure of tasks, etc. if he or she is in trouble with his/her duties."*

The target organization aims to utilize computer-aided direction systems at several scales. The main systems at enterprise resource planning (ERP) level are common throughout the whole company. As was stated earlier, there are also three computer-aided systems at the local level: Outlook for email and calendar, SAP for vacation follow-up data and target cards for monitoring the performance of team processes and personnel as well as for monitoring profits from customers and market forces. The responses included only a few notes referring to these systems or parts of them. For the most part, the respondents discussed 'management systems' as a whole, rather than seeing them as separate systems. However, some points can be raised for closer consideration.

Computer-aided direction systems are suitable for clear issues whose aim is to consider everybody in the same manner (Huusko 2006c [22]). In this way, they are objective. At the same time, it seems to be clear that a collection of several systems is not a sufficient substitute for leadership in organizations with long distances and varying working circumstances. Within a forest company and its teams, varying circumstances refer to both physical and mental conditions. Hence, workers feel that there is no place in systems to address the deviations they encounter in every day work. In this sense, background elements like systems for linking teams without leaders will provide conflict. This stems from the fact that the workers who act as part of a team do not feel that they have adequate leadership available to them. Therefore, the normative basis grounded on modern paradigms and conceptions of workers as team members based on a symbolic-interpretative paradigm come into conflict.

## Conclusions and Discussion

Several arrangements in post-modern organizations have blurred earlier roles of supervisors and subordinates. Leadership substitutes can be implemented wittingly or unknowingly. A leader can develop work environments that, for example, encourage interaction among team members and thereby yield task guidance and incentives. If there is a need to manage employees who are geographically dispersed or there are large spans of control it makes sense to create substitutes for leadership. Despite this, many organizations assign responsibility for providing

feedback to the hierarchical superior even in cases where the superior works at a physical distance from employees or does not know enough about their every day duties to provide proper feedback and/or incentives (Howell et al. 1990 [16], Skrabec 2001 [43], Huusko 2006c [22]). Teams often do not act as internal supervisors or as sources of feedback and incentives even though they are expected to do so. Hence, although planned as substitutes or supplements, teams can become neutralizers instead. Therefore, it is necessary to consider the circumstances in which teams are appropriate (Sheard and Kakabadse 2002 [40]).

Within HRM issues there are certain clear areas that can be managed by numbers and calculations. Often those issues are also easily controllable by system management. At the same time, with regard to the reduction of supervisors and middle managers, it is useful to recognize the substituting actors. The question was introduced regarding whether, and in which kinds of circumstances, teams can develop to be actors that act as supplements to computer-aided management systems. Team literature (e.g. Katzenbach & Smith 1993 [26], Van Amelsvoort & Benders 1996 [1], Bunning 2000 [6], Benders et al 2001 [5], Huusko 2003 [18], Bacon & Blyton 2005 [3], Kuipers 2005 [29]) emphasizes the value of internal feedback and incentives as well as the value of having access to planning and scheduling processes concerning every day work or education. Both approaches include important elements that point to possibilities to develop teams toward substitutes for leadership.

Legislative demands were included in this discussion to provide a normative background for the concept of sufficient and good supervisory work. The basic Finnish labour laws are based on personal contact, at least to some extent. The phrases “under employer’s consideration” and “to take care of duties referred to here” (that is, occupational safety and health) constitute the background for respondents’ comments concerning feedback and incentives. Within the empirical approach, the deficiency of personal feedback and inadequacy of leadership by systems were evidenced in the notes of the workers. The notes emerged in this study in a similar way as in earlier investigations (Huusko 2006b [21]). Hence, Tayloristic settings persist even in modern day organizations, although they aim to offer possibilities for satisfaction in work, intrinsic feedback within interesting duties or self-directed teams as substitutes for leadership.

Also, other theoretical frameworks raise interesting perspectives. By combining theories concerning substitutes for leadership that identify moderators (Howell et al. 1986 [17]) and create substitutes (Howell et al. 1990 [16]) with Kotter’s division and suppositions concerning teams, the whole reveals contradictory elements. This may indicate a lack of understanding of legal requirements, a lack of skills in new positions (Huusko 2006a ngnp1033 [20]), a lack of requisite support in developing norms and structures that consistently produce feedback (Howell et al. 1990 [16]) or a lack of understanding about distances between parties. More and detailed investigations are needed to find out how these contradictory elements work. Computer-aided management systems have been offered to substitute supervisory duties in many organizations. In precisely defined, everyday duties, this may work, but these systems are not suitable for personal feedback (Huusko 2006c [22]). Neither systems nor elements of a team organization appear to “provide task guidance or incentives to perform to such a degree that they virtually negate the leader’s ability to either improve or impair subordinate performance” (Howell et al. 1990 [16]).

On the other hand, it seems clear that the lack of skills can hinder the proper use of teams as a means of management and leadership (Huusko, 2006a [20]). In any case, both juridical requirements and managerial arrangements co-operate at workplaces in every day work. Hence, they both must be seen as compulsory elements of the framework of sufficient and good supervisory work. If there is an aim to use teams as substitutes for leadership, they must be given real managerial status with a proper orientation and adequate changes. The preliminary results of empirical investigations indicate a clear need for further research with international partners. More precise research concerning mechanisms within teams as well as within systems that function as supervisors is important. These mechanisms may reveal valuable information that can serve our wellbeing in our working lives.

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## End Notes

This project began in the year 2004 and has been funded by several foundations. The main aim is to reveal different kinds of changes in supervisory duties through several means.

<sup>2</sup>The questions were in Finnish: 1. Mitä asioita mielestäsi kuuluu riittävään ja hyvään esimiestyöhön? and 2. Millaisissa tapauksissa toiminnanohjausjärjestelmät ovat mielestäsi riittämättömiä esimiestehtävien hoitamiseen?

<sup>3</sup>Many respondents gave several responses.

## **Local Embeddedness and Internationalization of SME: a Comparative Analysis of Nine Local Production System in Emilia Romagna**

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### **Abstract**

The purpose of this paper is to identify and evaluate how the embedded-ness can influence the processes of internationalization among technology-based SME in nine industrial districts in Emilia Romagna. The analysis will be conducted using a statistical sample of SME extract from each district. Some papers demonstrate that many technology-based smaller firms are engaged in a range of internationalization network and internationalization processes, including internationalization of markets, research collaboration, labor recruitment, ownership and facilities location. Technology-intensive firms reporting high levels of internationalization also differ significantly from those which are more nationally-oriented, for example in terms of size, age, research intensity, university links, and innovativeness. There are also differences with respect to recent growth rates. So, as a final conclusion, we would like to understand if these considerations can be applied to the Emilia Romagna environment and, more in general, to the Italian market. If it cannot work it would be our purpose to define the reasons why the Italian market would be different in term of relationship between local embedded-ness and degree of internationalization in a technology-oriented perspective.

### **Introduction**

The majority of the literature connected with the analysis of the processes of internationalization looks at firms' market from an aggregate point of view analyzing the unquestionably increasing of international firms' activities as manifested in international trade and foreign direct investment. One of the important contributions of Pavitt's researches and studies on internationalization is that it focuses on the Research and Development activities of companies as distinct from other activities within firms and he finds that this type of activity is less internationalized than others. So, Pavitt says that even if a lot of firms' processes are more and more internationalized the strategic processes as Research and Development and Strategic core-planning are still very embedded on the home/local territory.

Regarding the internationalization processes of firms' systems, Pavitt and Patel (2001) try to explain how practices and performances which create the real competitive advantage of a firm are less internationalized than the other, less strategic, firms' activities. It means that the embedded-ness is one of the real key factors to support knowledge excellence in developing strategic plans, researches and processes. The knowledge sharing routines and the common practices among suppliers and local networks create a competitive environment that is hard to reply in other local contexts or regions.

As a matter of fact this local territorial support to the innovation systems and virtuous knowledge creation helps firm to become more internationalized and to compete in other regions/countries with the local competitive advantages they acquired at home.

Even if it could be a strong engine for internationalization, the embedded-ness could become a kind of limit because of the routines in developing virtuous activities or sharing information and knowledge and because of the massive use of local tacit knowledge. The internationalization process can ask to the Research and Development department to develop a more and more standardized product or service to reduce the cost of personalization per each region or country and it could go against the using of the routines that made the local home research center so reliable for the company and so competitive for the whole international network.



In addition to what we said above, Freeman (1987) says the problem of local tacit knowledge can be crucial when the embedded-ness is very strong: the local language and cultural symbols to share and explain knowledge can become an incomprehensible language for the other players which don't belong to the local network. When an internationalization process starts it can be difficult to morph the new international request with the local assumptions and routines that are in common using at the home contest.

So, as Pavitt (1991), Lundvall (1982) and Friedman (1985) explain, the competitiveness of an international firm, or better for a firm that is starting to be more and more internationalized are directly connected with local innovation systems both at a national at a regional level.

Developing well connected innovation systems help the network to share and transfer knowledge and information and help each company to use a common language to better exploit the new potentialities of the innovation systems.

In this scenario, the governance of the different strategic players as public institutions, research centers, universities, banks and employment services is crucial both in term of internationalization pushing for firms and in term of attraction for international investment by firms and institutions interested on supporting the local excellence in knowledge sharing and application. In the following paragraphs we will try to explore the different point of views regarding the support of local systems to the internationalization of firms and the rule of Innovation, Planning, Research and Development.

## **Internationalization as a Leverage to Sustain Competitive Advantage**

The domestic market is more and more conceptualized as one of the segments of a broader market (Grandinetti, Rullani 1996). Through the action of different players (markets, firms, institutions) the territorial reference where the common work is taking place is evolving to become a more open concept with borders less and less defined. Such a transformation happened in the past when the local and regional markets were progressively integrated inside the "national capitalisms": the Ford era had been started, an era where the national institutions were the hinge of the whole economic organization.

Nowadays we can see a similar process: the division of the main working activities is going to open its territorial competence furthermore, passing beyond the national borders and reaching new international integration models. In this scenario the "national capitalisms" loose the capability to be developed as separated world: the principal bond of this evolution is hidden in the loose of sovereignty by the national environment and, following this path we are going through a new era characterized by a bigger and bigger flexibility of companies both in strategic and operative processes.

The process of internationalization moves the power, the control and the competences owned by the national government into three different directions:

1. the creation of Sovran national institutions;
2. the auto-regulation of the trans-national market;
3. local communities insofar as they can acquire distinctive identities and controls from the national state.

The actual internationalization structure increases the future divergence between companies and national government and between economic and politic interests.

Nowadays the situation is characterized by a continuous growth of the business with the foreign markets and by an increasing power and activities developed by multi-national and trans-national companies.

The process of internationalization reduces the space of the national regulations and makes bigger the interdependence de-regulated among different markets and countries. This process risks creating an impasse where the national market is no longer a "covered and guaranteed" business market.

In spite of this instability due to the inadequate international structures and infrastructures, internationalization is proceeding without coming to any stop. In this arena companies are encouraging to go away from local contests to have access to the wider opportunities offered by the global market.

The internationalization makes larger the links of the current systems of division of the work tasks and, as a natural consequence, the territorial sources and roots loose power and centrality making the current SME networking less and less strategic and significant.

As a matter of fact, this unstoppable process involves advantages and disadvantages:

- Advantage: the trans-national economy has allowed the local most active production systems not only to occupy niches of the emergent global market but also to convert the economic demand and the exportation revenues in an opportunity to learn and share knowledge for a local business growth;
- Disadvantage: the perspective of gradual and definitive dismissal from the local dimension risks making poorer the business environment.

As a summary the most relevant variable in this scenario is the different development speed between the business players (markets, companies and their capability to work in a trans-national arena) which are high-speed and the public institution and society (local institutions, local communities and networks and so forth) which are low-speed.

## **Internationalization and National Environment**

As we assured in the introduction paragraph the firms' internationalization process of the main strategic activities is very connected with the embedded-ness on a specific territorial contest. Pavitt and Patel recognize as main strategic activities R&D and business planning. Both of them are very connected with the evolution of innovations systems so it's reasonable to suppose that the level of internationalization of the companies' strategic activities is directly correlated with the level of internationalization of companies' innovation systems.

Looking at the literature it was possible to identify some empirical studies of internationalization of strategic firms' processes. These studies have been developed following both an innovation systems perspective and a local network support perspective.

As quoted in some Pavitt's and Fransman's studies the degree of internationalization was measured by R&D, international alliance, firms network developing, international technology transfer, international trade and international flows of people, resources and knowledge.

The most comprehensive of these studies are those by Niosi and Bellon (2002). These authors analyzed the degree of openness of strategic activities to the internationalization process in the United States, in Japan and in some leading countries in Europe and they start to say that scientific international cooperation flows tend to be more intense than technological ones just because government support of internationalization is bigger thanks to the public and semi-public institutions actions. So, one more time, the rule of governance or local and regional institutions become crucial to develop any process of internationalization.

The overall conclusion of this studies conducted by Niosi and Bellon is that national policies seem to play a key role in the development of strategic firms activities and that there are impediments to converge in the form of "different natural factor endowments, cumulative effects of industrial organization and specialization, different national stocks of knowledge, different national economic and political institutions" (Niosi and Bellon, *Journal of Management*, 1996, p.156).

In another study, Bartholomew (1997) wrote about the interdependence of national systems in several countries as United States, United Kingdom, Germany, etc. and she discovered that tapping into foreign innovation system through international cooperative alliance gives firms access to a wider range of solutions to the technological problems. So creating cross boarder alliances thus may be one of the most important means for firms to enhance their innovative capability in strategic activities development.

On the other hand, Fransman (1999), developed a very deep study about degree of internationalization in the R&D and strategic planning even if this study was developed only in Japan. He concluded that even if Japan is still behind other countries in terms of the globalization of its science and technology system, the degree of internationalization has increased a lot over the last fifteen years and it happened because they started to give the chance to joint some national economic plans to foreign companies. In this way they push into the country new knowledge, new practices and new ideas that helped not only the national economic system but the social, the cultural and the scientific systems too.

Even if the quality, content, type and significance of interactions among firms, national systems and international networks are difficult to capture both at a national and at a regional environment each of the authors has emphasized the importance of national policies and institutions. So whatever the degree of internationalization of innovation systems, national policies and institutions still play a crucial role.

## **Internationalization Patterns on R&D Development**

Analyzing first of all the development of the business markets among medium and large enterprises and after a first overview of the literature linked with Research and Development focus on a national and international environment (especially on the studies by Archibugi and Michie, 1995, 1997, 1999) it's reasonable to assure that many corporate activities are being more and more internationalized independently from the degree of internationalization of the countries. Although, according with, Patel and Pavitt (1997, 1999) even if the Research and Development activities of big firms are increasingly being moved out away from the home center or headquarter, the internationalization has not gone so far away. As a matter of fact Research and Development is much less internationalized than other corporate activities.

In the post-war period, large firms tended to diversify their technological competence by taking advantages of scale economies, especially via export from the home country. Their internationalization was aimed primarily at the wider exploration in foreign markets of the basic competence they had established at home (Cantwell, 1995, 1997; Piscitello 2000, 2004). Research and Development activities were internationalized only to a limited extent and mostly oriented to adapting products to each market.

During the 1970s, these opportunities for large scale production have been exhausted. According to Granstrand studies (1992) companies began investing instead in broadening their competence base for already existing product lines while expanding their lines too.

In 1990s firms began increasingly to base on international networks in order to exploit the competence of foreign centers of excellence. A new emerging complementary between competence accumulation and knowledge sharing becomes the real competitive advantage for firms that invest big efforts in internationalization processes (Piscitello, 2000).

It's still true that home country is generally the single most important site for corporate technological development. The local system of affiliates and the territorial embedded-ness allow developing a home interactive network that is really difficult to reply in other sites.

Cross investments between the major research centers and the local firms have probably helped to reinforce the rule of the embedded-ness support: the existing pattern of geographical specialization and the importance of these centers as innovation engines.

Going further on the research, Cantwell and Santangelo (2000) explained that even if Research and Development activities are becoming more internationalized, the technologies and the innovation that firms develop abroad would be less dependent upon tacit knowledge than the ones developed at home. The rule of the local knowledge and the embedded-ness is still a crucial element to develop competitive technologies and innovation.

Nevertheless, within the most developed companies, a lot of R&D activities are developed completely abroad and some of these activities are heavily dependent on tacit knowledge, but usually in the fields that lie outside their own core business.

What it's emerging is that Research and Development activities are in some way driven also from qualitative reasons on top of economic and logistic ones. Meyer-Krahmer and Reger (1999) found that motives as learning from technological excellence in lead market and dynamic interactions within the value chain are increasingly driving Research and Development location decisions. They also found that the process of internationalization, especially in innovation and research field, has been driven by an increasingly focus only on few locations that usually represents national or international centers of excellence.

The overall impression it's possible to get from the literature on internationalization of R&D and firms' research activities is that the degree of internationalization has increased over the last fifteen years and that the nature of

R&D activities abroad has changed in these ways: it's conducted in less and less excellence places and within bigger and bigger companies research networks, it's less tacit knowledge based than the research developed at home. As a direct consequence of this assumption it's possible to assure that the local environment and the embedded-ness are able to condition the internationalization patterns on R&D development especially in local contest where the tacit knowledge due to the local embedded network plays a crucial rule on the core business of medium and small-medium enterprises.

## **Internationalization and SME**

The world of SME is continuously challenged by the need to benchmark, plan and control processes and performances to have the capability to compete in a more and more international scenario. Globalization has to be considered ad a broad process that lays on national economies helping to create the general condition for a better quality of life for all the players involved. Everybody should be able to access and enjoy the benefits of the internationalization.

For SME the effect of globalization is double:

- From one side we can find firms able to effort new challenges becoming more and more international and competitive, for them globalization is an opportunity to growth in physical and economic dimensions;
- From the other side we have firm with lower capabilities to take the chance to internationalize several processes, for them globalization is a source of bigger and bigger problems because of the global competition that starts to compete on their local scenario too.

Companies have to think global and act local modifying their business behaviors. Even if their business model is well working on a local environment they need to consider the effect that globalization has on macro-variables and institutions (Szabò, 2005).

Companies have to invest on internationalization as a competitive answer to the nowadays market turbulence. SME have a limited territorial action concerning the development of their business; in this perspective globalization has to be considered as an opportunity to pass beyond physical barriers and geographical borders and to open the companies' business to foreign markets to obtain new business possibilities.

Almost twenty years ago, when the internationalization process really started, the idea of internationalization was based only on import-export activities and FDI (Foreign Direct Investment); today with inside the concept of internationalization we consider all the actions, processes, operations which present some engagements and relations with foreign networks, markets, countries, economies and so forth. All the processes which aim to penetrate foreign markets or that use foreign sources to better perform in a local market can be considered internationalized.

"Becoming International" is one of the toughest choices to take, especially for a SME, because it requires a lot of direct and indirect changes and risks concerning the fact that they start to compete in a world contest using local and limited resources. It's very small the number of SME that were able to internationalize the process of resources acquisition.

As a matter of fact it's not unusual to see companies that work efficiently on a national level they are not able to perform at the same level on an international arena.

## **Industrial District: an Organized Network that Helps the Internationalization of SME**

The concept Industrial District was invented by Alfred Marshall on the second half of XIX. Mashall wrote that: "when we talk about industrial district we have to consider a socio-economic entity built up by a group of firms (usually regarding the same productive sector localized on a specific area) which most of the time collaborate together but which can compete at the same time."

In this perspective, Marshall defines four key elements:

- The identification of a specific social contest (besides economic);
- The specialization on a precise product category;
- The concentration in a specific geographical area;

- The special relationship among firms: both collaborative and competitive.

Today, the industrial district can be considered as “a productive complex where the coordination among the different business phases and the control of their correct working is not developed following pre-fixed rules and with hierarchical mechanism (as it happens inside big private companies) but it’s based on a natural combination of market rules defined and controlled by the community” (G. Bacattini, 1989).

From the literature it’s possible to identify the following characteristics regarding the definition of Industrial Districts:

- The crucial relationship with the market: it recognizes the stylistic characterization regarding the working of the territory of the district;
- The presence of both cooperation and competition under the supervision of local institutions that balance them in growing innovation perspective;
- The continuous innovation from the bottom and the consequent adaptation of the reality with a flexible employment of a more and more productive technology;
- The high job mobility both horizontally and vertically;
- The competitive feeling there is between entrepreneurs that create a sort of genuine auto regulation concerning the business arena and the production plans.

Inside an Industrial District the organization of the work is based on a virtuous network of small and very small enterprises linked together not because of the presence or the commercial weight of a big company but because of the common cultural imprint and of the strong sense of belonging to the same market arena.

The enterprises that belong to an industrial district derive from a sort of contiguity with other enterprises and from common shared values that support the business performances of each enterprise in supporting the competitive role of the whole district in the global market.

## **General Analysis of the Nine Industrial Districts in Emilia Romagna**

To analyze the level of internationalization of the industrial districts in Emilia Romagna we conduct a research on a sample of SME given by the category association CNA.

The analysis has been developed submitting a questionnaire to the CEO of 496 SME working on the following fields: Biomedical, Footwear 1, Nautical, Automotive, Packaging, Plastics, Ceramic, and Textile - Clothing, Footwear 2.

This questionnaire has the purpose to identify the degree of internationalization of the different firms and how the variable “territorial-firm” can help or limit this process.

The sample is composed by firms that have from 0 to 951 employees (it can be noticed how the statistical distribution can be asymmetric and strongly concentrated on the interval 0 - 100 employees).

The firms considered cover all the different market segments and in this perspective it will be possible to develop a more complete analysis with a broader vision of the concept of industrial district.

For more details it is possible to consider the following statistical tables:

TABLE 1: POSITION AND VARIABILITY INDEX: EMPLOYEES OF THE DISTRICTS IN EMILIA ROMAGNA

N	Employers	496
	Missing	0
Mean		43,59
Median		14,00
Mode		6)
Std. Deviation		136,833
Variance		18723,15
Minimum		0
Maximum		951
Percentiles	25	7,00
	50	14,00
	75	32,00

Even if the maximum value is 951 employees, the Mean is very low with only 43 employees for single enterprise. As it will be presented on the graph below more than 96% of the SMEs have less than 100 employees,

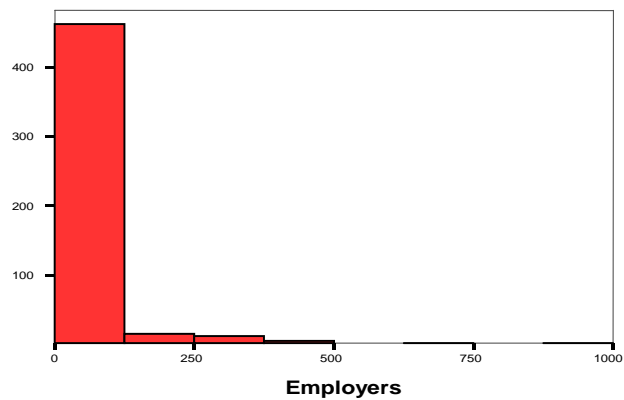


FIG.1: EMPLOYEES DISTRIBUTION HISTOGRAM

Another strategic variable to define the overall situation of the districts is the average Turnover and its statistical distribution

TABLE 2: POSITION AND VARIABILITY INDEX: TURNOVER

N	Valid	496
	Missing	0
Mean		1.826.541
Std. Deviation		21.618.943

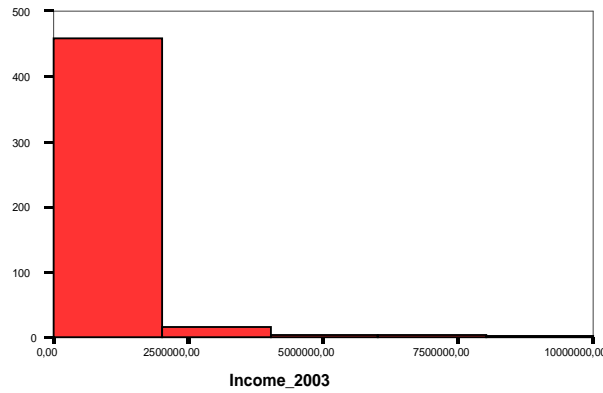


FIG.2: TURNOVER (2003) DISTRIBUTION HISTOGRAM

Taking a deeper look to the degree of internationalization of the 9 Industrial Districts considered we have found a very unusual and interesting picture: the organizational structure concerning the process of internationalization of each district looks very similar. This first result allows us to assume that the industrial sector where each of the 9 Districts is working on bears upon internationalization with a very careless effect.

If we take as example the situation of District 1 (Biomedical) and we analyze the distributions of the variables Competitors, Turnover, Suppliers comparing the local area and abroad:

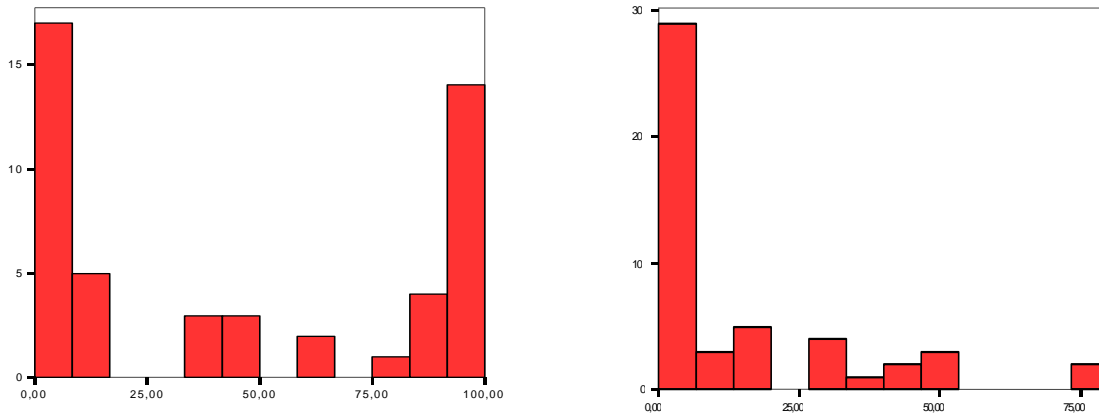


FIG. 3-4: DISTRIBUTION OF THE PRINCIPAL COMPETITORS INSIDE THE DISTRICT AND DISTRIBUTION OF THE PRINCIPAL COMPETITORS ABROAD

Looking at the graphs it could be noticed how the majority of the firms has more than 90% of their main competitors inside their own district (FIG. 3) presenting an unusual U-distribution and a very similar pattern we can

find if we look at the competitors abroad (FIG. 4) where we find that the majority of the companies has less than 10% of their competitors at an international level.

The same situation appears on the graph concerning the situation of Suppliers and Clients as described on the FIG. 5 below. In this analysis we find a similar U-distribution for Suppliers inside the District and a negative exponential distribution concerning the international area.

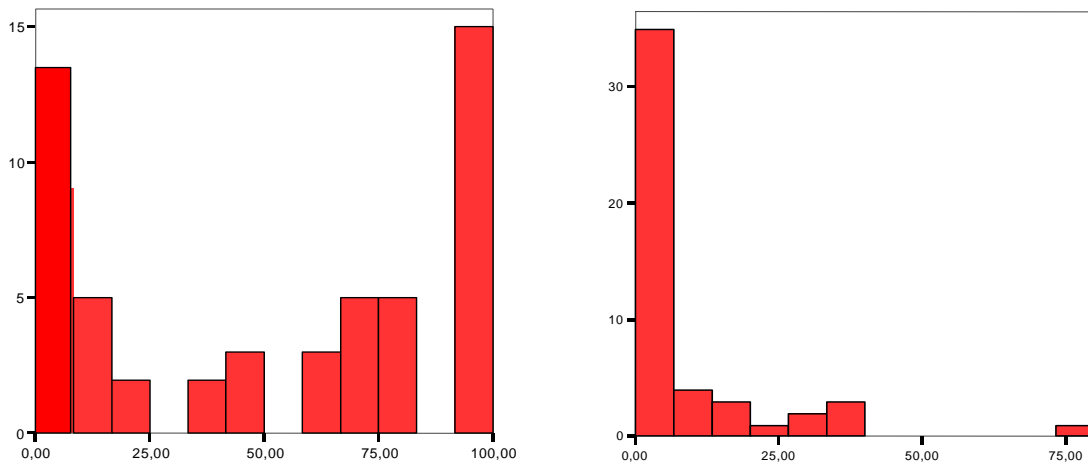


FIG. 5-6: DISTRIBUTION OF THE PRINCIPAL SUPPLIERS INSIDE THE DISTRICT AND DISTRIBUTION OF THE PRINCIPAL SUPPLIERS ABROAD

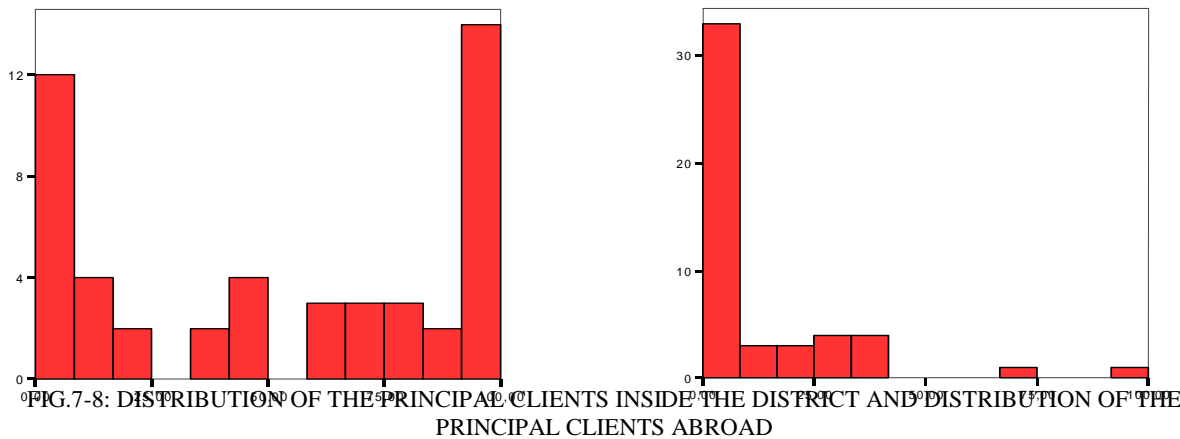


FIG. 7-8: DISTRIBUTION OF THE PRINCIPAL CLIENTS INSIDE THE DISTRICT AND DISTRIBUTION OF THE PRINCIPAL CLIENTS ABROAD

As a first general conclusion we could assume that the SME considered (even if we found some very internationalized outliers) have shown a business structure that is still strongly connected with the local market and only in few cases open to any kind of international process. In addition we found that the local embedded ness doesn't modify the processes of internationalization of the SME considered inside the Districts in Emilia Romagna.



## The Most Relevant Factors on the Process of Internationalization of SME

To better understand which are the variables that play the most strategic and relevant role on the process of internationalization a second level statistical analysis has been developed.

To investigate the presence of possible correlations between the degree of internationalization and the other variables we have defined a new variable called Internationalization Index. This Index has been defined considering the weighted average between the percentage of foreign sales, the percentage of foreign competitors and the percentage of foreign suppliers and finally dividing the result by one hundred.

In the following FIG. 9 it's possible to see the histogram graph concerning the frequency distribution:

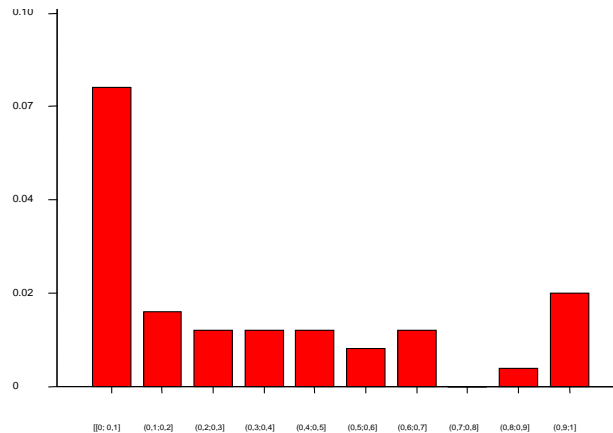


FIG.9: DISTRIBUTION OF THE INTERNALIZATION INDEX

In this distribution we can find a result similar to the ones from the previous analysis: the majority of the SME considered are not open to any process of internationalization even if, especially from this last histogram distribution, a considerable number of SME completely internationalized exists.

To have a better picture about the Internationalization Index described below we have classified the Index as: “low level” if it's  $[0;0,30]$ , “middle level” if it's  $(0,3;0,6]$  and “high level” if it's bigger than 0,6 and then we have represented the index in the Histogram presented on the following FIG. 10:

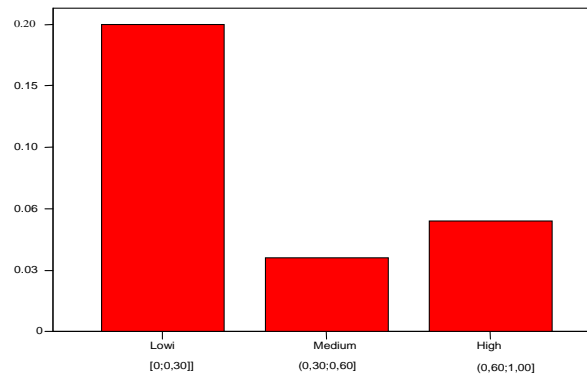


FIG.10: INTERNALIZATION INDEX VALUE CLASSES

Considering the existing literature Internationalization and SME it's possible to assume that if the business competences of SME are increasing the level of internationalization of the firms is increasing too. In each case, the overall level of competences has been determinate by the average of the different values (from 1 = insufficient to 5 = excellent) that the SME administrators have given to following aspects: competence in communication, logistic skills, production, selling and buying activities.

TABLE 3: CORRELATION INDEX BETWEEN THE DEGREE OF INTERNATIONAL AND THE COMPETENCES ACQUIRED BY ENTERPRISES

		Correlations	
		Percentage foreign sells/100	Overall level of competences
Index of Internationalization	Pearson Correlation	1	0,764
	Sig. (two tailed)		0,087
	N	496	496
Overall level of Competences	Pearson Correlation	0,764	1
	Sig. (two tailed)	0,087	
	N	496	496

Looking at the table above we can confirm what it's frequently described on the literature: there is a strong correlation between the two phenomena: the degree of Internationalization and the overall level of competences of enterprises. Aligned with this conclusion, although, we have seen that the overall level of competences of the SME considered is still very low and as a consequence also the level of internationalization is very low both in terms of sells and of new production factors.

Extending our analysis beyond the level of competences we have decided to analyze the overall level of enterprise business knowledge. As for the previous analysis a new variable has been created: the level of knowledge.

This variable represents the average of the values given by SME administrators (from 1 = insufficient to 5 = excellent) to the following aspects: knowledge about regulations, taxes, enterprise support systems and training opportunities. On the following scatter graph (FIG. 11) and Correlation Index table it's possible to see the strong correlation between the degree of internationalization and the level of knowledge.

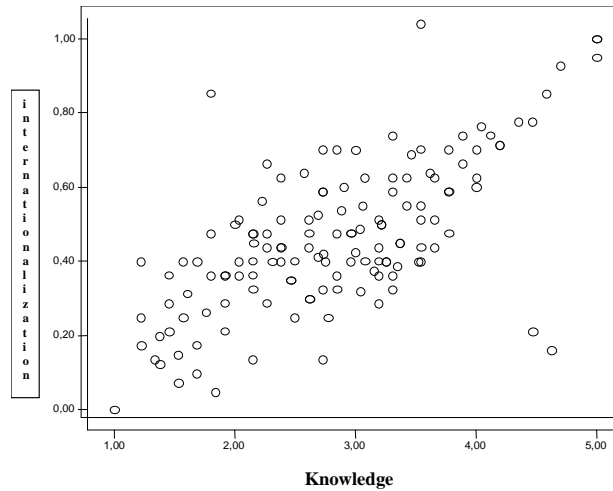


FIG.: SCATTER GRAPH BETWEEN THE DEGREE OF INTERNATIONALIZATION AND THE LEVEL OF KNOWLEDGE

TABLE 4: CORRELATION INDEX CONCERNING THE LEVEL OF KNOWLEDGE OF THE SME CONSIDERED

		Percentage foreign sells/100	Overall level of knowledge
Index of Internationalization	Pearson Correlation	1	0,789 (**)
	Sig. (2-tailed)		0,007
	N	496	496
Overall level of Knowledge	Pearson Correlation	0,789 (**)	1
	Sig. (2-tailed)	0,007	
	N	496	496

\*\* Correlation is significant at the 0.01 level (2-tailed)

## The importance of the Local Production Systems

On this point the majority of the authors are agree to argue in spite of increasing internationalization of innovative activities, national, regional and local systems of innovation remain essential. Their importance derives from the knowledge embedded in the local networks of relationships which are fundamental for any innovation and Research and Development process.

In 1999, Pavitt and Patel claim that “far from being irrelevant, what happens in home countries is still very important in the creation of global technological advantage for firms. Thus, for policy analysis it becomes important to understand the nature of the country-specific factors that have an influence in creating national technological advantage, including the competitive climate, the financial system and education, training and basic research institutions”.

So, while external international connections are growing on importance, the influence of regional and national values and aspects as the influence of the national education system, firms cooperative relations, scientific institutions, government polices, cultural traditions, academic centers, universities, employment services and other local institutions are more and more fundamental.

As Freeman said in 1995, “the local institutions for any business or scientific network are what make each system unique”. On top of that Pavitt has argued that the national science and research capability is influenced by the country’s level of economic development and the nature of its social and cultural activities.

A lot of the institutions that are relevant for firms' development and internationalization are important at a regional or even local level and other are specific to particular fields or sectors. As a matter of fact, a key point is to understand if the importance of institutions relies to the formation and development of specific businesses or particular innovation systems could become an impediment for the internationalization processes.

Related to this aspect it has to be quoted Foray (1995) who said: "The specificities of the local production systems, to which each intellectual property rights regime is linked, are an obstacle to the standardization of these regimes. To achieve a single, global regime would thus require a reduction in the diversity of the local systems themselves. However, this kind of diversity is a key feature of the process of scientific and technological change and has been the central feature of western capitalism which has been characterized by a truly extraordinary pattern of organization diversity".

The local embedded-ness starts from the basic institutions as education, social services and security features. For example, most funding of basic research comes from public sources and tends to reinforce existing areas of strength and excellence in each region or country. For reasons such as these, Gregersen and Johnson (1997) said "the European integration will not work separately from national systems of innovation". As a matter of fact only adding different forces to push local embedded-ness to support national and international development it will be possible to support emerging businesses and help the growing of medium and small firms to become concrete and profitable both in economic and in scientific terms.

## **Main Conclusions**

According to the majority of the literature one of the biggest impediments for the development of a stable internationalization process is the difficulty in knowledge transfer and in tacit knowledge sharing. Knowledge spillovers are mostly local, not national and definitely not international. The territorial proximity and a good and easy connectivity are required for a successful spillover to take place and this requirement leads the subjects to the formation of clusters. Usually these clusters are strongly connected with local research centers or local universities or local networks of excellence and they represent a great attraction for other foreign firms that will try to locate their branch offices in these environments in order to take advantage of spillover opportunities sharing knowledge more easily. Starting from this point of view these embedded clusters and local innovation centers can thus be viewed as engines for internationalization processes both in inbound and in outbound firms' activities.

As written below there is a wide support that the internationalization activities of firms are significantly influenced by their home country's national, regional and local knowledge networks and systems of innovation. As a matter of fact, looking at Carlsson's (1995) and Mytelka's (2000) studies, the embedded-ness and the local support to the main strategic activities as R&D and strategic planning are fundamental for a virtuous push to the internationalization especially for medium and small-medium enterprises.

The real competitive advantage that permits to a firm to become competitive in an internationalized arena starts often from a local tacit knowledge network. The capability to share tacit knowledge among business players is not easy to replicate out of the regional or national borders and it permits to develop the core Research and Development in a virtuous contest based on the relationship among firms and institutions.

This local product system can result very attractive for foreign/not local firms that, quite often, decide to invest in research centers connected with these local knowledge networks making possible the creation of spillovers based on excellence knowledge. The role of Tacit Knowledge and the spatial limits on knowledge spillovers have caused firms to locate Research and Development activities where new knowledge is being created.

As their absorptive capacity grows and they learn to transfer knowledge within their organizations and in the network alliances in which they participate, these firms become vehicles for internationalization of these local knowledge network.

As an overall conclusion we can say that the embedded-ness represents both a limit in terms of local language using and of routines in knowledge sharing/using and a challenge for the process of internationalization because of the excellence of the local network in the support of Research and Development activities.

It depends a lot from the governance support to the local knowledge network to understand the real needs and the expectations of the firms and of local knowledge centers and institutions. If the local production system, defined as a local network among firms, institutions and local environment is built on a virtuous network (virtuous in meaning of “high level of knowledge creation, sharing and transfer”) the embedded-ness becomes a real engine for the process of internationalization among and within firms.

On the other hands if the local investment in knowledge transfer, in innovation systems and in technological and logistic support to the network is not supported by the local/regional and national institutions the rule of the every single firm would become critical and the influence of the local language and of the local and internal routines would become very crucial transforming the embedded-ness in a limit for every process of externalization and internationalization. As shown on our empirical research lower is the overall level of shared knowledge (or the overall level of competences) and lower is the level of internationalization. SMEs have first to learn how to manager knowledge and skills better and to reach this goal they need the support of the local environment and institution.

Even if the level of internationalization is very low the situation has been improving during the last 5 years because enterprises start to understand the power if the shared knowledge: “more information you give to the network more the network will surprise you when you need an information from it” (Pilotti, Lorenzon, 2005), this is the secret of a competitive and ecological industrial district where the virtuous cognitive production starts to be considered as strategic as the efficient physical production.

## Further Research Trajectories

A possible future research will concern the analysis of other industrial districts (in Italy as Design Meta District in Lombardia, Wood District in Brianza and Toys District in Canneto sull’Oglio or outside Italy as Precision Instruments in Baden-Wurttemberg, Electrics and Electronics in Ile de France and Wood District in Alsace) to support our conclusion with other empirical result. It could be interesting also to understand, inside the main knowledge management processes (Knowledge Acquisition, Sharing, Using, Storing) which are the weakest factors that limit the overall index of knowledge inside the districts and how it could be possible to overcome it. Looking at the existing literature we are working on the application of Benchmarking tools to identify and describe possible situations of excellence.

IMPORTANT NOTE:

All the Statistical Analysis and Elaborations have been developed with SPSS version 14.0.

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# Enterprise Development for Women Entrepreneurs: Using A Feminist Analysis in Research and Development

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## Abstract

Feminist inquires have raised fundamental challenges to the way social science has analyzed women, men and social life. The fundamental question driving the research on women entrepreneurs was ‘does theory that is developed from research on male-led ventures holds true for women and minority entrepreneurs?’ Hence there is a need to feminize the research on entrepreneurs by including the experience of women in what we know about entrepreneurs and the entrepreneurial process. Therefore to address this issue this paper provides a discussion and argument that the application of the feminist research process and its principles are highly relevant when researching women’s lives in particular researching women entrepreneurs. This discussion is based on an ethnographic study of thirty-one women entrepreneurs from the District of Pendang, Kedah, Malaysia. Through this feminist approach the findings of the study has contributed to knowledge about the development of entrepreneurship by a number of ways particularly in enterprise development for women entrepreneurs. The study has developed knowledge about how relevant agencies can match positive action with existing condition to enhance ‘entrepreneurial development’ among women entrepreneurs. Hence this paper provides a discussion that a different conceptual framework (using feminist analysis) is needed when researching women’s lives, and that research on women’s entrepreneurship requires the starting point of women’s experiences rather than those of male entrepreneurs, because men and women have different value systems, so theories need to be modified and analysis rendered with a wider perspective to include a wider variety of potential entrepreneurs.

## Introduction

An overview of the literature on women entrepreneurs from studies in the 1980s and 1990s has addressed issues of motivation, barriers to entry, and gender-related problems, and has generally provided a description of female-owned business in a number of countries. Arguably, despite the increasing interest in this area and the advances made in our understanding of female entrepreneurship, these studies contain aspects of both the research techniques used and the current research agenda, which have impeded further progress. Hence, Stevenson (1990) pointed out that there is a need to feminize the research on entrepreneurs by including the experiences of women in what we know about entrepreneurs and the entrepreneurial process. Therefore to address these I have attempted to review this notion and provide some critical comments from the feminist perspective, to provide some useful frameworks for establishing an appropriate methodological perspective for research on women entrepreneurs.

The fundamental question driving the research on female entrepreneurs was: “Does theory that is developed from research on male-led ventures hold true for women and minority entrepreneurs?” The first and perhaps most radical study was done in the UK by Geoffee and Scase in 1983. They proposed a typology of women entrepreneurs based on their motives and choices of both industry and type of business organization. Other researchers examined individual characteristics, motivations, venture types, industry selection and specific business problems in an effort to determine if maleness or femaleness was salient in predicting success. Pelegrino and Reece (1982) found that the start-up problems and the challenges women business owners faced were common to anyone starting a business. Studies of gendered differences in management style questioned whether the “entrepreneurial” management style was gender neutral or if there was particularly “feminine” management style preferred by women entrepreneurs (Chaganti, 1986).

Therefore to address this issue this paper provides a discussion and argument that the application of the feminist research process and its principles are highly relevant when researching women’s lives in particular researching women entrepreneurs. This discussion is based on an ethnographic study of thirty-one women

entrepreneurs from the District of Pendang, Kedah, Malaysia. Through this feminist approach the findings of the study has contributed to knowledge about the development of entrepreneurship by a number of ways particularly in enterprise development for women entrepreneurs. The study has developed knowledge about how relevant agencies can match positive action with existing condition to enhance 'entrepreneurial development' among women entrepreneurs. Hence this paper provides a discussion that a different conceptual framework (using feminist analysis) is needed when researching women's lives, and that research on women's entrepreneurship requires the starting point of women's experiences rather than those of male entrepreneurs, because men and women have different value systems, so theories need to be modified and analysis rendered with a wider perspective to include a wider variety of potential entrepreneurs.

## **The Underlying Assumptions of Feminist Analysis**

Feminist inquiries have raised fundamental challenges to the ways social science has analyzed women, men and social life. Issues about method, methodology, and epistemology have been intertwined with discussion of how to correct the partial and distorted accounts in the traditional analyses. Is there a distinctive feminist method of inquiry? Who uses feminist methodologies? On what grounds would one defend the assumptions and procedures of feminist researchers? Questions such as these have generated important debates in feminist theory and politics, as well as curiosity and anticipation in the more traditional discourses.

Brannen (1994) has pointed out three things in particular which are leading feminists to reconsider their position on methodology:

- i. The need to acknowledge that the qualitative techniques they have tended to favour are not in and of themselves specific to feminism.
- ii. Qualitative techniques are an integral part of social science research and have their own histories of development and change outside and independent of feminism. Feminist may have appropriated these techniques, but they did not create them, and while they have modified them they are not alone in so doing.
- iii. A number of researchers have recently drawn attention to the ways in which the polarization of quantitative versus qualitative methods have impoverished research, and there have been calls for multiple methods to be used complementarily rather than competitively.

Hence what are the significant arguments and the distinctive features of feminist research which are of concern when undertaking empirical research from a feminist perspective? Therefore, for the purpose of discussion on the application of feminist research process when researching women's lives, I have noted here the contribution of various feminist researchers.

There is a growing body of literature which explores the meaning of feminist research and methodology (Mies,1983; Jayartne, 1983, Reinharz, 1983; Acker, 1983; Purvis & Maynard, 1994; Oakley, 1981; Devaunt, 1990, Opie,1992; May, 1997), and while none of these authors purports to categorically define feminist research, common themes nevertheless emerge concerning the features of feminist research which will be explored in the following discussion.

Bowles and Klein (1983) for instance, asserts that feminist methodology centralizes the concern that research is for women – an idea consistently echoed in definitions of feminists' research, from the conception of a project, to the choice of appropriate techniques for process, through to the presentation of results. They states that the definition of feminist research refers to specific studies that investigate women using forms which are 'non-hierarchical, non-authoritarian and non manipulative', in which the qualitative methods, particularly the face-to-face in-depth interview, have become the definitive feminist approach.

To add to the knowledge of feminist research, Mies (1981) sets the following methodological guidelines for feminist research:

- Conscious partiality: a conscious identification with the research objects, as opposed to value-free research.



- The vertical relationship between researcher and ‘research objects’, the view from above to be replaced by the view from below.
- Active participation in actions, movements and struggles for women’s emancipation
- The goal of changing the status quo.
- Conscientization : research carried out by the objects of oppression
- The collectivization of women’s experience (see Mies cited in Bowles(1983) for detailed exploration of these guidelines).

Cook and Fonow (1986) have also identified five basic epistemological principles discussed by scholars who have analyzed feminist methodology in the field of sociology, including

- i) the necessity of continuously and reflexively attending to the significance of gender and gender asymmetry as a basic feature of all social life, including the conduct of research
- ii) the centrality of consciousness-raising as a specific methodological tool and as a general orientation or “way of seeing”;
- iii) the need to challenge the norm of objectivity that assumes that the subject and object of research can be separated from one another and that personal and /or grounded experiences are unscientific;
- iv) concern for the ethical implications of feminist research and recognition of the exploitation of women as objects of knowledge;
- v) Emphasis on the empowerment of women and transformation of patriarchal social institutions through research.

Hence Cook and Fonow (1986) summarize feminist research thus:

“An assumption of feminist methodology is that knowledge must be elicited and analyzed in a way that can be used by women to alter oppressive and exploitative conditions in society. This means that research must be designed to provide a vision of the future as well as a structural picture of the present. This goal involves attending to the policy implications of an inquiry, and may involve incorporating the potential target group in the design and execution of a study. Feminist methodology endorses the assumption that the most thorough kind of knowledge and understanding comes through efforts to change social phenomena”.

(Cook and Fonow ,1986 : 13)

## **Call For A Feminist Theory Of Entrepreneurship**

Many of the issues raised in the 1980s warranted continued investigation, but the 1990s also brought a more explicit call for a feminist theory of entrepreneurship (Stevenson, 1990). Feminist theory, a specific area of social theory, addresses issues of political, economic and social rights. This theoretical approach also provides a rich tradition of analyzing relations of gender and class, making it useful for researching the economic activity of women and men. In addition, researchers continued to raise important questions about the methodological bias inherent in conducting research on women entrepreneurs using research designs, scales and interpretations based entirely on a male model. Researchers also noted biases stemming from an over-reliance on structured, quantitative research approaches and the possibility of sexual imperialism in the interpretation of the results. They argued for the development of many robust data sets and the application of more sophisticated statistical techniques (Moore, 1990).

Applications of feminist perspective to entrepreneurship suggested new links between social stratification and business ownership, organizational structure, and industry choice. Researchers who took a feminist point of view noted that women had historically been excluded from the entrepreneurship literature and argued for the need to understand entrepreneurship as a gendered activity. They focused on two issues: the construction of the category of “the female entrepreneurs”, and the exploration of the unique ways in which the connections between gender, occupation and organizational structures affect both female and male business owners (Mirchandani, 1999).

Working with a feminist perspective in researching women entrepreneurs, few researchers highlighted the issue of gender based perceptions and stereotypes. While not explicitly applying feminist theory, several researchers developed models based on sex-role socialization and occupational role viewpoints. While the study of values was

also pursued (Gagperson, 1993), few found gender-based differences in fundamental values. There were a few notable exceptions: women valued equality more highly and men valued family security more than women. There were, however, more marked differences found between entrepreneurs and managers in the sample. The authors concluded that male and female entrepreneurs were more similar to each other than to their same-sex managerial counterparts (Fagenson, 1993).

Gendered differences in psychological profiles continued to be a point of interest. One study of women and men entrepreneurs and employees investigated whether psychological profiles varied along gender and/or employment lines, but found few differences (Sexton, 1990). However, group differences proved to be interesting in that degree of internal locus of control was found to differ between those with moderate success and those with far greater levels of success (Nelson, 1991). Women also reported more internal/stable attributions as reasons for getting into business while men reported more external/stable attributions (Gatewood, Shaver, & Garner, 1995)

The studies of gender and roles extended beyond the entrepreneurial venture into other areas of women's lives, beginning with issues related to career choices and running through spousal and family relationships. Early social learning experiences were related to career decisions. These foundations were explored in the context of entrepreneurial careers, with the authors concluding that men have a higher preference for entrepreneurship largely because of their levels of self-efficacy and expectations (Scherer, Brodzinski, & Wiebe, 1990). As women have taken on additional life roles, the questions have become even more complex. Holiday and Letherby (1993) conducted a study of how women integrate their business and social lives. The authors drew heavily on sociological theory to interpret women's role in small businesses, particularly those roles related to authority. Using an ethnographic approach, they found examples of both compassion and support for women, but also evidence of sexual harassment. The relationship between work-family connections and economic success confirmed support for gender similarity rather than for a gender difference model. However, the research uncovered vestiges of traditional gender roles consistent with a gender difference model, primarily in the context of marriage (Loscocco & Leicht, 1993). Role models, self-assurance and marriage were positively related to the supply of female entrepreneurs while education and experience were negatively correlated with entrepreneurship but positively correlated with entrepreneurial performance (Schille & Crewson, 1997)

Hence these previous studies have shown that there has been a major increase in research into women in business in the last decade or so, which implies a recognition of the increasing contribution of women to business ownership, and hence to society and the economy as a whole. This has, in turn, led to an interest in 'feminising' research into entrepreneurship and business ownership in general.

### **'Feminising' Research into Entrepreneurship: The Case Of Malay Women Entrepreneurs**

Beyond the initial common view that more needs to know and done to make it easier for women to own and run their own businesses successfully, there has been considerable variation in the suggestions for ways to pursue such research. As suggested by Barret (1995), the implicit view of what underlies the difference between men's and women's approaches to entrepreneurship is influenced by different feminist philosophies. Socialist feminist for instance have argued that women's ways of doing things and a specifically female approach to business ownership need to be celebrated in their own right.

It was for this reason that I set out to study the processes which account for the formation and growth of the numbers of women business owners among the Malay women of Pendang, Kedah and their experiences in relation to the social-cultural domain and environment. In view of the preliminary and exploratory nature of the research, I felt that by collecting details information about the personal experiences of a small number of women business owners and analyzing the data from a feminist perspective, a greater understanding of the dynamics of female entrepreneurs could be gained. This approach, therefore, is I believe an original contribution to the body of knowledge on the research methodology deployed within Malaysia, which underlines the importance of using a feminist perspective in this study. By deploying and recognizing in-depth interviews, as emphasized by previous feminist researchers (Ribbens, 1998; Maunthner, 1998; Glucksmann, 1999), I gained insights and understanding of complex sensitive issues on very personal topics such as the women's conflicts, their relationship with their spouse

and the hardships they faced. The Malay businesswomen also revealed that their behaviour and business practices have been deeply affected by their religious values and their socio-cultural domain. The research methodology deployed is therefore appropriate for uncovering the hidden issues that go beyond the clichés about female entrepreneurs. The information gained was interpreted and combined with information from previous research to develop a consolidated model of female entrepreneurial motivation among Malay businesswomen of rural Pendang, Malaysia

An increasing number of feminists have written about their experience of conducting research and what it means to be a feminist researcher. According to Phoenix (1994: 49), ‘another gap in the literature on feminist methodology related to the ways in which the gender, race and social class positions of respondents intersect with those of the researcher’. In the context of this study I had the opportunity to explore aspects of racialised and gendered relationships in the practice of feminist research, when race and gender have a bearing on the interview situation, and to observe the impact of these factors on the research. The fact that we were women discussing women’s issues and that the researched and the researcher were Malays helped to establish a good rapport. In a study of this nature the right circumstances in the interview situation are crucial for the feminist researcher, because the rural women being studied have not been exposed to other researchers researching their lives and experiences, and have probably never before discussed their Islamic values and beliefs with an outsider.

In the context of researching the lives of these Malay businesswomen and their relationship with religious belief, I had to recognize another important dimension in the practice of feminist methodology, as a result of the discussion by feminist researchers on the issues of bringing private lives into public knowledge and ‘representing’ the research participant’s ‘voice’ in data analysis and writing up. Song (1998), Alldred (1998) and Birch (1998) examined how to re/construct voices within research accounts, how to make sense of, understand, analyze, select and re/present narratives or accounts as part of the research process.

The establishment of a relationship between the researchers and the researched and the importance of respondents being able to position the researchers, becomes a crucial factor. The interaction between the respondent and the researcher made it ‘safe’ for the interviewees to voice their own accounts and disclose personal thoughts of becoming an entrepreneurs and describe their relationship with socio-cultural and religious values. However, as a novice feminist researcher I recognize that there are limitations to any interpretation and representation of their voices, which became an issue. I was unsure of how to deal with the disclosure of their personal thoughts or unhappiness once I had left the interview situation. However, I was explicit about my research when I first met the women in the study, telling them that I wanted to gather women’s own accounts of their experiences of becoming women entrepreneurs, and might eventually be published as an example of “listening to women’s voices” as postulated by the feminist perspective, whose grievances and problems were barely being heard outside their private domain.

## **The Choice of Research Method**

Further reading of the literature on feminist methodology revealed that the emphasis was on understanding the social and cultural context of events as well as the events themselves. I therefore grew increasingly dissatisfied with the idea of using quantitative data collecting methods for this study. The crucial factor was the growing awareness that I was searching for explanation processes of how these Malay rural businesswomen entered entrepreneurship, rather than ‘number of women who...’ One way of achieving greater depth of explanation and perception was by listening to, and hearing, what the women themselves had to say. I eventually adopted a wholly qualitative approach to the data collecting, bearing in mind some of the principles of feminist research in formulating the research process. In attempting to answer to all the research questions, multifaceted methods had to be adopted and different tools of data collection were used in different phases of the study and subsequent feminist analysis of the data. In this study, I chose methods that emphasized discovery rather than testing an a priori hypothesis. A questionnaire provided one source of information, and I also gathered and generated data through non-participant observation and in-depth interviews with the respondents. Each individual method had its own particular purpose. Combined with

observations, interviews allow the researcher to understand the meaning that everyday activities have for individuals. The collection of data consists of the following steps:

- i) obtaining consensus from participants to engage in the study;
- ii) obtaining data about the phenomena and identifying key issues, recurrent events and incidents which provide examples of the categories or dimensions within those categories; and
- iii) working with the data to discover social processes and relationships coding and writing up the results as the analysis focuses on the main categories.

In-depth interviewing has been the major instrument of data collection of this study. The interview sessions were characterized by open-ended questions with broad guidelines in an 'interviews guide'. More probing questions followed depending on the respondent's responses. All too often respondents are restricted in the responses they give in questionnaire surveys by the available options listed on the questionnaire. There could be a 'pay-off' in combining both methods because the interview enables the researcher to probe further where appropriate.

The face-to-face interview provides the researcher and respondent with an opportunity to talk about wider issues than when the researcher relies on a formal approach. The face-to-face in-depth interview method involved open-ended, 'free response' questions based on loosely structured interviews and observations that allowed respondents to discuss in a relaxed and informal atmosphere their experiences, beliefs and values, and the social meaning they attached to a given phenomenon. Thus the respondent is afforded the opportunity to respond in ways the researcher may not have foreseen as relevant. Most importantly, field-notes were taken during the interviewing sessions and the conversation was taped with the respondent's permission for it to be transcribed. Together with the interview method I also used the non-participant observation method in generating data, by means of which I was able to gather information on the daily transactions of the participants' trading processes and business practices. This also gave me the opportunity to observe their business premises, their social interactions with customers, business colleagues and employees.

## The Research Findings

Using these perspectives as a framework, I have sought to analyze the economic practices of the women under study and explore to what extent religious values have shaped the economic and business-related behaviour of Malay rural businesswomen. This discussion is intended to highlight relevant aspects, including performing the pilgrimage, the dress code, performing rituals and the concept of rewards.

### Performing the Pilgrimage

One of the tenets of Islam is the 'haj', the pilgrimage to Mecca, which should be undertaken whenever possible and at least once in a lifetime. To make the journey, each person needs to accumulate RM 6,000 – RM 10,000. Analysis of the interview data indicated that the 'haj' occupied an important place in the businesswomen's aspirations, along with learning how to be successful in business and a degree of economic advancement, by way of 'encouraging capitalistic values'. To describe this phenomenon, I turn to the narratives to one of my respondents:

*"I want to perform the haj to Mecca, so I must work hard and earn the money, and it must be through my own effort. My husband's income is not enough, even though he said he would contribute. I believe my business can provide the extra savings for the trip. It might take some time, for as you know the trip to Mecca costs a lot of money".*

When asked 'How do you relate the duty to perform the 'haj' to what you do as a businesswoman?' The youngest of the respondents, said:

*"Yes I thought about the Mecca trip but it is not on my agenda yet. I am still in my twenties so I think I am concentrating on scaling up my business. Besides to perform the haj, I need to learn more about it first, may be I'll do it in the next 15 or 20 years".*

### The Dress Code

Among women in Malaysia Islamic consciousness and Malay ethnicity are often expressed in the wearing of various types of veils (tudung), ranging from the shoulder-length head covering known as a 'mini-telekung', to dress known

locally as the *'purdah'*, that totally conceals the face and the body including a veil across the face socks and gloves. In Malaysia, wearing the *'mini-telekung'* is very common and this practice persists among the Malay businesswomen in this study. The circumstances surrounding veiling practices raises an interesting point because the recorded narratives and transcripts indicate the belief that veiling is a requirement of the Islamic religion which did not affect them as businesswomen, but there were also respondents who showed some disparity in this matter who regarded it as a restriction to their mobility.

#### **Performing Rituals**

Two rituals were performed to mark the founding of a business or during the start-up of business operations. The first type is the *'kenduri'* (religious festivities which include a formal gathering of family and friends) and *'majlis doa selamat'* (the reciting of verses by religious teachers to ask for Allah's blessing for the success of their business). These religious festivities usually took place within the compound of the respondent's house and sometimes at the mosque. Throughout the entire field-work and interview process I noted that about 50% of the respondents talked of the importance and significance of performing these rituals.

#### **Reciting of Quranic Verses**

According to one respondent one way to attract customers is to hang prints of relevant verses from the Holy Quran in their business premises. Another respondent mentioned that she called in one of the male religious teachers in the village to recite the Quranic verses in her restaurant at the beginning of her business operations. I also observed that there were frames of Quranic verses hanging on the walls of both business premises and in their houses. I was invited by two respondents to peek into a prayer room which had been built in their business premises, complete with prayer mats and the Quran. As one of the respondents explained:

*".....this prayer room is important as I am making time for prayer in a busy work-day. I do not have to rush home to perform my daily prayers. Sometimes when I feel tense and upset about my business performance, I go to the prayer room and recite the Quran, and it gives me some time off and helps me become relaxed again."*

#### **Choosing the Type of Business**

The sole-owner of a small business producing traditional Malay cookies and cakes, explained how she decided what type of business to go into:

*"I learned that women have to right to work and be involved in trading but in Islam it is subject to certain basic principles. We should not be involved in selling what is prohibited by Islam for example the sale of alcohol...."*

Similarly, another respondent talked about the importance of the concept of *'halal'* (religiously legitimate) when a Muslim works:

*".....earning from work must be 'halal' and this includes the amount of work in terms of hours, the price to be paid or the quantity to be produced and the quality to be achieved. It must also not involve prohibited goods or forbidden acts such as adultery and theft. If the worker cheats the employer or vice-versa, then the earnings he or she gains is not halal and the consequences of using non-halal earnings are that you will not earn good rewards from Allah".*

#### **The Concept of 'Halal' and 'Haram'**

My respondent's concern to choose the right type of business activity led me to explore in greater depth how they showed their awareness and understanding of the concepts of *'rezeki halal'* and *'haram'*. The literature of Islamic teachings on economic practice indicates that profits must be obtained only in a permissible way. 'The Shari'a divides rules of conduct between *'Halal'* and *'Haram'*, meaning essentially that which is permissible and that which is impermissible. The distinction between the Halal and the Haram applies to legitimate and illegitimate profits' (Minus, 1993:119). I observed that both definitions were explored by my respondents. In interviews my respondents expressed their concern that the money they earned from their business operation should be permissible (halal) and that they should not generate earnings forbidden by Islam (*haram*), as the following narratives show:

*"I must be confident that the business I do is permitted by god ('secara halal') and I must make sure I do not override any of my religious teachings like cheating, being over-thrifty or not paying my debts. Wherever I go I must get consent from my husband, this is our religious teaching..."*

*“My business is trading women’s clothes. This type of business is totally legitimate and it does not involve any prohibited goods. I believe I am earning ‘rezeki halal’ (permitted earning). This is important. I believe if we do business in accordance with Islamic ways, there are rewards in the ‘life hereafter’. This has been prescribed in my religion, I know that.”*

### **The Concept of ‘Ikhtiar’ and Rewards**

The respondents in a study by Sloane (1999) and Malay urban entrepreneurs in Malaysia generally agreed that ‘Allah’ (God) does not like poverty, because it signifies the taint of laziness, passivity and irresponsibility that allows time for sin and this is why Muslims must work hard to honour God’s abundant worldly gifts. This is consistent with my respondents’ frequent references to working hard and their need to have ‘*ikhtiar*’, to gain rewards and success. ‘*Ikhtiar*’, the term frequently used by my respondents to explain their success in business, is a Malay word meaning ‘the individual’s free choice and will to show effort in life’ (Sloane, 1999:63). I observed that most of my respondents believed that if you have ‘*ikhtiar*’ you will do well in business and be rewarded by God. Hence the act of ‘*ikhtiar*’ was seen by the respondents as one of the ingredients for achieving success in business.

Hence, through this feminist approach the findings of this study contribute to knowledge about the development of entrepreneurship in the following ways:

- i) I have identified that religion (the Islamic faith) is central to understanding rural Malay women’s entrepreneurship, and note that religious values and beliefs have been largely ignored within the Western literature, particularly when researching female entrepreneurs.
- ii) From the data collected it was clear that it would not be possible to understand the Malay women’s business activities without taking into account their religious values and benefits in relation to their ‘conception of work’ and the ‘principles of female employment’.
- iii) This study provides justification for the practical implementation of a feminist perspective in researching women’s lives and as such makes a contribution to the local literature on female entrepreneurship in Malaysia, particularly regarding the methods for researching women’s lives.
- iv) The study has explored and contributed new dimensions to entrepreneurship and specifically to writing about women in the context of their social-cultural domain. A new theory has thus evolved which incorporates the experiences of both women and men and which challenges existing stereotypes, thereby filling a knowledge gap in the field of entrepreneurship.

Hence, the study recognizes that the process of starting a business is highly interactive, a combination of many factors which include individual factors, antecedent factors, individual needs, cultural and environmental factors to motivate the would-be entrepreneur. Entrepreneurship development may be viewed as the process of acquiring the necessary knowledge, skills and attributes to undertake a systematic, high-risk business venture for economic viability and profitability. The findings were conceptualized into a model that illustrates the process of movement in creating a business venture. This innovative finding would fit within the broader effort of feminist scholarship to decentre the experience of white, Western, upper-middle class, urban women by expanding the field to include the experiences and understandings of groups of women outside these conventional categories.

This study supports previous research from the western background on women business owners, which found that socio-economic factors have a strong influence on the decision to create a business venture. The findings of the study revealed that this group of Malaysian rural businesswomen is ‘pulled’ into self-employment and that the majority were unemployed before start-up. However, unemployment was not the sole determining factor in the self-employment decisions of these women. The ‘push’ factors, such as economic rewards and interest, were also cited as motivations by the women. However, this study also revealed that religious factors had a particularly strong influence on why they decided to become self employed businesswomen.

My analysis of the experiences of these businesswomen found that their faith, the teachings, values and beliefs of Islam, had directly or indirectly encouraged and persuaded them to go into business. Their religion provided practical legislation for proper business conduct, so a Muslim who decides to go into business has no reason to be apprehensive as long as they abide by the guidelines provided by the *Qur’an*. Muslims have faith that having a business and creating wealth through earning ‘*halal*’ income and from their own efforts creates the promise of ‘rewards’ in the life of the hereafter. My analysis of the Malay rural businesswomen’s entrance into

entrepreneurial activities showed that religious faith and teaching played a vital role in their decision to go into business.

## **Conclusion**

Set against a background of increasing knowledge about female entrepreneurs, this study departs from socio-economic issues (which dominate the Western literature on female entrepreneurs) to include and consider the influence of cultural issues in relation to women's enterprise. The findings of this study revealed that specific cultural issues relating to Islamic beliefs emerged and became an important aspect of how the Malay businesswomen talked about the importance of their Islamic faith in relation to the development of their business enterprises.

It appears that ideology should be included as one of the non economic factors promoting entrepreneurship. As defined by Wilken (1979), an ideology consists of a comprehensive organized set of beliefs regarding the nature of the world and the behaviours should be enacted within it. The findings of this study are theoretically consistent with the assumption that an ideology supportive of entrepreneurship may be specifically oriented towards entrepreneurial behaviour, or that its content may indirectly and perhaps unintentionally encourage individuals to behave entrepreneurially. The best-known example of entrepreneurial ideology is of course, Weber's well-worn term: the 'Protestant Ethic' (1958).

Various studies investigating the steps in the process of business acquisition or creation make it difficult to identify well-defined trends, but it has been proposed in a comprehensive examination of women-owned businesses that because of different occupational, social and educational experiences, women may follow various approaches to setting up a business which may result in different steps, different problems and different business outcomes. These variations suggest that a woman perceive and approach business ownership differently from men, and herein partly lays the significance of this study, to propose a new perception for thinking about women-owned businesses which looks at business through the eyes of women.

By viewing the analysis from a feminist perspective the study shows that these Malay businesswomen regarded their business activities as part of a collective struggle which offered services and moral support and role model to other women, in a manner which is compatible with feminist ideology. The majority of the respondents were active participants in development programmes such as the Amanah Ikhtiar Malaysia Programme which helped them enhance their business development. In this respect their business ventures offered a means of raising the level of feminist consciousness and of pursuing collective economic and social rights. It is important to point out here that their businesses provided them material support for the creation of identities and a better more modern life style (in contrast with the traditional rural life-style) and consequently removed them from the constraints of domestic subordination and probably patriarchal relationships.

An important contribution of this study would be to initiate a framework for the implementation of policies and programmes for business development among Malay rural businesswomen which would be based on an understanding of people's own conceptions and attitudes about how they think of themselves, their position and role in society, their capabilities and potential for development and change. Such a framework is important because the failures of many development projects and programmes are often attributed to mistaken assumptions about the people involved in those programmes, rather than the nature of programmes themselves. If one is to devise programmes to enhance the development of rural women in Northern Malaysia with a view to increasing their performance and success in their respective enterprises, it is significant that the religious factor could facilitate the entrepreneurial practice and behaviours of the Malay businesswomen. Hence the study has vast implications for the Entrepreneur Development Policy for Rural Women, especially the need to have a collaborative model of implementing economic objectives while still taking account of religious teachings and the socialization process.

Feminism is a theory and a practice, a framework, which informs our lives and its purpose, is to understand women's oppression in order that we might end it. Our position as feminist researchers, therefore, makes us part of the process of discovery and understanding and also makes us responsible for attempting to bring about change. Research is done to create useful knowledge, which can 'make a difference'. Feminism as a praxis is

not based on the simple fact of women sharing a gender in common, but on a common agenda – the liberation of women. (Kelly, Burton & Ryan, 1994: 28)

This study is therefore congruent with other feminist's (Ribben & Edwards, 1999; Pheonix, 1994; Purvis, 1994; Maunthner, 1998) notion of improving women's lives through feminist research. I hope that there will be various ways in which my study can extend what counts as feminist research. In doing so I am borrowing the contentions of Kelly, Burton and Ryan (1994) which claim that feminist research is research on and with women, which uses qualitative methods, and which should be empowering for the participants and be directed towards social change. What I have recognized in the process of researching the lives of these Malay rural businesswomen, both at the outset and throughout this study, is that the knowledge created could be put to good use out side of the academy.

In conclusion, how does feminist analysis in research and development for enterprise development for women entrepreneurs becomes relevant and significant? Hence feminist analysis is an approach formulated from various theoretical frameworks and across discipline boundaries by integrating economics, women's studies, feminism and management. Therefore I argued that a different conceptual framework using feminist analysis is needed when researching women's lives and that research on women's entrepreneurship requires the starting point of women's experiences rather than those of male entrepreneurs, because men and women have different value systems, so theories need to be modified and analysis rendered with a wider perspective to include a wider variety of potential entrepreneurs. Hence this study will shed some light and add to the existing literatures on women entrepreneurship and the application of feminist perspective in research and development when researching women's lives.

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## From a New Wellness Market towards a New Well-Being Manager

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### Abstract

The “well-being industry” is characterized by ongoing transformations because of its increasing demand on the one hand and its supply on the other. In fact, there is an increasing demand for services/products connected to physical well-being and an increasing demand for “integrated” services that march hand in hand with the traditional supply of wellness services that include relaxing, esthetical and general healthcare activities. On the other hand there is a growing supply of these products due to “integrated” entrepreneurs. It is also possible to point out the presence of different kinds of competition, as regards the traditional sector (such as intertype-competition). Well-being, fitness and healthcare are strongly linked together also from an economic point of view (such as prevention) and the role played by the State could be important. The present paper aims to analyze the development of managerial instruments and competence that are adequate for up-coming situations.

### Introduction<sup>1</sup>

There has been an increasing development of the well-being industry in all industrialized countries as observed by various studies<sup>2</sup>. Besides, researchers belonging to different disciplines such as sociology, psychology, marketing, and motor sciences, ergonomics, anthropometry and others are showing growing interest in this sector. They deal with the theme of *well-being* with the instruments of differentiated analyses along with other instruments<sup>3</sup>. It turns out that the same concept of well-being appears *unequivocally difficult to circumscribe*.

In addition, development of the group of enterprises that produce, supply and distribute products associated to fitness, beauty and relaxation has *created particular interest in the realm of science and media in recent years*. On the other hand the supply is constituted by different types of enterprises present in different sectors. In fact, on leisure market, the various divisions specializing in the supply of *well-being* “are to be seen as parts of one industry and one market with the aim to establish that vision which is required to be able to best satisfy the new demands of the clientele” (Varaldo, 2002).

Not only the performance obtained by enterprises, but also the positive forecast for the near future, *are not the result of a transitory “trend phenomenon”, but on the contrary, are to be interpreted also in relation to the new models of consumption*, which are gaining ground. A customer, who is ever more abreast and aware of what he/she is buying and is always less satisfied with his/her daily life, is in search of a better “quality of life” and growing mental-physical well-being.

The guiding principles for the development of this “market” can be interpreted both from a qualitative and quantitative point of view. In fact, the current changes in the system of demand and supply *involve not only the number of services and products sold/supplied but also the ways of production/supply*<sup>4</sup>.

Thus, it becomes interesting to analyse, in the present work, *the “modus operandi” of the different types of enterprises of the sectors that is the target of our investigation*. We are going to analyze the results of several surveys (Gregori, 2005) and desk researches about the main industrialized countries.

We will try to understand the most efficacious managerial models and the new challenge for entrepreneurs. In order to achieve this aim, we are going to define the boundaries of the wellbeing industry describing the supply and the demand changes and the companies’ strategies in marketing point of view.

We apply different methodology approach to analyze this sector and to describe the managerial implication of market transformation for the wellbeing service providers. Firstly we focused on describing the Italian market that we studied with different surveys<sup>5</sup>; however in this paper we will compare these results to the market’s figures of

other industrialized countries. Using the methodology of desk research we are able to remark the common trends and to try to define an interpretative hypothesis of wellbeing market.

## What is a Well-Being Market? An Interpretative Hypothesis

Our first difficulty is to define and mark the boundary of the well-being sector or *the well-being industry*. According to a *broadened* approach we refer to the well-being sector as that group of industries which specialize in supplying different categories of products and services for the mental-physical betterment of man, without invasive treatment (Gregori, 2005)<sup>6</sup>.

This system of the providing well-being therefore consists of different categories of industries present in different sectors: cosmetics, integrated tourism (farm tourism, beauty farms, SPAs – excluding day SPAs), wellness equipment and products, sports activities in general and fitness in particular (TABLE 1), organic nutrition, both natural and food supplements, alternative medicine, fashion (for the naturalistic division), ergonomic interior furnishings, house of zen, bio-energy of plants, publishing and media, etc. (Fig. 1)<sup>7</sup>.

TABLE 1: FITNESS MARKET IN USA E EUROPE<sup>8</sup>

	<b>EU25*</b>	<b>Europe**</b>	<b>USA</b>
<b>Fitness Market</b>			
Fitness Clubs	33,800	36,900	29,069
Members (million)	36.86	38.65	41.3
Average members per club	1,090	1,047	1,421
Penetration rate	8.13%	6.87%	15.7%
Market Size	€ 18bn	€ 20bn	€ 13bn

In this way the sectors involved are rather distinct and the enterprises involved also have characteristics that are different from each other. Therefore, trying to establish common elements in the parties involved, analysing the characteristics of the distribution system of various products/services and as such the level of integration among the different enterprises acquire particular significance in our work.

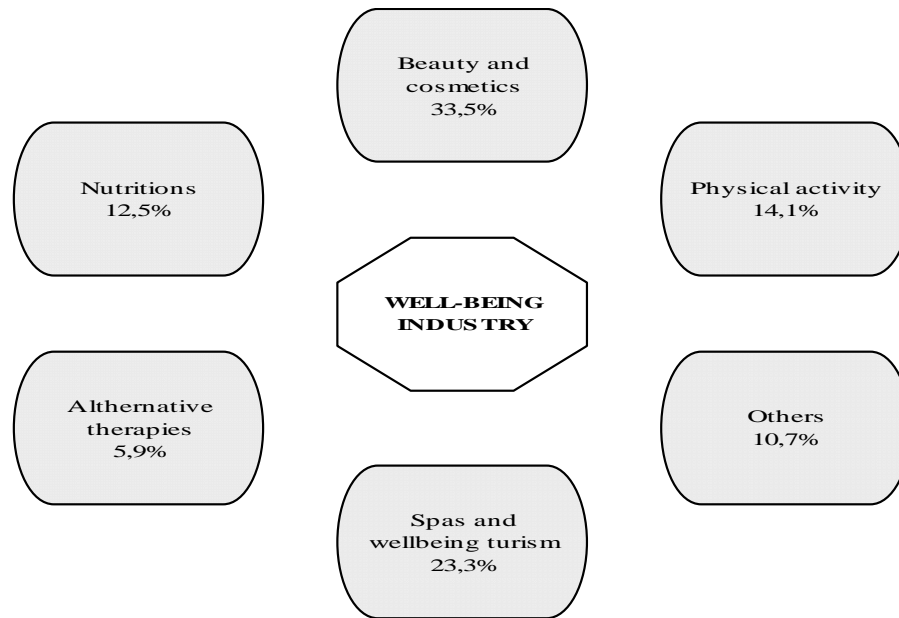


FIG 1: THE MAIN SECTORS OF THE “WELL-BEING INDUSTRY” IN THE YEARS TWO-THOUSAND  
– THE ITALIAN CASE

For our present work, it may be useful to make a different approach from the previous one. This approach takes into account services and products that are most connected to the well-being industry (therefore, leaving out fashion products and those associated with publishing and architecture), which are:

- “non residential” services: well-being services in the strict sense of the word as regards services provided;
- “residential” services: in order to use this kind of service accommodation is required.
- products related to well-being (cosmetics and nutrition).

We believe that this approach is efficacious for defining the boundaries of the well-being industry, overcoming some difficulties that were come across in the previous case and as such allowing a more specific analysis.

Other aspect that needs to be highlighted in case of a possible international comparison could be the following:

- not all industrialized countries have a clear definition of the concept of a wellness center and of services that can be provided by it. Besides, there can be differences as regards legislative rules.
- significant differences in terminology used, and also cultural traditions of the countries, do not allow to make comparison among various enterprises so easy.

For instance, in the American market, there are different types of SPAs: day SPAs (that provide daily services without the necessity of staying there), hotel resorts SPAs, clubs SPAs, medical SPAs, mineral spring SPAs, cruise ships. In some cases there are no corresponding facilities in other countries.

### A New “Well-Being” Consumer

In recent years, the demand for well-being services has been characterized not only by its increasing proportions but also by a consistent qualitative evolution.

As such there is a need to check whether it is possible to *identify a new well-being consumer that has the intention to use the integrated services of fitness-beauty-relax.*

Let us have a look at the main results of surveys conducted in different countries about wellness goers (the USA, Italy, France, Germany). It turns out that 65% of the clientele range between 20 and 50 years of age. In addition, it is also very evident that *services linked to mental-physical well-being are not related to high income level market segments*. Therefore, search for well-being cannot be considered as an “exclusive phenomenon”, and that this search extends to the middle class of the population. *The need for well-being has almost become a primary need*. As such, we come across a radical change in models of consumption with respect to those in the past. In fact, for IHRSA, 34 million members turned out to be enrolled in American wellness centers.

Another aspect that seems interesting is the reason that pushes people to go to these centers that mainly target at *mental-physical well-being*. Therefore, it is the *type of clientele of a center, often always less involved in physical activities in the traditional meaning of the term*, that tends to change. At the same time, *there is an increasing demand for physical activities that are always more associated to “entertainment” and always less to “sacrifice”*. Thus, well-being services integrated with entertaining elements like music, film projection, relaxing rooms and social lounges could be preferred. In addition, the number of wellness centers have gone up, and there is strong interest in so-called “body-mind-spirit” disciplines which mainly come from the East and which are characterized by a combination of physical and mental activities.

Besides, as revealed by operators interviewed, *it seems that activities that avoid “routine”, boredom, and repetition of the same old situations are winning proposals*. Some examples could be: the possibility of changing the colors of the interiors, making them different every now and then, personalizing the service asked for, changing the fragrances in the different rooms of a wellness center.

Analyzing how frequently people go to the center, we can identify two types of clientele:

- a. regular customers that go many times a week;
- b. non-regular customers whose irregularity depends on their lack of time, lack of any specific reason and on their accumulated dissatisfaction. There is in fact a rather consistent presence of “disloyal” customers.

Therefore, providing personalized services, such as time slots and integrated activities even at the customer’s place, taking on personal trainers and adopting new computer technologies as instruments of direct relation with the customer, will turn out to be always more efficacious.

One problem that has frequently come up is the lack of customer loyalty. This is strictly connected to the behaviour of the customer. In fact, a rather consistent percentage of members are not able to go to the center regularly after enrolment, especially due to lack of time. Absence of relationship between the service provider and customers turns out to be one of the main causes of quitting the club.

We are going to analyse the characteristics of the customers in beauty centers and SPA. It turns out that people ranging between 26 – 40 years of age are the most interested. Managers have reacted positively to the development of a young consumer market.

Examining both wellness and beauty clientele, the first aspect that comes forth is that there seems to be an overlapping of clientele, at least as regards the demographic variable.

However, as can be seen in the following layout, the “beauty” consumer can present different characteristics with respect to the “traditional fitness” consumer. The consumer is characterized by a different buying behaviour that is determined also by the different strategies adopted by companies “at the beginning of the supply chain” (that is, by companies that manufacture machinery and those that specialize in manufacturing cosmetics).

The expansion of the concept of the “need for well-being” can be examined as an interpretation of the phenomenon of convergence. *In fact, the presence of a market demand, that aims at favoring a single supplier of well-being products/services, has come forth. In this sense, the term “converging needs” or “clustering needs” can be usefull (Busacca, 1994)*. This phenomenon is defined as multi-sector convergence. It is an evolutionary process in which, two or more sectors (that were originally operating more or less independently), give birth to “new” products which go on to create a “new” bigger and more complex market (Valdani, 2001).

The factors that can “push” even product-wise different sectors, to converge, are many such as: knocking down of barriers at the source, legislative transformation, changes in the “consumption model” and above all technological development. As such, it must be noted that these factors can influence the sectors of origin with variable “levels of intensity”. The satisfaction of converging needs is connected also to an evolution of the concept

itself of goods/services. The consumer is ready to pay for a need – in the broad sense of the word – by buying not just products or services but also, and above all, buying “experiences” (Pine, Gilmore, 2001).

The birth of converging needs “forces” firms to abandon a short-sighted view of the direction of the product /service and to adopt a more broadened vision that identifies the boundaries of marketing activities. *The logic of orientation toward relationships to be adopted more than toward a selling concept.*

Finally, it is to be noted that convergence must not be examined as a phenomenon that leads to the summation of different sectors, but to the creation of a new sector – from different sectors - on the basis of a thrust from the birth of a “new well-being consumer” (Fig.2).

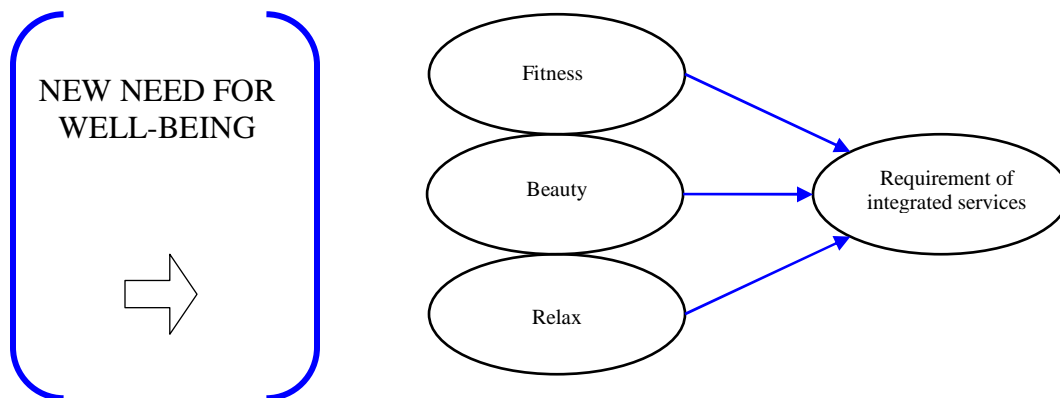


FIG 2: EVOLUTIONARY PROCESS OF THE WELL-BEING MARKET IN PERSONAL SERVICE SYSTEMS

### Main Change in Provider’s Service Management

In order to describe well-being market trends it is important to link the transformation in the demand to the transformation in the supply. In fact, in the main industrialized countries, the dynamism of well-being service providers is, in some cases, higher than the changes in consumer behaviour.

The aim of this section is to find the main industrial trend, paying particular attention to service providers such as wellness clubs, health clubs and also beauty centers, thermal baths and different kinds of SPA. We are going to analyze these changes from a strategic and marketing point of view.

Well-being and SPA centers are growing in “size” and in the number of locations. In fact, the new clubs are bigger (in square metres) than the old ones. In addition, some new centers are located in shopping centers, stations or airports but the most important new locations are hotels.

In recent years, some firms doing different businesses, have started to get involved in the well-being industry through an acquisition strategy or building new clubs. However, in many cases, these investments are not made on the basis of a correct business plan or catchment area analysis, and, in other cases, management problems are underestimated (e.g. technical know-how).

Focusing on customer service providers trends, it is important to highlight the following changes:

1. Development of chains (own chains, franchising chains or “licensing chains”);
2. Changes in consumer profiling;
3. Service mix development;

4. Growth of relationship marketing and ITC.

1. Since the beginning of the year 2000, well-being industry has been characterized by an important process of development of chain clubs that have directly and indirectly influenced the entire supply system. In particular, this kind of strategy is applied by wellness club chains and health centers, as shown in the table below (TABLE 2).

The network strategy could change depending on the chain's development phase, on its location (countries), and its mission. Firstly, some of these chains usually manage their own clubs directly, only later could they grow with franchising affiliation. However, some important networks have a substantial number of "direct clubs": this choice has a significant impact on management.

In other cases, we can observe different kinds of "contractual" chains where the affiliate is allowed to use the network's own brand and benefit from the chain's services (for example communication services). In exchange, the affiliate agrees to purchase a predefined amount of "products". This strategy is usually used in beauty centers and day SPA chains and could be followed by cosmetics producer.

TABLE 2: SOME OF THE MAIN FRANCHISING HEALTH CLUBS<sup>9</sup>

Network brand	Country	Year	Opening costs	Fee	Monthly Royalty	Number of clubs	Number of members
Planet Fitness	Russia	1990	From 30,000	-	-	30	18,000
Energie	Great Britain	2003	From 60,000 Pounds	-	-	400	-
Body factory	Spain	1991	From \$432,000	From \$13.000	\$7.000	45	820,000
Contour Express	Great Britain, Mexico, Canada, Brazil, Australia	1998	From \$40,000	\$14.000	\$5.000	320	-
Sureslim Wellness Clinic	Great Britain, Canada, Mexico, Brazil, Australia	1996	From \$80,000/150,000	\$595	-	-	-
Rosemary Conley Diet and fitness club	Great Britain	1993	From 18,175 Pounds	700 Pounds	-	More than 2,000 in U.K. managed by 170 franchisees	More than 80,000
Gymboree	Great Britain	1976	From \$145,000	-	-	400, among Great Britain and 26 other countries in the world.	-
Tumble Tots	Great Britain	1979	From 49,500 Pounds	-	-	More than 450 in U.K., managed by about 90 franchisees	About 60,000 children

Some worldwide networks, after the first phase of development in the domestic market, stretch to implement processes of internationalization (also through company acquisition strategies)<sup>10</sup>. In the well-being industry, as well as in other business, a globalization process is taking over. For a multinational company it is important to carefully analyze the wide social and economic diversities of the areas, in countries, in territories and in cities. In this sense it is important to define the autonomy of single clubs; in particular it could be important to define a different price policy.

The best players have several development strategies: some chains grow because of a corporate acquisition strategy of single clubs or of some other little chains, while other networks prefer to grow in new locations.

The use of franchising, as an organizational form of relationship between hierarchy and market, is widespread which appears to be an interesting solution for well-being services providers (Williamson, 1975 and Powell, 1987).

2. Another change for the well-being manager is the attention that should be given to a new kind of **consumer profile**<sup>11</sup> This trend is essential in well-being service providers, but it is different in each one of them. In fact, in the SPA and beauty industry there is a growing interest to target males and teens. In the wellness industry a particular interest is growing for kids and the elderly.

In the American SPA market “..there are an increasing number of men seeking SPA therapy. In fact, about 13 million men (29 per cent of all SPA goers) visited a SPA during the year ending June 2003. In response to this increased interest by men, some SPAs have begun gearing services specifically towards men” (McNeal, Ragins, 2004). From a QLI survey, in the Italian market, we can see that SPA managers say that 15-25 year olds will be the most important target in future development (QLI, 2002). In the wellness industry 40 year olds and above make up the highest percentage of the wellness goers. According to IHRSA, 35- to 54-year-olds make up the largest majority of fitness center members, and 25 percent of U.S. health club members are 55 and older (TABLE 3). Moreover the kids market is becoming an important target.

As a consequence several well-being companies transforms their marketing strategy, and in particular, the service mix. For example a special section with different colours and special equipment is created for child fitness members. In fact, some manufacturing firms “design child equipment to allow children to do motor activities with games and stimulated their attendance”<sup>12</sup>.

TABLE 3: MARKETING EXAMPLES OF TARGET STRATEGIES FOR OLDER PEOPLE

<p><b>Radio.</b> Feature a middle-aged woman describing her busy life, her desire to see her friends and keep a little time to herself. A radio personality then follows with a thorough description of how these desires can be easily met with the services you provide.</p> <p><b>Presentations.</b> A non-traditional delivery of direct marketing is necessary to connect to a relationship-based segment. First, market a staff person as a speaker. Provide a presentation to a retirement community or country club. Create a handout featuring testimonials of like-minded people. The message can be that self-sufficiency and independence are made possible by the strength gains made through exercise. A key in successful reception of this message is the development of friendships, gained by sending the right person to deliver the message.</p> <p><b>Cross marketing.</b> SPAs and salons attract much the same market as wellness centers. Set up an offer for a complimentary training session to each customer who makes a purchase over \$100, for instance. In Sherri McMillan's <i>The Successful Trainer's Guide to Marketing</i>, other examples for cross marketing include sporting goods stores, golf centers and flower shops. (Atkinsons, 2007).</p>
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To hit a specific target (the elderly, men or kids) it is important to make other important changes in *management and employment procedures*. For example, in a SPA, for female customers the sex of the therapist is often indifferent, for male customers however it is not the same. To combat this issue a simple “adjustment to the scheduling script can make all the difference for men. By asking if patrons prefer a male or female massage therapist at the time of scheduling the appointment, the service provider has just made the beginning of the SPA experience less threatening” (McNeal, Ragins, 2004). Target marketing is an important choice for network. In fact, some players specialize exclusively in specific macro segments. For example, in the fitness market, Curves chain is only for women and in, Day SPA market, Heyman! represents an only-for-men-services provider<sup>13</sup>.

3. There is a new upcoming important trend in different firms in the well-being industry: providing **service integration**. In fact, many firms add other services to their core business; for example wellness clubs add beauty and relaxing services. In the same way, beauty centers introduce physical activity programs in their “product” mix (Gregori, 2005). This transformation could allow construction in a new location or adding “new” services in the same locations. Providing integrated services can involve two kinds of matters:

- structural transformation of health clubs or SPAs;
- managerial and organizational changes.



The transformation in the service mix should be analyzed from an evolutionary point of view. In fact, there is growth of a new well-being customer who is asking for new kinds of services. As a result, the manager should learn new skills (Gregori, Cardinali 2003).

4. Opportunities for well-being managers are growing because of the application of a CRM (Customer Relationship Management) system and of a new service prospect with ITC. This system could be applied not only to great chains, but also to single big health clubs or SPAs. Technological innovations in computer and information systems allow managers to check relations with their customers, verify club attendance and services being used. In addition the CRM system could be used to create a “micro segmentation” of customers that allow the manager to carry out an appropriate marketing mix strategy for “micro targets” (Lugli, Ziliani, 2004).

Data base marketing is increasing and is being applied by big chains whose attention is usually focused on relational aspects (Kotler, 2000, p15-16, and Gummesson, Lehtinen, Grönroos, 1997). This element will probably be a fundamental aspect of competitive advantage. In this sense small clubs and SPAs are strongly competitive with networks because they can take advantage of their small size and limited “relational distance” between management and customer.

The CRM application turns out to be of fundamental importance in order to limit the typical effects of well-being consumer behaviour, like in case of:

- limited level rate of retention and high turn over of customers (Michels, Bowen, 2004);
- high number of abandonments after first the months of activity;
- customer “switching” problems and strong sensitivity to price (especially for fitness and health clubs) (Harvir, Bansal, Shirley, Taylor, and Yannik, 2005).

Since the nineties several well-being firms have been characterized by reduced managerial impact in many countries. The operating contributions of business schools are particularly limited and also the theoretical ones. Only after a big development in the “well-being market” and “industrialization”, a new market approach is becoming widespread.

In these years a transformation is taking place in the marketing firm strategy: from a “product (service) concept”, characterized by a “passive connection” with club or SPA goers, to a selling concept. This is encouraged by different factors: the increasing dimension of the market, the interest of many specialized firms (in particular advisors), the process of imitation activated by small clubs against the top players of “well-being industry”.

From an organizational point of view these changes are leading to a different managerial effect:

- recruitment of an increasing number of salesmen in health and SPA centers;
- development of relationship procedures;
- spread of techniques for selling fitness (Conrad, 1994).

The increase in a company’s income is usually immediate when this new method is applied (the selling approach). The positive effects of the selling concept also reflect on financial management. However some wellness managers do not often have the competence to correctly manage their income in advance, specially in small clubs (Koustelios, 2003). However, marketing based on strong selling involves many risks, in fact, it focuses on short-term results rather than long-term ones (Kotler, 2000). As a result this strategy does not allow managers to achieve a reduction in “customer turnover” and an increase in customer retention rate. In addition, there is an increase in competition and a decrease in the catchment area population.

Therefore, the new approach to relationship marketing allows managers to redirect their attention from “transaction to relation”, and as such the way to carry out customer management involves changes for the sales force and front desk staff. Besides, an important role is carried out by the “personal trainer” and therapist who encourage the prospects of relationship. They build up a relationship with customers and are crucial for their retention. Therefore, they need to have some marketing skills and should be “part-time marketer” employees (Gronroos, 2000).

In order to achieve this aim, some wellness center chains have adopted a new organization system. The trainers, in some cases, are not employees, but advisors (to customers). In this way, customers develop a profound relationship with their “personal trainer” and so their retention depends on the trainer’s behaviour. Such organizational change must be supported by training policies and “team building strategies” in order to create a retainer between clubs and customers and not between trainers and goers (Brown, 2007). Differently, losing key staff

members will turn out to be more expensive for wellness centers, not only in relation to recruitment and training costs, but also concerning possible customer abandonment. Opinion leaders say that facilities that are able to win the “retention battle” are in a better position to generate long-term revenues (Tharrett, Peterson, 2007).

Other management instruments concerning service prospects in relationship marketing and ITC could be the following:

- WEB applications are used either to give information (change in timetables, events, problems in the club), or to supply new personalized on-line services (for example, creating a personal trainer schedule or personalizing customer’s diet), as in Bally’s Strategies.
- SMS marketing is strongly applied in this industry for its particular efficiency. In fact, mobile communication represents a non-invasive direct marketing method. The mobile phone can become an important “tool” of micro-marketing because it gives the possibility to send and receive information in real time (ubiquity) and at any time (accessibility), to store the information (convenience), to have a security protocol. Moreover, for the future, it could be interesting to localize the customer and to personalize messages (Lugli, Ziliani, 2004).
- Business intelligence can provide an essential contribution in clubs and management of chains. The use of site analysis, customer profiling and market potential analysis could support investment decisions (Skok, Kophamel, Richardson, 2001). Moreover, geomarketing analysis allows managers to obtain a realistic and up-to-the-minute estimates of potential membership levels. It is one of the best ways to define the correct location of clubs. In fact, in our studies, we have noticed that club revenues and geomarketing analysis results are strictly connected (Cardinali 2005)<sup>14</sup>

Thanks to ITC and management transformation, networks create a “wide relationship customer data base” which includes several information about consumer behaviour (some players have more than 4 million members). Consequently, many non well-being industrial enterprises are interested in this information and in the well-being target consumer. Therefore, the number of co-marketing strategies grows among networks and other companies (Granzin, Olsen, and Painter, 1998). The agreement between Bally and Kraft is a clear example.

## **An “Intertype” Competition in the Well-Being Industry**

The most important transformation in the well-being industry takes place due to the development of *intertype competition*. In fact, it is possible to find a kind of competitive pattern different from the traditional one because it is connected with the competitive interaction among companies of different types.

*Intertype competition* is the term usually adopted in order to describe the competitive interaction among companies belonging to different economic sectors. In other words many companies have the strategic aim to exceed the borders of their own sector, in order to compete against companies belonging to different sectors (more or less similar) (Hansen, 2002).

This kind of competition is not typical of the well-being market only. In fact, there are other important markets where intertype competition may be observed. We are talking about retail market, ITC market, entertainment market (Valdani, 2001 and Silvestrelli 2005 and Torben, Stubbe Solgaard, 2004).

Different classifications should be used in order to describe intertype competition. In case of “well-being industry” it should be interesting to make a distinction between “vertical” and “horizontal” competitive interactions. In the retailing sector of wellness facilities it is possible to note several examples of intertype competition of the “horizontal” type. The process of integration of health and wellness facilities by fitness centers, beauty centers and city beauty farms is connected with the effort of these operators to reach consumers whose demand was traditionally satisfied by different types of organizations. The traditional definitions of fitness sector, beauty sector and SPA sector tend to become obsolete, with the consequence that the *substitute competition* among these services (and among retailers offering them) is increasing. Another example of intertype competition of the “horizontal” type that can be found in the market of “Well-being accommodations” (well-being services whose utilization involves overnight stay). A strong competition among Thermal baths, Mineral Spring SPAs and other SPA and beauty farms can be noted, as found in some European countries. In fact, Thermal baths have integrated their traditional offer of therapeutic and curative services with fitness, relax and beauty facilities. With regard to this case of intertype

competition, it should be noted that the lack of a precise normative definition of “wellness center” may have stimulated the development of such kind of competition (as in the Italian market).

Other examples of intertype competition of the “horizontal” type can be found in the well-being manufacturing industry. Until some years ago in the fitness industry and beauty equipment there was a clear distinction between manufacturers specializing in the production of specific machinery for fitness, beauty or relax. Today, this distinction has a tendency to disappear. In fact - also because of technological innovation - manufacturers of multifunctional health equipment became direct competitors of producers specializing in beauty equipment. An example of intertype competition is found in the case of wellness equipment (“home segment”). This market has been affected by competitive dynamics stimulated by companies belonging to different sectors (for example: Teuco’s “Fitness Corner”).

Intertype competition can also be found analyzing “vertical” competitive interactions. In fact, home fitness goods and wellness centers - traditionally separated by different market targets and strategic tools - seem to be getting “near” progressively. On one hand customers of wellness centers demand customized services which lead operators to offer services like personal training or fitness courses for small groups. The customer wishes to be “followed” rather than to be “abandoned”, but at the same time he/she wants the respect of his individuality. On the other hand, in the manufacturing sector, state-of-the-art fitness equipment is integrated with web communication instruments that allow to record the athletic performance “from a remote distance”. These systems offer the possibility to develop an interactive relationship between the customer and the producer, specifying personalized training programmes<sup>15</sup>. As a consequence, home fitness and traditional fitness are no more separated as in the past.

## **A New Challenge for the Well-Being Industry: a Social Responsibility of Physical Inactivity**

It is not new that physical inactivity and obesity are symbols of illnesses in industrialized countries. As we can see in all WHO’s reports the fast growing of this problem has not stopped. In particular, for the American society it is one of the main matters of public interest (Sporting Goods Manufacturers Association, 2007). The economic price of inactivity is alarming in many Western European countries: on the basis of recent studies from the United Kingdom and Switzerland, every European country pays about €150-300 for each of its citizens every year (TABLE 4).

TABLE 4: PHYSICAL INACTIVITY PROBLEM IN THE US AND WESTERN EUROPE

USA	<p>64 percent of American Adults are Overweight or Obese (32 percent obese).          34 percent of American Children are Overweight or Obese (17 percent obese).          Over 50 percent of American adults do not get the recommended amount of physical activity.          Health Care outlays will be \$4,000,000,000,000 (trillion) by 2015 (20 percent of GDP) (Centers for Disease Control - Sporting Goods Manufacturers Association, 2007).          Physical inactivity contributes substantially to the burden of overweight and obesity, which in turn accounts for up to 6% of the health care expenses in parts of the WHO European Region. It also negatively affects the health of individuals. More than half of the European population is not active enough to meet health recommendations, and the trend is worsening: physical inactivity is becoming one of the leading risk factors for the health of Europeans, along with others such as tobacco and alcohol. The problem is worse among low-income groups: poorer people have less free time and lower access to leisure facilities. Besides the costs in terms of mortality, morbidity and quality of life, inactivity exacts high financial costs from countries across the Region. For example, the annual costs in England – including those to the health system, days of absence from work and loss of income due to premature death – have been estimated to be €3–12 billion. This excludes the contribution of physical inactivity to overweight and obesity, whose overall cost might run to €9.6–10.8 billion per year. Similarly, a Swiss study estimated the direct treatment costs of physical inactivity at €1.1–1.5 billion. On the basis of these two studies, physical inactivity can be estimated to cost a country about €150–300 per citizen per year. Increasing current levels of activity could significantly reduce the costs to society, but even maintaining them can result in savings. For example, the Swiss study estimated the savings on direct treatment costs for the physically active at about €1.7 billion (WHO 2006).</p>
Western europe	

A world-wide concept is that physical activity is the best way to prevent contemporary diseases: overweight and obesity, diabetes, musculoskeletal disease, cancer, psychological illnesses. Consequently, different economic instruments have been designed to cut down the negative effects of “epidemic” obesity. Many of these represent a real innovation in order to increase the citizens’ well-being but also in order to **put off the negative economic impact**. In fact, the problem of obesity is a cost not only for those who become obese but also for other citizens. These costs include medical costs for treating obesity and its resultant illnesses, working days lost and so on. “Since people do not consider these costs when making their diet and exercise decisions, obesity rates will tend to be higher than those that would occur if these costs were taken into account” (Leicester, Windmeijer, 2005).

As a result we could consider the main useful instruments to prevent these problems:

- information and educational “tools”;
- economic instruments: removing sales taxes on healthy foods, subsidizing healthy foods, subsidizing transportation of healthy foods to remote regions, removing sales taxes on sports and recreation equipment, subsidizing sports and recreation activities, providing tax credits to encourage physical activity (gym membership, fitness classes, etc.) (Madore, 2007)<sup>16</sup>.

In particular, related to the possible impact of economic instruments, different studies have been made and new “operating tools” have been projected as shown in the table below (TABLE 5).

TABLE 5: OBESITY PROBLEM FOR AN INDUSTRIALIZED COUNTRY: WHAT NEXT?

Canada	The 2006 federal budget proposed the creation of a Children’s Fitness Tax Credit to cover eligible fees up to \$500 for enrolment in a physical activity program, effective January 1, 2007. The purpose of this credit is to facilitate access by children and youth to physical activity and recreation programs, as a means of helping them maintain a healthy active lifestyle.
Children’s Fitness Tax Credit	The need for this tax credit is underscored by the challenges presented by childhood obesity. In the past two decades, obesity has emerged as one of the biggest health problems facing Canada. While this tax credit is not designed as a comprehensive strategy that addresses the full complexity of these issues, the Expert Panel believes that it will be an important catalyst to help children to be more active and healthy (Department of Financial – Canada 2007).
USA	Originally introduced in 2006 and reintroduced in the new Congress on January 5, 2007, The Personal Health Investment Today Act or “PHIT” bill would provide a way to ease the financial burden of being more physically active through the use of existing pretax medical accounts.
PHIT (Personal Health Investment Today)	An October 2005 GAO report surveyed experts in academia and the private sector working in the fields of physical activity, nutrition and childhood obesity and government officials at the federal, state and local levels; these experts identified physical activity as the best solution to childhood obesity.  HOW PHIT WORKS: PHIT would change current federal tax law to allow for the use of pretax dollars to cover expenses related to organized individual and team sports, fitness and exercise, recreation and other physical activities. Americans could invest up to \$1,000 annually to pay for these activities by placing money in existing pretax Flexible Spending Accounts (FSA), Health Savings Accounts (HSA), Medical Savings Accounts (MSA), and/or medical reimbursement arrangements. PHIT would not increase the contribution limits for pretax accounts, it would only expand the list of eligible expenses (Sporting Goods Manufacturers Association 2007).

However citizens and associations can support their government’s economic policy. In fact, employers, consumers, parents, sports and other associations can play a specific role in education on well-being. Health professional organizations should ensure that their members are fully engaged in preventive action. Action should be focused on their main activity field, such as manufacturing, marketing and product information, while consumer education could also play a role, within the framework set by public health policy.

In addition, the private sector should play an important role and be responsible for promoting corporate wellness programs (Kelly, 1999). There are many firms, not included in the well-being industry, that are improving

physical activity facilities for their employees. The aim is to improve both quality of life and productivity. As a result this topic also touches on the social effects of the investments of these companies (Worth, Green, Bliss, 2001).

In this new transformation an important role is played by sports and health clubs, leisure facilities and all well-being firms. But what is the aim? and what is the role of well-being entrepreneurs?

Economic instruments can increase fitness facility purchase, but not the citizens' well-being immediately. As a result wellness clubs and other well-being facility providers are the last "ring of the chain" to improve customer's physical activity benefits. In this way the fitness industry plays an important role because it could be involved in win-win solutions by highlighting the economic opportunities of investing in healthier options, and managing their firm with a new social strategy:

- increasing the retention of health clubs and reducing the rate of abandonment in the first months of activity;

- using health clubs which convey the message of well-being culture and provide dietary education;

- encouraging agreements with health facilities and "food" companies.

The strong interest of governments and the media, in relation to the matter discussed, can represent an important opportunity for the well-being industry to stabilize a growth process that has been taking place in recent years. As such this trend symbolizes a new challenge for well-being managers. They should not target for profit only but also make a social and cultural impact with their business. In well-being firms strategies it will be necessary to improve social responsibility and to implement ethic marketing (Kotler, 1999, 34).

## Conclusion

Many trends are influencing the international well-being market. A quantitative and qualitative evolution is taking place in the supply system. As a result, there is a deep transformation in the management procedures of service providers.

The first thing to take into consideration is the broadening of the competitive context because of intertype competition which increases competitive pressure. Moreover, the growing demand is accompanied by an increase in the number and dimension of well-being players. It is necessary to find out whether this growing demand would absorb the high rise of supply. It could be interesting to verify whether the competitive strategy of the operators influences the behaviour of current and potential customers and whether it stimulates their demand for products and services. In fact, a "virtuous circle" could be started leading to a further development of market demand.

In this competitive market it is important to develop new managerial instruments to support the entrepreneurs in making investment decisions. In order to take a clear investment decision (in the health club industry) geomarketing is a useful instrument to estimate a location's potential. The break-even analysis could be correctly carried out using the "competition index" of the area through a geomarketing study. In other words, demand (resident and day time population) must be big enough to satisfy the service provider's supply considering also the number and the type of competitors in that attractive area.

Other considerations that could be made are related to the development of convergent needs. A new market generated by "cluster of needs" has different characteristics in relation to the sector that composed it. This market is not only the merge of fitness, beauty and relax markets, but also a new market with different features. Therefore, the current manager needs new competences.

Considering integrated service providers, the problem regards, not only the structural point of view, but also the organizational and managerial ones. In short, the possibilities of integrated services exist in the market but new firms should carry out new managerial strategies such as analyzing the characteristics of their current and future customers, defining their "budget" and making a strategic marketing plan conformed to the new service's features.

To sum up, one of the most important matter in the future management is the competences. The employees' knowledge constitutes one of the main competitive factors in the service provider industry. Human resources are the key to a profitable relationship marketing strategy. However, to achieve this aim it is necessary to train the entire

staff (from bottom to top) to improve the quality perceived (by the customers) and to manage their own “bit of service” in the customer oriented approach.

For well-being managers, once again, the challenge concerns the level of competences. They should not only develop technical knowledge but also “medical” and managerial knowledge. In addition, *they should know the consequences of the social impact of their business.*

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## End Notes

The present work is the result of the common work of the authors, however to Gian Luca Gregori is to accredit paragraph 1, 2 and 5 to Silvio Cardinali. 3, 4, 6 and 7.

<sup>2</sup>This trend has been confirmed by various research institutes: IHRSA (USA and European fitness market), Deloitte (UK and Germany fitness market), ISPA (USA SPA market), QLI and Censis (Italian well-being market), Diagonal Reports (different countries for beauty and wellness markets), Beauty on line (world's trend of beauty market) and others.

<sup>3</sup> As seen in the case of economics and leisure time marketing, the following affirmation can be shared: “if it is true that this area of investigation is multidisciplinary and interdisciplinary by nature, it can probably be affirmed that the attention of research experts on business enterprises to this subject has till now been less with respect to their attention to other subjects.” (Resciniti, 2002, 17).

<sup>4</sup>Various surveys have been carried out regarding this subject, such as those by: ISTAT, Eurispes, Censis, Quality Life Institute, Data Bank, Demoskopea etc.

<sup>5</sup>The main survey “I Centri Benessere in Italia” was conducted on 2.300 customers in 17 wellbeing centers of different formats situated in distinct Italian test-areas. These wellbeing centers were selected on the basis of the following criteria: size, location and annual sales. The employment of the selected test-areas by the above-mentioned criteria is one of the reasons for the non applicability of probability sampling. Nonprobability sampling was preferred also considering that the target population was not specifically determinable, both in terms of size and composition. Surveys were conducted through a structured questionnaire for the most part consisting of multiple-choice closed questions. The questionnaire was previously tested on a “pilot” sample of 30 customers in order to verify its suitability (Gregori 2005).

<sup>6</sup>The concept of a so intense well-being is laid down in evolutionary terms with respect to terms of health: if there is health without well-being, it cannot be the contrary (Gregori, 2005). In this perspective, it can be useful to turn to the definition given by World Health Organization (WHO), that defines health as a state of complete physical, psychological and social well-being and not just the absence of disease. Therefore, treatments such as surgical operations are excluded. Besides, in this context non-profit organizations and operators that have beneficial ends will not be taken into account.

<sup>7</sup>In this way, for instance, the Italian well-being industry targets around 30 million consumers, reaching a turnover of over 20 billion Euro in 2000, and employing over 173,000 operators.

<sup>8</sup>Source: Eurostat; IMF; EIU, Deloitte Analysis, IHRS. Note: \* The individual data for Europe is in average terms, consisting of data that was gathered for the individual selected countries. \*\*For Russia, only the population of the top 13 cities with over one-million inhabitants was used in the calculation.

<sup>9</sup>Adapted to “Il Nuovo Club”, n° 98, January – February 2006, Publishers “Il Campo.”

<sup>10</sup>Fitness First was founded in the UK in 1993 when its first club was opened in Bournemouth. Fitness First expanded in the UK. In 1998 Fitness First acquired 50% of the German based Fitness Company and a year later 50% of the Belgium company Passage Fitness. Later, the Group purchased the remaining 50% of both companies and founded subsidiaries in the Netherlands France, Italy and Spain.

<sup>11</sup>This strategy is followed by some manufacturing firms of well-being industry, to master this topic please refer to: McKechnie D. S.; Grant J.; Korepina V.; Sadykova N., *Women: segmenting the home fitness equipment market*, Journal of Consumer Marketing, Volume 24, Number 1, 2007.

<sup>12</sup>One of the specialized equipment manufacturers is Panatta Sport ([www.panattasport.com](http://www.panattasport.com)).

<sup>13</sup>The clubs offer short training (tone up muscles, cardiac exercises) for women (40-70 years old) and a personal diet after consultancy ([www.curves.com](http://www.curves.com)).

<sup>14</sup>Other authors Mauri (2000), Pilotti-Sedita (2002) I&D n3.

<sup>15</sup>Technogym’s “Wellness Trainer service” could be an example of this strategy ([www.technogym.com](http://www.technogym.com)).

<sup>16</sup>About Japan market: Harada, Muneiko “Towards a renaissance of leisure in Japan” Leisure Studies, October 1994.

<sup>17</sup>Please contact the authors for the full list of references.

# Study of the Effective Implementation of Change Management Strategies

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## Abstract

The dilemma faced by businesses today is managing its strategic change initiative efficiently and effectively. Businesses today have no choice but to set aside their differences and preconceptions and be prepared to manage change strategies effectively. This research intends to analyse the change initiatives of a bank. In view of initial preparations and noble efforts, the said bank's implementation effort was fraught with problems. This eventually led to the failure of the change strategy to achieve many of its objectives. It is concluded that any successful implementation should consider the impending resisting forces in addition to initiating activities the hearts and minds of its organisational members.

## Introduction

Change is inevitable in a rapidly expanding world. A primary difference between organisations that succeed and those that fail is 'the ability to respond to the pace of change' (Ulrich, 1997). It is no longer enough to adjust one change to compensate another; an organisation will have to handle all the challenges of change simultaneously. The political, economic, social, technological and ecological changes have made it difficult for an organisation not to respond; as ignorance of the obvious would be a threat to survival of the organisation (Brown, Harvey, 2006).

Therefore, for the purpose of this study, we will analyse the change management effort made by a bank in Malaysia, henceforth known as Bank A. Before proceeding with the analysis, we will analyse the existing literature on the subject of change and the various theoretical frameworks available. Next, we will analysis the driving forces faced by Bank A. Driving forces are anything that increases the inclination of an organisation to implement a proposed change program. They vary in intensity, ultimately creating the need for a change program or energise its initiation (Covington, 2002; Bishop, 2001).

Unfortunately, the implementation strategy advocated by Bank A seems fraught with problems; encountering strong resisting forces that result in a great loss of resources, time and cost. In understanding the root cause of the problems, we will then identify the essential elements that should be in existence in a successful change strategy. Recommendations were suggested to assist future organisations embarking on similar strategies.

## Literature Review

The earliest effort to understand the process of change comes from the work of Kurt Lewin. In the course of his research, he made two observations. First, change initiatives encountered strong resistance, even when there was general agreement on the goals of the initiatives. Second, even initiatives that appeared to overcome resistance and were successfully implemented were often short-lived, with the system returning to its previous state in a matter of months (Ancona, Kochan, Scully, Van Maanen, Westney, 2005).

These observations led Lewin (1947) to see organisations as highly resistant to change due to the 'human nature' of organisations (such as behaviour, habits, group norms) and because of organisation inertia. The inertia is created by a 'force field', which assumes the organisation is always in the state of 'quasi-equilibrium'. The force field consists of forces that exert pressures for change (i.e. internal environment such as social structures and processes including interest groups, communication networks, and the external environment), and other forces that create counterbalancing forces for stability (resisting forces). For successful organisational change, change initiatives must first disrupt the equilibrium process (unfreezing) before the change initiatives begins, and then



create a new equilibrium state that maintains the new condition (refreezing). Hence, using the thermodynamic metaphor of unfreezing-change-refreezing matter, Lewin sees the change process as a series of discrete episodes.

Lewin's research also reveals that 'unfreezing' is more successful if it is directed to reducing the forces that block change (resisting forces), rather than increasing the forces for change. He emphasise that increasing pressures for change often generates countervailing resistance, both at the individual and organisational levels, and this increases the anxiety and tension in the organisation. Removing or mitigating resisting forces often proves to be more effective in unfreezing an organisation and opening the way for change initiatives.

The study of organisational change was further captured in a three-stage model developed by Beckhard and Harris (1977). Beckhard and Harris pointed out that change initiative often focus primarily on the future state of the organisation i.e. what the organisation would look like, how things will work and what people will do when the change is completed. In addition, effective change also requires diagnosis of the present state of the organisation and proactive management of the transition state, where people learn to leave behind the old system and learn how to make the new system work.

According to Beckhard and Harris (1977), many change initiatives fail because management made assumptions about the current state of operations, about what groups and subunits will be most affected by the change, the attitudes of the managers and their people toward change, and each unit's capacity to make the proposed changes within the designated time frame. Therefore, a good diagnosis of the 'present state' of the organisation, specifically addressing all the issues by gathering and analysing data through a variety of means is required. This data gathering exercise sends signals across the organisation that some initiative is being planned (Schein, 1999). The questions, data gathering methods employed and perceived leadership employed in the process send further cultural and political signals, set expectations, and focus attention in ways that often have unanticipated consequences. People may gather to discuss views and raise issues not previously formed, and perhaps developed a shared view on the impending problems. This shared view can be completely different from the premises of the proposed change initiative, and can be difficult to dislodge (Ancona et al.2005).

Beckhard and Harris recognises that effective change initiatives involve also understanding the transition to the desired future state via special purpose structures (e.g. task force, pilot project, training course), processes (problem identification), and governance roles that are not part of the current organisation and will likely fade away as the goal of the change is achieved. Organisations should develop a transition team to manage the transition state. Using the current managers may be detrimental to the organisation as managers are often fully stretched with the tasks of current operations. One of the major challenges of the transition state is getting the commitment of key individuals and their units to the change plan, and therefore any transition team needs people who can mobilise the necessary resources, maintain the respect of both the current operating managers and the advocates of change, and have effective interpersonal skills (Beckhard and Harris, 1977).

Noel Tichy and Mary Anne Devanna (1986, 1990) identify the three distinct stages in the sequencing of organizational change by using the metaphor of the theatre to focus attention on the role of the change leader. The evolving role of the 'transformational leader' is explained in three acts:

Act I: Recognising the need for revitalisation (creating a felt need for change, overcoming political and cultural resistance to change)

Act II: Creating a new vision (diagnosing the problem, creating a motivating vision, mobilising commitment)

Act III: Institutionalising change

Leaders must realise what they do is seen and interpreted by the other 'cast' (the other actors in the change process) and by the audience (the rest of the organisation and key external constituencies). Leaders who act inconsistently 'on stage' and 'off stage' will quickly lose their ability to play an effective leading role. Therefore, successful leaders place a strong emphasis on symbolism, ritual and dramatic gesture that seize attention and focuses on the required changes.

In the evolutionary model of 'variation-selection-retention' (Hannan and Freeman, 1989; Aldrich, 1999), change is approach using an evolutionary biology model. Organisations are perceived to have frequent variation, but it is usually local and short-lived. Efforts to solve problems generate innovations, but these rarely spread,

because the selection regime signals out the various variations. Occasionally, a local innovation is picked up and tried elsewhere in the organisation, recognised as successful, and retained.

This offers some valuable insights. First, organisational inertia is not the same as a lack of change. Change is occurring all the time in organisations, as people try out new ideas, solve problems and bend rules. However, organisations these changes remain purely local or are ‘selected out’ and eliminated. Second, systemic forces that shape the fate of change initiatives are at play, especially the ones in the external environment, so that even the strongest commitment to change and the most gifted leadership may not succeed in the face of an adverse selection regime. Third, successful change is not always the result of planned change initiatives generated by top management. It can also be produced by local initiatives and experiments directed at problems that may seem to be local but which are in fact widespread in the organisation (Ancona et al., 2005).

The evolutionary approach highlights the need for organisations to develop a capability for increasing the level of local initiative in problem solving and experimentation (increasing variations) and to develop systems for identifying and disseminating the most successful initiatives (modifying the selection regime away from selecting for stability toward selecting for innovation (Ancona et al., 2005).

Peter Senge (1999) introduces the concept of the ‘learning organisation’; which translate the abstract models of evolutionary perspective into more specific organisational terms. In contrast to Lewin’s pioneering model, the learning organisation approach focuses on building capacity for continuing change and learning. The learning organization approach advocates ‘starting small’ with a small pilot team whose members share a recognition that a particular problem cannot be ‘fixed’ easily because it is symptom of deeper issues. Senge and his colleagues (1999) organise change in three stages: initiating the change effort, sustaining it, and redesigning and rethinking the larger system so that the learning from the pilot project is defused to the rest of the organisation.

TABLE 1: STAGE MODELS OF ORGANISATIONAL CHANGE

Author	Focus areas of change process	Change Models		
Lewin (1947)	Process	Unfreezing	Change	Refreezing
Beckhard and Harris (1977)	States	Present State	Transition State	Future State
Tichy and Devanna (1986)	Role of individual leader Transformational leadership	Act I Awakening	Act II Mobilising	Act III Reinforcing
Aldrich (1979, 1999)	Role of systemic forces	Variation	Selection	Retention
Senge et al. (1999)	Process Role of pilot teams	Initiating	Sustaining	Redesigning & Rethinking

Change strategies have always proved to be a challenge for management. To ascertain success of any change strategies, the management team must be open and alert to all forms of development; supported by an in depth understanding of the culture and operational processes of an organisation. Pettigrew and Whipp (1991) highlighted that strategic change does not move in a logical sequence of event. Instead it is constantly affected by changes in the firm’s environment. Management will frequently face ambiguity, as they explore the amalgam of economic, personal and political imperatives.

## Background

### External Driving Forces for Change

In our research, we will be analysing the change effort of Bank A. Bank A, a locally owned bank, has been operating in the Malaysia financial sector since the 1970s. It has a network about 80 branches nationwide, with total assets of about RM15.343 million as at end of 1998. The bank serves both retail and corporate customers via its many business units. For retail customers, it provides credit cards, personal loans, mortgages and deposit taking services (current, savings and fixed deposits) whilst for its corporate customers it offers corporations, institutional clients and small, medium-sized enterprises services in corporate banking, contract financing and trade finance.

In order to understand the driving forces of change for Bank A, it is important to understand the financial sector that it is operating in. The banking sector in Malaysia plays an important role as financial intermediary and is a primary source of financing for the domestic economy, accounting for about 70% of the total assets of the financial system as at end-1999. As a result, the Malaysian government (via its Central Bank, Bank Negara Malaysia, henceforth known as BNM) has always placed a great deal of attention and resources to its development.

Unfortunately, in 1997, the financial sector was badly jeopardised by the East Asia financial crisis. It had a snowballing effect, in which many local business face problems in repayment of loans in view of increasing interest rates and the unstable ringgit. The Malaysian government had to step in, instituting various measures. The government also realise the importance of establishing a resilient banking sector, which is both effective and competitive. Therefore, in 1998, the government decided to consolidate the fifty eight financial institutions (21 banks, 25 finance companies, 12 merchant banks) into ten anchor banks (Kawai, 2000; Goh, 2005).

The merger effort is also an attempt by the government to improve competitiveness, and ensuring survival, of the domestic banking industry in the face of increasing foreign competition in the future. The competition faced by banks is expected to be more rigorous following the agreement to open the financial market in Malaysia in 2007, under the General Agreement on Trade and Services (GATS) (Bank Negara Malaysia, 2001). Therefore, to compete on a level playing field with its foreign competitors, the domestic banking groups is expected to strengthen themselves via build up in capital size, business scale as well as investment in the information communication and technology and human talents to improve efficiency.

As the financial landscape evolves and competition intensifies, banks are required to respond to the changing market needs and shift from just the traditional products. Consumers are becoming increasingly discerning and demanding. As part of an effort to raise the quality performance in the financial sector, BNM initiated a nation-wide survey in 2003 to assess the requirements, expectations and satisfaction level of consumers on the quality of products and services offered by banking institutions. The survey findings reveal that banks needed to further improve customer relationship and address numerous needs of their customers. Customers are demanding quality service from bank staff; effective and efficient delivery channels (i.e. branch banking) and the ability to deliver effective service in transacting and the efficiency in application processing (Bank Negara Malaysia, 2004). In order to build the relationship with the customer, financial institutions would have to learn to rely lesser on consumer loyalty and more on its own creativity. It has become crucial for financial institutions to maintain powerful tools such as knowledge centres and databases with consumer information as they enable easy dissection and analysis that facilitate understanding of customers better whilst proactively searching ways to ensure service excellence.

The survey also reveals that the younger, middle-income individuals and the middle & higher income level groups (a growing customer segment) prefers to use ATMs and electronic channels in addition to demanding innovative, value added financial products and services (e.g. personalised advisory services). This signals another distinct challenge face by many organisations i.e. the changing consumer lifestyle and trends. Modern technology has empowered consumer with choices. The availability of one-stop financial portals and the ease and convenience of electronic banking has enable consumers to be connected online hence enabling them to control their own transactions and access huge amounts of financial information that will allow and encourage direct participation of retail consumers and even investors in the market.

Financial services sector is one of the single largest users of technology (BNM, 2004). Advances in information technology have made significant impact on banking operations. Competitiveness and globalisation demand enhancement in quality, flexibility, lower cost and faster response time. It is essential to devise new ways of reducing costs and maintaining customer loyalty by offering a broader range of value added services. The pressures for change also affected many of the players in the market; many are preparing themselves by increasing efficiency, improving its work processes, in addition to forming strategic alliance and mergers.

The rapid advancement of technology will continue to drive improvements in the banking system, particularly new technology with respect to information management systems (using direct marketing and effective data mining techniques), to improve key capabilities and operational processes, risk management (control risk better) and pricing (price products based on segmentation and credit history). Traditional financial institution, that merely focus on basic infrastructure through deployment of labour intensive work processes are already facing new

competitors that threaten to take away businesses through the introduction of more innovative solutions and more efficient delivery channels.

#### **Internal Driving Forces for Change**

The external driving forces for change are beginning to take a toll on Bank A, rendering it essential for Bank A to re-evaluate their situation. The steady stream of existing and potential customers that Bank A is used to; are becoming more sophisticated, not only demanding better and more innovative financial products, but also better, faster and more efficient service quality. Bank A is also beginning to re-evaluate its ability to deal with the challenges of tomorrow, particularly in areas such as current internal capabilities and resources.

Taking proactive measures to strengthen its position, Bank A initiated a series of initiatives to revamp its internal operations via information and communication technology (BNM, 2004). An integrated banking solution (called henceforth as Financial Information System or FIS) is purchased to replace the existing system (henceforth called BC), which has reached its peak in terms of capacity and storage. BC was implemented in the 1980s as part of the computerisation effort required by BNM and in many ways is technologically inferior to many of the current banking solutions available in the market. BC's deficiencies have resulted in many manual, non-value added activities and redundancies. Service is slow coupled; many records are kept manually, which inevitably resulted in the existence of human error and sometimes fraud. These elements have affected the Bank's competitiveness as it is unable to provide the level of service required by customer; resulting to the loss of its retail customers to bigger, more efficient banks.

Bank A's organisation structure (with BC) has branches performing many duplicating manual processes. However, with FIS various core branch operational areas can be automated. In order to tap into this capability, Bank A intends to centralise selected operational and loan processing activities (especially in areas like the management of overdraft and collateral information). Branch will be receiving centralised support from Head Office in many of its activities; allowing it to focus its attention on providing personalised service to its customers.

Bank A also hopes to instil a new working culture and to promote cost-effective banking. The Bank's existing culture has a high degree of control and protocol. Its many layers of bureaucratic red tape have also affected service quality. With the centralisation of certain core activities, Bank A intends to restructure its human resources. There will be activities to re-skill the staff in new areas, whilst some may also be transferred to undertake new duties in the centralised units. These demand some degree of cultural changes in working attitudes and mindset.

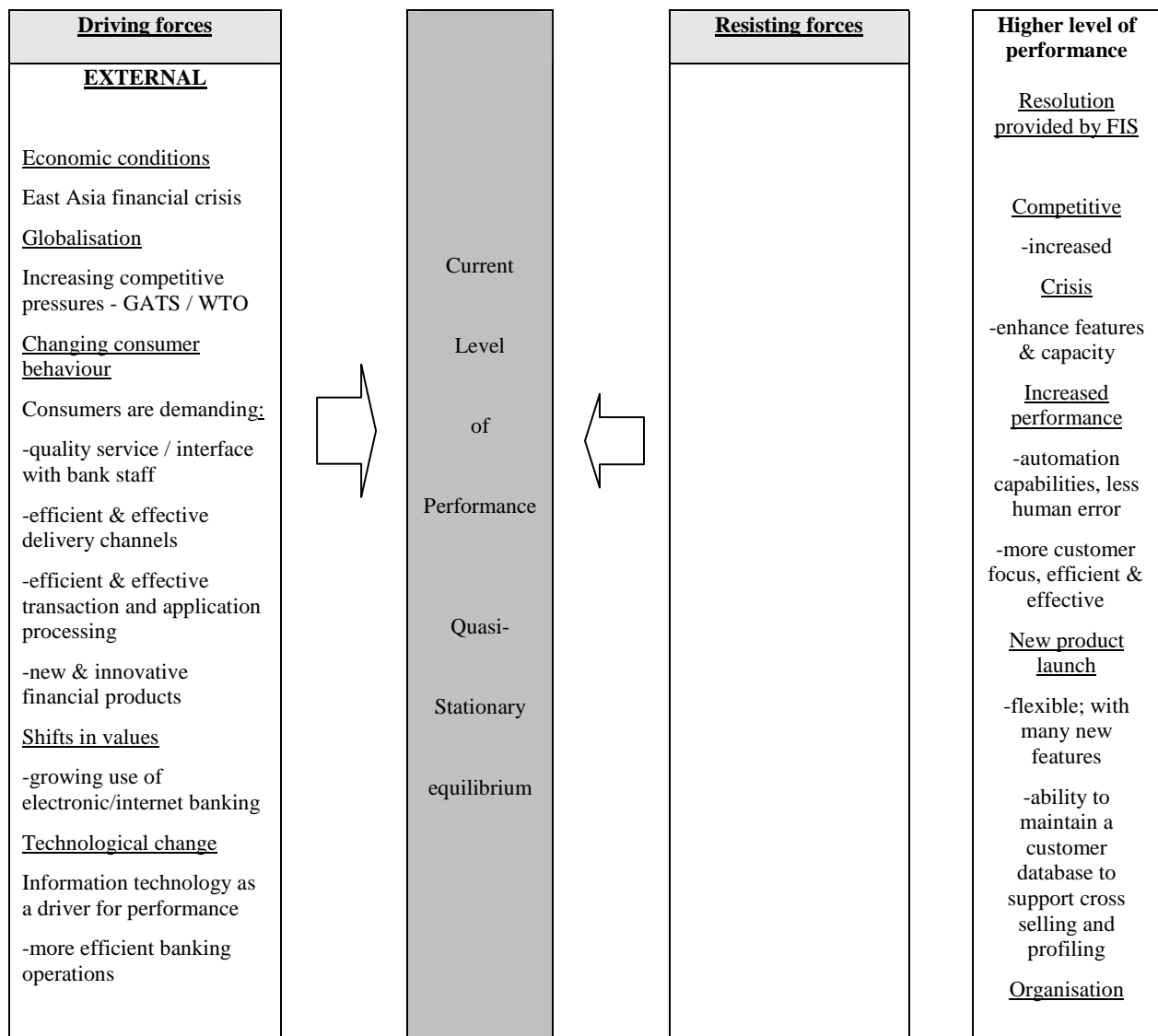
In order to be competitive, Bank A realises the importance of providing a variety of innovative products for its customers (BNM, 2004). Under BC, the range of financial products and services that Bank A is limited to the traditional conventional deposits and loans products. FIS, however, offers many features and functionality, enabling it to respond effectively to market demands. It also has extensive product parameters which support more efficient time to market product launch. Some examples of the functionalities that are being positioned include combined statements, sweep facility, GIRO services and automated service charging. This will enable the bank to compete more effectively; increase the level of customer service, promote cross-selling and enhance product merchandising at branches.

In addition, with BC, most of the information is maintained manually via handwritten application forms meant for opening of accounts. However, FIS allows the Bank to identify its customer through an integrated customer profile, making it essential that an integrated database is maintained. Although a tedious exercise, Bank A has to begin converting the information into an electronic database of depositors and borrowers for future product development and cross selling. This will also help in product marketing and development; as it adopt a more customer-driven approach in developing products and conducting market activities in addition to maintaining service excellence.

While genuine effort was demonstrated by Bank A, the change exercise would be tedious. A total change of the system use in any organisations would naturally also demand changes in processes, procedures and policies (BNM, 2004). For Bank A, these are necessary adjustments in operations for it to capitalise on the opportunities offered by an enhanced operating environment. Bank A realise that a complete review of current processes, procedures and policies is necessary to achieve increased customer service quality, improved productivity, cost

reduction and even elimination of non-core processes. FIS demand a change in all activities of the bank, mandating it to detail a strategic plan to undertake the changes required in both non-technical and technical matters in the bank.

Before implementation of any systems, it is essential to have a detail plan outlining all the changes in hardware and software and an integrated user acceptance test (UAT) to test the capabilities of the various functions of FIS. This will ensure that the new system is not only able to meet with the bank's current requirements but also its future needs. The technical plan involved a conversion period before branches go 'live' with the new system. During this period, training would be provided to core personnel so that they will be able to handle and trouble shoot any impending problems that would arise. In addition, bank-wide exercises will be initiated where all branches and divisions will enter a pre-defined subset of the day's actual transactions into FIS to test the environment with the new policies, procedures and reports in order to ultimately develop familiarity before actual production runs begin. The simulation runs will demand participation from all branches, centralised support groups, Computer Operations Unit and Management.



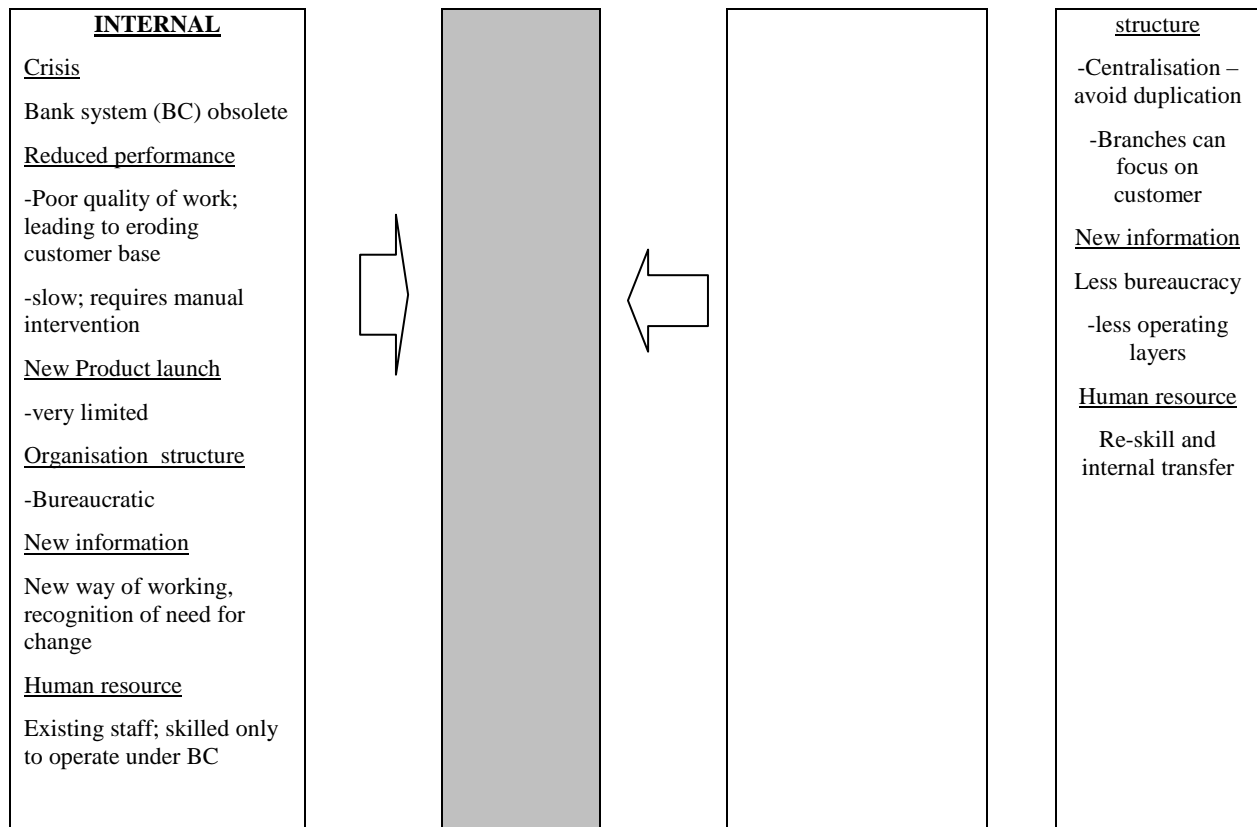


FIGURE 1: FORCE-FIELD ANALYSIS FOR BANK A

### Challenges Faced

FIS is expected to counteract the driving forces for change. However, on the third year of the project implementation, in a review of the effectiveness of the change program, several inadequacies of the project were uncovered. FIS had failed to meet the higher level of performance that Bank A hopes. It exceeded the budget set, several activities did not meet the deadlines whilst some activities scheduled undergo periods of technical failure.

Shareholders of Bank A were also unhappy with the drop in profit before tax of about 8% in 1998, and the loss margin of above 10% in 1999. In 2000, it reported a loss margin of above 50%, necessitating an injection of capital by its shareholders (Goh, 2005). The financial ratios (profit margin, asset utilisation, return on equity) also show a decreasing trend. Shareholders were informed that the drop was due to lower interest income and higher overhead expenses (which has increased about 22% from 1998-99), as the bank was focusing on human resources and information technology development.

FIS is expected to increase the efficiency and effectiveness of Bank A's internal procedures with its automation capabilities and added features and capacity. Instead, Bank A's branches received complaints from customers ranging from inaccurate statements received to long waiting periods taken in order to rectify their problems. These problems are attributable to technical errors or glitches, and are mainly system related. Staff frequently have to troubleshoot the problems arise and develop temporary solutions. Sometimes these temporary solutions have a negative impact on the efficiency and effectiveness of the operational activity in question and therefore it is essential that immediate action be taken to rectify the situation.

Bank A hopes that the added unique capabilities of FIS would enable it to provide innovative products and services to its customers. Unfortunately, many of the new products and services were never launched as they failed to function properly at testing stage due to various technical problems. The Product Marketing and Development

team were also hesitant to launch the new products in lieu of the technical problems experience with the existing products. After much consideration, Management took steps to focus all efforts on solving and troubleshooting the problems raised by the system before exploiting the system's flexibility in product design and packaging.

In its effort to build efficiency within the organisation, Bank A has taken steps to centralised selected activities. The objective is to avoid duplication of work (similar tasks by the branches); that can be undertaken more effectively by a centralised unit. This will reduce the workload at branches so that these distribution channels can focus on providing personalised services to the customers.

Unfortunately, the role of the centralised units were not clearly outlined and communicated. As a result, there were confusion in the dissemination of information and work, creating delays and additional paperwork. In addition, branches also faced delays as the administrative functions are undertaken by the new centralised units. This unintended bureaucracy has also caused increased paperwork, manual follow up and anxiety. This overspill leads to a snowballing effect.

Bank A realised that in implementing FIS, the existing staff force will have to be re-skilled. Therefore, part of its change program is then to train its existing workforce with the new system. These training programmes were initiated before the system goes live. The programmes, therefore, did not envision the peculiarity or severity of the arising problems. This situation, coupled with the fact that several queries raised during training sessions could not be resolved; resulting in a state of confusion when the system actually goes online.

The training programmes initiated adopted a 'train the trainer' method; where selected core staff were trained and expected to drive the change at their level. However, when the system goes 'live', it was discovered that the people selected for training were not the core staff, and was unable to train others or fully understand the system. Instead the core staff, were sometimes deployed elsewhere (i.e. to the centralised units) to resolve more crucial problems.

With the new organisation structure (i.e. new centralised units and a more customer focus branch), staff will be deployed and retrained in their new areas of interest; with a clear career path mapped out. Unfortunately, although interview sessions was conducted with the staff to address these issues; most were not sent to the areas of their interest nor were they given any training in the areas they were actually sent to. Instead, staff complained of the arising operational and system problems encountered, lack of clear guidelines and the increasing delay in processing at the centralised units. This undoubtedly has caused frustration and dissatisfaction among staff; resulting in high personnel turnover, as many were demoralised and resigned. Those that remain had no choice but to participate in a project that they were not committed or motivated to give their best.

Bank A's implementation effort also reveals symptoms of resistance among staff. Project members would refuse work, request transfers, and some even air their grievances in public.

TABLE 1: EXPECTED PERFORMANCE AND PROBLEMS ENCOUNTERED WITH FIS

Expected performance of FIS	Problems encountered
<p><u>Increased performance</u></p> <ul style="list-style-type: none"> <li>-automation capabilities, less human error</li> <li>-more customer focus, efficient &amp; effective</li> <li>-enhance features &amp; capacity</li> </ul>	<p>Technical problems encountered – increase in customer complaint e.g. long waiting period to resolve problem, inaccurate statements &amp; balances</p> <p>Reports of delay as branch face problems in troubleshooting existing problems and additional paperwork.</p>
<p><u>New product launch</u></p> <ul style="list-style-type: none"> <li>-flexible; with many new features</li> <li>-ability to maintain a customer database to support cross selling and profiling</li> </ul>	<p>Could not launch new products (failure at testing stage). Existing resources redirected to troubleshooting problems arise with existing problems</p>
<p><u>Organisation structure</u></p> <ul style="list-style-type: none"> <li>-Centralisation –avoid duplication</li> <li>-Branches can focus on customer</li> <li>-less operating layers</li> </ul>	<p>Role of centralised units were unclear, created delays and additional paperwork</p> <p>Staff not trained, and were unable to handle the initial load of work</p>
<p><u>Human resource</u></p> <p>Re-skill and internal transfer</p>	<p>No clear career path</p> <p>Staff were transferred to areas they do not have competencies</p> <p>High turnover staff / vendors</p> <p>Training</p> <ul style="list-style-type: none"> <li>–targeted at wrong groups</li> <li>-unable to resolve queries raised</li> <li>-not trained at trouble shooting/resolve problems</li> </ul>

**Resistance to Change**

Organisations today face a major challenge in managing change effectively. The cost of failure is high when organisations fail to change in ways necessary for survival. However, the most serious challenge in change programs today is that the constantly changing environment must deal with people’s resistance to change (Brown & Harvey, 2006). Most advocates of change assume that support will be imminent because the objectives for change are worthwhile, but sometimes this does not happen (Brown & Harvey, 2006).

In most cases, the severity and complexity of change compounds the challenges faced by managers, frequently severely testing the capabilities of managers and members. If the required changes are small or isolated, they can usually be accomplished without major problems. However, when the changes are on the larger scale and involve many individuals and subunits such as the ones encountered by Bank A, problems of many kinds may



emerge. In their attempt to resolve these problems, managers may initiate corrective actions that often affect patterns of work or values, and consequently meet with resistance. Unless members prepare themselves emotionally for change, the sheer speed with which change occurs can be overwhelming (Brown & Harvey, 2006).

Resistance from individuals and groups come in many forms such as controversy, hostility, and conflict, either overt or covert (Brown & Harvey, 2006). Some openly defend the status quo and aggressively challenged the credibility of any change proposals whilst others are more discreet, where they may feign co-operation while covertly seeking to jeopardise the change programme. There is even the possibility of passive bystanders; not fully understanding or comprehending the rationale for the change. What is evident is that this resistance to change would tend to move through a life cycle (Watson, 1967), as shown in Table 2. Some phases may be brief, omitted or repeated. In sustaining change, each phase is important especially the last phase in the life cycle; if it is not solidified, the change process will move into the first phase again.

TABLE 2: THE LIFE CYCLE OF RESISTANCE TO CHANGE (ADAPTED FROM WATSON, 1967)

PHASE	1	2	3	4	5
Resistance to change	Resistance appear to be massive; supporters are openly criticized to force conformance	The forces for and against change becomes more identifiable.	Direct conflict between forces for and against change.	If the supporters are still remaining after the decisive battles, they must deal with the remaining resistance. Ignorance of this impending threat may shift the balance of power to the resistance.	Few resistance; signs of a successful change program. However management must still be vigilant of impending threats, to avoid returning to the first phase again.
Risk of failure in change program	High	Greater understanding for change may lessen the threat for change	Could mean the life of death of the change effort	Will need to deal with the remaining resistance to ensure success of program.	Very low risk of failure.

Change efforts have always faced resistance (Pettigrew and Whipp, 1991; Gratton et al, 1999). People resist change as it poses a threat to routines and many do not want to lose the security of what is familiar to them. The familiar is preferred, especially if the established behaviour has been successful. Situations that are in conflict with the old attitudes are altered and perceived in a way that is congruent with them (Brown, Harvey, 2006). At an organizational level, resistance can come from three sources (Tichy, 1993). Technical resistance comes from the habit of following common procedures and the consideration of sunk costs invested in the status quo. Political resistance can arise when organisational changes threaten powerful stakeholders, such as top executive or staff personnel, or call into question the past decisions of leaders (Macri, Tagliaventi & Bertolotti, 2002). Organisation change often implies a different allocation of already scarce resources, such as capital, training budgets, and good people. Finally, cultural resistance takes the form of systems and procedures that reinforce the status quo, promoting conformity to existing values, norms and assumptions about how things should operate.

For Bank A, the familiarity with routine have seep deep into the psychology of its organisational members; making them unwilling to give up familiar tasks or relationship. Many feel comfortable doing things the same way as always, i.e. they have all establish their 'comfort zone'. As a result, sometimes people may even conveniently forget some learning experiences if it is in conflict with present behaviour (Brown, Harvey, 2006). This could be the principle reason some of the training and learning effort initiated by the bank did not result in the knowledge transfer it desired.

Fear of the unknown and ignorance of how the change (Brown, Harvey, 2006) would benefit the employees creates resistance to some of Bank A change efforts. Any proposed change would be more readily accepted if it promises to benefit those affected by it. Otherwise, the lack of information or understanding leaves a vacuum that is filled by rumour, speculation and insecurity. In this case, the aspiration and motivation to change felt by top management did not cascade to the lower operating level as there appears to be an absence of clear communications channels. The resistance can be traced back to the planning stage, where the change programme's objectives and strategy were not communicated effectively. At this stage, an efficient distribution of information to create awareness of the details and consequences of proposed changes is essential. In addition, there were no mechanisms to disseminate or receive feedback at every stage of the change process. In pushing through the change programme, the lack of a clear and transparent channel of communication had led to certain groups, and parts of the organisation policies and processes to be neglected; further jeopardising the situation.

When managers and employees resist change, it is for a reason. The change is perceived by them as a threat (Stone, 2005). Threat could come in the form of job security, such as loss of job, reduced promotional potential, career opportunities, reduced wages or benefits, or even greater job demands. Among the many attributes of FIS, is the automation of many manual processes. Should FIS be successfully implemented, the possibility of job restructuring and possible lay off or transfers cannot be discounted.

TABLE 3: COMMON REASONS FOR RESISTANCE TO CHANGE

Sources of resistance	Causes of resistance	Possible solutions
Contentment	Desire status quo Maintain minimum productivity 'We're doing just fine' Comfortable with routine	Create new experiences Redesign job tasks Job rotation Consider termination
Internal tension	Struggle for power Weak management Lack of purpose/direction Values conflict	Provide strong leadership Establish shared vision Conflict management Re-engineer total organisation
Fear of the unknown	Natural suspicion Lack of skills/knowledge Unfamiliarity with change Normal situation disrupted	Communicate early and often Provide skill training Tie traditional values with change Provide prompt feedback to questions Inform, tell and demonstrate Pace changes to reduce fear
Threat to value system	Values deeply entrenched Individual autonomy in danger Corporate culture resists change Change not consistent with values	Respect individual dignity Top management reinforces corporate values Permit disagreement / foster understanding Align change with corporate values and mission
Loss of power	Diminished decision-making Career opportunities limited Change in group composition Job design revision Organisational structure realignment Labour cutbacks Personnel shifts	Seek maximum involvement Provide career and personal counselling Offer little threat to job security Provide transfer or retraining Match personnel with job requirements
Scepticism	Perpetual disbelievers and doubters 'It sounds good but it won't work here' History of poor change experiences Natural state of mind Suspect weaknesses in change project	Align change with needs and improvement Delegate responsibility / stimulate active involvement Request ideas on proposed change Manage planned change successfully Involve in pilot test to demonstrate change
Protectiveness	Requires changes in work situation Parochial self-fulfilling interests	Skill training or retraining Require new work experiences - responsibility

Sources of resistance	Causes of resistance	Possible solutions
	Status quo disrupted Satisfaction with routine behaviour Change requires new skills 'Invisible wall' around job	Personal counselling
Improper timing	Conflict with present organisational activities Overlaps other corporate changes Unavailable resources Organisational commitment is lacking Market conditions are not right	Synchronise change with total corporate operations Gain maximum support for change before implementation Monitor external environment to ensure correct timing Ensure resources are sufficient for change
Lack of organisational support	No top management support Inadequate financial, technical, equipment, supplies Perception of increased workload - lack of manpower resources	Stress top management support for change - make it visible Changes reduce and not increase work loads Make financial, technical and human resource support a priority before, during, and following a change project
Need for security	Possibility of job loss / change Requires new skills and knowledge	Ensure employees realise training and skill development is available Thoroughly communicate and orient employees early on the total changes being made Maintain the respect and dignity of all employees Ensure that under normal change conditions, no loss of jobs, retraining or transfers occur
Contentment	Desire status quo Maintain minimum productivity 'We're doing just fine' Comfortable with routine	Create new experiences Redesign job tasks Job rotation Consider termination
Lingering bitterness	Employee angry with supervisor/management Unpleasant previous change experience Feelings of unfair or unjust treatment Force used in the past for change efforts	Give immediate attention and solve employee problems Forcing change is the last resort - follow managed planned change guidelines for success Listen to employees concerns - treat them fairly and with respect Solve past grievances between employees/management before initiating change Constantly maintain an open and honest dialogue with workers
No incentives	Little rewards for changing More work involved 'What's in it for me?' Loss of power Job security is threatened Personal costs outweigh benefits	Build incentives and rewards into change from the beginning Personalise change efforts - stress benefits of change Change should reduce workload - not threaten job security
Lack of self-confidence	Absence of ability to cope with change Fear that new skills will be required Uncertainty of personal worklife Poor adjustment skills - low self-esteem	Communicate change early, in simple language Incorporate change in gradual phases - pace the change Provide training on developing positive self-esteem Follow up periodically Use personal counselling to assure the employee's self-confidence
Insufficient trust	Poor communication among management / employees Misunderstanding of changes Suspicion of corporate motives	Establish and maintain open, honest communication throughout the change process Permit the exchange of ideas regarding change Demonstrate careful problem diagnosis and a well-organised planned change effort
Lack of understanding	Little knowledge of 'new' technology	Provide training and appropriate education

Sources of resistance	Causes of resistance	Possible solutions
	Poor communication channels Management 'guarding' change details Gap between present/future skills	Communicate full implications of change through a variety of sources Plan change in deliberate, simple steps
Inadequate skills	Job skills lacking Gap in technical knowledge	Maintain quality training and retraining programmes geared toward 'new' technology

Effective change programs try to increase the driving forces towards acceptance of change and simultaneously decrease the restraining forces blocking change (Judson, 1991). This is similar to the force-field analysis model developed by Kurt Lewin (1974). If the equilibrium point in change is to be shifted to the desired goal, strategies must be implemented that decrease the strength of the restraining forces and concurrently increase the strength of the driving forces. Lewin's research also reveals that reducing the forces that block change, rather than increasing the forces for change would increase the chances of success of the change initiatives introduced.

#### Strategies to Lessen Resistance to Change

Resistance to change is a signal that something is not working in the implementation of the change program. The signals include delays and inefficiencies, failure to produce anticipated results, or even efforts to sabotage the change program.

Traditionally, change management has focussed on identifying sources of resistance and offering ways to overcome them (Kotter & Schlesinger, 1979; Ricardo, 1995; Armenakis, Harris & Mossholder, 1993). However, recent contributions to this area has challenged the focus on resistance and instead aim at creating visions and desired futures, gaining political support for them and managing the transition of the organisation towards them (Dent & Goldberg, 1999; Weisbord, 1987; Beckhard & Harris, 1987; Beckhard & Pritchard, 1991; Collins & Porras, 1994; Conger, Spreitzer & Lawler, 1999).

The diversity of activities contributing to effective change management is listed in Table 4. Each activity represents a key element in change leadership (Conger, Spreitzer & Lawler, 1999) and its related theoretical framework. Table 4 also enumerate a list of sub activities and some considerations for an organisation embarking on change management.

TABLE 4: ACTIVITIES CONTRIBUTING TO EFFECTIVE CHANGE MANAGEMENT

Activities	Sub activities	Theoretical framework	Checklist of considerations
Motivating change	Creating Readiness for Change	Lewin (Unfreezing)	<ul style="list-style-type: none"> <li>▪ Stimulate awareness of pressures to change</li> <li>▪ Instil discontent - status quo. Reveal discrepancies between current and desired states</li> <li>▪ Begin where stress exists</li> <li>▪ Focus on desired future and present positive expectations for future</li> </ul>
	Overcoming Resistance to Change	Lewin (Unfreezing)	<ul style="list-style-type: none"> <li>▪ <u>Defuse Resistance</u> Expect and plan for resistance Identify factions (groups/ individuals/ management team) which may be hesitant to change and their rationale Investigate and alleviate areas of concern Utilise resistance for stabilisation</li> <li>▪ <u>Warm the Atmosphere</u></li> </ul>

Activities	Sub activities	Theoretical framework	Checklist of considerations
			<ul style="list-style-type: none"> <li>Commit maximum resources</li> <li>Maintain high morale and constant communication</li> <li>Encourage participation</li> <li>Develop good rapport</li> <li>Celebrate success</li> </ul>
Creating Vision	Describing the Core ideology	Lewin (Unfreezing)	<ul style="list-style-type: none"> <li>▪ Initiate active discussion on organisation's core ideology</li> <li>▪ Recognise power of the core ideology in motivating organisation members</li> <li>▪ Relate change to core values</li> <li>▪ Communicate / seek feedback</li> </ul>
	Constructing the Envisioned Future	Lewin (Unfreezing)	<ul style="list-style-type: none"> <li>▪ Recognise power of core values in constructing a vision of the future</li> <li>▪ Communicate clear, bold and valued outcomes of desired future, with specific performance and human outcomes that are achievable?</li> <li>▪ Relate change to desired future state</li> <li>▪ Ensure the envisioned future is compelling and emotionally powerful enough to inspire and motivate</li> </ul>
Developing Political Support	Assessing Change Agent Power	Lewin (Unfreezing)	<ul style="list-style-type: none"> <li>▪ Identify the various sources of power and power strategies</li> <li>▪ Identify areas needed to enhance sources of power</li> <li>▪ Tap in on the informal networks for resources and support</li> <li>▪ Encourage subordinates to exercise power in support of change.</li> </ul>
	Identifying Key Stakeholders Influencing Stakeholders	Lewin (Unfreezing)	<ul style="list-style-type: none"> <li>▪ Identify key stakeholders</li> <li>▪ Involve them - shape the vision</li> <li>▪ Using the power bases and strategy identified to persuade stakeholders on the necessity of change</li> <li>▪ Employ meaningful involvement</li> <li>▪ Use small cohesive change group</li> <li>▪ Maintain open communication</li> </ul>
Managing the transition	Activity Planning	Lewin (Change)	<ul style="list-style-type: none"> <li>▪ Have a detail plan for change</li> <li>▪ Use partial or pilot test</li> <li>▪ Use partial steps - pace activity</li> <li>▪ Encourage learning / discourse</li> <li>▪ Problem-solve obstacles</li> </ul>
	Commitment Planning	Lewin (Change)	<ul style="list-style-type: none"> <li>▪ Identify commitment/motivation level of key personnel i.e. enthusiastic /committed / visible support</li> <li>▪ Investigate if the organisational</li> </ul>

Activities	Sub activities	Theoretical framework	Checklist of considerations
			'grapevine' or 'rumour mill' support or resist the change and the rationale
	Management Structures	Lewin (Change)	<ul style="list-style-type: none"> <li>▪ Involve people with power to mobilise resources to promote change</li> <li>▪ Provide the existing leadership and change advocates with clear guidelines</li> <li>▪ Use interpersonal and political skills to guide change process</li> </ul>
Sustaining Momentum	Providing Resources for Change	Lewin (Refreezing)	<ul style="list-style-type: none"> <li>▪ Analyse the specific types of management and employees resources / skills / training needed for change</li> <li>▪ Ensure the extra resources required is readily available</li> </ul>
	Building a Support System for Change Agents	Lewin (Refreezing)	<ul style="list-style-type: none"> <li>▪ Identify a network of conceptual and emotional support</li> </ul>
	Developing New Competencies and Skills	Lewin (Refreezing)	<ul style="list-style-type: none"> <li>▪ Establish feedback mechanisms</li> <li>▪ Help develop skills-train employees</li> <li>▪ Seek learning and improvement</li> </ul>
	Reinforcing New Behaviours	Lewin (Refreezing)	<ul style="list-style-type: none"> <li>▪ Link formal rewards directly to desired behaviours</li> <li>▪ Identify early success to reinforce change</li> <li>▪ Ensure ongoing evaluation</li> </ul>
	Staying the Course	Lewin (Refreezing)	<ul style="list-style-type: none"> <li>• Constantly reinforce /review the change process</li> <li>• Be patient – some elements of failure may be experience</li> <li>• Strong and persistent leadership is required to ensure the organizational success</li> </ul>

The first activity involves motivating change and includes creating a readiness for change among organisation members and helping them address resistance to change. Organizational change involves moving from the known to the unknown. The future is uncertain and may adversely affect people's competencies, worth, and coping abilities, therefore, organisation members generally do not support change unless compelling reasons convince them to do so. Similarly, organisations tend to be heavily invested in the status quo, and they resist changing it in the face of uncertain future benefits. Therefore, leaders must create an environment in which people accept the need for change and commit physical and psychological energy to it. Motivation is a critical issue in starting change because ample evidence indicates that people and organisations seek to preserve the status quo and are willing to change only when there are compelling reasons to do so.

To create the reasons for change, many leaders strive to create a state of dissatisfaction with status quo. Initial resistance to change are bound to arise, and it is only by making staff realise the necessity of letting go the status quo that a change programme can be truly effective. In order to create this state of dissatisfaction, it is essential to sensitise the organisations to the forces for change (Cummings & Worley, 2005). Organisations can

make themselves more sensitive to pressures for change by encouraging leader to surround themselves with devil's advocates (Cosier & Schwenk, 1990); by cultivating networks that comprise people or organisations with different perspectives and view; by visiting other organisations to gain exposure to new ideas and methods, and by using external standards of performance, such as competitors' progress or benchmarks (Walleck, O'Halloran & Leader, 1991).

Another strategy used to convince people that change is necessary is by disconfirmation, i.e. giving people information that makes it clear the current situation either isn't what it should be or isn't what they thought it was (Burke, 1987). For this strategy, benchmarking is used, where comparable industry numbers are used to judge performance. Another common technique used is the disaster scenario - presenting people with the likely result of business as usual. This is an effective wake-up call; provided it is not oversold as it can cause panic. Therefore, if this exercise is used, a balance should be maintained between optimism and a sense of urgency. Significant discrepancies between actual and ideal states can motivate organization members to initiate corrective changes, particularly when members are committed to achieving those ideals. Organisations may convey credible positive expectations for the change. Expectations play an important role in generating motivation for change (Eden, 1986; Cooperrider, 1990). Expectations can serve as a self-fulfilling prophecy, leading members to invest energy in change programs that they expect will succeed. When members expect success, they are likely to develop greater commitment to the change process and to direct more energy into constructive behaviours needed to implement it. The key to achieving these positive affects is to communicate realistic, positive expectations about the organizational changes (Eden, 1986; Szamosi & Duxbury, 2002).

Change can generate deep resistance in people and organisation, hence making it difficult to implement organizational improvements (Kotter & Schlesinger, 1981; Strebler, 1996; Piderit, 2000; Trader-Leigh, 2002). At a personal level, change can arouse considerable anxiety about letting go of the known and moving to an uncertain future (Neck, 1996; Cox, 1996). People may be unsure whether their existing skills and contributions will be valued in the future, or have significant questions about whether they can learn to function effectively and achieve benefits in the new situation. However, when taken positively, resistance can serve as an internal check and balance procedure to ensure that management makes quality change decisions. If manage successfully, people will begin to believe the reality and legitimacy of change and over time the organisation will gain support of its change effort.

Therefore to overcome resistance, there are several strategies that can be adopted (Kirkpatrick, 1985). The first strategy involves learning how people are experiencing change. This strategy can identify people who have a problem accepting the change, the nature of their resistance, and possible ways to overcome the resistance. It demands a great deal of empathy and support, understanding the situation from another's perspective. When people feel that those responsible for change are genuinely interested in their feelings and perceptions, they are likely to be less defensive and more willing to share their concerns and fears. This also provides basis for joint problem solving that is essential to ensure success in a change program (Cummings & Worley, 2005).

People resist change when they are uncertain about its consequences. Information concerning what and why of the change program should be provided to all organisation members, as the lack of reliable information will lead to rumours and uncertainty (Brown & Harvey, 2006; Cummings & Worley, 2005). There should be an interactive channel of communication to give and receive feedback. Once the change strategy is determined, it should be communicated to the staff via simple, tangible presentations or using symbols and language systems to insinuate its objectives.

In a survey of 1,500 senior executives from 20 countries commissioned by Fortune magazine, 89 percent believed that the need to communicate frequently with employees will be one of a CEO's top characteristics, compared to 59 percent saying that it is the top characteristic (Korn, 1989). Successful CEOs and their top managers spend incredible amounts of time meeting with people one-on-one, in small sessions, and in massive group meetings. Communications techniques used in a co-ordinated effort to describe where the organisation is headed, will indirectly establish a sense of urgency for change (Brown & Harvey, 2006). Organisations must manage communication well; as; although it is one of the most frustrating aspects of managing change (Cummings & Worley, 2005); it is essential to build trust; ensuring opposition to change disappears once the fears it generates are explained away.

Another strategy to be adopted to overcome resistance to change is to engage organizational members in the change process, especially in the planning and implementation activities. A sense of ownership would then develop, along with a sense of accomplishment from making the change activities work (Brown & Harvey, 2006). In addition, participants may also have some good contributions. People may offer different perspectives and insightful ideas that can actually improve upon the original plan (Cummings & Worley, 2005). Staff involved in the change process will also be more likely to understand and hear important messages; enabling them to speak in unison when explaining the change process to others who weren't involved. Moreover, for people with strong needs for involvement, the act of participation can be motivating, leading to greater effort to make the changes work (Cummings & Molloy, 1977).

In order to build participation, the organisation may wish to start with a small, trusted, cohesive group, getting the people in that group totally committed to the vision and objectives of the change strategy, then let them gradually engage successive groups of people, constantly pushing the participation out into the organisation. Another effective way to gain support and participation in the campaign for change is to employ leader behaviour to create support. The visible actions of respected leaders are crucial to creating widespread support. People are keenly aware of the various signals sent out during the transition period. This would be a period of intense leader-watching, simple acts can send similarly powerful messages in support of change. Therefore, it is important for leaders such as the CEO and top management to send powerful messages not only through its communication with the staff, but via its behaviour and support. It is normal for organisational members to observe their leaders at this transition period to search for possibility that not everyone in management supports the change, and change isn't a foregone conclusion. Therefore, it is essential for managers to make sure that every action and utterance is consistent with the change agenda.

The second activity is concerned with creating a shared vision, in which must be driven from the top, namely by the CEO. Vision provides a purpose for change and describes the desired future state. This helps to define the core activities in a planned change program. Recent research also suggests organisations with carefully crafted visions can significantly outperform the stock market over long periods of time (Collins & Porras, 1996).

Compelling visions are composed of two parts (Collins & Porras, 1996); i.e. a relatively stable core ideology that describes the organisation's core values and purpose; and an envisioned future with bold goals and a vivid description of the desired future state that reflects the specific change under consideration. Articulating the core value and purpose is important; as the process organisational members spend on discovering these values provide guidelines for strategic choices that will work and can be implemented. The core ideology also provides the context for an envisioned future. Unlike core values and purpose, which are stable aspects of the organisations and must be discovered, the envisioned future is specific to the change project at hand and must be created. It also varies in complexity and scope; emphasising bold and valued outcomes and a desired future state; which seeks to create an emotionally powerful vision that will motivate organisational members to change (Collins & Porras, 1996).

The third activity involves developing political support for change. Organisations are composed of powerful individuals and groups that can either block or promote change, and leaders and change agents need to gain their support to implement changes. Attempts to change the organisation may threaten the balance of power among groups, thus resulting in political conflicts and struggles (Nadler, 1987). Those whose power is threatened by the change will act defensively and seek to preserve the status quo. However, participants who will gain from the change will push heavily for them, seeking to legitimise the need for change. Therefore, it is important to gain the support of key power groups and opinion makers via their involvement and active commendation. This should begin well before the change is announced.

The fourth activity is concerned with managing the transition from the current state to the desired future state. It involves creating a plan for managing the change activities as well as planning special management structures for operating the organisation during the transition. Beckhard and Harris (1987) identified three major activities and structures to facilitate organisational transition: activity planning, commitment planning, and change-management structures. Activity planning involves making a road map for change, citing specific activities and events that must occur if the transition is to be successful. Activity planning should gain top management approval, be cost effective, and remain adaptable as feedback is received during the change process (Cummings & Worley, 2005).



Commitment planning involves identifying key people and groups whose commitment is needed for change to occur and formulating a strategy for gaining their support. Although, commitment planning is generally part of developing political support, specific plans for identifying key stakeholders and obtaining their commitment to change need to be made early in the change process.

Due to the ambiguous nature of the organizational transition state, special structures for managing the change process need to be created. These management structures should include people who have the power to mobilise resources to promote change, the respect of existing leadership and change advocates, and the interpersonal and political skills to guide the change process.

The fifth activity involves sustaining momentum for change so that it will be carried to completion. This includes providing resources for implementing the changes, building a support system for change agents, developing new competencies and skills and reinforcing the new behaviours needed to implement the changes. Providing resources for change is important as any change effort requires additional financial and human resources, particularly if the organization continues with its daily operations while trying to change itself. A separate budget should be prepared, clearly earmarking the resources required and for assessing progress and making necessary modifications in the change program (Worley, Hitchin & Ross, 1996). Unless these extra resources are planned for and provided, meaningful change is less likely to occur.

Organizational change is a difficult process, filled with tension and conflict, not only for the participants but for the change agents as well (Beer, 1980). Therefore, a support system is important for the change agents, as they frequently have to maintain a 'psychological distance' from others in their effort to gain the perspective needed to lead the change process. This separation can sometimes lead to tension and isolation. A support system typically consists of a network of people with whom the change agent has close personal relationships and can provide emotional support, in addition to serving as a sounding board for ideas and problems and challenge untested assumptions.

Change efforts demand new knowledge, skills and behaviours from organizational members. Therefore, it is important that change agents ensure that learning occurs via opportunities for training, on the job counselling and coaching, experiential simulations, covering both technical and social skills.

In organizations, people generally do things that bring rewards. Consequently, one of the most effective ways to sustain momentum for change is to reinforce the kinds of behaviours needed to implement the changes by linking formal rewards directly with desired behaviours. This can be reinforced more frequently through informal recognition, encouragement and praise. Equally important, are the intrinsic rewards experience through early success in the change effort. This will make participants feel good about themselves and their behaviours, and thus reinforce the drive for change.

Change requires time, and many of the benefits from change lag behind its implementation. However, if the organisation changes too quickly or abandon the change before implementation, the desired results may never materialise. Successful organizational change requires persistent leadership that does not waver unnecessarily (Cummings & Worley, 2005).

Organizational leaders must give careful attention to each activity when planning and implementing organisational change. Unless individuals are motivated and committed to change, unfreezing the status quo will be extremely difficult. In the absence of vision, change is likely to be disorganised and diffuse. Without the support of powerful individuals and groups, change may be blocked and possibly sabotaged. Unless the transition process is managed carefully, the organisation will have difficulty functioning while it moves from the current state to the future state. Without efforts to sustain momentum for change, the organisation will have problems carrying the change through to completion. Thus, all five activities must be managed effectively to realise success.

Although the model presented can be used to manage change, they are intended to provide a framework only for leaders to organise and guide interrelated organisational processes needed to realise successful change implementation. Leaders must diagnose carefully, consider all alternatives, rally continuous constituent support, handle resistance effectively, apply appropriate change and evaluative techniques, plus remain flexible and adaptable as they initiate organisational change.

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## Managing Organizational Change: Leadership Perspective

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### Abstract

Many public managers today realize that change has become a constant phenomenon which must be attended if public organizations are to remain competitive. Changes in technology, information systems, the global economy, social values, workforce demographics and the political environment have a significant impact upon organizational process and services. Moreover, an external environment that is dynamic, unpredictable, and demanding further pushes public managers to develop strategies if change is to be effectively implemented. This paper, therefore, will examine the fundamental issues surrounding change management in local governments. The paper argues that effective strategic change requires approaches to leadership that are more likely to enhance organizational change through clear vision, motivation, commitment, and organizational support. Questionnaires were distributed to 362 employees at 11 local governments in Kedah, Malaysia. The findings indicate that successful change outcomes are supported by leadership characteristics that are visionary, supportive, committed, and motivated. **Keywords:** Organizational Change, Leadership

### Introduction

Managing change is one of the most complex skills of leadership. This paper aims to discuss effective utilization of leadership skills in public organizations. Governments have an important role to play in the 21<sup>st</sup> century especially in light of public criticisms towards government such as slow and cumbersome, inefficient and ineffective, and unresponsive. (Bryan, D.: 1998). Today's public managers have to deal with various changes taking places in the environments they work. Public managers must learn to deal with these problems creatively and innovatively. They must frequently provide leadership for planning efforts that are initiated in response to the demands of change.

In fact, like other areas of the public sector, local governments in Kedah, Malaysia have over the last decade been subjected to unprecedented, rapid, and profound changes. The management practices have called for the reform of management paradigm. An ever changing and dynamic environment has prompted the need to dislodge established beliefs and practices and adopt new, more holistic views on management (Bushnell, 1994; cf. Tosi, et. al, 2000 in Savolainen, T: 2000). The changes in the local government such as new job policies and procedures, job manual procedure, ISO 9002, total quality management (TQM), desk file, work flow and databases need to be managed well. Therefore, this study argues that effective strategic change requires approaches to leadership that are more likely to enhance organizational change through clear vision, motivation, commitment, and organizational support.

## **Managing Change**

Change management is a very broad concept. According to Cornell (1966), change management is a set of actions aimed at making organizations more effective. In addition, Jaafar (1996) defines change as part of a behavioral change from an unstable pattern of behavior to a stable one. Meanwhile, Ahmad Atory (1985) points out that change is inevitable and organization will seek out strategies to manage change in order to be relevant and competitive. It is against this backdrop that managers should spearhead any change process in order to ensure that organizational goals can be achieved effectively and efficiently.

Felkins, Chakiris and Chakiris (1997) view change management as a process of interaction that relates to strategic planning process. They believe that for change to take place, management has to get everybody involved in the planning, implementation, monitoring, and evaluation of the change strategies. Meanwhile, Anderson and Barker (1996) believe that organizational change requires employees to adjust their behavior to match with the new and improved organizational culture. This means that managers have to encourage participation and cooperation from everyone in the organization. Without everyone's involvement, change management will not be effective and will only be a waste of time and resources. According to O'Hara (1999), change can be introduced in the organization using various methods such as new technology, recruitment of new employees, redesigning of organizational structure, and new policies and procedures. Finally, Carnell (1996) highlights two important questions that need to be analyzed before introducing any change program: (1) be able to understand the contributing factors that influence change; and (2) be able to know specific actions that need to be taken in relation to change.

## **Leadership**

Gardner (1990) refers leadership to the accomplishment of group purposes, which is furthered not only by effective leaders but also by innovators, entrepreneurs and thinkers, by the availability of resources, and by question of value and social cohesion. Leadership can be thought of as an even broader phenomenon. For example, leadership helps moving toward achieving a group goal and organizing work for multiple members of the group. Good leadership also helps set the direction and move the group, solicit the contributions of other great thinkers and doers, and provide access to the right resources (Horner, M. 1997).

## **Vision**

The literature identifies that modern leaders must have the vision to lift themselves and their organizations above the daily humdrum and articulate a better future (Hackett and Spurgeon, 1996). According Hackett M. (1998), vision is palatable to leaders, their confidence in and dedication to vision are so strong, they can devote long hours to cover many years to bring it into being. In this way, vision acts as a force within, compelling the leader to action. It gives the leader purposes and the power of the vision and the leader's devotion to its works to inspire others – whose sensing purpose and commitment is to respond. Leaders remain strategic thinkers who are willing to take risks and to lead those who are prepared to co-operate with them into a better future. In essence, they look at what they know to exist and search for relationship to fit an approach or strategy together. Then they find connections within and outside the organizations to define changes which they believe will deliver a desired future (Hackett M., 1998).

## **Motivation**

The leadership research and theories reviewed above depend heavily on motivation, suggesting that leadership is less a specific set of behaviors than it is creating an environment in which people are motivated to produce and move in the direction of leader. In other words, leaders may need to concern themselves less with the actual behaviors they exhibit and attend more to the situation within which work is done. By creating the right environment, one in which people want to be involved and feel committed to their work, leaders are able to influence and direct the activities of others. This perspective requires an emphasis on the people being led as

opposed to the leader. A review of some of the major theories of motivation can help provide a better understanding of how a leader might create such environment. Motivation is not seen as the only element involved in eliciting certain behaviors from followers or employees; knowledge and abilities certainly play a role as well (Horner, M. 1997).

## **Communication**

Lewis (1999) found that the general importance of communication during planned change has already been empirically demonstrated and generally agreed among practitioners. Leaders need to inform the mission and objective of managing change. Robertson et. al (1993) state that the change effort is dependent upon the ability of the organization to change the individual behavior, communication about the change and information to these employees is vital. Communication with these employees should be an important and integrative part of the change efforts and strategies (Elving, W. J. L., 2005).

## **Organizational Support**

Organizational support encompasses several components such as managerial support, financial and commitment among employees. Managerial support committees are being introduced in order to monitor the performance of implemented transformational change activities in the organization. At the organizational level, managing change performance will occur when management provides the entire workforce with all the necessary training and technical infrastructure and financing to support the change initiatives.

## **Methodology**

This study was conducted using survey method whereby respondents answered a set of questionnaires. The instrument used for measuring management change was adapted from change management by Abraham, Griffi, Crawford (1999) while an instrument from the Multifactor Leadership Questionnaire (1996) used by Abraham, Griffi, Crawford (1999) was employed to measure leadership, vision, support and motivation. Meanwhile, the instrument used for measuring communication was adapted from the questionnaire by Carnall (1991) dan Burns (1993). Selection of samples was done via stratified random sampling involving 362 staffs at 11 local governments in Kedah, Malaysia. Data collected was analyzed using the Statistical Package for Social Sciences (SPSS). Participants responded to each of these statements using a 1 to 5 Likert-type rating scale (1 = strongly disagree to 5 = strongly agree). The internal consistencies for the MLQ for this study were 0.94, respectively.

## **Results and Discussion**

In this study, hypotheses were formed to investigate the relationship between organizational change factors and leadership. A total of 362 respondents participated in the study. The profiles are presented in Table 1.

TABLE 1: PEARSON CORRELATION RESULT ON LEADERSHIP AND VISION, MOTIVATION, COMMITMENT, ORGANIZATIONAL SUPPORT AND ORGANIZATIONAL CHANGE

Leadership	(r)
Vision	0.59**
Motivation	0.65**
Communication	0.62**
Organizational Support	0.63**
Organizational Change	0.54**

\*\* p < .01

The result of the Pearson Correlation test illustrated in table 1 shows that there was a significant relationship between management change factors with leadership performance. However, the degree of association seems to be moderate. Vision factor shows a positive significant relationship ( $r = 0.59$ ,  $p < .01$ ). This clearly supports the hypothesis that leaders who are visionary are more likely to embrace change. The findings also supports Kanter, 1992 & Kotter, 1995 that leader need to inform their vision to employee. An empirical study conducted by Groves K. S. (2006) found that leader emotional expressivity eases the transition to adapt change. The ability of leaders to effectively communicate their vision to all employees is a key ingredient of success (Kanter, 1992 and Kotter, 1995). In addition, vision must always be consistent with organizational technical capabilities as well as strategic and financial availability. Ultimately, vision established must be relevant to organizational goals (Kotter, 1995).

Apart from that, the motivation factor also shows a positive significant relationship with leadership ( $r = 0.65$ ,  $p < .01$ ). The Pearson Correlation analysis signifies that work conditions and work surrounding contribute to workers' motivation. Any successful change program must be tied up with a system of rewards and punishment. Employees who perform must be rewarded sufficiently whereas employees who reject change must be punished accordingly.

Similarly, communication factor also shows a positive significant relationship with leadership ( $r = 0.62$ ,  $p < .01$ ). The finding concurs with the finding of Kotter (1995) who stresses the importance of communication as a guideline to successfully manage change. It is imperative that in the communication process ambiguity must be avoided so as to make sure that sent messages can be easily interpreted and proper action can be taken. Afterall, communication is only a symbol that allows people to interact with each other if and only if the receiver is able to understand what the sender has in mind when he or she sends the message. Association was also found between organizational support and leadership ( $r=0.63$ ,  $p < .01$ ). Morris dan Raben (1995) and Nadler (1998) emphasizes external support that is critical in the management of change such as personnel support, financial, and training.

In addition, a least square regression analysis was also performed with leadership as the dependent variable and vision, organizational change, organizational support, motivation, and communication as independent variables. Prior to the analysis, an assessment for possible violations of assumption was also conducted.<sup>1</sup> Table 2 presents the results of the regression equation for the dependent variable leadership. Overall, the variables included in the model account for 53 percent of the variation found in the independent variables. The F-test ( $p=0.00 < 0.05$ ) is a test of null hypothesis that all regression coefficients for predictor variables are equal to zero. I can reject this null hypothesis here. Perhaps most crucial, communication for change is significant and positively related to leadership quality essential for managing change ( $\beta=.42$ ). Second, leaders who provides organizational support and motivation to change are significantly more likely to be successful in implementing change management programs in their

organizations (beta=.16 and .15 respectively). Finally, although statistically significant, vision only contributes 12 percent to the predicted variable.

TABLE 2: REGRESSION MODEL FOR LEADERSHIP

Variables	b	beta	t	sig.(p)
Vision	.142	.124	2.501	.013
Organizational Change	.050	.027	.407	.639
Organizational support	.256	.158	2.968	.003
Motivation	.194	.154	2.691	.007
Communication	.587	.419	7.395	.000
R <sup>2</sup>	= 0.539			
Adj. R <sup>2</sup>	= 0.530			
F	= 65.03			
P	= 0.000			

## Conclusion

This paper has provided some empirical findings on the existence of relationship between managing change factors and leadership perspectives. Vision, motivation, communications, organizational support and organizational change itself have been considered to be associated to leadership qualities essential for managing change by Hackett, M. (1998) and others. The finding of this study on the perceptions of public organization's staff on leadership performance is consistent with some previous studies. This further strengthened the hypotheses that the factors discussed have significant and vital relationship in influencing change management. The management of public organizations needs to put more emphasis on these factors in daily management practices. Both factors can contribute toward increasing or decreasing individual's performance thus affecting overall organizational change. Nevertheless, for future studies, other management factors should be examined in order to understand the relationship between management change and leadership striving towards the improvement of organizational performance.

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### **End Notes**

Specification error did not appear to be a problem. No nonlinear effect was found. In addition, the Q-Q plot also indicated normality assumption was not violated. In addition, using the variance-inflation factor and the correlation values, I examined the equation for the possibility of collinearity and multicollinearity and found no significant problems. Finally, to detect whether heterocedasticity was present, the Studentized deleted residuals (Jack-knifed residuals) were plotted using Q\_Q plot. I did not detect heterocedasticity in the equation.



# Competency Development during Organizational Change

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## Abstract

What constitute workers competency at work is a debated topic. Within a rationalist approach, human competency at work is seen as constituted by a specific set of attributes, such as the knowledge and skills utilised in performing specific work. These attributes are used by management and workers to coordinate and implement organizational change. Within this approach, change is viewed as mechanistic. Using an alternative approach, this paper contributes to the debate by presenting the findings of a major change program within a large multinational organization. Taking an interpretive approach, the paper looks at the workers conception of work to that of management. The data was collected over a 6 year period using qualitative methodology and analysed using the NUD\*IST software program. A total of 55 in-depth interviews were conducted. The findings from the data suggest a 'gap' in understanding what constitute workers competency at work. Workers conception of competency was found to be significantly different to that of management. **Keywords:** Organisational change, Work and workers competency.

## Introduction

The concept of competency has only recently been used more systematically in management. Competency is focused on the relationship of persons and work that researchers such as McClelland (1973), Boyatzis (1982), Kolb (1984), Morgan (1988), Nordhaug (1993) and Sandberg (1994, 1996, 2000) have found attractive when describing human knowledge and skills at work. As Morgan (1988) argued, the concept of competence encourages scholars to think not only about knowledge itself, but also about the knowledge that is required in competent work performance. This paper is part of a major study undertaken on middle managers commitment to effective change implementation. Competency development of workers' during organizational change is a major component of the study. One of the key arguments presented in this paper relates to paradigm issues. This paper aims to shed light on what constitutes workers competency when viewed from an interpretist paradigm. How is competency developed and what meaning does it hold for the worker? What impact does worker competency have when implementing organizational change?

### Background of the study

The study was conducted within the Steel Division of Broken Hill Propriety Limited (BHP) from 1995-2001. BHP was incorporated in Melbourne, Australia, in 1885 and began its operation as a miner of silver, lead and zinc at Broken Hill in New South Wales, Australia. It emerged from its origins as a remote mining company at the end of the 19th century to its status as a major multinational company at the time of the study. It went through rapid growth that resulted in it becoming a leading global resource company. However, the honeymoon period was over by the mid 1990s and the bubble ultimately burst in 2001 resulting in a merger with Billiton, a UK based resources company.

At the time of the study, BHP employed 65,000 people throughout five major product divisions: Copper, Minerals, Petroleum, Steel, and Service Operations. Each of these divisions was sufficiently large to be regarded as major companies in their own right. The scale and pace of change in each division varied considerably depending on both internal factors and environmental influences. The study was conducted within the Steel Division of BHP during the introduction of an occupational health and safety (OHS) change program known as the DuPont model.

Founded by Eluethere du Pont, the DuPont Company is the oldest large-scale manufacturing company in continuous existence in the USA. The DuPont Company is regarded as the pioneer of modern OHS management and remains a benchmark for world best practice (Mottel et al., 1995). Through this reputation the firm has developed a consulting arm in OHS management offering services to industrial companies throughout the world. The model is based on an eleven-point safety philosophy that has a strong emphasis on behavioural change. In essence, DuPont's safety philosophy expresses that "each worker must be convinced...[to work] safely" and

compliance with safety rules is a “condition of employment” ([www.dupont.com/safety/en/aboutus/safety-philosophy.shtml](http://www.dupont.com/safety/en/aboutus/safety-philosophy.shtml)).

The nature of the change program, with a focus on occupational health and safety (OHS), meant that the process of change was documented in great detail. The program was initiated by top management but designed and implemented by DuPont consultants. In other words, middle managers were not part of the decision-making process nor they were involved in planning and implementation of the program. The program was essentially thrust upon the workers. It was a large scale planned change that followed a step-by-step guide to implementation.

The popular academic literature (see Collins, 1998 on guru writers of change management) tend to consider organizational change as a step-by-step process leading to successful outcomes, although the scholarly work tends to be built on more sophisticated models of how this is achieved (Jick 2003, Pettigrew et al., 2001, Collins, 1998). However, many authors fail to concede the difficulties that lie ahead for the implementers of change. Jick, (2003, p.175) argues that “by making change seem like a bounded, defined, and discrete process with guidelines for success, many authors mislead managers, who find that reality is far more daunting than they expected.”

Oshry (1985) adds a further dimension by claiming that middle managers on the one hand have insufficient authority to make change happen while on the other their involvement in the process of implementing change is crucial in determining whether change implementation is successful.

#### **Role of Middle Managers during Change Implementation**

To examine issues related to implementation this paper will look at how the OHS change program was coordinated and implemented within BHP Steel before moving on to competency development of workers. Beer et al. (1990a p.17) argue that “coordination is especially important if an organization is to discover and act on cost, quality and product development opportunities”. To exploit these opportunities requires close coordination between departments as well as between labour and management. Conversely, when organizations introduce change, the overall goal of what the organization is trying to achieve and its implementation strategy needs to be communicated clearly to the departments, units and divisions directly affected by it (Argenti, 1998). More importantly, department and unit managers need to be involved in developing strategies for change implementation “to better understand the plan and gain their [middle managers] commitment to its execution” (Floyd and Wooldrige, 1996, p.40). In addition, the need for middle managers to market the idea of change to employees is a crucial step towards forming a powerful coalition of individuals who embrace the need for change and who can rally others to support the effort (Kotter, 1995). To this end, strategies for coordination and implementation need to be developed from middle managers who are closer to the daily tasks of the organization (Floyd and Wooldrige, 2000).

However, as Jick (2003) acknowledges, the process is not simple. He concludes that “there is no ironclad list or easy recipe for implementation success.” (Jick (2003, p270). This view is supported by Floyd and Wooldridge (1996) who argue that, while implementation is commonly perceived as a mechanical process in which plans are carried out from a master strategy conceived by top management, reality is more complex. New conditions evolve constantly requiring reprioritising the plan. “Implementation, therefore, is best characterized as an ongoing series of interventions that are only partly anticipated in top management plans” (Floyd and Wooldridge, 1996, p.45). Therefore, coordination and the implementation plan are subject to changes as the situation demands.

What is needed throughout the pursuit of change is for managers and leaders to visibly commit to the implementation process and clarify the company’s intentions and ground rules so that employees will be able to “predict and influence what happens to them - even in the middle of a constantly shifting situation.” (Duck, 1993, p.115). Therefore, “effective implementation requires that middle managers have a firm understanding of the strategic rationale behind the plan, in addition to specific directives” (Floyd and Wooldrige, 1996, p.45), only then will they be able to communicate the intentions of the change to their employees. However, middle managers did not understand the broad strategic initiatives of the organization as they were not part of the planning process nor were the intentions of the change initiative clearly communicated to them. Given the lack of understanding, how is competency developed? According to Beer at al (1990a), competence of workers’ is an important ingredient during change implementation. They argue that knowledge of the organization together with analytical and interpersonal skills is required for effective implementation of change (Beer at al, 1990a). Accordingly, a large-scale change program such as DuPont’s model requires competency development of workers’ (knowledge and skills) in order to effectively implement the model.

## Methodology

The data was collected using a qualitative methodology. A total of 55 managers were identified. In-depth semi-structured interviews took place over a period of 6 years. The data was analysed using NUD\*IST software program. The identity of each respondent is withheld due to confidentiality. In its place, each respondent is given a number for identification purposes. Thus, there are two sets of data stored into the NUD\*IST software program. One containing the full identity of the respondents, while the other without (name, position and division).

## The Case

A specific question relating to competency development was asked to all respondents:

*In order to effectively implement Dupont safety change program, you need to develop the competency of your workers. How have these competencies been determined and developed?*

The following responses illustrate a common interpretation of the question.

“We determine it by training. The only way is by training, and re-training etc. When we do these audits and find that the person does not understand, or has forgotten something, we put them through training. DuPont did not provide us with any mechanism or tools other than audits. However you cannot just train one person and expect that person to do the job for many years without any further training in between. It is very important to make sure that the person is kept up to date. So I think you pick that up when you do the audits. When you see the person not very confident, and you do not get the right answers from them, then straight away you say, look I think you can benefit from this training procedure. So it is a continuous thing - never stops”. R047

“We have the Grade of Trades system. It is a training system for trades people, your pay goes up with each step, each step is made up of training either at Tech [*Technical college*], or training at the work centre down here, and through that you receive Work Cover tickets [*statutory safety certification*], so you are assessed at each training course. That’s how we determine competency.”R002

“I think that this still has not developed as well as and as far as it should have yet, and there is already a formalised development training program., It is a well developed training management system but needs to incorporate specific training on safety. We have different varieties of technical safety training which is very standard..” R047

“The competency needs to be with those people who are doing the DuPont’s safety audits. People cannot just go out and audit, unless they have been trained. So we have done a lot of training for those people.” R016

Throughout the above five responses is a common theme, namely that competency is basically to do with training and the issue of raising competency is solved by increased training. The extent of the training and the potential for redundancy in the process is illustrated by the following respondent.

“I don’t know about competency and where we are going with this training. I was really struggling with all this because I thought, o.k. I know what DuPont’s approach is but we also have got other health and safety committees, different training was being put on us. For example, we have got a five star safety system here and on and on, it went. So I was struggling and I figured some of the boys were too, and we tried to put the jigsaw puzzle together to get the big picture. We talked about Dupont and we specifically worked out that they would like to change the culture and behaviour of management and the employees, giving commitment and to think prior to doing a job. So we tried to explain where Dupont training fits in because a lot of blokes did not understand. So on and on, we went, until we really unravelled the picture. Now since we did that, twelve to eighteen months ago, there has been a heap more piled on us. We have got job safety management training and that is putting together all our systems, from the initiation and execution of a job to make sure that people do not get hurt. And we have got a number of other initiatives pushed on us

and this means more training. We have just re-done this, now another one and the jigsaw puzzle gets more and more complicated, and we have added a couple more boxes in and we are about to (here) go over this again with our supervisors and then expect them to do the same to explain where it all fits.” **R026**

While Respondent R026 demonstrates appreciation of what is required from the DuPont program and the core competency issues, the sheer extent of training requirements appears to have swamped efforts to tackle them in any other way.

Explicitly, the data reveals that competency development of workers was associated with mandated training implemented as part of the program. There was no evidence of any systematic effort at competency needs assessment of workers or involvement in the process at middle and lower levels other than as participants in training. Middle managers were implementing DuPont’s safety training program that they themselves were not committed to. Because the program was largely mandated from the top and aimed at lower level workers, it effectively bypassed middle managers and their involvement in planning and designing the program. In such situations “managers are less likely to be committed to their support.” (Beer et al., 1990a, p.39).

As Beer et al. (1990a) note, training and education programs may increase short-term commitment, but in the long term such programs alone do not enable new patterns of behaviour in the organization or the participants’ business unit. Consequently, training programs become obsolete and irrelevant, and run the risk of reducing commitment. While the OHS change program gained some short-term momentum in BHP Steel, largely because of the need to implement mandated procedures, in the long-term it failed to keep that momentum. Moreover, middle managers were unprepared at an operational level to deal with the complexities of the OHS change program, especially with a poorly educated workforce, coupled with pressures to improve productivity. The majority of the workforces were from a migrant background with poor English literacy skills and the ability of poorly educated workers to comprehend DuPont’s OHS audits was questionable. Poor levels of literacy and numeracy in general were evident from the interviews amongst shopfloor workers in the Steel Division. Two superintendents recognised the issue as follows:

“We have high illiteracy and numeracy levels in many of our plants, so we try other means such as show pictures/videos, and with safety particularly, we try by showing the right and the wrong way with signs and then at the end of that communication, we get them to demonstrate to us how they understand the right way to do the job.” **R022**

“The people who have been injured are the people on the floor and they are the ones who have not had a lot of education” **R016**

Participation by middle manager in developing the training program would have enabled them to conduct a needs based assessment and then design the program accordingly to suit individual workplaces. As the observations of respondents R022 and R016 reveal, various forms of training and awareness is needed that is suitable for particular types or groups of people. DuPont’s model failed to account for such variations. Consequently, the ‘uniform’ auditing did not apply to all departments, as such the training programs were inappropriate.

While middle managers were aware of the importance of developing employee competency before introducing change, they themselves did not know how to address competency. In fact, many middle managers responded by saying they have real problems in developing measurements of competency. This point is evident in the following two responses:

“Competency development is a real issue here [BHP]. I do not think we measure or know how to, we just go out and train them and say once they are trained and you should be able to do it. I do not think we have any way of measuring whether the training you have received or taken on board means you can do it. The simple answer is that we do not know. I do not think we measure it because I do not have an answer in my head, I am trying to think up an answer. To me, we do not do it. We have always had standard operating procedures that we want our people to follow and we measure on those standard procedures.” **R016**

“If you look at our competency measures, we do not do it very well at all. It is an area that we lack in. We are good at training but not good at measuring because we don’t know what to measure and the measures don’t provide true pictures. We don’t know what the competency levels of our people are. .... So in terms of: Can I write a safety action plan? Can I monitor a rehabilitation program? Can I do manual handling training? Can I do all the stuff that we know that people should be doing? Am I aware of the

cultural issues? Can I communicate effectively with my employees and the management groups? Those competencies, we don't, as yet know. We look at it and say 'that's too hard' and that's why it's left here in the green folder and we work towards it in very broad way. We haven't done formal analysis of training. We haven't approached mechanistically, based on the competency model, which we know exists and has been developed to do it. If you ask for the BHP Steel approach, there isn't one. If you asked a lot of superintendents who take it upon themselves to do it, the answer is they don't. So we are trying to work towards it. **R018**

These responses indicate that, while there was recognition that competency needed to be addressed, the ability to measure and assess the levels of competency was lacking. It was also evident that the effectiveness of training as a means of raising competency was not being addressed. On the contrary training programs became the norm and were seen as the means of developing workers competency. However, the workers conception of competency was somewhat different from that of management. Workers, including middle managers, viewed competency as knowledge, skills and on-the-job experience, while senior management viewed it in terms of training programs. Several senior managers who admitted the gap between managements thinking and workers perception of work indirectly acknowledged this. A senior manager explained:

"We tend to work in opposite directions with our workers, so instead of the DuPont people coming, we should give ownership to our own people. But we are now much more pro-active because our understanding is changing". **R025**

The acknowledgement of differences was a positive perspective, but there remained a lack of action to bridge the gap. There was an apparent lack of understanding during the interviews as both senior and middle managers struggled to explain competency development of workers. Because neither senior nor middle managers understood what constituted competency development at work, they had real problems in explaining how they determined the competency levels of workers other than talking about training. A member of the top management team acknowledged this by explaining:

"We never understood competency in broader scheme of things but we are now much more pro-active with it [competency] because our level of understanding of an organization has matured. So now instead of having unconscious incompetence [imposed training], we have conscious incompetence so we know where we are weak. But we still have long way to go". **R051.**

A large part of this could be attributed to the history and culture of BHP. The organization had followed a command and control structure for decades and was accustomed to imposing rules and regulations including organizational change programs. The change programs were implemented through training programs, usually directed by the Human Resource Department from the head office in Melbourne.

Beer et al. (1990a) point out that training programs are preferred by top management because they are tangible and easy to measure. The measurable results enable human resource directors to "cite clear accomplishments in persuading top management of their effectiveness" (Beer et al., 1990a, p.40). Managers and workers at BHP became accustomed to the continued cycle of imposed organizational change accompanied by training programs, which had the effect of limiting the general understanding of worker competency. The findings so far on competency development, explicitly identify a 'gap' in understanding competency in BHP Steel.

The findings support Sandberg (1994, and 2000) who notes that understanding what constitutes competency is critical to effectively managing competency development. However, developing competency at work is a "fundamental managerial problem" (p.10). To explore this further the two approaches used by Sandberg (1991, 1994, and 2000), rationalistic and interpretive, will be discussed in the following section.

## **Discussion**

### **Rationalist and Interpretive Approaches to Competency**

The concept of competency at work is not new but it does create a dilemma for organizations in transition from old to new. Taylor (1911) first addressed the problem of worker competency when noticing a difference between the least and most competent workers in engineering work. Based on scientific principles, he argued for leadership from

a rationalistic tradition where he proposed “managers should be able to identify what constitutes workers’ competence by classifying, tabulating and reducing it to rules, laws and, formulas” (Sandberg, 2000, p.10).

While Taylor’s approach was based on ‘time and motion studies’, the current approach is based on a much more sophisticated process of ‘job analysis’ (Cascio, 1995, Armstrong, 1991), although still within the scientific principles of the rationalistic research tradition. Within the job analysis approach, three main approaches can be distinguished: worker-oriented (Veres et al., 1990); work-oriented (Sandberg, 1994); and multimethod-oriented (Sandberg, 1994, 2000). All three will be used as a means of exploring BHP’s approach to competency development.

There are substantial differences between the three approaches. The worker-oriented approach sees competency as a set of attributes that workers possess, typically knowledge, skills, abilities (KSA) and personal traits to effectively perform work (Veres et al., 1990, Sandberg, 2000). This approach sees the worker as the point of departure and the attributes of the worker defined and measured through groups of job incumbents and supervisors. This approach has been criticised for producing descriptions of competencies that are too general and abstract.

In the work-oriented approach, the job is seen as a point of departure and workers attributes are strictly work-related (Boyatzis, 1982). In this approach, Boyatzis (1982) describes job competencies as capturing the “motive, trait, skill, aspect of one’s self-image or social role, or a body of knowledge he or she uses” (p.21). He argues that they can be generic. Sandberg (2000, p.10) adds “the generic, context-independent nature of job competencies means that they can appear in many different work activities”.

In a study of managers in Britain and the United States, using the approach of Boyatzis, Jacobs (1989) found that different managerial jobs required different competencies and concluded that the Boyatzis method is too generic and abstract and therefore of limited value as a basis for competency development. He argues that the failings of the approach relate to identifying activities that are central for accomplishing specific work and transforming those activities into personal attributes.

The multimethod-oriented approach also stipulates that competence is constituted by a specific set of attributes but is more comprehensive than the other approaches. This is effectively achieved by combining the two other views of competency.

In sum, all three approaches assume that competence is an attribute-based phenomenon. Specifically, they identify activities that are essential for accomplishing work and then transform those activities into personal attributes. The three approaches take a rationalist perspective by predefining what constitutes competence (Sandberg, 2000). Within this context a rationalistic approach identifies and defines human competence as consisting of “two independent entities - prerequisite worker attributes and work activities” (Sandberg, 2000, p. 12). If we turn our attention to the interpretive research tradition, then we find an alternative to the rationalist approach of viewing competence. Following Weber (1964/1947), as the initiator of this tradition, sociologist Schutz (1945), Berger and Luckmann (1966) and Giddens (1993), used phenomenology as a base to further develop the interpretative research tradition. The central feature of this tradition is the stipulation that a person and the world are inextricably related through a person’s lived experience of the world.

Sandberg (2000, p.12) observes that “competence is not seen as consisting of two separate entities; instead, worker and work form one entity through the lived experience of work. Competence is thus seen as constituted by the meaning the work takes on for the worker in his or her experience of it”. Research on competence within the interpretative approach (Atkinson, 1988; Barley, 1996; Brown and Duguid, 1991) concludes that the attributes used are not primarily context-free, but are situational, or context-dependent. In other words, “the attributes used in particular work acquire their context-dependence through the workers’ ways of experiencing that work” (Sandberg, 2000, p. 12). As such, workers’ ways of experiencing work are more fundamental to their competence than the attributes themselves.

BHP clearly followed the rationalist approach because it did not view worker competence as context-dependent. More specifically, the organization viewed work and the worker as separate entities. Hence management identified what constitutes workers’ competence by classifying, tabulating and reducing it to rules, laws and formulas closer to Taylorism (see Sandberg, 2000, p.10). This view closely aligns with their overall organizational culture.

In the case of BHP Steel, workers' competence was predefined by DuPont using a set of attributes, expressed in the form of KSAs that corresponded to various safety audits. The audits were later operationalised into quantitative measures that provided the results of worker competency with regard to OHS.

According to Attewell (1990), Yukl, (1994), and Sandberg, (1994), such measures often result in abstract and overly narrow descriptions that do not adequately represent the complexity of competence in work performance. The sets of KSAs do not illuminate what constitutes competence in accomplishing work (Sandberg, 2000). This explains why both senior and middle managers at BHP Steel struggled to respond to the question, "*How do you determine the competency of your workers?*" because neither group adequately understood what constituted competency at work.

For instance, management's conception of competence was based on predefined training programs while workers' conceived competence as the lived experience of accomplishing tasks. Thus, workers' viewed DuPont's OHS change program as another 'flavour of the month' because it did not relate to their way of conceiving work. More specifically, DuPont's 'one size fits all' program was not specific to a particular division or unit. It was therefore context-independent. Middle managers found it difficult to implement a uniformly designed program that had little relevance attached to it. Hence, they reverted to their own way of implementing the OHS because the program, like many others, made little sense to the middle managers, as explained below:

"The number of new programs that comes along is treated like a bit of a joke. The feeling on the site is - here we go again, another one of these flavours of the month that is coming out. What is worse is that you put in all the resources into it and then it is not going to come to anything because there is no back up, they go so far and then something else comes along and then that first one falls by the wayside, the second thing comes up etc. We can never properly train or develop competence within our jobs, so we stick to our way". **RO32**

The comment of this middle manager provides an indication of the extent of the divide between middle managers and senior management. BHP management viewed competence from a rationalist approach, while workers viewed competence from an interpretive approach. A large part of the workforce had been with BHP Steel since the start of their career and those who had achieved supervisory/management roles typically gained their positions through experience of performing work.

Middle managers at BHP Steel had at the time of the interviews typically spent the majority of their lives as employees of the company. This phenomenon was found also the case for shopfloor workers. Over the years both workers and middle management developed a unique relationship through which they communicated and understood each other and the conception of the work they performed.

This adds to Sandberg (2000, p.14) findings that "a worker's particular conception of work defines what competence she or he develops and uses in performing work". Training and development activities should therefore follow from the workers' conception of work. This is not to say that training and development should be abandoned, but rather they need to be designed and conducted in a way that promotes workers' conception of their work.

The findings reinforces Bohle and Qunilan (2000) who argue that workers' participation in design and implementation of OHS is particularly important, as they are closer to the tasks performed and are more knowledgeable about the OHS issues relating to their job and work environment. Consequently, workers need to understand change from the standpoint of their own work. However, the field of change management lacks in theoretical underpinnings and as such issues relating to how workers view change are overlooked.

#### **Implications of standardised change models and KM development**

The search for a theoretical underpinning for change is complicated by the overlap between knowledge and practice, which Hollway (1991) argues are inseparable. This can clearly be observed in the literature where many of the significant contributors are both academics and consultants (Collins, 1998). Thus, the market for popular texts on change management is saturated with contributions from diverse sources. Many of those regarded as change gurus and leading consultants who publish in this market, also hold professorial appointments at leading business schools and publish their research in quality academic journals. These writers tend to view change as a linear chain of events. They tend to provide sequential guides to planning and implementing change which gets adopted by practitioners. A range of consultants, for example McKinseys, DuPont, and Anderson Consulting, all made their

appearance in BHP in the period leading up to and during the period of this study. The sequential approach used by such firms typically follows the following pattern:

1. Analyse the organization and its need for change;
2. Communicate the vision;
3. Develop the change strategy;
4. Confirm top management support;
5. Develop enabling structures;;
6. Implement strategy;
7. Monitor and act on problems of implementation; and,
- n. Close down project and communicate results.

Critics of this approach (Pettigew, 1987, 2001; Huczynski, 1993; Collins, 1998) argue that it reflects “limited, mechanistic and overly-rational view of organizations and of social interactions” (Collins, 1998, p.82). Moreover, many of the guides provided by the popular writers fail to acknowledge change as a social activity “involving people from diverse social groups” (Collins, 1998, p.82) who tend to interpret issues and situations differently. This was particularly apparent at BHP Steel.

The majority of the workforce, including senior and middle managers at BHP were of diverse backgrounds with specific technical skills. While these managers interpreted issues differently because of the different operational features of each unit or department, they worked as a coherent social group to accomplish the overall manufacturing tasks of the organization (for example, the Coal Plant liased with Manufacturing Services, who liased with Slab Making, the Rolling Mill, Casting Services and Engineering Services. All Plants liased with Maintenance Services, Transportation Services, the OHS Department, Human Resources, and Environmental Services).

However, the sequential implementation of DuPont’s OHS change program failed to acknowledge these social activities and failed to involve the skilled interactions of people, particularly middle managers in planning and implementing OHS change program, leading to the consequent lack of commitment from middle managers observed in this study.

Huczynski (1993) points out that organizations do not operate on formal logic alone as has been noted at BHP Steel. Within its diverse units, managers and workers interpreted OHS change differently, held competitive ideas and opinions and had divergent agendas. Thus, the logical and sequential model of change followed in BHP Steel lacked sophistication in that it denied any active role of managers’ and workers in planning and implementing change. Collins argues that “we cannot, hope to solve the problems of planning and managing change in a logical or dispassionate way, because people will tend to interpret events and problems in quite divergent ways” (Collins, p.85).

Floyd and Wooldrige (2000) have argued that middle managers are linked to organizational performance through their knowledge and social influence and play a key role in determining the organizations’ capacity to innovate and renew its capabilities. Developing a trusting relationship with middle management is therefore crucial to organizational success. Middle management commitment to change can therefore be viewed as a prerequisite for coordination and competency development during change.

Nonaka (1988 and 1994) argues that such organizations [BHP] follow a deductive style of management where information creation mainly occurs at the top level and resources are allocated from the headquarters. Such management style he argues, does not allow organizational members at lower levels flexibility to generate and create information. According to him, knowledge about intensions, operations, and context is likely to come from the middle level to form a complete strategic picture. In this sense, strategy emerges from the ideas and information generated by the participants in the middle. Floyd and Wooldridge (2000, p.xxi) further provide support to this by observing that “knowledge and social influence processes at the middle play a key role in determining the organizations capacity to innovate and renew its capabilities”. In this context, the importance of middle managers involvement in strategy development is crucial to their commitment.

The definition of organizational knowledge is diverse, complex, controversial and difficult to underpin. However, most scholars agree that knowledge is “created and organised by the flow of information” (Nonaka, 1994, p.15). As such, information transparency and open communication is critical in creating knowledge. For an individual’s ideas to become part of organizational knowledge, they must be accepted and acted on by other



members of the organization (Floyd and Wooldridge, 2000). This will only occur if all involved in the organization have the same information and understanding of the overall goal of the organization. Only then can an idea be benchmarked against its effectiveness.

## Conclusion

This study provides insights into how worker competency is developed. Viewed from an interpretist paradigm, the findings from this study informs us that there is a gap in understanding what constitutes worker competency. Training programs that are imposed on workers not only hinders performance, but stifle the worker from further developing their knowledge and skills. Competency is not just to do with job or worker attributes, but embraces the whole lived social experience of the work environment. The social experience of work is enriched by an environment in which there is transparent and open communication throughout the organization. Middle managers have a pivotal role to play in this regard as they provide the link between organizational knowledge at both the bottom and top of the organization.

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# Family Business in Africa: A Comparison with the Western Model

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## Abstract

The last two decades have seen an increase in the interest toward family business in the U.S. and other western countries, following the recognition of the immense contributions of family-owned businesses to economies. Given that family-owned businesses outperform non-family-owned businesses, the family business form of enterprise represents successful entrepreneurship. Researchers have proposed and described three models that help us to understand why some family businesses succeed while others don't. These three models, systems theory, agency theory, and resources-based theory, reflect social-economic environments in western countries. The paper describes these models and attempts to apply them to the social-economic environment in sub-Saharan African countries. Given the current social-economic environment in Africa, the popular family business models appear not to apply to this region of the world, currently at any rate.

## Introduction

The last 20 years have seen a spurt in the interest in the phenomenon of family-owned business. This has been due to the prominence of such firms in almost all economies in western countries and other countries such as India and Japan. It is estimated that over 80% of all businesses in the western world are family-owned and controlled (Poza, 2007). Family-controlled businesses are the dominant form of enterprise (Le Breton-Miller and Miller, 2006). Although most of the world's largest corporations are non-family-owned and controlled, over 30% of them are family-owned and controlled. And most importantly, family-owned firms outperform non-family-owned firms by an average of 6.5% on return on assets (Poza, 2007). Moreover, family businesses last longer than other firms. Their survival is good for the economic stability of their communities. A family business, especially if it grows and transfers across generations, is one of the really true measures of entrepreneurial success. However, even if family businesses last longer than non-family businesses, only 67% of family businesses survive through the second generation, and only 15% through the third generation (Lee, Lim and Lim, 2003).

A key issue in family business research is what makes a family business last through generations. Moreover, family businesses fail most due to problems with succession planning (Poza, 2007). Focusing on this issue has generated different models of family business, models intended to explain family business success in terms of both growth and longevity. This paper will be elaborating on three such models. All three of these models have been written for environments in western countries, with limited references to other countries such as Japan and India. Because family business research is a recent phenomenon, these models are still subject to heated debate. Moreover, they are based on the cultural/economic environment in western countries. It is an open question as to whether these models can be used to understand family business in most non-western countries. This paper focuses on the applicability of these models to the sub-Saharan African family business, given the significantly different cultural, economic and political environment in which it operates.

## Family Business Concepts

What is a "family business"? Not unlike a related concept, "entrepreneurship", there appears to be no standard definition of family business. William Dennis, writing on behalf of the U.S.-based National Federation of Independent Businesses, states that "The term 'family business' generally lacks meaning from either a practical or conceptual standpoint (Dennis, 2002). His survey yielded 5 definitions, which he felt were equally good, because each of the definitions offers a different perspective and each is intuitively appealing. Probably, the most

comprehensive exploration of family business concepts was provided by Chua, Chrisman and Sharma (1999). They identified a total of 21 definitions. They felt that a definition of family business “should distinguish one entity...from another based on a conceptual foundation of how the entity... is different and why the differences matter”. Such a definition is preferable to “operational definition that merely identifies observable characteristics that differentiate one entity from another”. Family ownership and family control are merely observable characteristics about certain businesses. They will render a business truly a family business only if these characteristics will facilitate the perpetuation of the business across generations. So, according to these three authors a family business is one where there is a dominant family which owns and controls the business and where there is also a clearly established vision to keep the business in the family across generations. In other words, it is not a truly family business if its owners and managers do not have any plans to keep the business in the family beyond their retirement or death. Looking at the family business in this way has resulted in three broad models for understanding why some family businesses last through generations, while others don't.

## **Models of Family Business**

There are three commonly-used models in describing the potential for the growth and survival, through generations, of family businesses. These models are: Systems Theory, Agency Theory and resources-Based Theory.

### **Systems Theory**

Based upon general systems theory (Von Bertalanby, 1951), a family business is described as an open system with three sub-systems, the family, the ownership and management. The premise is that in order to understand its potential for success, (including family business succession) the family business must be viewed as a system with interdependent parts. Fig.1 presents the systems theory model of family business. This figure is an adaptation of Ernesto Poza's (2007) graphic depiction of this model. As can be seen from Fig.1, the subsystems overlap. In the center of Fig. 1, there is a three-way overlap.

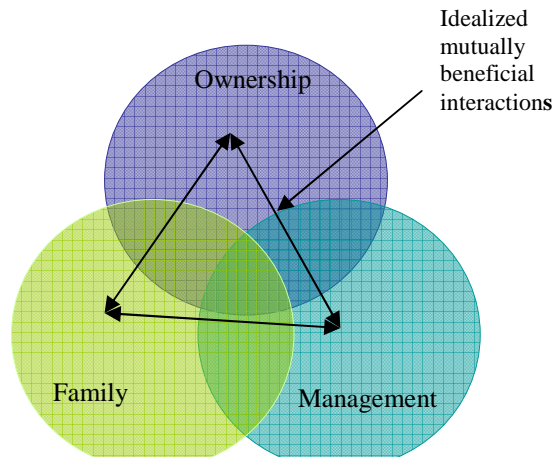


FIG.1: THE SYSTEM THEORY MODEL OF FAMILY BUSINESS

Here family subsystem members are also members of both the management and ownership subsystems. This, effectively, is the center of the family business system. It brings the concerns of the family, management, and ownership subsystems to bear on the family business, as one entity. Because a family business is a system, as depicted in Fig. 1, every person in the three subsystems affects the family business and is affected by the family business. Thus, a family member who doesn't own any stock in the family business is, nevertheless, interested in knowing how the family business is doing. Badly treated or ignored, that individual can be a hindrance to the good performance of the family business. The prosperity of the family business and its capacity to last through generations are largely dependent upon the governance structures in the family business. In Fig. 1 governance structures are represented by what is labeled as "Idealized mutually beneficial interaction." Common among these structures are the board of directors and family councils. The three subsystems (family, management, and ownership) are represented on these and other government structures. Essentially, these structures provide channels of communication on sensitive matters such as policies on gaining employment in the family business. In a well-managed family business employment in a family business is not considered a family entitlement. But this needs to be explained to family members. Family businesses, especially in the U.S., do well or poorly depending upon their ability to recruit capable employees, both management and workers. Sometimes such employees aren't available within the family. Another sensitive matter in a family business is dividend policy. The needs of the family business may necessitate conserving cash for business growth. Governance structures, such as the family council, are used to educate family members about the financial needs of the family business. Balancing the needs or interests of the three subsystems in Fig. 1 is critical for the success of a family business. Such balancing is brought about through governance structures in the family business. The absence of effective governance structures results in one of the subsystems pulling over towards itself. This problem will result in what Poza (2007) refers to as "Family-First businesses", "Management-First businesses", and "Ownership-First businesses".

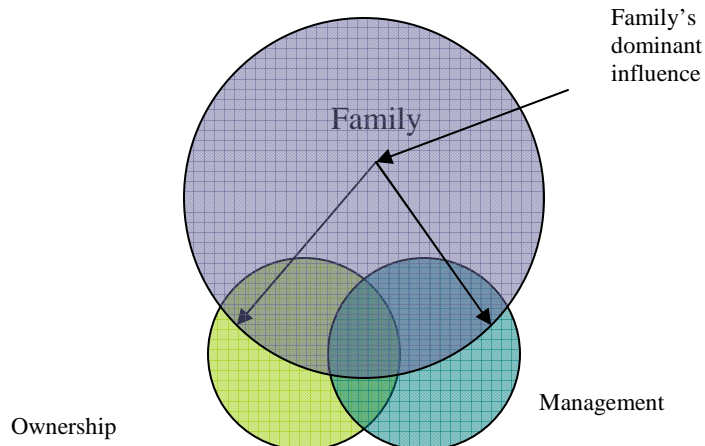


FIG. 2: THE FAMILY-FIRST MODEL OF FAMILY BUSINESS

Fig. 2 depicts the Family-first business situation. We specifically refer to this situation largely because it appears to offer the closest resemblance to the African situation to be discussed later. In a Family-first family business the business solely exists to serve the interests of the family. Nepotism would be rampant. Financial resources arising out of business operations would be used to satisfy personal needs of family members. In Family-first business situations non-family participants in the ownership and management subsystems would be discouraged to continue their participation, which is crucial for almost all successful family businesses.

#### Agency Theory

Not as pervasive as the systems theory model in explaining the success prospects of a family business, is the agency theory model. Agency theory is rooted in economics (Ross, 1973). Agency theory, in its traditional version, states that family businesses are associated with above-average outcomes, profits for example, because they operate efficiently. This is because in a family business, where a family both owns and manages the business, there is an automatic alignment of the interests of ownership and management. In non-family businesses there is no such alignment because owners are normally different from managers. Owners face a moral hazard (Chrisman, Chua, and Litz, 2004); they cannot take it for granted that their managers or “agents” will perform as the owners want them to perform. To force managers to perform as desired “agency costs” must be incurred. Agency costs represent costs of activities designed to align the interests of agents/managers with those of the owners. One form agency costs may take is the establishment of a vigorous board of directors. In the U.S. at least, boards of directors play a more pronounced monitoring role in non-family firms (and are compensated more) than in family firms (Chrisman, Chua, and Litz, 2004). It is also argued that when ownership and management overlap, the family business saves on administrative costs because of lower top management compensation. In general, family firms pay their employees less than non-family firms do (Kenyon-Rouvinez and Ward, 2005).

The Agency theory model of family business is increasingly being challenged. It is argued that overlapping ownership and management in a family business doesn't necessarily result in less agency costs than in non-family businesses. Managers from the owning family are not above abusing their positions. They may grant themselves perks they aren't entitled to. Also, they frequently fail to provide adequate supervision to their relatives, altruistic behavior working in a negative way. This results in incurring agency costs, such as strengthening the board of directors, often appointing a board of directors on top of an existing advisory board (Poza, 2007)

### **Resources-Based Theory Model of Family Business**

This theory explains the success of family business in terms of certain resources unique to family businesses. One such unique resource is commonly referred to as “patient capital”, i.e., investing in the family business for the long term. Patient capital takes several forms. Family owners may sacrifice short-term financial gains in exchange for expected long-term benefits. The family business may skip dividend payments in order to internally finance growth investments. Family members working in the family business may accept lower than market rate compensation. Average salaries in family businesses have been estimated to be about fifteen percent lower than they are in non-family businesses in the U.S. (Poza 2007). Patient Capital enables family businesses to make long-term investments, longer than in non-family firms. Long-term investment coincides with long tenures for family business CEOs, said to average fifteen years in many western countries (Le Breton-Miller and Miller, 2006) This is about three times the average tenure of CEOs in non-family firms.

Another resource that is unique to family firms is the desire to protect the family name and reputation. This desire often transfers into high quality products and increased market share. As the family brand is developed it becomes critical to establish policies to see to it that it (the aura of the family business) is passed on to the next generation in a better shape than it was received from the previous generation. It becomes a matter of stewardship (Poza, 2007).

This resources-based theory of family business also refers to the benefits of overlapping ownership and management in a family business, the same concepts brought up in agency theory. It is argued in resources-based theory that when owners and managers are the same, decisions in response to market needs such as introducing a new product, are made more timely. This is something non-family-owned firms find difficult to do, because there may be disagreements between the owners and their agents, due to their diverging interests. So, this is an additional resource (competitive advantage) that is unique to family-owned businesses, which, along with other unique advantages, propels the growth of the family firm through generations.

## **Entrepreneurship in sub-Saharan Africa**

Family business is an approach to entrepreneurship. Successful family businesses are highly entrepreneurial, constantly coming up with new products and services in order to stay alive in the face of growing competition. So, a discussion of family business in Africa requires a discussion of the key background factors that have shaped entrepreneurship in Africa. These factors may be categorized as economic/political and social/cultural.

### **Economic/Political Factors and Entrepreneurship**

Most of sub-Saharan Africa was colonized by European countries up until the early 1960. During the colonial times most indigenous Africans lived on peasant farming or as laborers on agricultural farms and mining establishments owned and operated by European private interests or the colonial governments. The African colonies were sources of raw materials and markets for European manufactured goods. The exporting and importing activities involved were handled by government-run marketing boards (Livingstone and Ord, 1994) or non-indigenous businessmen, mostly Indians, Lebanese and Syrians. With few exceptions, such as the Ijebu in Western Nigeria (Akeredolu-Ale, 1973) indigenous Africans didn't participate in business/entrepreneurial activities during the colonial period.

After gaining independence, most African governments opted for socialist philosophies. Existing government-operated production and marketing enterprises were expanded and new ones were set up. These state-owned enterprises extended from major sectors such as gold mining in Ghana to small sectors such as operating taxi cabs in Zambia.

There have been many scholarly works written about the arguments for and against state-owned enterprises in Africa and elsewhere (Elkan, 1988). However, with the collapse of the Soviet Union and its support and sponsorship of state capitalism during the 1980s, African governments started moving away from state-owned enterprises (Drum, 1993, and Sarbib, 1997). In addition, the donor community in western countries, including the International Monetary Fund (IMF) and the World Bank, were putting pressure on African governments to liberalize their economies. By 2000, most state-owned enterprises in Africa had been privatized. In a real sense, the 1980s mark the beginning of entrepreneurship within indigenous African communities. There aren't many indigenous African-owned businesses older than twenty years, not long enough a period to apply some of the family business models we discussed earlier.

While the privatization of state-owned enterprises opened doors for African entrepreneurs, it has been frequently observed that many of the state-owned enterprises were sold to the highest bidder, often a foreign company or a non-indigenous African (Asians in East Africa, Europeans in South Africa, Lebanese and Syrians in West Africa). In addition, most of the

indigenous Africans who were able to purchase the privatized state-owned enterprises were members of the ruling elite or those with good connections to the ruling elite (Schatz, 1996). The ordinary indigenous African couldn't purchase or was excluded from the purchase of money-making state-owned enterprises. He was left to take over highly competitive activities such as transportation (trucking and taxi cabs). Furthermore, an overwhelming majority of African entrepreneurs turned to speculative trade (Felchamps, 1994). There was also a tendency of getting into many small businesses at once or what Kiggundu calls "octopus organization form" (2002), partly to accommodate extended families, and partly to manage risk.

Economic Liberalization also led to further globalization of African economies. African entrepreneurs must now compete with the cheap products from Asian countries, especially China. African entrepreneurs, due to their still low production and administrative technologies, aren't yet able to export to markets in the west, again in competition with Asian exporters. Generally, African entrepreneurs operate businesses with no or low growth potential. But there are other reasons why most African-operated businesses don't grow, as we see in the next section.

#### **Cultural/social Factors and Entrepreneurship**

To understand African entrepreneurship one needs to find out the reasons why people become entrepreneurs in Africa. Researchers have discovered a general concern for independence among those who go into business for themselves. In their surveys, the U.S.-based National Federation of Independent Businesses (NFIB) concluded, "the primary reason people go into business for themselves is personal achievement and independence" (Dennis, 1993). Albert Shapero claimed that his involvement in entrepreneurship programs in many parts of the world had led him to believe that "independence is the primary, driving motivation of the entrepreneur" (Shapero, 1985). Morris, Davis and Allen (1994) have pointed out that "of all the elements necessary for successful entrepreneurship, the independent entrepreneur is the most critical." In the U.S. the high level of entrepreneurship is commonly attributed "to the cultural values of freedom, independence, self sufficiency, individualism, achievement, and materialism" (Morris et al, 1994). Even studies on African entrepreneurship have found attitudes towards independence to be one of the major predictors of entrepreneurial success, success defined as business growth (Frese et al, 2002 and Koop et al, 2000). Independence is a major component of the entrepreneurial orientation personality that Frese et al found to be critically important for entrepreneurial success in the difficult environment in Namibia (southern Africa). They defined entrepreneurial orientation to embrace autonomy, or the "ability and will to be self-directed in the pursuit of opportunities". Frese et al point out that "an autonomous owner is motivated to act and make decisions independently. It [autonomy] helps a business owner to be successful because self direction allows quick and self-reliant decisions" (2002). So, autonomy is not only the primary driving motivation of many entrepreneurs, it is also a requirement for entrepreneurial success, success defined as business growth (Schumpeter, 1934).

It is very doubtful, and there appears to be no enough evidence to suggest, that independence is the primary motivation of the vast majority of African entrepreneurs.; nor is business growth. Studies that have investigated this question (Bewayo, 1995, Gray et al, 1997, and Kiggundu, 2002) appear to point to more basic motivations. African entrepreneurs tend to emphasize "economic survival", "making a living," and "providing for family" as reasons for going into business. And many African entrepreneurs define success in terms of providing for family. A researcher quoted a business owner in Kenya as saying "Anyone who can be able to provide the basic necessities to his family ought to consider himself successful" (Gray et al, 1997). It appears that most entrepreneurs in Africa look at business ownership as merely a way out of poverty or a way to survive for themselves and their families. They appear not to be concerned about maximizing profits or independence, just to make a living. The African entrepreneur tends to be much more of a "necessity" entrepreneur than an "opportunity" entrepreneur (Reynolds et al., 2001). Although some necessity entrepreneurs, as well as "hobby" entrepreneurs evolve into growth-oriented entrepreneurs, the numbers of such entrepreneurs is very low, especially in Africa (Olomi, 2001).

When the entrepreneur's objective is merely to make a living or merely to provide for family, we should not expect businesses to expand and become big businesses. This is probably one of the explanations of the frequently found phenomenon in African countries: the number of businesses is rising rapidly, but not their average size. "Evidence indicates that the number of MEs (microenterprise) has grown steadily over the last two decades in sub-Saharan Africa and continues to grow while the size of MEs themselves does not change much" (Fafchamps, 1994). A study covering Kenya, Swaziland, Zimbabwe, Botswana, and Malawi found that only 0.9% of the surveyed firms grew to 10 employees or more over a five year period (Liedholm, et al., 1994). Most start-ups stagnated at start up size (1 to 4 persons), and many died in five years. Those which survived without expanding did so due to their access to cheap family labor and capital, and probably deep family commitment, as many family

businesses do (Kenyon-Rouvinez and Ward, 2005). They might also have survived by remaining below the radar of government bureaucrats, thus not paying for licenses and avoiding taxes, a common practice in Africa (Fafchamps, 1994).

Businesses which stagnate at small size, even though they might have certain advantages tied to their size, such as avoiding government regulation (Fox, 1988, Fafchamps, 1994), face certain disadvantages, one of which relates to financing. Surveys of African entrepreneurs cite lack of capital to be the most serious constraint they encounter (Satta, 2004, and Morewagae et al., 1995). In a survey of 13 African countries (Cameroon, Cote d'Ivoire, Ethiopia, Gabon, Kenya, Mauritius, Morocco, Namibia, Nigeria, Senegal, South Africa, Tunisia, and Uganda) only South Africa and Tunisia had reasonable availability of loan financing from commercial and development banks (UNCST, 2001).

We stated earlier that African entrepreneurs are not particularly concerned about growth, and that this may explain why many of their businesses stagnate at small size. Whether a business grows or doesn't is also influenced by the extensive network of social obligations that commonly characterize African cultures (Friedland and Roseberg, 1967, Kiggundu, 2002). Social networks have been found to enhance entrepreneurship among many communities. Reynolds (1991) has stated that social networks are "an important prerequisite to starting a successful new firm". In the U.S. much of the success of Asian entrepreneurs has been attributed to the existence of well-maintained social networks. A popular manifestation of social networks has been the Rotating Credit and Savings Associations, called "kye" in Korean, which are communal business funds from which members of the community borrow for business and non-business purposes. The strength of the social networks makes the borrowers pay back the loans without legal pressure. Schemes like this have been attempted in Nigeria (called "esusu"), in Ghana (called "susu"), in Senegal (called "tontines") and in Kenya (Achua et al, 1999, and Harper, 1984). These schemes are for starting businesses, not growing them. Moreover, they are said not to work as well in African communities as they do in Asian communities (Achua et al, 1999).

Social networks become problematic when they turn into social obligations, whereby a business owner is expected to provide jobs to the members of the extended family and help them out with financial obligations such as the payment of school fees. This can strain the resources of a fledging business (Republic of Kenya, 1994). The presence of extensive social obligations tends to decrease the business owner's autonomy in operating his business in the best interest of the business, such as resisting hiring an unqualified relative. A researcher in Tanzania discovered that almost all successful entrepreneurs had established their businesses in towns other than where they grew up, their ethnic neighborhoods. The researcher's interviewees gave the impression that it was difficult to "develop" at home" (Oyhus, 2000). And in Ghana an entrepreneur had to relocate his business from his hometown, claiming that "it is your people who seek your downfall through superstitious means" (Kiggundu, 2002).

The extended family is frequently exacerbated by polygamy. Polygamy, practiced in many African countries, not only extends the already extended family, but has the potential of complicating the operation of a family business even more. In the absence of alternative employment opportunities, the family business must provide jobs for all the siblings and other relatives in the family. Rivalry between siblings makes the distribution of responsibilities in the operation of a family business a difficult task (Friedman, 1991). The task becomes more difficult within a polygamous family. Given intensified rivalry among siblings, a common occurrence in business-owning polygamous families is to distribute business assets when the business owners want to retire or die. The dismantling of the business is done in order to distribute the assets between siblings and other relatives, due to lack of agreement on which one of the siblings or relative to take over the business. Consequently, the business doesn't transfer over to the next generation ( Bewayo, 1997, Kiggundu, 2002)

The extended family and other forms of social obligations generally result in a loss of the business owner's autonomy or independence. Independence has long been a phenomenon of great interest in discussions of national cultures. G. Hofstede contrasted it with collectivism or communalism (1983). Many people attribute the high level



of entrepreneurship in the U.S. to the deeply-seated cultural values of independence and freedom (Morris, 1994). Sub-Saharan African communities have been commonly considered to be communalistic with strong tendencies for altruism towards family, clan, tribe, and (in rare cases country). These communalistic tendencies influence entrepreneurial activities. Fafchamps has observed that “in most of sub-Saharan Africa mutual assistance is a way of life” (1994). He believes that this is one of the major reasons why an African businessman may choose to “transmit valuable information to relatives and friends instead of trying to use it” himself. In this case and similar others a businessman misses on an opportunity to expand his business

## **Family Business Models in the African Context**

The three most popular family business models in the U.S. and most other western countries were discussed earlier in the paper. In this section we examine whether these model can be applied to the African entrepreneurial environment.

### **Systems Theory Family Business Model in the African Context**

As can be seen from Fig. 1, the systems theory model of family business implies that a family business is a system with three overlapping subsystems, family, management, and ownership. The subsystems are parts of the family business system. While the three subsystems are separate, they are interdependent. The model relies on active governance structures to function properly. The model is based upon many stringent premises, especially about the nature of the family, premises unlikely to hold up in the African social-cultural environment. One such premise is that the family accepts the ever-present potential for conflict between family harmony and business performance. Pleasing family members with perks in the business would lead to harmonious relationships within the family. This includes the good jobs in the business. But tendencies such as these would not necessarily be in the best interest of the business. These tendencies can only be avoided by setting up guidelines for making decisions that cause family business conflicts, such as denying a job in the family business to a member of the family. The shortage of jobs in most African countries would make such policies difficult to formulate and even more difficult to implement. The system theory model of family business assumes the general belief or value within the family that a high-performing family business is good for the family in the long run. Such values are difficult to inculcate, especially when they conflict with the urgent needs of the family, such as finding a job for a son, who otherwise would be jobless for a long period. The presence of the extended family in most African countries generally makes the situation worse.

The systems theory model of family business implies that the family, management, and ownership subsystems overlap but are not conterminous. This implies that there are family members who aren't involved in the management or operations of the family business, that there are family business employees who aren't family members. This implies a fairly big business. Small businesses with five employees or less rely largely on family employees. In other words, when a business is small the management subsystem becomes conterminous with the family subsystem.

The systems theory model also implies that some members of the ownership group aren't family members; they have stock or some other ownership instrument, even though they are not family members. This requires the existence of a fairly sophisticated legal financial system. The equity owners also need to be financially sophisticated. Most financially unsophisticated and small business owners in most western countries are sole proprietors, where ownership is held exclusively by one person or one family. So, the systems theory model doesn't appear to apply to businesses operated on a small scale by relatively unsophisticated owners.

Clearly the systems theory model of family business implies a rather big business, where the family shares the management and ownership with non-family members in a recognizable way. Businesses large enough to suit the parameters of the systems theory model are still rare within the indigenous African business-owning community. Most relatively big businesses in Africa, the African entrepreneurial success stories, such as those reported by David Fick (2002) are owned and operated by non indigenous Africans.

Earlier, in Fig. 2, we referred to the family-first model of family business. In this model the family subsystem dwarfs the management and the ownership subsystems. There is a semblance of a separation of management and ownership in the family business. But the family business is operated largely to serve family

interests. In this situation there are no governance structures, e.g. boards of directors or family councils, to help mediate between the family, management and ownership whenever there are conflicts. Gradually, the good non-family managers quit and essential non-family equity interests fizzle out. The family business loses its spark for growth. A family business which doesn't grow runs into succession problems (Poza, 2002). The family-first model of family business is more likely to apply to the African situation than the optimized systems theory model, where the family, management, and ownership optimally balance their interests for the long term prosperity of the family business. But it is more realistic to assume that given the social-cultural and economic-political environment in most African countries, the founder of the "family" business will have no competing centers of influence. The immediate family, the extended family and other aspects of social networks will influence what he does, but they will not be in competition with him for influence. The founder will be at the center of the family business. Fig. 3, termed "The

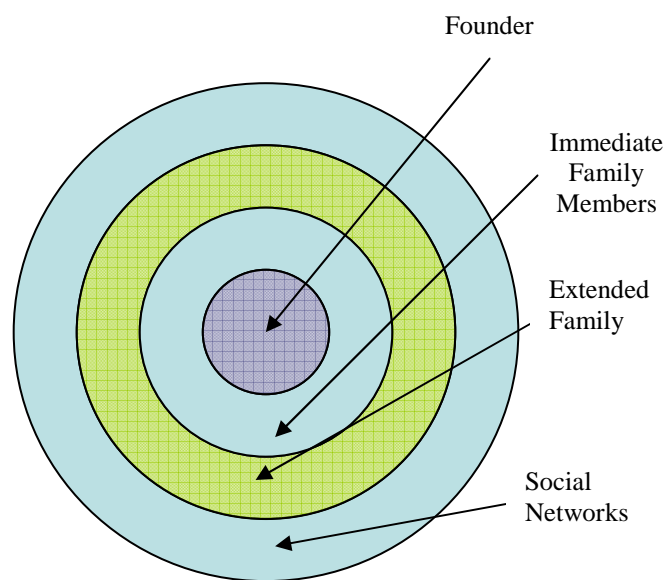


FIG. 3: THE CONCENTRIC MODEL OF FAMILY BUSINESS

Concentric model of family business" depicts this situation. The family business serves the founder's personal interests, constrained only by the network of extensive social obligations.

**Agency Theory Model of Family Business in the African Context**

As we saw before, the agency theory model of family business, in its traditional version, states that a family business will out-perform non-family-owned business because of the efficiency arising out of minimizing agency costs. Agency costs are costs incurred to ensure that the interests of ownership and management are aligned. In owner-managed businesses there are no, or there shouldn't be, agency costs. In a family business, and in terms of agency theory, management includes all the family members involved in the operations of the business. If there is total agreement on the family's goals about the family business there will not be any agency costs. But in the African context total agreement within the family about business goals or anything else is unlikely due to the expansive definition of family. If "family" means or includes the extended family, as it usually does in African countries, total agreement within the family will be difficult to come by. The same point can be made if the family involves a polygamous marriage, which often generates intense disagreement within the family. Consequently, there is likely to be a need for incurring agency costs in an effort to align the behavior of family member employees

with the needs of the business. So, the agency theory model in its traditional version that a family business doesn't have agency costs is inapplicable to the African environment.

#### **The Resources –Based Model of Family Business in the African Context**

This theory focuses on the resources or advantages that are unique to family businesses. Probably the most important of these unique resources is patient capital, which is investing in the family business for the long term. There are many reasons why this would be difficult to happen in Africa, given the current social-cultural and economic-political environment in Africa. There must be within the family a strongly-held belief that the family business will be there for long term investors, those making sacrifices in exchange for expected long-term benefits, to reap those benefits. Beliefs or values of this kind take time to develop. Family unity is a key requirement for developing such beliefs. The prevalence of extended families in many African countries is not conducive to creating highly-united families. Advantages arising out of overlapping ownership and management, such as reduced administrative costs and speedy decision making, would be difficult to realize, as was pointed out under agency theory. Advantages from protecting the family name by developing high quality products require high-level strategic planning. Businesses that aren't actively pursuing growth strategies generally don't do serious strategic planning. It appears, therefore, that the resources-based model of family business, as is generally used to describe successful family businesses in the U. S. and other western countries, doesn't apply to most family businesses in Africa to day.

### **Summary and Conclusions**

The last twenty years have seen an upsurge in the interest in family business in western countries. In Africa and most of the developing world these last twenty years also coincide with the newly-discovered emphasis on entrepreneurship, in the aftermath of the collapse of the Soviet Union. The most common form of entrepreneurship is family-owned business; a successful family business represented the best in entrepreneurship. We have compared three of the most popular family business models with the mostly-new family businesses in African countries. The new family businesses in Africa are arising out of African social-cultural and economic-political conditions. Many of these conditions, especially the cultural conditions, don't yet encourage family businesses that grow. Family businesses that don't grow generally do not last from generation to generation. The three family business models which have been discussed in this paper relate to family business owners who have a vision for longevity. The systems theory model of family business in particular identifies organizational and behavioral elements that facilitate family business succession planning, such as the management of conflict between the family and the business. In most of today's family businesses in Africa mechanisms to resolve such conflicts are irrelevant in the sense that the separation between family and business often doesn't exist. And the family itself is not neatly demarcated, because of the existence of extended families. The three models, then, do not appear to be applicable to the typical African family business.

A recent book about entrepreneurship in Africa raised the issue as to whether the concepts of entrepreneurship and entrepreneur mean the same things in the U.S. as they mean in Africa (Fick, 2002). The same issue may be brought up with respect to the concept of family business. Academics and consultants in the field of family business view a family business as incorporating three elements: family ownership, family control and a vision for transferring the business to the next generation (Chua, Chrisman, Sharma, 1999). This view on family business doesn't fit the African family business environment. Businesses that are family-owned and family-controlled are easy to find in Africa, but one does not see any evidence of a vision, let alone a plan, for succession. Moreover, the business and the owner are too indistinguishable to think about family-owned and family-controlled separately as if the two are distinct from each other. Most of the time the African business owner operates his business as a personal property, only subject to the influences of his family, broadly defined to include the extended family and other social obligations. This is what is suggested in Fig. 3. African family businesses are family businesses to the extent that the entire family is involved, partly because the family business provides employment opportunities in a situation where they rarely exist outside of the family business.

Many successful family businesses in western countries took a long time to get to where they are today. Some of these companies have grown partly due to environmental shifts. The increase of leisure time and

consequently the increase in the demand for leisure services have helped Marriott become a popular brand. Africa is undergoing a lot of change. As intra-African trade expands, following the creation of regional common markets, new entrepreneurial opportunities will open up. Limited markets still currently frustrate efforts to increase sales for some entrepreneurs ( Schatz, 1997). Other constraints on the growth of family businesses, as we saw earlier, are a few social mores such as the extended family and polygamy. Attitudes towards these also are changing, as urbanization charges ahead. As entrepreneurs respond to these and other changes in the environment, the African family business model will most likely move closer to the western model. For now, academics and advisors of African policy makers will do well by starting out with the assumption that the western family business model isn't working in Africa, not yet (Iguisi, 1999).

## **References**

Contact author for list of references.

## **Co-axial Model: Management Mechanism for Long Term Growth**

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### **Abstract**

The application for research and practice in strategic human resource management (SHRM) of a complex, is a living-system extension of the cooperative management. The propose model describe a framework for understanding how management tool affect organizational development via tangible and intangible asset. Building on recent research on the concept of informal organization previously significant contribute that all formal organizations and social grouping are not a machine. Informal relationships are the powerful forces behind the proper or improper managed. Thus, management, today, is rather than looking for the additional complicate techniques. Firms should smartly identify and utilize the invisible powerful forces within the organization that help managing organization properly. This paper is the further examining the theory of motivation, perceive positive interests, values and self-achievement that can be enhanced by incorporating current insight concerning formal and informal relationship through and the acceptance of authority as the powerful forces to enhance organizational performance. Co-axial Model is an attempt to reinvent the classical perspective in order to manage human capital and provide a choice of work for establishing high productivity and effective treatment of employees. This proposed theoretical perspective focuses on the management technique that determining the long term growth.

### **Co-axial Model: Management Mechanism for Long Term Growth**

The study of cooperative management represents one of the most enduring areas of management research (Doz, 1996). In addressing the importance of strategic cooperative, particularly in the contemporary organization, the competitiveness of the organization is strongly linkage with the level of internal cooperative through strategic human resource management. Since cooperative is “matter” in the organization. The call for theory development in strategic human management (SHRM) continues increasing. At the same time, the majority of studies in cooperative management and SHRM focus on either practical advice or presentation of empirical data without a new strong theoretical support. Wright& McMahan (1992: 297) quoted that “the field of SHRM lacks strong theoretical foundation is true, and then this could undermine the ability of both practitioner and researchers to fully use human resources in support of firm strategy”. In addition, the research in the field of human resource management (HRM) focus specifically on the deployment of human resource through the activities which directly enable firm to achieve its goals by ignoring the circumstance factors. Ulrich (1997b) suggest that in order to enable the practice of strategic management to become a strong strategic multidiscipline and the integration of theoretical is recommended.

Rather than applying the SHRM only concern that skills, behaviors, and interaction of worker has provide the potential of the company strategic formulation and implementation. The firm’s strategic human resource management (SHRM) must initiate in developing the strategic capability from the potential workforce. Thus, a stronger theoretical foundation is required to improve the utilization of the tangible and intangible asset in order to enhance the effectiveness of human capital practice. Since, the recent research discovered that sources of competitive advantage relate closely with the role of human resource factor either as tangible or intangible asset or both. Barney (1991) state that while tangible assets are easy to imitate. Thus, it could not be the key success factor to sustain the competitive advantage. Therefore, firm should focus on the human asset as the intangible variable which difficult to imitate particularly on the specialization, and tacit knowledge (Coff, 1997). Thus, the problem of most organization is how to bring best out of people. Barnard (1938) recommended that in order to bring best out of people. First, it is essential to understand the informal organization that occurs in all formal organization same as social groupings. The reason is that since organizations are not the machines. Formal organization may have the limit to bring best out of employee. On the other hand, informal organization which referred to the informal

relationship was proved to be the powerful forces that could help developing the organization competitive advantage if properly managed.

Barnard (1938) also proposed the acceptance theory of authority, which state that people have free will, and can choose whether to obey management orders. Most people normally follow orders because they perceive positive benefit to themselves. Therefore, the manager should properly treat their people appropriately. It is because their acceptance of authority may become critical to organizational success in the competitive situation. Particularly, when the form of organization has been changed recently such as the complication of the business systems and decision making process, the expectation and the demand of the worker and the effective of communication are required. Those changed has been driven all organization to start concerning about the contemporary management mechanism which can customize the SHRM to fit well with the changing demand and expectation of the employee same as the changing environment.

This paper propose the model that articulate a theory of conditions under the concept of dynamic alignment between formal and informal organization, and individual and collective interest which help generate the cooperation within the organization that can create the competitive advantage for the long term growth. This is an attempt to answer Barnard (1938) question on how to identify the agreement between individual, group and organization interest as a whole in order to energize the performance. It is because SHRM researchers have not made great strides toward understanding how poor SHRM can prevent a firm to create the competitive advantage. In order to analyze SHRM and firm cooperative to develop competitive advantage for the long run, this paper is rather than follow tradition HRM-firm performance by using a system approach. The research has shifted the focus on separate HRM practice and employee motivation on performance to the design mechanism that could help firm energize the best capability out of its employee.

To be clear, the focuses of this paper is rather than examine and develop “fit” between various HRM practices and the organization’s competitive strategy (Miles & Snow, 1994; Wright & Snell, 1991; 1998). The logic is that a firm’s HRM practices have to design the mechanism that align and energize firm strategy with employee skills, knowledge, and wisdom. Therefore, firm must concern human asset as the tangible and intangible asset. The purpose of the study is an attempt to convince that organization’s human resources are the critical strategic importance-that skills, behaviors, and formal and informal interaction of employees have a potential to enhance the long term growth for the company through the cooperative strategy on formulation and implementation of the strategy. Since, human asset are the key success variable in developing the strategic capability. A framework of study is depend mostly on how to design the mechanism that can motivate the whole workforce of organization and be able to align individual and collective interest under the formal and informal relationship.

The paper also discuss that the greater extent to which organizational performance increase as a consequence of firm’s structure and activities aligning with perceive positive interest of all player within the organization. The objective fulfilled with the study of the agency theory (Alchain & Demsetz, 1972) state that individual goals are not always in the line with organizational goals. Thus, the consequence of this strategic relevance of this effect, firm have to find the common interest and aligning those interest among employee, social grouping, and organization goals. Therefore, the in-depth study on the motivation theory and motivational processes as the key antecedent of organizational interest alignment to enhance the energy of the informal relationship to generate the long run growth is examined.

## **Co-axial Model**

After reveal a recent research collection on exclusive organization cooperative on competitiveness for the long term growth reflect that SHRM research mostly study based on tradition approach. Co-Axial mechanism is an evolution in the management master class. The concept of coaxial was adopted from the new Omega coaxial escapement known as a revolution on master watch making. This new innovation can reduces sliding friction compares with the lever escapement and thus ensures greater accuracy over time (Mudge & Daniels, 2002). Thus, the study is an initiative of bringing in the concept from the others discipline which the author believe that it will help designing the management mechanism better in term of implementation and explanation.

After witnessed numerous outstanding achievements of the most successful Fortune 500 companies, Co-axial model is developed in order to committed and lead the firm to continue with their future innovation and achieve on the forward looking approach to fulfill the organization goal through the art of management. The proposed mechanism was brought in from the unparalleled know-how with strong synergies of resources and industrial capability available within Management cosmos, the purposed model are yet another management technique in the management history.

The Co-axial Model is an attempt to integrate SHRM theoretical with others discipline in order to address the question that most researcher try to answer on how to energize the organizational potential through the most valuable asset which is human resource. Rather than looking fro the complicate techniques, we recommend firm to identify and utilize the invisible powerful forces within the organization that help managing organization properly. David M. Lawrence, Chairman and CEO of Kaiser Foundation Health Plan and Hospitals stated - in a paper prepared for a CEO conference in 1996:

“...If leading change were nothing more than an intellectual exercise in rearranging structure and redesigning processes, our lives would be a lot simpler. But CEO’s job is to lead change, not just manage it. Leading people in new direction mean reshaping their view of the world. It means shattering their sense of stability, tossing out their old standards of success, and prying them loose from status quo. And then it means replacing what you’ve wiped out with a new, coherent and energizing vision of what you believe the future can and should be”.

The statement above give us better understanding on the focus of how to cope with change effectively. Managing change is matter and become the relevance common interest for all the players within the organization. Thus, the essence of the paper-also determine that long term growth require dynamic change. Managing change is not only focuses solely on the organization’s strategy, its structure, and its operation, but also need to focus on the perceptions, expectations, and performance of thousand of employee. Thus, the one basic concepts of co-axial model is also address on how firm dynamically cope with change by using the most flexible resource of the organization which is human capital. No mater what is the reason for being of the firm. One would be to enrich owner and shareholders, to provide a collective capability to produce goods and services or to serve society by providing people with employment. It brings the consideration on how to enhance organizations which are the first and foremost human institution. Since each firm ought to have a strategy, specific-asset and objectives that enable organization to thrive on change by strengthening its discipline people to generate excellence operation.

Co-axial Model comprising with a specific set of five tightly interrelated factors. Each factor has to align with others factors to create the strong impact on the competitive dynamic (Nadler, 1998).

- *The work.* The activities performed by organization’s employee in order to achieve goal.
- *The people.* The organizational workforces.
- *The formal organization and collective interest:* Refer to the explicit resources and activities such as structure, system, and process that organize people to perform their work. And the organizational interest, which firm try to achieve, by utilizing the existing resources.
- *The informal organization and individual interest:* Refer to the implicit resources and values which is invisible but effectively guide people to perform their work. It depends most on the individual interest on the perceived positive value, attitude, beliefs, and unofficial channels of communication.
- *The dimension of motivation:* Refer to the set of motivation to manage human capital and provide a choice of work for establishing high productivity and effective treatment of employee.

## **Cooperative Management and the Contemporary Competitive Advantage**

The demand for change and the attempt to cope with change in the current competitive environment remind us to revisit the competitive advantage stated by Michael E. Porter (1980). The research found that competitive strategy still necessary for the firm to compete in the market but it seem not sufficient to sustain firm’s competitive advantage for the long run. From the reason above, all of the concerns ultimately lead us to search for “the

contemporary competitive advantage one". Nadler (1998) articulate the contemporary competitive strategy and identify that the answer lies in the three closely related components as;

- Intellectual Capital
- Organizational Capability
- Organizational Architecture

**Intellectual Capital** is an organizational collective knowledge which referred to the intangible asset which is tacitness. The effective dynamic development of the collective knowledge relies on the alignment of the formal organization which represents organizational interest to become the leader in the industry. The long success story of Kikkoman soy sauce is a good example of collective knowledge of brewing the soy bean for more than 300 years. The formal organization such as production processes, communication structure and system is specifically unique. These activities are already implanted into the organizational interests that become collective interest of the company as a whole for more than 300 years. Without the transformation of the knowledge through the informal communication channels that fit with the individual and organizational interest, the success of Kikkoman may not last till now.

**Organizational Capability** defined as the abilities of people to collectively accomplish established goal. The reasons behind collective behavior depend on the absolute motivation that firm provide through the formal and informal organization that fit with both individual and organizational interest. Matsushita Electric has been known as the best electronic manufacturer of Japan that listed in the Fortune 500. In the early year Konosuke Matsushita start the company with the capital of 100 yen and 4 workers. Today the company employed more than 220,000 employees worldwide. The success of Matsushita Electric is a good example of dynamically alignment of internal variables within the organization properly. Matsushita (1992) communicate clearly through both informal and formal channels on the priority of "*People before product*". He also stated that the human factor is far more important in business than others factor. What he continuous addressed and often communicates with his employee is on employing people, motivating employees, cultivating human resources, and optimal personnel management. Believe it or not, all the Matsushita Electric workforce worldwide follow the basic management objective develop by Konosuke Matsushita respectfully as follow;

*"...Recognizing our responsibilities as industrialists, we will devote ourselves to the progress and development of society and the well-being of people through our business activities, thereby enhancing the quality of life throughout the world"*.

Moreover, the company also provides the handbook of action that becomes the company guideline for conducting all work activities. That is the answer of the reason why the successful company can sustain its competitiveness for the long run.

**Organizational Architecture** is defined as the essential of management that company should design structures, processes, and systems (which is a formal organization: collective interest) that will allow firm to exploit the collective knowledge and capitalize on the capabilities that will make them unique. In the past, design might limit only the organization restructure (formal organization). Today, designing those factors are more complicate which top management could not ignore is balancing the responsibilities and motivation with the incentives to self-directed individual and team. Organizational architecture is the key inspiration on the development of the co-axial model. To yield better understanding, Co-axial apply the multidiscipline knowledge such as SHRM, informal organization, motivation theory and the engineering discipline from watch industry to explain the cooperative that enhance the competitive dynamic of the living organization that sustain its growth for over 100 years.

From the discussion above, this paper is strongly convinces both researcher and practitioner to believe that the firm's success is not only come from the formal organization and collective interest, but also the informal organization and individual interest. Therefore, top management should pay more attention to focus on the values of people, not asset. The successful of Kikkoman and Matsushita Electric ensure our assumption that aligning the key concept to achieve organizational goals must focus not only on effectiveness but also efficiency as well.

Effectiveness is defined as being able to accomplish the explicit goals. Efficiency is defined as the degree to which organization is able to satisfy the motive of the individuals. Barnard (1938) believe that if organization



could align the individual and collective interest and be able to attain its explicit goals through formal and informal organization, cooperative among them will be last long.

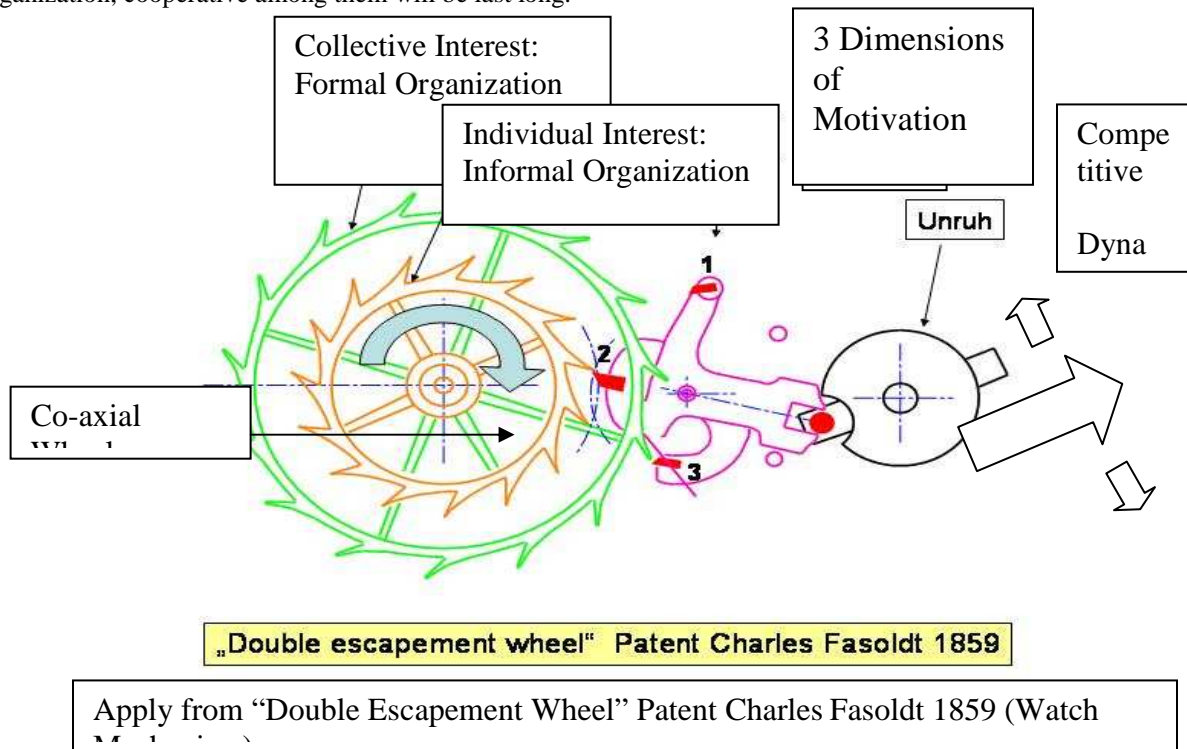


FIG. 1: CO-AXIAL MODEL

Co-axial Model is applied for the watch mechanism which generates the power to its 3 hands, Figure (1). The proposed model exhibit the alignment of formal and informal organization along with collective interest and individual interest by fixing in the same axial called “the co-axial wheel”. The co-axial wheel is designed to ensure that both formal and informal organizations are congruence to each other. Therefore, the individual and collective benefit will be aligned dynamically. No matter what would move this wheel, all will move in the same direction. In addition, in order to motivate all factors above to cooperate to each other. The model recommended the treatment by the lever instrument through three form of motivation which is connected through double-deck wheel. The lever have 3 pallet stones mechanisms that make all component work are 1) extrinsic motivation, 2) Hedonic intrinsic motivation 3) and Normative intrinsic motivation.

The detail on how this mechanism work is that three arm of the lever which assume as the motivation treatment will help pushing the wheel to work systematically. The Motivation will become the driver to push the co-axial wheel move. The touching point of the lever has three points that push the wheel on 3 steps. At the same time, on the right hand mechanism, the movement arm will make the competitive dynamic of the firm moving automatically.

This co-axial model is an attempt to illustrate how those key success variables connect or have an influence to each others. The concept behind this model is even we align the informal organization on top of the formal organization. We need to concern the individual and collective interest and have to align it together properly. In order to move this wheel smoothly, firm need the mechanism which represent by the lever that have 3 connecting points to drive and pushing the wheel continuously either on the formal organization or informal organization systematically.

The effectiveness of the model would rely on how firms apply the motivation that both individuals and organizations perceive as positive interests. Moreover, the rhythms of movement should synchronize with each other in order to move the competitive dynamic systematically. The proper motivation treatments are as follows (Gottschalg & Zollo, 2007);

**(Impulse #1)** The connection point represents the motivation mechanism in form of “extrinsic motivation” which drives the individual through the desire to obtain the external rewards subject to the degree to which the additional rewards will be received for a given behavior.

**(Impulse # 2)** The connection point represents the effective treatment through the motivation mechanism in form of “normative intrinsic motivation” which drives the individual and organization through the desire to comply with organizational norms and values subject to the degree of congruence between the behavior and organizational culture such as norm, belief and values.

**(Impulse# 3)** The connection point represents the effective treatment through the desire to engage in enjoyable, self-determined, and competency-enhancing activity subject to the characteristics of the task and the task context. This connection requires the job design and job enrichment to increase the enjoyable task to fulfill the self achievement that could generate the competency-enhancing activity.

Finally, the whole application of co-axial model exhibits the powerful concept of contemporary competitive advantage on the organizational architecture in an attempt to utilize the collective knowledge through the capable people that collectively accomplish the established goals. Moreover, the model also yields better understanding of the motivation treatment in order to energize the competitive dynamic through cooperative management.

## Conclusions

While managers and management theorists have sought to answer the question, why should employees cooperate with each other and work hard to achieve the organizational goal? The traditional answer may not be appropriate. It is because to enhance cooperative management may require more than one dimension of the explanation from the candidate variable. To successfully start searching for the management mechanism to enhance growth for the long run, firms should consider both formal and informal organization simultaneously and be able to design the motivation treatment to fit with individual and organizational interest in order to promote better cooperation to create the competitiveness for the long run.

Integrating SHRM and cooperation management with invisible powerful forces that exist within the organization in the strategy formulation and implementation can enhance employees' contribution of the best effort and capability. This integration can form the basic motivation and self-achievement and aligned interest between employee and organization. Another implication for the managerial practice relates to the issue of how best to manage human assets and organizational change. Informal organization is becoming an important means to promote the congruence between workers and organization.

### Research Agenda

There are several contexts in which researchers can develop the proposition from the proposed model. Further research in this area can be particularly helpful in understanding the dynamic of SHRM on the firm's competitiveness in other dimensions, particularly better understanding of cooperative management in other ways around. As noted by several researchers, the theory development of SHRM is limited. While the direct SHRM theories to predict behavioral reactions are still somewhat questionable, research findings in this area have been somewhat inclusive. Hence, the co-axial model is an initiative attempt to enrich SHRM research but is limited by the state of the theories. The future modification of the model is required. Particularly, the influence of organizational culture should be considered within the model to ensure the successful development for the long-run growth.

Most significant and perhaps generalizable from this study would not just be the particular HRM principles themselves but also the system, structure, strategy, and staff within the firm of designing who, what and how to manage it. The purpose is to ensure that those activities congruence with business policy and firm practice. The competitive dynamic research could be usefully benefited from the further study by using the framework offered here. With the proposed HRM and motivation principles, researchers could design the implementation processes along

with a dynamic catalyst to enhance better cooperation. The combination study of strategic intentions and the allocation of resources to fulfill employee self-achievement is also recommended. The future research will guide the development of HR system dynamically overtime. Definitely, the system should also fit and flexible well with its changing operation environment.

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# **Is Managerial Discretion Higher in Multinational Firms? Evidence from Accounting Information Quality of Multinational Firms**

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## **Abstract**

The objective of our study is to investigate whether a firm's multinationality is associated with managerial discretion by examining accounting choices of multinational firms, surrounding Sarbanes-Oxley Act (SOX). The complexity of the multinational firm and the resulting difficulty for shareholders in monitoring management's decisions enable management to act in their own self-interest at the expense of shareholders, suggesting more discretion in accounting choices for management in multinational firms. Enhanced scrutiny and public demand for transparent financial reporting after SOX, however, may alter managers' behavior. Using a large number of sample firms over the period 2000-2004, we examine whether there have been significant changes in accounting choices of multinational firms after Sarbanes-Oxley Act (SOX). By employing a firm-specific abnormal accrual estimation design to measure accounting flexibility or discretion, we examine whether multinational firms, compared with their industry-size-matched counterparts, tend to have greater managerial discretion in accounting choices before SOX. We also examine whether after SOX the decreased discretion in accounting choices is more pronounced in multinational firms than control unational firms.

## **Introduction**

We investigate whether a firm's multinationality is related to managerial discretion by examining accounting choices of multinational firms, surrounding Sarbanes-Oxley Act (SOX). More specifically by using a large number of samples over the period of 2000-2004, we investigate whether there is a significant difference between multinational firms and control firms in terms of accounting choices before SOX. We also examine whether there have been significant changes in accounting choices of multinational firms after SOX.

There is a large literature arguing that the more complex the corporation, the more difficult it is for shareholders to monitor management's decision. This leaves the managers of such firms more discretion to act in their own self-interests at the expense of shareholders. Multination firms (MNCs) are characterized by more complexity and difficulty in monitoring managers' decision [e.g., Denis, Denis, and Yost (2002)]. The complexity leads to increased information asymmetry between managers and shareholders, which may lead managers to manipulate earnings in a way that maximizes their own self-interests. Assuming that managerial discretion is more significant in multinational firms than unational firms, we investigate how managerial discretion is more exploited in multinational firms by examining the accounting choices of firms surrounding SOX. To the best of our knowledge, it is the first study which examines the relationship between a firm's multinationality and managerial discretion by using accounting information related to SOX.

In accounting, managers have incentives to exploit latitude allowed in accounting choices for many reasons. Prior studies document that managers are likely to choose financial reporting methods to avoid violations of earnings-based-contracts, to maximize their performance based compensation, such as cash bonus, or to meet market's expectations [e.g., Burgstahler and Dichev (1997); DeFond and Jiambalvo (1994)]. To achieve their personal goals, managers tend to rely on accruals, one of earnings components. Since the accrual component of

earnings contains accounting estimates based on forecasts, accruals are more likely to be subject to manipulations than cash flows. Judgment allowed in determining accruals enables managers to manipulate earnings and the magnitude of accruals can be a useful measure of financial reporting quality. Myers et al. (2003) note that accruals measures are considered to be most representative of managements' discretion in the financial reporting process.

We use a large number of multinational firms over the period of 2001-2004. During this period, the Sarbanes-Oxley Act was enacted and there have been significant changes in corporate environment (e.g., increased scrutiny and transparency requirement of corporate governance). The SOX intends to make financial reporting more transparent. There is some initial evidence that financial reporting quality has increased after SOX [e.g., Lobo and Zhou (2006)]. The intense legislative and media scrutiny after a series of high-profile corporate failures<sup>1</sup> suggests that managers would be more conservative in the period after SOX, implying that management is less likely to make extreme reporting decision after SOX. In addition, improved quality of financial reporting with lower managers' discretion may be greater in MNCs because multinational firms are more likely to be targets of public scrutiny due to their operational complexity. Therefore, we hypothesize that managers of MNC are more likely to be more conservative in selecting accounting choices after SOX than other uninationals firms.

We use a matched-pairs design for the empirical tests. For each multinational firm, we select a control firm with the same year, with the same two-digit SIC code and with the closest asset size. The results of univariate and multivariate tests support our prediction. First, we show that multinational firms, compared with their control firms, tend to have larger amount of accruals before Sarbanes-Oxley Act (SOX) was enacted. The result suggests that managerial discretion in multinational firms is more pronounced compared with their sized matched counterparts. More importantly, we show that multinational firms, compared with control firms, adopt more conservative accounting choices after SOX, which is also consistent with our hypothesis. Managers of multinational firms are less likely to use their discretion in accounting choices due to severe scrutiny from public especially after SOX.

The remainder of this study consists of four sections. In Section 2 we discuss relevant literature and develop hypothesis to be tested. In Section 3 we provide the empirical research design, and in Section 4 we report and discuss empirical results. We conclude the study in the last section.

## **Literature Review and Hypothesis Development**

In general, multinational firms have more complex operations than uninationals firms [Morck and Yeung (1991)]. Multinationals firms often have a number of geographical segments located in different reporting jurisdictions. This increases the costs for coordinating activities of the different parts of the firm. Delegating resources and authority to geographically diverse locations can make monitoring of the multinational firms more difficult and costly [Cahan et al. (2005)]. Also, information asymmetry between central and local managers exists because local managers have more specific knowledge about the future cash flows associated with invested assets. Monitoring these overseas agents is also difficult because geographical constraints, cultural differences, timing issues, and international market imperfections [Reeb, Kwok, and Baek (1998)].

Due to these complex operational characteristics of multinational firms in a global market it is quite difficult for shareholders to monitor management's decisions because managers in multinational firms may be able to generate unique patterns of financial information process, which may not exist in uninationals firms. In other words, managers can have greater ability to use more discretion in accounting choices to pursue their personal objectives at the expense of shareholders with the increase of firm's multinationality. Operating in multiple geographic locations enables managers to arbitrage temporary international market imperfections and to transfer profits or losses within the firm to take advantage of firm's multinationality [Bodnar et al. (1999)]. In addition, the information gap between managers and shareholders may induce managers to manipulate earnings in a way that maximizes their self-interests.

Managers' objectives can be different from share-price maximization, which is the presumed objective of shareholders. Managers are more likely to be concerned about their job security or maximizing their personal compensations [e.g., John and John (1993)]. Duru and Reeb (2002) find that greater corporate international diversification is associated with less accurate and more optimistic forecasts. This evidence suggests that as firms

become more geographically diversified, forecasting their earnings becomes more complex and in result managers in multinational firms can have greater flexibility or discretion in financial reporting process.

Following several high-profile accounting scandals that resulted in billions of dollars of losses with investors, President Bush signed the Public Accounting Reform and Investor Protection Act (the Sarbanes-Oxley Act) into law On July 30, 2002. The Sarbanes-Oxley Act (SOX) is intended to enhance quality of financial reporting through (1) higher standards for corporate governance; (2) executive certification of financial reports and internal controls; (3) creating an independent regulatory body for the auditing profession; and (4) establishing new civil and criminal remedies for violations of federal securities laws [Jain and Rezaee (2004)].

General expectation is that financial reporting quality increases after SOX. The intense legislative and media scrutiny after a series of high-profile corporate failures suggest that managers should be more conservative in the period after SOX, implying that management is less likely to make extreme reporting decision after SOX. This prediction is supported by Lobo and Zhou (2006) who show an increase in conservatism in financial reporting following SOX. Based on these arguments and evidence above, we hypothesize that the enhanced financial reporting quality may not be equal across all firms after SOX. Firms with relatively more transparent reporting system are less likely to experience significant improvements for the quality of accounting information after SOX. In other words, the enhancement of financial reporting quality will be larger for firms which have less transparent financial reporting system before SOX.

As suggested in many prior studies, multinational firms are characterized by their operational complexity and thus possibly are less transparent in accounting reporting system. Therefore we predict that the extent of managerial discretion measured by firm's financial reporting quality is greater for multinational firms than other uninationl firms before SOX. Also we predict that managers in multinational firms exercise significantly less discretion in accounting choices after SOX than managers in other uninationl firms.

## **Research Design**

### **Sample Selection**

Following Shaked (1986), multinational firms (MNCs) are defined as firms with foreign sales with more than 20% of total sales, which is also consistent with the observation in Duru and Reeb (2002). Sullivan (1994) also notes that the most common proxy for corporate international diversification is the foreign sales ratio (i.e., foreign sales divided by total sales). Our sample period consists of the two years immediately surrounding SOX's passage. We refer to fiscal years 2000 and 2001 as the pre-SOX period and fiscal years 2003 and 2004 as the post-SOX period. Since 2002 is the year when SOX was enacted, it is eliminated from analyses to avoid any confounding effects. The initial sample consists of firms with foreign sales being more than 20% of total sales. The firm years of multinational firms are 7,561 (1,797 in 2000, 1,879 in 2001, 2,019 in 2003, and 1,869 in 2004). Next, the requirement of all control variables in *Compustat* reduces the sample size into 6,486 (1,441 in 2000, 1,605 in 2001, 1,762 in 2003, and 1,678 in 2004). Finally, we lost 12 more firm years in the process of matching by year, 2-digit SIC, and closest assets.<sup>1</sup> The final multinational firm sample includes 6,474 (1,435 in 2000, 1,603 in 2001, 1,759 in 2003, and 1,677 in 2004). We use a matched-pairs design for the tests. For each multinational firm, we select a control firm with the same year, with the same two-digit SIC code and with the closest asset size. The same number of firms each year is used as control firms, so that we can use 12,948 firms years (6,474 \* 2 = 12,948) for the regression analysis. In addition, we also compare the multinational firms with the whole sample, for which we use 21,108 firm years<sup>2</sup> in the regression.

### **Measures of Managerial Discretion**

Managers are likely to choose financial reporting methods in order to achieve their personal goals and frequently they tend to rely on accruals which are one of earnings components. Since the accrual component of earnings contains accounting estimates based on forecasts, accruals are more likely to be subject to manipulations than cash flows. Judgment allowed in determining accruals enables managers to manipulate earnings and the magnitude of

accruals can be a useful measure of financial reporting quality. Assuming that a firm's financial reporting quality is influenced by managerial decision, we use discretionary accruals as a proxy for managerial discretion.

Accruals are non-cash components of a firm's reported income and account for the difference between net income and cash flows. Discretionary (abnormal) accruals (DA) represent the *unexpected* portion of accruals and are estimated based on reported financial data. Researchers have used several different methods to estimate DA [Dechow et al. (1995)]. In this study, we use the cross-sectional modified Jones model to partition accruals into discretionary and non-discretionary accruals since this model exhibits the most power in detecting earnings management among others [Dechow et al. (1995)]. The modified Jones model requires regressing total accruals on variables that are expected to vary with normal accruals, which include changes in revenues, accounts receivable, and capital intensity. Previous researches have shown that measures of unexpected accruals are more likely to be misspecified for firms with extreme levels of performance [Dechow et al. (1995)]. To address this issue, recent studies [e.g., Lobo and Zhou (2006)] often include a measure of current operating performance, such as the current cash flows from operations excluding extraordinary items, in the model as a control variable.

The modified Jones model requires firms to be grouped by two-digit SIC industry. To improve precision in estimating DA, this study excludes industries with fewer than ten observations. Assuming homogeneity across firms in the same industry, all firms in the same industry use the same coefficients estimated for the industry.<sup>2</sup> DA is the difference between total accruals and normal accruals which are predicted values estimated from the following modified Jones model including operating cash flows.

$$ACCUAL_t = \alpha_0/ASSET_{t-1} + \alpha_1(\Delta SALES_t - \Delta AR_t)/ASSET_{t-1} + \alpha_2 PPE_t/ASSET_{t-1} + \alpha_3 CFO_t/ASSET_{t-1} + \varepsilon_t \quad (1)$$

Where:

- ACCUAL* = total accruals deflated by the beginning total assets. Accruals are defined as the difference between earnings before extraordinary items and discontinued operations and cash from operations;
- ASSET* = total beginning assets;
- SALES* = sales;
- AR* = accounts receivable;
- PPE* = property, plant, and equipment; and
- OCF* = cash from operations.

#### Regression Model

We use a multivariate regression analysis to examine whether managerial discretion is related to a firm's multinationality and its possible change after the enactment of new regulation by analyzing the change of accounting choices of multinational firms after SOX. The dependent variable is absolute discretionary accruals (*ABSDA*) which is absolute values of the difference between a firm's total accruals and its non-discretionary accruals. *ABSDA* is a proxy for the level of managerial discretion. Managers, by using accruals, may manage earnings negatively or positively as they intend<sup>3</sup>. The higher *ABSDA* (i.e., less conservatism in accounting choices) reflects the greater level of managerial discretion of firms.

In this regression analysis, since our primary concern is examining whether a firm's multinationality is related to the magnitude of discretionary accruals, especially focusing on the impact of SOX to the accounting choice of multinational firms, we include two indicator variables in the regression analysis. The first indicator is *MNC* which is equal to 1 if the firm is a multinational firm and 0 otherwise. We expect the coefficient for *MNC* to be positive because multinational firms may have greater managerial discretion compared with other control firms due to the complexity of their organization structure and high information asymmetry problems between management and shareholders.

The second indicator is *AFTER* which is equal to 1 for firm years after SOX and 0 otherwise. We expect the coefficient for *AFTER* to be negative, suggesting an increase in conservatism in financial reporting quality as shown in Lobo and Zou (2006). Also we include an interaction variable *MNC\_AFTER* which can capture marginal changes in financial reporting quality for MNCs over control firms. The coefficient for *MNC\_AFTER* is expected to be negative, meaning that MNCs choose more conservative accounting choices than other control firms after SOX due to increased scrutiny and transparency requirement for corporate governance.

Based on the results of prior research, we control several variables that may affect accounting accruals. These variables include size [Chung and Kallapur (2003)], financial health and performance [Dechow et al. (1995); Frankel et al. (2002)], auditor type [Becker et al. (1998)], growth [Reynolds et al. (2004)], and leverage [DeFond and Jiambalvo (1994)]. Following Chung and Kallapur (2003), we measure a firm size by the log of total assets (*LOGTA*). Larger firms tend to report larger, more stable accruals [Dechow and Dichev (2002)]. Prior studies show several measures of financial health such as cash flow from operations (*OCF*) as determinants of discretionary accruals [Dechow et al. (1995)]. *OCF* is expected to vary inversely with *ABSDA* [Chung and Kallapur (2003)]. Prior studies [e.g., Becker et al. (1998)] suggest that Big 5 auditors are more likely to restrict managers' opportunistic behaviors. We use indicator variable, *BIGAUD* which represents auditor type (Big 5 or Non-Big 5).

This study includes two growth measures as control variables: potential and experienced growth. Book value divided by market value (*BTM*) indicates growth potentials. Changes in total assets (*CHGTA*), the difference between year-end and beginning total assets, measure *experienced* growth. Firms with high growth (low *BTM* or high *CHGTA*) are more likely to meet earnings benchmarks, implying negative relationship between *BTM* and *ABSDA* and positive relationship between *CHGTA* and *ABSDA* [Reynolds et al. (2004)].

DeFond and Jiambalvo (1994) show that high leverage firms are more likely to violate debt covenants than low leverage firms. We include debt ratio, *LVG*, to control leverage effects on discretionary accruals. To avoid debt covenant violations, managers of highly leveraged firms may resort to income-increasing discretionary accruals. Therefore, we expect that high leverages are positively associated with the absolute amount of discretionary accruals.

Burgstahler and Dichev (1997) note that managers of firms with experiences in losses often use discretionary accruals opportunistically (increase discretionary accruals) to meet or beat market expectations. This study includes a dummy variable, *LOSS*, to identify firms that suffered losses. Finally, following Frankel et al. (2002), who suggest that firms in industries with high litigation risk have high discretionary accruals, we include an indicator variable (*LIT\_IND*) to identify firms in such industries. The following is our primary regression model.

$$ABSDA = \beta_0 + \beta_1 MNC + \beta_2 AFTER + \beta_3 MNC * AFTER + \beta_4 LOGTA + \beta_5 OCF + \beta_6 BIGAUD + \beta_7 BTM + \beta_8 CHGTA + \beta_9 LVG + \beta_{10} LOSS + \beta_{11} LIT\_IND + \varepsilon \quad (2)$$

Where:

<i>ABSDA</i>	= absolute value of discretionary accruals;
<i>MNC</i>	= 1 for multinational firms, 0 otherwise;
<i>AFTER</i>	= 1 for firm years after SOX, 0 for firm years before SOX;
<i>LOGTA</i>	= log of beginning total assets;
<i>OCF</i>	= operating cash flows/ beginning total assets;
<i>BIGAUD</i>	= 1 if audited by a Big 5 <sup>3</sup> auditing firm, 0 otherwise;
<i>BTM</i>	= book to market;
<i>CHGTA</i>	= change in total assets/ beginning total assets;
<i>LVG</i>	= ratio of total liabilities to total assets;
<i>LOSS</i>	= 1 if a firm reported a loss, 0 otherwise; and
<i>LIT_IND</i>	= 1 if a firm operates in a high-litigation industry, 0 otherwise. High-litigation industries are industries with SIC codes of 2833-2836, 3570-3577, 3600-3674, 5200-5961, and 7370-7374.

## Empirical Results

### Univariate Analysis

Panel A of Table 1 exhibits the industry distribution of whole sample. Panel A of Table 1 shows that firms are widely distributed among industries, with some clustering of firms in durable and computers. In addition, the panel B of Table 1 shows yearly distribution of sample firms. Mean values of absolute discretionary accruals are smaller in the years of post-SOX, which supports our prediction that managers tend to excise less extreme accounting



choices after SOX. Panel C of Table 1 presents descriptive statistics of variables used in regression analyses.<sup>4</sup> Our dependant variable, *ABSDA*, is comparable to that measure in other studies [e.g., Frankel et al. (2002)].

TABLE 1: DATA COLLECTION AND DISTRIBUTION

<b>Panel A: Industry Distribution</b>							
Industry	N	Percent					
Agriculture	51	0.002					
Mining & Construction	557	0.026					
Food	479	0.023					
Textiles	899	0.043					
Chemicals	536	0.025					
Pharmaceuticals	1,364	0.065					
Extractive	832	0.039					
Durable	4,853	0.230					
Transportation	1,399	0.066					
Utilities	684	0.032					
Retail	2,069	0.098					
Services	2,013	0.095					
Computers	3,607	0.171					
Financial	1,530	0.073					
Not Classified	235	0.011					
Total	21,108	1.000					
Agriculture (0100-0999), Mining/Construction (1000-1999, excluding 1300-1399), Food (2000-2111), Textiles (2200-2799), Chemicals (2800-2824, 2840-2899), Pharmaceuticals (2830-2836), Extractive (1300-1399, 2900-2999), Durable manufacturers (3000-3999, excluding 3570-3579 and 3670-3679), Transportation (4000-4899), Utilities (4900-4999), Retail (5000-5999), Services (7000-8999, excluding 7370-7379), Computers (7370-7379, 3570-3579, 3670-3679), Financial (6000-6999), and Not classified (2112-2199, 2837-2839, 2825-2829).							
<b>Panel B: Year Distribution</b>							
Year	N	Percent	Mean Value of Absolute Discretionary Accruals				
2000	4,963	0.235	0.1034				
2001	5,385	0.255	0.1044				
2003	5,519	0.261	0.0860				
2004	5,241	0.249	0.0865				
Total	21,108	1.000					
<ul style="list-style-type: none"> <li>• Absolute Discretionary Accruals are estimated errors from the following regressions.</li> </ul> $ACCUAL_t = \alpha_0/ASSET_{t-1} + \alpha_1(\Delta SALES_t - \Delta AR_t)/ASSET_{t-1} + \alpha_2 PPE_t/ASSET_{t-1} + \alpha_3 CFO_t/ASSET_{t-1} + \varepsilon_t$ <p><i>ACCUAL</i> = total accruals deflated by the beginning total assets. Accruals are defined as the difference between earnings before extraordinary items and discontinued operations and cash from operations;</p> <p><i>ASSET</i> = total beginning assets;</p> <p><i>SALES</i> = sales;</p> <p><i>AR</i> = accounts receivable;</p> <p><i>PPE</i> = property, plant, and equipment; and</p> <p><i>CFO</i> = cash from operations.</p>							
<b>Panel C: Descriptive Statistics</b>							
Variable	Mean	Std.	Minimum	25 <sup>th</sup>	Median	75th	Maximum
<i>ABSDA</i>	0.0949	0.1256	0.0000	0.0198	0.0480	0.1130	1.0157

<i>LOGTA</i>	5.1610	2.6019	-1.224	3.3291	5.1704	6.9360	11.0888
<i>OCF</i>	-0.0019	0.2811	-1.4398	-0.0413	0.0583	0.1304	0.5108
<i>BIGAUD</i>	0.7565	0.4292	0.0000	1.0000	1.0000	1.0000	1.0000
<i>BTM</i>	0.4468	1.6766	-11.7716	0.2047	0.4458	0.8051	5.2346
<i>CHGTA</i>	0.1434	0.5472	-0.7913	-0.0768	0.0477	0.2018	3.2226
<i>LVG</i>	0.6233	0.6314	0.0348	0.3024	0.5239	0.7306	4.8685
<i>LOSS</i>	0.4231	0.4941	0.0000	0.0000	0.0000	1.0000	1.0000
<i>LIT_IND</i>	0.3294	0.4700	0.0000	0.0000	0.0000	1.0000	1.0000

Variable Definitions

- ABSDA* = absolute value of discretionary accruals;  
*LOGTA* = log of beginning total assets;  
*OCF* = operating cash flows/ beginning total assets;  
*BIGAUD* = 1 if audited by a Big 5 auditing firm, 0 otherwise;  
*BTM* = book to market;  
*CHGTA* = change in total assets/ beginning total assets;  
*LVG* = ratio of total liabilities to total assets;  
*LOSS* = 1 if a firm reported a loss, 0 otherwise; and  
*LIT\_IND* = 1 if a firm operates in a high-litigation industry, 0 otherwise.  
High-litigation industries are industries with SIC codes of 2833-2836, 3570-3577, 3600-3674, 5200-5961, and 7370-7374.

Table 2 presents univariate test results of absolute discretionary accruals. First, Panel A of Table 2 shows mean and median test results for the comparison of absolute discretionary accruals (*ABSDA*) between multinational firms and size-industry-matched control firms before and after the implementation of SOX. Before SOX, there is a significant difference in *ABSDA* between two groups in both mean and median tests, while this difference disappears after SOX. The result suggests that multinational firms tend to have larger amount of *ABSDA* than control firms before SOX, but the difference is not significant after SOX, as expected.

Second, Panel B of Table 2 also shows the mean and median test results for the comparison of *ABSDA* between before SOX and after SOX for multinational firms and control firms. The results show that there are significant differences in terms of *ABSDA* between before SOX and after SOX for both multinational firms and control firms, which is consistent with prior studies [e.g., Lobo and Zhou (2006)]. Furthermore, the mean and median test results for MNCs are more statistically significant than size-industry-matched control firms. This result suggests that management is more likely to use conservative accounting reporting choices and the decreased discretion in accounting choices is more pronounced for multinational firms than for control firms after SOX.

TABLE 2: UNIVARIATE TESTS OF ABSOLUTE DISCRETIONARY ACCRUALS

**Panel A: Multinational Firms versus Control Firms**

	Multinational Firms			Control Firms			T-value	Wilcoxon Z-value
	Mean	Median	Std	Mean	Median	Std		
Before SOX	0.096	0.052	0.124	0.089	0.046	0.121	2.37**	3.65***
	7	6	3	2	7	9		

After SOX	0.067 7	0.036 7	0.093 6	0.069 4	0.034 3	0.098 2	-0.73	1.16
<b>Panel B: Before SOX versus After SOX</b>								
	Before SOX			After SOX			T-value	Wilcox on Z-value
	Mean	Media n	Std	Mean	Media n	Std		
Multinational Firms	0.096 7	0.052 6	0.124 3	0.067 7	0.036 7	0.093 6	10.65***	11.47***
Control Firms	0.089 2	0.046 7	0.121 9	0.069 4	0.034 3	0.098 2	7.22***	8.58***

- The p-value is in parentheses. \*\*\*, \*\*, and \* denote significance at 1, 5 and 10 % respectively. t-and Z-values are based on two-tailed tests.

- Absolute Discretionary Accruals are estimated errors from the following regressions.

$$ACCRUAL_t = \alpha_0/ASSET_{t-1} + \alpha_1(\Delta SALES_t - \Delta AR_t)/ASSET_{t-1} + \alpha_2 PPE_t/ASSET_{t-1} + \alpha_3 CFO_t/ASSET_{t-1} + \varepsilon_t$$

*ACCRUAL* = total accruals deflated by the beginning total assets. Accruals are defined as the difference between earnings before extraordinary items and discontinued operations and cash from operations;

*ASSET* = total beginning assets;

*SALES* = sales;

*AR* = accounts receivable;

*PPE* = property, plant, and equipment; and

*CFO* = cash from operations.

#### Multivariate Regression Results

Model (1) and (2) of Table 3 show regression results by using *ABSDA* as dependent variable. In Model (1) we use all sample in the regression analysis and in Model (2) we use the sample only with multinational firms (MNCs) and control firms in the regression analysis. Both regressions are statistically significant at 1% levels respectively.<sup>5</sup> The signs of regression coefficients for the primary and control independent variables are generally consistent with our expectation.

The coefficients of *MNC* are all positive and statistically significant in both Model (1) and (2) of Table 3. The positive coefficients of *MNC* suggest that multination firms tend to report larger amount of discretionary accruals compared with other firms in general. This remains unchanged when we perform the regression using the sample with MNCs and control sample. The results in Model (1) and (2) show negative coefficients of *AFTER* which is statistically significant 1% levels respectively, suggesting that financial reporting quality increases after implementation of SOX. The regression result for *AFTER* are also consistent with results in a recent study, Lobo and Zhou (2006), who document an increase in conservatism in financial reporting following SOX. The coefficient of *MNC\_AFTER*, our variable of interest, represents incremental changes in financial reporting quality for MNCs over non-MNCs. The coefficients of *MNC\_AFTER* in both Model (1) and (2) of Table 3 are negative and significant at the 1% level respectively, which suggests that management of MNC adopts more conservative accounting choices after SOX is implemented in 2002. The regression results in Table 3 are also consistent with those in univariate analysis in Table 3.

TABLE 3: RESULTS OF OLS REGRESSIONS WITH ABSOLUTE DISCRETIONARY ACCRUALS

Variables	Model (1)	Model (2)
	All Sample	Sample with MNCs and Control Firms
INTERCEPT	0.134 (47.31)***	0.122 (29.24)***
MNC	0.016(6.63)***	0.009 (3.53)***
AFTER	-0.013 (-7.18)***	-0.016 (-6.55)***
MNC_AFTER	-0.014 (-4.48)***	-0.011 (-3.15)***
LOGTA	-0.013 (-31.78)***	-0.011 (-23.85)***
OCF	-0.060 (-18.07)***	-0.074 (-13.23)***
BIGAUD	-0.009 (-4.24)***	-0.007 (-2.49)**
BTM	-0.004 (-8.20)***	-0.003 (-3.57)***
CHGTA	0.031 (21.89)***	0.036 (20.01)***

LVG	0.028 (19.33) <sup>***</sup>	0.038 (11.68) <sup>***</sup>
LOSS	0.025 (13.74) <sup>***</sup>	0.030 (13.68) <sup>***</sup>
LIT_IND	0.019 (11.33) <sup>***</sup>	0.023 (12.15) <sup>***</sup>
Adj-R square	0.2564	0.2167
N	21,108	12,948

- The t-value is in parentheses. \*\*\*, \*\*, and \* denote significance at 1, 5 and 10 %, respectively, in two-sided test.

$$ABSDA = \beta_0 + \beta_1 MNC + \beta_2 AFTER + \beta_3 MNC * AFTER + \beta_4 LOGTA + \beta_5 OCF + \beta_6 BIGAUD + \beta_7 BTM + \beta_8 CHGTA + \beta_9 LVG + \beta_{10} LOSS + \beta_{11} LIT\_IND + \varepsilon$$

where:

<i>ABSDA</i>	= absolute value of discretionary accruals;
<i>MNC</i>	= 1 for multinational firms, 0 otherwise;
<i>AFTER</i>	= 1 for firm years after SOX, 0 for firm years before SOX;
<i>LOGTA</i>	= log of beginning total assets;
<i>OCF</i>	= operating cash flows/ beginning total assets;
<i>BIGAUD</i>	= 1 if audited by a Big 5 auditing firm, 0 otherwise;
<i>BTM</i>	= book to market;
<i>CHGTA</i>	= change in total assets/ beginning total assets;
<i>LVG</i>	= ratio of total liabilities to total assets;
<i>LOSS</i>	= 1 if a firm reported a loss, 0 otherwise; and
<i>LIT_IND</i>	= 1 if a firm operates in a high-litigation industry, 0 otherwise.

High-litigation industries are industries with SIC codes of 2833-2836, 3570-3577, 3600-3674, 5200-5961, and 7370-7374.

The results for other control variables in Model (1) and (2) of Table 3 generally consistent with our expectation, confirming the results of other prior studies. The coefficients for *LOGTA* (log value of total assets) in Model (1) and (2) of Table 3 are all negative and significant at the 1% levels respectively, confirming the prior studies [e.g., Dechow and Dichev (2002)]. Larger firms tend to use more conservative accounting choices. We use cash flow from operations (*OCF*) as a measure of firm's financial health. *OCF* has been shown to vary inversely with *ABSDA*. Our results show that the coefficients for *OCF* are negative and statistically significant at the 1% level, which is consistent with the evidence in prior studies [e.g., Chung and Kallapur (2003)].

The results for *BIGAUD* are negatively correlated with the dependent variable, *ABSDA* and the coefficients for *BIGAUD* are significant at the 1% level in Model (1) and 5% level in Model (2) respectively. Firms audited from big 5 auditors are less likely to have greater managerial discretion in accounting choices. [e.g., Becker et al. (1998)]. The coefficients for *BTM* which is a proxy for firm's growth potential are all negative and significant at 1% levels. Another measure of firm's growth which is changes in total assets (*CHGTA*) shows significant positive relationship with the dependent variable, *ABSDA*. These two results are consistent with prior studies [e.g., Reynolds et al. (2004)]. Firms with high growth (i.e., low *BTM* or high *CHGTA*) are more likely to use accruals to meet earnings benchmark.

The positive and significant coefficients for *LVG*, a measure of debt ratio, suggest that managers of highly leveraged firms are more like to resort to income-increasing discretionary accruals (i.e., greater managerial discretions). The dummy variable, *LOSS* which identifies firms that suffered losses shows positive and significant coefficient in both Model (1) and (2) of Table 3. As shown in Burgstahler and Dichev (1997), this result suggests that managers of firms with losses often use discretionary accruals (increase in discretionary accruals) to meet or to beat market expectations. Firms operating in a high-litigation industry have higher discretionary accruals. The indicator for those firms (*LIT\_IND*) has positive and also significant coefficients in Table 3 [e.g., Frankel et al. (2002)]. In summary, our major test variables, *MNC*, *AFTER*, and *MNC\_AFTER* shows significant results which are consistent with our expectations. Also the results for other control variables used in our regression analysis confirm the evidence shown in prior studies.

Although our measure of managerial discretion is widely used by accounting researchers, it is subject to measurement errors [Kothari et al. (2005)]. As a result, we perform the following additional tests using another measure of managers' discretion. Following Myers et al. (2003), we replace absolute discretionary accruals with

absolute current accruals (change in current assets minus change in cash and cash equivalents minus change in current liabilities plus change in short-term notes and current portion of long-term debt). This measure is believed to be less noisy.

$$CURRENT\ ACCRUAL = ((\Delta CA - \Delta CASH) - (\Delta CL - \Delta STD)) \quad (3)$$

Where:

$\Delta CA$  = change in current assets;  
 $\Delta CASH$  = change in cash and cash equivalents;  
 $\Delta CL$  = change in current liabilities;  
 $\Delta STD$  = change in short-term notes and current portion of long-term debt.

Table 4 presents the results of regressions using absolute current accruals as a dependent variable. The coefficients of *AFTER* are positive and significant, contrary to our expectation. It seems that the absolute value of current accruals increases after SOX. However, the variable of interest, *MNC\_AFTER*, is still negative and statistically significant at the 1% levels in both Model (1) and (2) of Table 4 as expected. Taken together, these results suggest that managers tend to use more current discretionary accruals (as opposed to total discretionary accruals), yet managers of multinational firms became more conservative in choosing currently discretionary accruals after SOX. Thus, the evidence in our analysis is that managers of multinational firms are more likely to be conservative in accounting choices after SOX remains unchanged.

TABLE 4: RESULTS OF OLS REGRESSIONS WITH ABSOLUTE CURRENT ACCRUALS

Variables	Model (1) All Sample	Model (2) Sample with MNCs and Control Firms
INTERCEPT	0.109 (36.67) <sup>***</sup>	0.103 (25.16) <sup>***</sup>
MNC	0.014(5.53) <sup>***</sup>	-0.003 (-1.21)
AFTER	0.006 (2.90) <sup>***</sup>	0.018 (6.96) <sup>***</sup>
MNC_AFTER	-0.013 (-3.81) <sup>***</sup>	-0.027 (-7.95) <sup>***</sup>
LOGTA	-0.014 (-32.09) <sup>***</sup>	-0.011 (-23.98) <sup>***</sup>
OCF	-0.030 (-15.34) <sup>***</sup>	-0.007 (-4.34) <sup>***</sup>
BIGAUD	-0.013 (-5.42) <sup>***</sup>	-0.029 (-12.13) <sup>***</sup>
BTM	0.002 (3.63) <sup>***</sup>	0.006 (4.92) <sup>***</sup>
CHGTA	0.011(11.79) <sup>***</sup>	0.026 (23.49) <sup>***</sup>
LVG	0.063 (55.96) <sup>***</sup>	0.105 (36.84) <sup>***</sup>
LOSS	-0.005 (-2.62) <sup>***</sup>	-0.048 (-24.68) <sup>***</sup>
LIT_IND	0.007 (4.04) <sup>**</sup>	0.039 (21.84) <sup>***</sup>
Adj-R square	0.3561	0.2720
N	20,759	12,848

- The t-value is in parentheses. \*\*\*, \*\*, and \* denote significance at 1, 5 and 10 %, respectively, in two sided test.

$$ABSCA = \beta_0 + \beta_1 MNC + \beta_2 AFTER + \beta_3 MNC * AFTER + \beta_4 LOGTA + \beta_5 OCF + \beta_6 BIGAUD + \beta_7 BTM + \beta_8 CHGTA + \beta_9 LVG + \beta_{10} LOSS + \beta_{11} LIT\_IND + \varepsilon$$

Where:

*ABSCA* = absolute value of current accruals;  
*MNC* = 1 for multinational firms, 0 otherwise;  
*AFTER* = 1 for firm years after SOX, 0 for firm years before SOX;  
*LOGTA* = log of beginning total assets;  
*OCF* = operating cash flows/ beginning total assets;  
*BIGAUD* = 1 if audited by a Big 5 auditing firm, 0 otherwise;  
*BTM* = book to market;  
*CHGTA* = change in total assets/ beginning total assets;  
*LVG* = ratio of total liabilities to total assets;  
*LOSS* = 1 if a firm reported a loss, 0 otherwise; and  
*LIT\_IND* = 1 if a firm operates in a high-litigation industry, 0 otherwise.  
High-litigation industries are industries with SIC codes of 2833-2836,

## Conclusion

Numerous studies in international finance area show that a firm's multinationality is related to the enhancement of firm value. Recent studies, however, show that a firm's multinationality in some cases can decrease the firm value, especially when its multinationality is associated with higher managerial discretion due to the greater organizational complexity and higher asymmetric information problems between managers and shareholders. We use the magnitude of discretionary accruals as a proxy for managerial discretion of firms to investigate whether a firm's multinationality is related to managerial discretion, especially focusing on the enactment period of Sarbanes-Oxley Act.

We examine the changes in magnitude of discretionary accruals between multinational firms and non-multinational firms after the implementation of SOX. Assuming that after SOX investors become more concerned about financial reporting quality and the investors will scrutinize the financial statements more closely, managers have an incentive to minimize extreme accruals for the years after SOX. Our empirical analysis support the hypothesis that increased conservatism for accounting choices after SOX are more pronounced for multinational firms which are characterized by their organizational complexity and difficulty in monitoring managerial discretions.

## References

Contact author for the list of references

## End Notes

<sup>1</sup>Multinational firms tend to be large in size. To control the possible argument that size effects, as opposed to multinationality, may drive the results, we match each multinational firm with a domestic firm with closest assets.

<sup>2</sup>A time series approach is an alternative to this cross-sectional approach. The time series approach assumes temporal stationarity of parameter estimates. Since the time series approach requires data over a long time period and often results in a much reduced sample size, this study adopts cross-sectional approach instead. Subramanyam (1996) finds that the cross-sectional Jones models are generally better specified than their time-series counterparts.

<sup>3</sup>Big 5 became Big 4 after 2002.

<sup>4</sup>All continuous variables were winsorized at both 1 percent and 99 percent levels to reduce the effects of extreme values.

<sup>5</sup>When examining the correlation between the control variables, we find that the highest correlation is only 0.32, suggesting that multicollinearity is unlikely to be a problem. This is also confirmed by analyses of variance inflation factors which indicated that the highest variance inflation factor was only 1.48.

## The Role of Design Thinking in Firms and Management Education

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### Abstract

We draw on our experiences as university-level educators in design and management, as well as consulting, to argue that management education has isolated design, specifically design thinking, from traditional MBA curricula—to the detriment of both business schools and firms. Notwithstanding the occasional “new product development” marketing course, we question the widespread practice of segregating design thinking solely for use by so-called “creative professionals.” The social bases of this isolation include semantic gaps, conceptual blocks, and social barriers between business disciplines. We unpack design thinking in a concrete, tractable manner and offer concrete suggestions for promoting a shift to design thinking within management education, and in firms. We conclude by mentioning the pros and cons of diverse solutions, including an ad hoc approach, management education programs, teaching problem-driven design thinking, firm-specific executive programs, leveraging in-house design resources, and deploying designers as top managers.

### Introduction

Business interest in design thinking for managers and how to profit from it has never been greater. Business Week, for example, regularly features a supplement called “IN” (for innovation) where they extol the virtues of design thinking (e.g., Business Week, 12 March, 2007, supplement). A recent issue of Harvard Business Review featured a theme of designing strategy. The word “design” has become near-pervasive. But what exactly is “design thinking?” What role does design thinking have outside the rarefied realm of “creative professionals?” How can entire organizations (rather than solely designers) benefit from design thinking? With limited exceptions, we find that most prominent business education institutions and publications lack an understanding of design thinking and its potential role in firms and management education.

Innovation, design, and fomenting innovative processes inside firms are getting a lot of popular attention, most of it misdirected. Evidence exists that the real ways in which design innovation and design thinking can improve organizations remain ignored or get lost in the noise caused by the attention given to the (admittedly substantial) importance of product-based design and innovation. Among the absent design-thinking dimensions we note in most of the popular and technical literature are multidisciplinary teams, fluency, user-centered research, prototyping, critique, iteration and form-giving.

As noted, interest in design thinking is presently at an all time high. As a result, business schools have recently introduced more courses focusing on creativity skills, design, and modern, fast-cycle product development techniques. Most MBA programs, however, miss the opportunity to talk about deploying design thinking in the entire organization—instead, they focus on the needs of marketing majors (or students following marketing courses). This approach implies that teaching these students to think about new products/services using some of the tools of the designer will benefit the marketing organization. This approach has several obvious drawbacks, the most important among them being the persistent disciplinary isolation of design thinking.

We note one exception to this trend in business schools: the Rotman School of Management at University of Ontario. Roger Martin, the Dean at Rotman is militant about the “great value in the designer’s approach to solving problems.” (Martin, 2007) He states that “we are on the cusp of a design revolution in business, and as a result, today’s business people don’t need to understand designers better, they need to become designers.” (Martin, 2007) Martin advocates the (trademarked) terms “integrative thinking” as a process to achieve superior “business design.” We applaud Martin’s basic thrust, and view it as broadly compatible with our own. We offer some

refinements to Martin's approach. We provide concrete definitions of seven design thinking dimensions, specify a model illustrating how these dimensions interact, identify impediments to implementing design thinking in firms and business schools, and suggest multiple tools to address these impediments throughout an organization.

This paper proceeds as follows: after the introduction we briefly discuss existing definitions of design thinking. We then offer an original definition of design thinking by identifying multiple dimensions of design thinking and offering a preliminary model for how these elements (optimally) interact in organizations. We then discuss three important barriers to embedding design thinking principles in organizations, beyond the boundaries of creative professionals' departments: semantic gaps, conceptual blocks and social barriers. We conclude by offering our prescription for embedding design thinking practices in firms and business school curricula, a task that comprises a major challenge for most organizations.

## **Design thinking defined**

In our view, design thinking requires the following elements to be successful: (1) multi-disciplinary teams; (2) fluency; (3) experience-based, user-centered research; (4) prototyping; (5) iteration; (6) critique; and (7) form-giving. We define each dimension below.

Multidisciplinary teams. While there is nothing particularly new about using multidisciplinary teams to tackle innovation, the importance of these teams cannot be overstressed. Multidisciplinary teams are necessary precursors to design thinking—they are part of organizational context, and design thinking may not occur in its absence. Multidisciplinary teams are composed, as the name suggests, of diverse personnel from various functional areas, including, for example, marketing, finance, manufacturing, technical support, and sometimes even customers. Diversity, however, is not the unique defining characteristic of multidisciplinary teams. What is different in our model is that the organization of these teams and their depth of interactions are more extreme than previously conceived. For example, at the Stanford "d.school", where one of the authors teaches, teams are organized around a concept called "radical collaboration." This is considered an essential element for innovative outcomes. These teams have some unusual characteristics, one of the most important being that they are not organized around a single leader. Radical collaboration in this sense means that team leadership is frequently passed back and forth, and team members have an explicit task of "making the leader look good." One analogy that is often used to teach teams this behavior is a jazz ensemble. A jazz group is expected to be comfortable with the notion of passing a solo back and forth among players, within the structure of a song. Stanford's methodology suggests "...radical collaboration creates a culture of innovation at the d.school. And our culture of collaboration means we move quickly beyond obvious ideas..." (Stanford d.school, 2007)

Fluency. Merriam-Webster (2007) defines fluency as "...capable of moving with ease and grace... 2 a: capable of using a language easily and accurately..." Though often overlooked by others, multidisciplinary teams require fluency to function optimally. Fluency, like multidisciplinary teams, is a necessary precursor to design thinking. It is a part of the existing organizational context, without which, design thinking may not take place. We define fluency as the ability to translate effectively between various rarefied technical vocabularies, to move effortlessly between problem solving methodologies, and the ability to value other's outcome expectations. As an example in the realm of problem-solving methodology, consider brainstorming. Fluency is a critical dimension for effective brainstorming. Brainstorming is not possible if teams fail to suspend judgment and generate many ideas, both good and bad. In this case, fluency is the deeply embedded understanding of the requirements of a process coupled with substantial experience in implementing the (brainstorming) process. An analogy to fluency in language would be a strong awareness of the syntax of a language—how things fit together in the writing process. In addition to syntax, vocabulary fluency is also important.

Without mutual vocabulary fluency, multidisciplinary teams run into other critical team dynamics issues; sometimes they fail to function at all. For instance, a technical vocabulary, which is highly efficient at encoding discipline-specific knowledge, becomes a significant barrier to communication in a multidisciplinary team where many members do not know "the code." Team members often need to be re-trained to speak in plain English, without jargon (or other team members much undergo costly training to comprehend the jargon). For example,



certain team members exhibit an over-reliance on reductive or analytical problem solving methods, which often confuses other team members. This creates lopsided solutions and alienates the non-analytic team members. Fluency tends to focus on expanding available problem-solving tools and increasing a team's comfort-level with everyone's various tools. Finally, divergent outcome expectations are often an issue in multidisciplinary team dynamics. Business training conditions team members to expect tangible outcomes in terms of plans, schedules, and/or specific market information. Design training conditions team members to place a high value on process outcomes. Process outcomes that designers expect, such as productive brainstorming sessions, creative synergy between participants, and concentricity of vision, are frequently dismissed as unimportant or unquantifiable by some team members. A dismissive attitude about a valued outcome, from any team member, indicates a lack of respect for and ability to move between disciplines, and is often the undoing of multidisciplinary teams.

One of the organizing principals of Stanford's d.school is that trained designers (often graduate students) function as the "glue" binding multidisciplinary teams together. This is especially important for teams where the outcomes required are not obviously "design" outcomes, but rather a new business process or a service. Designers are often called upon, because of their visual skills and creative mindset, to help teams visualize early ideas, to help with brainstorming and other creative processes, and to work as translators between various vocabulary-specific groups. Under the Stanford d.school standard, designers, or others trained in design thinking, are practiced at fluency and are generally required if a team is going to achieve high-performance innovation.

User-centered research focused on experience. Design thinking begins with focused observation. Ethnographic research tools are employed and users are studied in their home or working environments. Latent needs, discovered through these study techniques, become the basis of the insights that inform the entire design process. It is critical to note that latent needs can only be discovered through a combination of observation and inquiry, and must be observed at the site of the activity or service being designed. Asking users "what they want" or "what they need," in an artificial setting (mall intercepts, web questionnaires, etc.) typically fails to provide the right kind of data for down-stream design activities.

In design thinking, user groups often contain extreme or leading edge users and populations that do not use the product or service but may be potential users since they have similar or parallel needs. This type of user-centered research does not attempt to look at the mainstream markets nor does it expect to generate an "average user" profile. As such it differs from the traditional user research methods of focus groups and surveys and generates data of a different quality: data with more emotional nuance. Developing, analyzing and interpreting a "nuanced dataset" and preserving the insights and innovations therein drives subsequent design thinking activity. Findings from nuanced data are strongly reflected in the final product, service or experience.

Prototyping. Stanford's approach is that "prototyping is thinking." A prototype is any object or simulation that can evoke feedback from the target user group and buy-in from the sponsoring organization. When we talk of prototyping in terms of design thinking, it is important to stress that we are not talking about engineering models or prototypes designed to validate a final idea. We are talking specifically about prototypes that are used to evoke and explore the problem. These prototypes are often crude, no more than paper models, simple spreadsheet simulations, or hand drawn storyboards of a potential new experience. These prototypes are seen and used by target users, refined, and built again and again; each iteration is used to evoke feedback on one aspect of the design. A partial prototype is often made to test one aspect of the product or service; only rarely is a prototype "complete" in this phase. It is critical that prototypes are shared among the multidisciplinary team and used at all levels of the organization to solicit comments and buy-in.

Iteration. Central to design thinking is the notion that iteration is the most efficient method for stimulating high quality design innovation. Iteration implies that the idea of "fail early and fail often" is a goal to be sought, not a pitfall to avoid. In order to encourage iteration, teams often use techniques like brainstorming and rapid prototyping to stimulate new approaches to problems. Teams are encouraged to "start-over, often." Rather than treat iteration as a mere arrow in a diagram, we consider iteration to be an integral process step: deciding how to revise and refine a crude initial design into successively more satisfying prototypes is a critical dimension of design thinking.

Critique. Unless the critique process is embedded in design thinking, the "fail early, fail often" dictum and the iterative process described above will end up in an endless loop. This is why design (and art) since the

Renaissance has been taught using the critique process. Designers have become quite comfortable with this approach, but outsiders routinely fear it. The critique process involves selecting discrete moments in an interactive design process for an in-depth dialog about the concepts and design “so far”. James Elkins, in his book “Why Art Cannot be Taught” describes one common form of critique this way; “[it is] the ancient art of dialectic: you ask (a question), you think about the reply, you ask again, you rephrase the question, you go on, pushing and inquiring, without changing the subject.” (Elkins, 2001, p. 170, emphasis added). This technique is often aggressively applied in design, art, and architecture schools and it is not uncommon for first year students, unaccustomed to the technique, to leave their first few “crits” in tears.

A critique can be, but often is not the same as a milestone review (also known in project management parlance as a phase review, toll gate, project checkpoint, etc.). A good milestone review is primarily a decision-making event. Facts and figures are weighed to assess the project’s progress and its likelihood of success. In contrast, a good critique is primarily an opportunity to vet a concept; to examine, through questioning, paths not taken, alternatives unexplored, and the quality of the design synthesis. Opportunities for improvement and refinement abound when critique is properly executed. Applying milestone-like criteria to a critique risks losing the value of the dialectical process and potentially impairs the transfer of insights from the above-mentioned nuanced dataset of user observations from iteration to iteration.

Our experience teaching design thinking in an MBA program (at SFSU) and at the d.school (Stanford) has shown us that business students are often not at all comfortable with the open ended and subjective approach of critique. Business professors tend not to use critique because they are not trained in this dialectic technique. Our experience has shown that the case study method often employed in business schools, via its Socratic pedagogy, has aspects in common with critique in design thinking and, once students realize this, they become more comfortable with the process and critiques go much more smoothly. Team teaching and/or juried design reviews are particularly effective ways to implement the critique process in an educational setting owing to the multiplicity of perspectives available to the student. Critique is an essential dimension in the design thinking process.

Form-giving. Form-giving is the final phase of the design thinking process. Note that a “final” prototype is very different from the output of form-giving. Prototypes are necessarily incomplete and rough, whereas the result of form-giving is necessarily complete and detailed. Although the innovation process has come far to reach this point, it is common that the final embodiments of the design, (of product, service or experience) often fall far short of the designers’ and customer’s expectations. Something has been lost. Organizations often fail to capitalize and deliver on design thinking because they skip the final step of form-giving. This is the step where the organization must embed the underlying findings of the original user research (the nuanced dataset) and the many cycles of prototyping and iteration into the object or service. The goal of form-giving is to evoke delight and satisfaction, and to legitimize the underlying innovations discovered in the course of user-centered research. Successful form-giving fulfills the hopes and aspirations of the user—emotional connections to the product or service are constructed and understood by the multi-disciplinary team—the product is ready for users. It is necessary, as they say at Apple, to create “objects of desire;” a dedication to the refinement of the final form is necessary. The famous Mies van der Rohe quote “God is in the details” is nowhere more relevant than for the form-giving dimension of design thinking. (van der Rohe, 1959).

## **Impediments to embedding design thinking in firms and business schools**

Semantic gaps. Different words have different meanings for different people. Semantic gaps refer to differences across people regarding commonly understood meanings or definitions of important terms. Oddly, small differences (that go unrecognized) create worse problems than large differences in perceived meaning, possibly owing to the emergence of an implicit, incorrect sense of understanding that is easier to establish when gaps are small—but design thinking sees small differences as crucially important, including small differences in meaning. Semantic gaps related to design thinking occur when students or managers maintain incorrect (stereotypical) ideas about design thinking. This may occur in two ways, which often manifest concurrently: (1) the student/manager assumes that

he/she knows well the meaning of a particular design thinking dimension, and (2) he/she further assumes that knowing about a technique (right or wrong) equates with expertise in that technique.

Semantic gaps related to understanding design thinking abound in firms and at business schools. We offer an example regarding one of the most popular (and routinely abused) design thinking tools: brainstorming. In business schools, while teaching design thinking in executive MBA programs, we often start the first class meeting of a semester with a simple question like “who here already knows how to brainstorm?” Invariably, about 90% of the people in the class raise their hands. Our response is to press further: “OK, then what are the rules of brainstorming?” Uncertain looks and dead silence are the most typical response. The best we can usually get out of people is “brainstorming means to come up with lots of good ideas.” Most students are ignorant of the two most important precepts of brainstorming (suspend judgment and work for a high degree of idea fluency). Students and managers are frequently convinced by previous (minimal) exposure to brainstorming from another class (taught by non-designers) that they not only know what it means to brainstorm, but that mere possession of this knowledge means that they are highly competent at the technique. Even after explaining the rules of brainstorming to students we nearly universally observe students not suspending judgment and openly and (often brutally) criticizing new ideas of their fellow students during exercises. Also, students routinely come up with very few ideas in their early days of brainstorming, underscoring the importance of practice/exercise of design thinking. We have observed many students of business administration grappling with the internalization of productive brainstorming techniques—some students are afraid to put pen to paper if the brainstorming task includes a sketching component, for example. Their prior understanding of brainstorming is incompatible with the actual process of proper brainstorming. Students and managers routinely become self-convinced that they can brainstorm competently because their (generally wrong) internal definition of brainstorming seems sufficient for their purposes. The problem is that improper use of brainstorming (doing something else and labeling it brainstorming) is not particularly productive. Not only do they have the definition wrong, they assume that knowing is the same as having expertise—brainstorming is not a skill deemed worthy of practice. Hayakawa (1964) might observe that they have fallen into a major semantic trap: the word is not the thing, or in this case, knowing the name of a skill is not the same as possessing the skill. Correcting students’ and managers’ distorted definitions of design thinking precepts is the first step in fomenting design thinking in managers and management education. Eliminating semantic gaps between design professionals (who possess the proper knowledge and skills) and managers is critically important, but remains largely ignored in management education.

Since much work in firms and business school classes occurs today in multidisciplinary teams composed of diverse professionals possessing divergent cognitive maps of what comprises design thinking, the bridging of the semantic gaps assumes even greater importance. Semantic gaps are exceedingly common and pernicious in organizations: understanding and diffusing design thinking techniques into an organization are major challenges. Next, we turn to a discussion of another barrier to implementing design thinking in organizations: conceptual blocks.

**Conceptual Blocks.** Although it is important to bridge semantic gaps to achieve proper understanding of and ability to implement design thinking, other vexing barriers to implementation exist. In particular, conceptual blocks, a term coined by James Adams in 1974, exert negative effects on the efficacy of design thinking. Adams (1974) identifies several types of conceptual blocks. Although related to semantic gaps, conceptual blocks tend to be more individual-focused than oriented towards building mutual common correct understanding of important terms and techniques (bridging semantic gaps). One of Adams’ clearest examples of a block is cultural blocks: people fail to see the possibilities to solve a particular problem owing to prior conditioning (by parents, friends, schools, television, society and other influences). In his book, *Conceptual Blockbusting* (1974) Adams presents readers with the problem of removing a ping-pong ball stuck in a vertical pipe embedded in a concrete floor without destroying the pipe, the ball, or the floor. Students working in groups often come up with offbeat solutions, but the presence of a perceptual block manifests when someone suggests urinating into the pipe to float the ball to the top of the pipe. Some members of the problem-solving group are appalled at this idea, even though it is one of the most practical solutions available given the constraints of the problem. When someone suggests destroying the pipe to remove the ball, another person typically observes that this is against the rules. So what? The stated goal is to remove the ball, not follow the rules. Arguments often ensue regarding whether this is an appropriate solution (it is). In a work group free of conceptual blocks, people recognize the value of thinking about problems in a manner that is free from

cultural bias. In firms and in business schools, the emphasis is generally on “socially acceptable” solutions, and oddball solutions are filtered out. Once people see a problem, their cultural conditioning takes over and they limit their solution-seeking behavior to conform to convention. When problem-solving in a multidisciplinary team, even one person with conceptual blocks can seriously impede a team.

Social barriers. “Designers eat lunch with designers; accountants eat with accountants.” The physical isolation of designers in organizations and the perceptions of profession-based barriers to interaction are the fault of both designers and non-designers. That is, designers accept and (are resigned to) expect the treatment they receive from non-designers. Isolation and lack of comprehension, particularly of iterative process and process-outcomes render problematic the diffusion of design thinking into entire firms. That business schools also isolate design (in the marketing department typically) reinforces managerial thinking styles prevalent in firms.

Social barriers are particularly insidious with respect to their effects on relations between designers and non-designer top managers. In particular, an economic calculus at the managerial level frequently trumps the (often more relevant to success) design thinking calculus. For example, a manager may embrace a design process up to the point where using two colors instead of three on a product is significantly less costly. Managers at this point typically instantly (and inexplicably) abandon the implications of user-centric data that points to the efficacy of three colors. The resultant decision ostensibly saves money (possibly money is saved in the short term), but may ultimately result in fewer unit sales (and corresponding lower profits) because three colors was the right choice to create the proper user experience. It is not easy to create satisfaction and joy in users, and ignoring or abandoning the message of user-centric data and analysis further impairs the process.

Traditional managers often do not see the difference between process outcomes and final outcomes—this makes designers hesitant to bring important intermediate results and issues to the attention of management at a time when the cost of making large and small changes is miniscule compared to making changes at traditional “milestone” moments. For example, one purpose of prototypes generated in a design thinking process is to create buy-in at the sponsoring organization. As previously described, design thinking prototypes are crude, made from paper and cardboard. Prototypes of a service or experience are often simple handmade storyboards, not produced by a graphics department. Prototypes are intended as the basis for discussion and critique. Managers, however, typically lack an understanding of the importance of rough, partial models—they have been known to react in an ignorant, hostile manner to such prototypes. This response (or the expectation of such a response) engenders confusion and fear in designers. One resulting “social barrier” to overcome in most organizations is that senior management is only brought in for comment at “Phase Reviews” and only shown “finished models.” In fact, top managers are missing key opportunities to offer input at stages where the economic efficacy of major changes is high—these moments additionally represent opportunities to interact with and better understand designers and design thinking. Design teams need to overcome their fear of exposing such preliminary work to management, and management must change their expectations of what such prototypes “mean;” i.e. works in progress and not finished proposals—they are intended for criticism.

Finally, unlike, for example, accountants, designers don’t stop being designers at home or at lunch. Their passion for design and especially for design thinking permeates their lives. Many designers enjoy discussing design issues and refinement of design thinking techniques outside of the work environment. Managers routinely ignore or misinterpret this behavioral characteristic of many designers. For non-designer managers, this property of designers represents a resource, an opportunity to spread design thinking into the broader organization, beyond the exclusive realm of so-called “creative professionals.” For the majority of firms this is a missed opportunity. Admittedly, not every designer seeks to change the world of their firm, but managers are missing an opportunity to diffuse design thinking into an organization by socially isolating designers—it is wrong to blindly accept the conventional approach to “creative professionals” that other firms have employed for many years. This section has identified problems with suffusing an organization with design thinking. Next, we briefly discuss ways to address the barriers to bringing design thinking into organizations.

## **Solutions--Bridging the gap between design thinking in firms and management education**

### **Pedagogical Practices that Embed Design thinking in Organizations**

Education in the classroom and the firm. At San Francisco State University, in the interest of overcoming social barriers to design thinking in firms, we offer an MBA class for executives in “creativity skills” (a manager-friendly re-labeling of design thinking) called “creativity for managers: a global perspective.” This class introduces managers to design thinking (in its diversity throughout the world) and relevant design thinking skills are developed in the managers. We start the class by teaching traditional design tools: brainstorming and sketching, but we quickly move the conversation outside the realm of design into solving more general enterprise-level problems which often lie considerably beyond where design thinking is applied traditionally. Students, after practicing in the “safe” area of product design where they know they are not expected to excel, are challenged by problems that require them to apply design thinking to what are generally regarded as non-design problems, for example, how to profitably enter a new market, or how to re-organize their firm into a more efficient structure.

In addition to attacking social barriers, the executive MBA classroom offers an opportunity to (1) bridge semantic gaps (by talking about them), and (2) break down conceptual blocks among students. In fact, despite its age, we work through the entire *Conceptual Blockbusting* (Adams, 1974) book as part of the class.<sup>1</sup> Results from this type of class for bringing design thinking into students’ firms is limited because the class is typically composed of a “cohort” of executives from many different organizations. A cadre of design thinking-savvy, motivated managers from one firm would be better for that particular firm. Prospects for individuals to bring design thinking to their firm are limited.

Firm-specific executive education programs. To better serve the needs of specific organizations, many prominent business schools have, over the years, introduced firm-specific executive education programs (e.g., Harvard and Stanford). These programs offer custom-tailored classes to fit the articulated needs of executive students who all work at a particular firm. Cohorts consist of managers from one firm, and some firms experience such substantial benefits from this approach that they choose to sponsor multiple managerial cohorts, typically one per year.

The advantages of firm-specific programs over traditional MBA curricula are many, and include customization of content and (critically for design thinking) increased impact of the techniques learned in class upon return to the firm. Firm-specific programs are a powerful tool for helping organizations to achieve superior performance. Firm-specific programs, like executive MBA programs, break down semantic gaps and conceptual blocks, but they are also highly effective for social barriers, one of the most challenging of the impediments to design thinking—the downsides to firm-specific programs are cost and diversion of managerial attention. Alas, the number of firm-specific management education programs addressing design thinking issues remains quite small to date. Although custom design thinking-oriented executive programs likely exist, we are presently aware of the University of Toronto’s Rotman School offerings, as well as those of Stanford University (through the Plattner Institute of Design) and the Netherlands’ Nijenrode Universiteit (though classes are held in Dutch), and San Francisco State University’s Executive MBA program. At Stanford, the diversity of client-schools is high: firms embracing design thinking via customized executive education programs include BP and Proctor & Gamble. All the mentioned schools work with firms to develop customized executive education degree (or certificate) programs that incorporate design thinking approaches to business problems throughout the firm. Discussions and projects often address specific issues at the sponsoring firm. Executives return to their firms as part of a team that has (importantly) achieved buy-in and developed design thinking skills that they are ready and motivated to share.

Teaching problem-driven design thinking. One important approach that can enhance the transfer of design thinking skills to students and managers is the use of problem-based learning techniques (PBL, see Dochy, Segers, Van den Bossche and Gijbels, 2003, for an overview of PBL efficacy). Under the PBL pedagogy, students identify problems and use design thinking to understand, apply and internalize important design thinking processes. PBL violates several conventions of traditional pedagogy, among them the notion that the instructor is a somewhat distant supreme being who primarily lectures and then tests for knowledge retention. PBL emphasizes, in contrast, providing students with genuine problem-solving experiences where the problems are identified, discussed and

agreed upon jointly by students and the instructor. Under PBL, the instructor becomes an approachable, knowledgeable mentor, as opposed to the more traditional role of detached dictator. In essence, the PBL experience allows students to design their own learning experiences within the limits set by the instructor. PBL is broadly compatible with important design thinking principles, and enhances iteration, prototyping and critique skills. Combining executive education or firm-specific programs with a PBL-oriented approach to pedagogy creates a powerful tool for learning design thinking in an outside-the-firm classroom setting. PBL helps alleviate semantic gaps, break down conceptual blocks, and within student groups, is surprisingly effective at tearing down social barriers.

We have discussed three approaches to enhancing management education (outside the firm) with design thinking. While all these approaches are efficacious, they also suffer from drawbacks, the most important being the opportunity costs of sending managers back to school—managerial attention span is a precious commodity, and schools are costly. Below, we examine some in-house alternatives to “school,” some of which are less costly to firms than externally-based pedagogical initiatives.

### **Management Practices and Embedding Design thinking in Firms**

Ad hoc approaches to design thinking. Most recognition and acceptance of design thinking initiatives in firms take an ad hoc form. Systemic approaches remain relatively rare. Top managers often fail to see the added value of design thinking outside the realm of traditional product and graphic design tasks. One low-commitment approach, in-house seminars led by designers, is one way to imbue an organization with design thinking capabilities. For example, one of the authors worked for a time as an employee of a prominent Silicon Valley software house. Computer programmers are notorious for avoiding or ignoring critical user-centric data regarding the quality and nature of user interactions with their software. In a series of in-house seminars led by a variety of experts who routinely employ design thinking, the level of awareness regarding the importance of user needs was raised substantially among software engineers. We have found that one-time seminars or events have minimal impact on practices in firms, but a series of seminars that integrate design thinking across a variety of disciplines (from marketing to coding to typeface design to strategy) can be very effective. The message is that top management (the sponsor of in-house events) buys into design thinking and the seminars (occurring every 2-3 weeks) are not horribly intrusive on people’s ability to get their work done. An in-house seminar series is a signal that top management takes design thinking issues seriously and sees value in spreading these practices beyond the design department—under the right conditions, a virtuous cycle of increasing interest and attendance emerges. When engineers know that top management is unambiguously behind an initiative (via a continuing series of seminars) they often embrace design thinking precepts in a willing manner. Ad hoc approaches are particularly cost-effective for dealing with semantic gaps.

A simpler ad hoc method for spreading design thinking in firms exists: bringing designers into meetings that discuss any and all new initiatives, including those that are not traditionally part of designers’ worlds. A designer can act as facilitator for brainstorming, and serve as a meeting’s visual thinker (e.g., sketching on the whiteboard). This method, while effective for bridging semantic gaps, is limited in its effectiveness at spreading design thinking throughout an organization. Even if design thinking is not installed as the default mode of attacking (non-design) problems, benefits accrue to people from seeing the technique in action—results also generally concretely improve over solutions that fail to utilize design thinking.

Leveraging in-house design resources. It is often a surprise to us that business schools do not leverage their in-house design resources to disseminate design thinking practices throughout their curriculum. By “in-house” resources for business schools we mean engineering and design schools that are part of the same university system as the business school. Of course, different schools inside the modern university often act and feel like completely separate institutions and many of the dysfunctional characteristics of these academic institutions can be used as exemplary case studies of the social barriers and semantic gaps noted in the preceding sections. However, in our experience there have been recent successes in utilizing in-house expertise to leverage design thinking and learning across disciplines, notably at Stanford’s d.school.

The d.school, more correctly known as the Hasso Plattner Institute of Design at Stanford, is a multidisciplinary effort that was started by a Design Group faculty member, Professor David Kelley, the founder of IDEO. His goal was the creation of a new type of “design thinking” Institute. The Product Design faculty, along

with faculty from the Management Science and Engineering program, the Business School, Computer Science, the School of Education, and faculty from Anthropology and other social sciences, form the core of the d.school faculty. The contributions of every discipline are valued and equal at the d.school and, as a rule, all classes are co-taught, sometimes by three or more faculty, and never two from the same discipline. However, it is clear from the practice at the d.school that designers are leveraged for their expertise in design process and thinking. As George Kembler (2007), the Executive Director of the d.school has stated,

We believe having designers in the mix is key to success in multidisciplinary collaboration and critical to uncovering unexplored areas of innovation. Designers provide a methodology that all parties can embrace and a design environment conducive to innovation. In our experience, design thinking is the glue that holds these kinds of communities together and makes them successful.

This leverage is visible at the faculty level: almost every faculty member of the Design Group at Stanford (in the Mechanical Engineering Department) has taught at the d.school. Graduate students from Stanford's highly regarded Joint Program in Design (started in 1963 as an interdisciplinary program between Engineering School and the Art Department) serve as teaching assistants for most of the classes. The d.school has rapidly become an agent of change for other departments and programs at Stanford by explicitly creating opportunities for groups to take advantage of design thinking methodology. Semantic gaps and conceptual blocks are readily addressed by proper leveraging of in-house design resources.

Deploying designers as top managers. Companies noted for their successful innovations often have designers, or design-trained managers, in senior positions. Two companies from different eras come to mind as benchmark examples: Braun (now a division of Gillette), and Apple.

Dieter Rams, a trained architect turned industrial designer, was Braun's Head of Design from 1961-1995. Rams reported directly to the two brothers (sons of the founder, Max Braun) who owned Braun at the time, Artur and Erwin Braun. Design at Braun, lead by Rams, was used to reposition Braun to benefit from the expansion of the post-war consumer electronics market (1951). Rams' influence on the company went well beyond the design department: his "ten principles of good design" at Braun became part of the company's culture. Under his leadership, Braun became a successful global supplier of appliances and personal care products.

It is interesting to note that Rams' brand of design thinking borrowed heavily from the Staatliche Bauhaus (the Bauhaus School, 1919-1933, Germany) that emphasized prototyping and multi-disciplinary teams. Indeed, the Bauhaus manifesto may be one of the first design documents to speak about their strategic importance. Bauhaus founder Walter Gropius wrote that the goal of the Bauhaus was "to create a new guild of craftsmen, without the class distinctions which raise an arrogant barrier between craftsman and artist." (Frampton, 1992, p. 123)

Jonathan Ives, the Senior Vice President of Industrial Design at Apple, is another example of how a designer, raised to the level of a direct report to the CEO (Steve Jobs), can set the bar for an entire company. Apple, more than any other modern company, lives by the design philosophy set forth by Dieter Rams in the 1960s. It was Rams who, as one of his ten principles, said, "good design is consequent to the last detail." (Rams, 1962) At Apple, Jonathan Ives is the man who manages the consequent details. Everything designed by Apple exhibits his exceptional attention to detail. In every endeavor, Ives follows two other Rams dicta: "Good design is as little design as possible...and...back to purity, back to simplicity." Apple's recent sustained financial success is evidence that, in their industry, elevating designers to management is a concretely profitable strategy. The idea of designer as top manager seems compelling. Rams' philosophy is a powerful tool for addressing issues with semantic gaps in particular, and to a lesser extent for conceptual blocks. His approach may also have some incidentally positive effects on social barriers.

## Concluding Thoughts

For design thinking to permeate an organization requires an environment different from the traditional work or educational environment. We have isolated two organizational-context dimensions necessary for a rich design

thinking environment, without which design thinking activities are impossible: multidisciplinary teams and group/individual fluency. Within this organizational context, high performance design and innovation outcomes occur when a multidisciplinary team engages in design thinking process by explicitly working with five dimensions of design thinking action: user centered research, prototyping, iteration, critique, and form-giving. Fig. 1 illustrates the proposed interrelationships of these dimensions.

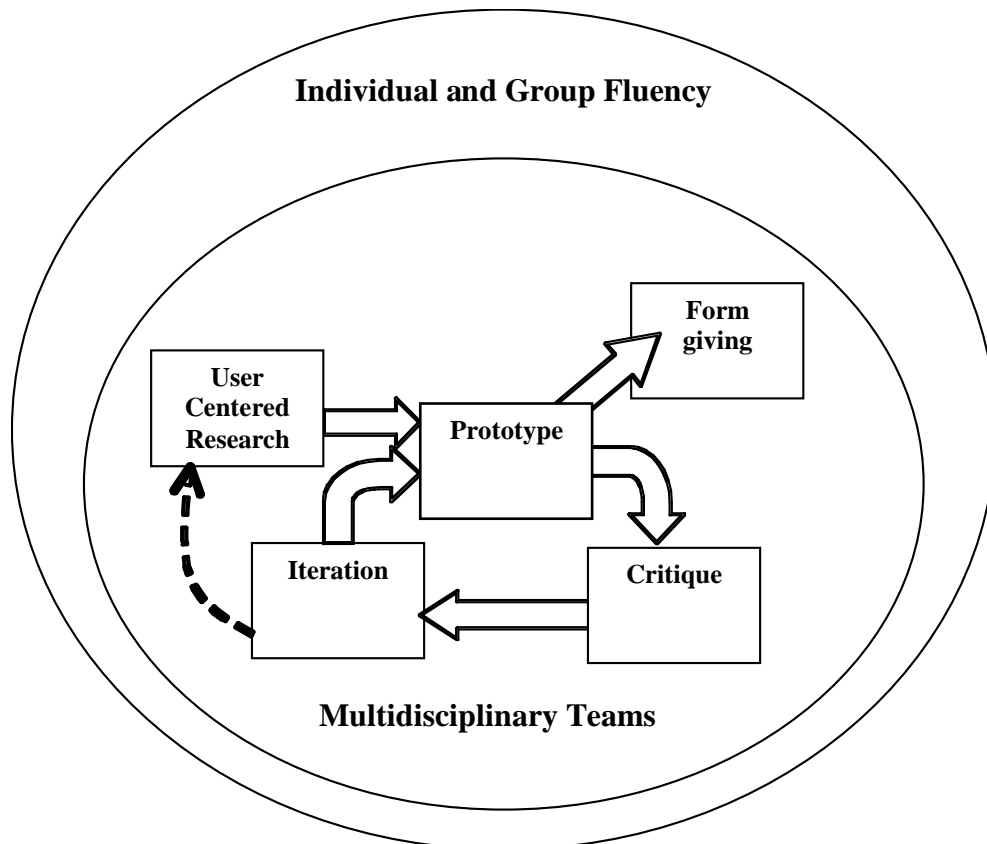


FIG. 1: SEVEN DIMENSIONS OF DESIGN THINKING

Per Fig. 1, design thinking activities thrive given an organizational context of a multidisciplinary team possessing individual and group fluency skills. The proposed process occurs within this context, and iteration plays a central role. Iteration is identified as a distinct process intentionally; the goal is to prompt the statement “now we will iterate” so that the team is not tempted to accept early problem solutions. Similarly, experienced design thinking teams know when to ask “Is this the last iteration? Should we stop now?” The number of iterations is undetermined, though in our professional experience in highly creative environments, iteration always continues until the allotted time runs out. Iteration drives the prototype-critique-iterate cycle, but iteration may also sometimes lead back to user-centered research—gaps in knowledge of user requirements must be addressed if present (the dotted arrow in Fig. 1). Fig. 1 also shows form-giving as the culmination of the design thinking process. A subsequent generation of design thinking might start with the results of a previous generation’s form-giving as part of its input and proceed to user-centered research and prototyping to begin the next-generational cycle of design thinking.



While Fig. 1 outlines a plausible process, it lacks prescriptive value as to how best to implement design thinking throughout an organization: which solutions for problems with design thinking are most efficacious for particular problems? Table 1 describes our thoughts on the comparative efficacy of our proposed solutions to each design thinking problem arena. Table 1 indicates that conceptual blocks are cost-effectively addressed within a classroom setting, for example, by an MBA program. Development of a problem-based learning orientation to design thinking also effectively addresses conceptual blocks—the structure of the PBL inquiry process explicitly seeks to break through conceptual blocks. For semantic gaps, the best solutions are an ad hoc approach (e.g., a seminar series in a firm) or having a designer as top manager (we prefer both initiatives). Social barriers are best addressed by firm-specific management education, which creates a spirited cadre of design thinkers in one firm to spread the techniques throughout an organization.

**TABLE 1: EFFICACY OF SOLUTION AREAS FOR VARIOUS DESIGN THINKING PROBLEMS**

		-->Increasing importance of group-level interaction issues---->		
		Conceptual Blocks	Semantic Gaps	Social Barriers
Pedagogy-based solutions:  Management development initiatives	Solution Type Classes/MBA programs	+++	++	+
	Firm-specific management education	++	+	+++
	Problem-based design thinking orientation	+++	+	++
In-firm-based solutions:  Human relations initiatives	Ad hoc	+	+++	++
	In-house design thinkers	+	++	+++
	Designer as top manager	++	+++	+

+ = Low efficacy

++ = Medium efficacy

+++ = High efficacy

The drawback to firm-specific executive education initiatives is that they are expensive both monetarily and redirect costly, finite managerial attention from other problems. A less costly but nonetheless efficacious solution to social barrier issues is to use in-house design thinking resources (designers) as facilitators and team members in problem-solving tasks that fall outside the realm of traditional design.

This paper has proposed a preliminary framework for management educators and managers interested in design thinking to explore implementation of design thinking in their organizations. Much work remains to be done in the realm of validating the anecdotally-derived relationships we have proposed herein, but our substantial experience addressing design thinking issues both within business schools and in firms leads us to assert that this is a rich arena for further study. Future research efforts might focus on empirically validating our model by examining innovating firms and tracking the nature of their design thinking processes against their subsequent performance.

Also, though we aver a logic of cost-efficiency in mapping solutions to design thinking problems, the actual comparative efficacy of solutions may vary with the idiosyncratic nature of organizations in which implementation of design thinking precepts is attempted.

Our main contributions include a useful set of original definitions that break down design thinking into seven dimensions, two of which are organizational context-related and five of which comprise design thinking activities. The specified dimensions must each have the proper character in organizations wishing to engage in productive design thinking. This may seem like a demanding set of requirements, but we reiterate that design thinking is not easy, even for experienced practitioners. Inculcating an organization with the necessary values, environment, culture and processes is a substantial, intimidating task. To facilitate this task, we have proposed a simple framework within which design thinking might be expected to prosper. Additionally, we have identified types of impediments to design thinking in organizations and examined some possible solutions and their comparative efficacy.

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## End Notes

Adams' book has been revised recently and incorporates more current terms of art and technology—its relevance remains undiminished today.

# **The Mediating Effect of Training on the Relationship between Individual Learning and Organizational Learning**

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## **Abstract**

The aim of this study was to examine the role of individual learning as a component that influences organizational learning and to clarify the mediating effect of training. One hundred and sixty operating-level employees from various service sectors participated in this study. The results show that individual learning significantly influence organizational learning. Furthermore, training has a mediating impact on the relationship between individual learning and organizational learning. This finding suggests that practicing managers should place greater emphasis on training of their employees to promote organizational learning. Further research and practical implications are discussed.

## **Introduction**

Rapidly changing business environment and increasingly intense competitive environment require organizations to gain unique and sustainable competitive advantage over their competitors. According to the resource based view approach, sustainable competitive advantage can be achieved by continuously developing existing resources as well as creating new resources and capabilities (Barney, 1991). One resource that has been recognized as providing a source of competitive advantage is the human resources of the organization (Barney, 1991; Huselid, 1995; Wright, McCormick, Sherman, and McMahan, 1999).

An organization is a socio technical system that consists of people with listed tasks, corporate cultures, technology and environment. In a highly competitive environment, an organization has to be able to obtain recognition to stand tall against other competing organizations. An organization is like a big family; consisting of people who need to cooperate with each other and work hand in hand to achieve its mission and vision. In other words, an organization's success is not the work of a single individual but it comes from the works of many others. Individuals vary in terms of experiences, knowledge, and behaviors and their learning approaches. The rationale of organizational learning is important. It is a dynamic process of creating, acquiring, and transferring knowledge and converting them into 'knowledge-based' organization (Venugopal and Baets, 1995).

In the attempt to obtain experiences and knowledge, individuals go through the process of learning. Some managers do not realize that investing in getting their employees to learn will contribute many benefits to the organizations especially towards making the organizations become learning organizations. There is a tendency for its presence to be neglected despite the fact that it contributes benefits to the organizations.

## **Organizational Learning**

Organizational learning has been an important research topic within many organization studies (Gephart, Marsick, Buren, and Spiro, 1996; Wang, and Ahmed, 2003). Organizational learning is a dynamic process that involves moving between different levels of action, going from the individual to the group level, then to the organizational level. One of the key parts of organizational learning process is the development of organizational knowledge based on the transfer and integration of knowledge that is individually acquired.

### **Individual Learning**

Individual learning is about individuals having different opinions and responses that lead to the same motivation of improving the organization's performance (Aksu and Ozdemir, 2005). As a result of the individual response to the

environment, it forms knowledge that creates a pooled knowledge with collaborations with the organization members which then leads to organizational learning. Lopez, Peon, and Ordas (2005) found that individuals in an organization must share some common knowledge structure that will result in each individual taking action that collectively will achieve strategic objectives. In addition, Spector and Davidson (2005) stated that research on individual learning typically states that individuals are capable of formulating goals, generating alternative paths to attain goals, assess alternatives and make decisions.

### **Training**

Gephart, Marsick, Van Buren, and Spiro (1996) indicate that training is a tool for learning. Indeed, numerous studies pointed out the importance of training to facilitate learning in organizations (DiBella, Nevis, and Gould, 1996; Gomez, Lorente, and Cabrera, 2004). Training as defined by Noe, Hollenback, Gerhart, and Wright (2004) refers to an organization's planned effort to help employees acquire and enhance their job-related knowledge, skills, abilities, and behaviors. The objectives of training are for employees to master knowledge, skill, and behaviors learned and to apply them to their work (Noe et al., 2004). Findings by Gringo et al. (2000) revealed that training is one of the predictors of a learning organization. Also, a study in a Mexican subsidiary of a US multinational corporation (MNCs) showed that training is a major human practice that helps align the Mexican employees with the learning focus (Gomez et al., 2004). Recently, a study by Lopez et al. (2006) established positive relationship between comprehensive training and organizational learning process.

### **Individual Learning and Organizational Learning**

The importance of individual learning influencing organizational learning is obvious because all organizations are composed of individuals (Kim, 2004). As organizations learn through its individual members, organizational learning is therefore affected by individual learning (Kim, 2004). Wang and Ahmed (2003) suggested that individual learning has a significant impact on the concept and practices of organizational learning. As learning starts from individuals, Wang and Ahmed (2003) argue that learning at the organizational level consist of collective individual learning, training, and development. Indeed Argyris and Schon (1996) claimed, without individual learning there is no organizational learning. Hodgkinson (2000) discusses the role of individual learning in a learning organization context. To successfully adopt the concept, there is a requirement for individual learning by everyone employed within the organization where individuals in the organization consciously engage in learning. Thus the following hypothesis was formulated:

H1: Individual learning will positively influence organizational learning.

## **Individual Learning, Training and Organizational Learning**

The learning of organizations begins at the individual level and shared at group level (Aksu and Ozemir (2005). Renkema (2006) suggested the importance of awareness for individuals to learn in order to promote learning in the organization. Through a quasi-experimental study, Renkema (2006) evaluated the impact of individual learning on learning intention and work floor learning culture. His findings suggest that individual learning enhance individual's freedom of decision making with respect to training. The feeling that they have more freedom of decision-making might positively stimulate workers to engage into training activities.

To be competitive, organization should value knowledge by developing and introducing mechanisms to guarantee continuous learning (Leonard-Barton, 1992). Training has been highlighted as one of these mechanisms for its role as a tool of learning (Gephart, Marsick, Buren, and Spiro, 1996). Training not only serves as a platform for the employees to learn, but also to share and apply what they have learnt back in their workplace (Norashikin and Noormala, 2006). The importance of training in the organizational learning context has been pointed out in numerous studies (Appelbaum and Goransson, 1997; Gomez, Lorente, and Cabrera, 2004; Nonaka and Takeuchi, 1995). Gomez et al. (2004) provide evidence of how various types of training influence the development of organizational learning. Their study revealed that ongoing training, team-based training and job rotation programs have a positive influence on learning capability of an organization. Therefore, it may be claimed that organizations that equip their employees with comprehensive training increase knowledge and skills to their workforce, as well as creating a climate of organizational learning (refer Fig. 1). Thus the study hypothesized that:

H2: The relationship between individual learning and organizational learning will be stronger when training is included as a mediator.

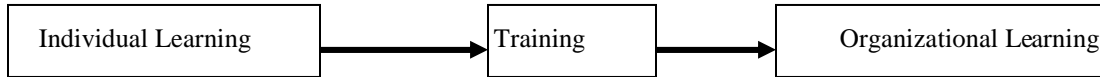


FIG. 1: RELATIONSHIP BETWEEN INDIVIDUAL LEARNING AND ORGANIZATIONAL LEARNING WITH THE MEDIATING INFLUENCE OF TRAINING

## Methodology

The present study utilized a field study design. Survey methodology has been used for the empirical analysis. We tested these hypotheses in a sample of human resource executives from several organizations in the banking industry. Two hundred questionnaires were personally distributed randomly through the assistance of the human resource managers. The selection of human resource executives as key respondents for this study was firstly based upon their adequate knowledge and understanding on the overall human resource activities (training) of the organization and secondly, they have an adequate level of involvement with regard to the issues under investigation. The unit analysis for the study is the individual.

A number of approaches were used to ensure response quality and to enhance the response rate. The process was organized as follows: the questionnaire was first tested. In its draft form, it underwent a pre-test with human resource managers from three banks. After some minor modifications, the final questionnaire was sent to the various banks to the human resource managers together with a letter explaining the purpose of the study and assuring anonymity. Each bank was given ten questionnaires. A total of twenty banks were approached. The questionnaires were left with the human resource managers who were then requested to randomly distribute the questionnaires to their human resource executives. Two weeks after the initial visit, the researcher went back to these banks to collect the completed questionnaires.

A total of 170 questionnaires were returned, with a response rate of 85 percent. This rate is high as in other studies following this same method of data collection. Of these 170 surveys, only 160 surveys were deemed usable, five questionnaires had over 80 percent of values missing, so the researchers decided to eliminate them, and another five questionnaires had serious internal inconsistencies, so these too were eliminated.

The questionnaires comprised of 29 items. Measures for organizational learning and individual learning were adopted and adapted from Watkins and Marsick (2004). Seven items on training were adapted from Rao (2006). These items capture the extent to which training is offered to the members of the organization. Respondents were asked to assess on a five-point Likert Scale ranging from 1 = 'Strongly Disagree' to 5 = 'Strongly Agree'.

## Data Analysis

The data was statistically analyzed using the Statistical Package for Social Sciences (SPSS) Version 12. Descriptive statistics were conducted to establish frequency distribution for the variables in the demographic profile of the organizations. Zero order correlations were used to determine relationships between human resource practices and learning organization.

## Results

The respondents comprised of 48 percent male (N=77) and 52 percent female (N=83). Most of the respondents (44%) were Degree holders. This was not surprising because the positions they held in the organization were executive positions. Most of the respondents were in the age range of between 25 years old to 34 years old.

Using the principal component analysis, factor analysis on organizational learning showed that three items loaded on Factor 1 and two items loaded on Factor 2. Items loaded on Factor 1 were 'Leaders generally support requests for

learning opportunities and training'; 'Leaders mentor and coach those they lead', and 'Uses two-way communication on a regular basis, such as suggestion systems, electronic bulletin boards or open meetings'. This factor is named 'Leader Support'. Cronbach alpha reliability for the scale is 0.56. Items loading on Factor 2 were 'Cuts out unnecessary paper work' and 'Supports employees who take calculated risks'. This factor is named 'Consciousness'. Cronbach alpha reliability for the scale is 0.58. Six items were dropped due to cross loadings between items. For individual learning, it was found that the items loaded under one factor. The name 'Individual Learning' is thus maintained for this factor. The cronbach alpha reliability is 0.80. As for the variable 'Training', factor analysis carried out showed that the measure is also unidimensional. The name 'Training' is maintained. The cronbach alpha reliability is 0.80.

The hypotheses stated earlier were then restated:

H1: Individual learning will positively influence organizational learning.

H1a: Individual learning will positively influence leader support.

H1b: Individual learning will positively influence consciousness.

H2: The relationship between individual learning and organizational learning will be stronger when training is included as a mediator.

H2a: The relationship between individual learning and leader support will be stronger when training is included as a mediator.

H2b: The relationship between individual learning and consciousness will be stronger when training is included as a mediator.

Descriptive statistics and inter-correlations of the study variables are shown in Table 1. The means range from a maximum value of 3.67 (training) to a minimum value of 3.44 (work concern). The standard deviations range from 0.65 (training and individual learning) to 0.80 (work concern). The magnitude of the correlation for variables measures from  $(r) = 0.25$  to  $(r) = 0.60$ . Every variable is significantly correlated with each other.

To test the hypotheses stated earlier, regression analyses were carried out (refer Table 2). The results indicated that when leader support was regressed on individual learning, there was a significant relationship ( $\beta=0.65$ ). Hypothesis (1a) is thus supported. Then, consciousness was regressed on individual learning where it was found that there is also a significant relationship between them ( $\beta=0.53$ ). Hypothesis (1b) is also supported.

TABLE 1: DESCRIPTIVE STATISTICS, CRONBACH ALPHAS, AND ZERO-ORDER CORRELATIONS OF ALL STUDY VARIABLES

	Variables	1	2	3	4
1	Leader Support	0.56			
2	Consciousness	0.34**	0.58		
3	Training	0.47**	0.25**	0.80	
4	Individual Learning	0.51**	0.46**	0.60**	0.80
	Mean	3.62	3.44	3.67	3.62
	SD	0.66	0.80	0.65	0.65
	Number of items	3	2	6	7

(N=160)

Note: Diagonal entries indicate Cronbach Alpha values.

\*\* Correlation is significant at the 0.01 level (2-tailed); \* Correlation is significant at the 0.05 level (2-tailed)

Next, the role of training as a mediator between individual learning and leader support and consciousness were examined. In the procedure advocated by Baron and Kenny (1986), mediation effects are determined by analysis of separate regression equations. Three conditions for mediation were examined. The first condition is that the predictors must be significantly related to the mediating element (Equation 1). The second condition is that the predictors must relate to the criterion in the absence of the mediator (Equation 2). The final condition is that, when both the predictors and mediator element are included, the direct relationship between predictors and criterion should become significantly smaller (partial mediation) or non-significant (full mediation) (Equation 3).

The conditions for mediation were met for leader support but not for consciousness. Hypothesis 2 was thus partially supported. We found that the relationship between individual learning and leader support which was significant in Equation 2 ( $\beta=0.65$ ) became significant but  $\beta$  was 0.54 once we included training as a mediator (Equation 3). However, we found that training did not mediate the relationship between individual learning and consciousness.

TABLE 2: STANDARDIZED MULTIPLE REGRESSION BETA WEIGHTS FOR ORGANIZATIONAL LEARNING DIMENSIONS ON INDIVIDUAL LEARNING WITH THE MEDIATING EFFECT OF TRAINING

Predictor:	Criterion: Organizational Learning					
	Leader Support (LS)			Consciousness (C)		
Individual Learning	Eqn1 Training (T)	Eqn2 Leader Support (LS)	Eqn3 (LS + T)	Eqn1 Training (T)	Eqn2 Consciousness (C)	Eqn3 (T + C)
		0.68**	0.65**	0.54**	0.68**	0.53**
Mediator: Training			0.24**			-0.01
R2	0.46	0.42	0.50	0.46	0.28	0.28
F	132.5	108.8	74.35	132.5	59.8	29.7

Note. N = 160. \*p < .05; \*\*p < .01

## Discussion

Organizational learning is a unique process that takes place invisibly in an organization. It is both quantitatively and qualitatively distinct from the sum of the learning processes of individuals. Organizational learning takes place through the medium of individuals and their interactions, which together constitute a different whole, with its own capabilities and characteristics (Probst and Buchel, 1997). The purpose of this study was to determine individual learning as a predictor of organizational learning. In this respect, the findings provide initial empirical support on the importance of individual learning to develop organizational learning. Surprisingly, training was found to be insignificant in relation to consciousness, one dimension of organizational learning. This might be due to the organizations being service-oriented; they may be investing less on training of the employees. Despite the establishment of the Human Resource Development Fund (HRDF), which requires organizations in Malaysia to contribute a certain percentage of their payroll for training purposes, some organizations still fail to conduct training extensively. Findings of this study are similar with a Malaysian study conducted in a manufacturing setting by Normala and Zainal (2003) where they found that training is not related to organizational performance. Normala and Zainal (2003) further suggested that this might be due to certain policies implemented in the organization that recruited only skilled employees. As such, less emphasis is given in training.

From a theoretical point of view, this study contributes to the organizational learning literature by providing additional insights into the influence of individual learning towards learning organization. While there has been inquiry on the role of individual learning in affecting organizational learning, this study provides empirical evidence on how training promotes organizational learning. Studies of individual learning and organizational learning in Malaysia have been very few. Hence, this particular study is undertaken with the aim of adding to the theoretical body of knowledge. The present study suggests some implications to human resource managers, top management and line managers on the importance of promoting individual learning as an important factor to contribute towards organizational learning in the organizations.

The findings of the study should be interpreted within the context of its limitations. First, the sample was from the banking organizations and the extent to which they are representative of organizations in general, or even

of service organizations in general, can be determined only by reference to the work of other researchers (Aksu, and Ozdemir, 2005; Kim, 2004). Next, what is presumably a causal system has been examined here using cross-sectional data. Each variable is represented in the data only at a single point of time. This does not necessarily invalidate the conclusions that are drawn. Finally, the mediation model described is not the only model that could have been constructed to fit the observed data. The issue of substance here is directionality of the link between individual learning and organizational learning; to simplify, does individual learning cause organizational learning or does organizational learning cause individual learning? Cross-sectional data cannot distinguish between these possibilities; longitudinal data is required.

## **Conclusion**

This study builds on previous research showing that individual learning is associated with organizational learning and training has a role in promoting the relationship between individual learning and leader support as one dimension of organizational learning. The result thus parallels previous research, lending support to the notion that individual learning of employees plays a role in determining learning in the organizational settings. Back to the question asked at the beginning: Does individual learning influence organizational learning through training? The answer is a qualified yes: individual learning influences organizational learning. However, little has been said on the role of training as a mediator. The results of the study found that training does influence one dimension of organizational learning i.e., leader support but not consciousness. More studies are thus needed to determine the robustness of this body of knowledge.

## **References**

Contact author for the list of references.



## Exploring Major Determinants of Successful Business

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### Abstract

Free trade and global competition forces companies to adopt new technologies to redesign business processes, improve products, and support other organizational changes necessary for better performance. The literature on strategic leadership, competitive intelligence, management of technology, and specific characteristics of the company's change process propose their importance in successfully implementing business innovation. While these factors may indeed be important to enhance company competitiveness, the existing literature contains limited empirical evidence supporting their relationship to successfully implementing business innovation. A field test with a relatively large sample has been used to test an integrated model of these relationships. The results provide clear evidence about the importance of strategic leadership, competitive intelligence, management of technology, and specific characteristics of the company's change process to the success of business innovation. The items used for measuring the main constructs provide further insights into how managers should go about developing these areas within their organizations. **Keywords:** Strategic leadership, competitive intelligence, management of technology, business innovation, management of change.

### Introduction

While many business organizations have derived substantial benefits from innovation, success implementing the required changes is far from assured, with many organizations also reporting disappointing results due to missed objectives, unexpectedly high costs, and turmoil caused by the changes. Besides the continuous need for organizations to re-invent themselves and for developing new products and services (O'Sullivan, 2003), over the past decade the main emphasis worldwide has been on improving quality. To satisfy their need for innovation, many companies have adopted Total Quality Management (TQM) or similar quality improvement methodologies which call for a continuous effort to improve products, processes, and operations to better satisfy customer needs. The required changes may also call for employee empowerment in decision making, a team approach to identify, prioritize targets for improvement, including changes to organization values and culture. Although there has been a significant amount of success with TQM, managers have realized that in many cases there is need for more dramatic improvements in productivity, competitiveness and profitability. This can be accomplished by major paradigm shifts which focus on value-added activities as well as other underpinnings for successfully implementing the concept of Business Process Reengineering (BPR) (Caccia-Bava, Guimaraes & Guimaraes, 2005; Goll & Cordovano, 1993; Teng, Grover & Fiedler, 1994).

Essentially, BPR amounts to making radical changes to one or more business processes affecting the whole organization. It also requires a cross-functional effort usually involving innovative applications of technology. BPR differs from TQM in two important respects. First, while TQM is focused on continuous improvement, an incremental performance improvement approach, reengineering was founded on the premise that significant corporate performance improvement requires discontinuous improvement - breaking away from the outdated rules and fundamental assumptions that underlie operations. Second, reengineering makes a significant break with previous performance improvement approaches by requiring a high level of state-of-the-art information technology awareness among the entire reengineering team prior to, rather than after, the definition of process changes or improvements (Cypress, 1994). Some technologies (i.e. imaging systems and expert systems) can provide substantial opportunities for the redesign of business processes (Guimaraes, 1993; Guimaraes, Yoon & Clevenson, 1997). With BPR, rather than simply eliminating steps or tasks in a process, the value of the whole process itself is questioned (Gotlieb, 1993). In conformance with TQM principles, the focus of change is also market driven (Guimaraes & Bond, 1996).

Regardless of the change methodology being employed the factors important to innovation success or failure are many, but most authors would agree that the change process has to bear certain characteristics. Many researchers have looked to improvements in strategic leadership as critical to developing an organization environment conducive to innovation (Waldman, Ramirez, House, & Puranam, 2001; Williams, 2004). To help define and prioritize important problems and opportunities to the organization, many have proposed Competitive Intelligence (CI) programs as important to company success (Tarraf & Molz, 2006; duToit, 2003; Vedder & Guynes, 2002; Guimaraes & Armstrong, 1998a). Further, effective Management of Technology (MOT) is thought to be a critical requirement for successfully implementing most modern business changes (Beattie & Fleck, 2005). While these propositions are exceedingly important, the existing literature contains little empirical evidence supporting them. As called for in the study by Guimaraes & Armstrong (1998a), while the constructs being studied are well established, much can be done for empirically testing these propositions. Particularly useful might be testing an expanded integrated model of the factors potentially important to effective implementation of business change. This field test was undertaken to accomplish these objectives.

## **Theoretical Background and Proposed Hypotheses**

### **Implementing Business Change**

The dependent variable in this case is the degree of company effectiveness in implementing business change. Regardless of the methodologies employed, to derive benefits from strategic opportunities and address problems, companies have to implement changes to their business processes, products, and/or to the organization itself. Their ability to effectively implement these changes has a dramatic impact on organization performance and business success (Guimaraes & Armstrong, 1998a). The practitioner and academic literature propose that to manage change effectively organizations need to: 1. Be in touch with their markets, customers, competitors, new products, etc; 2. Have adaptive leadership which promotes innovation; 3. Manage technology effectively in supporting the necessary changes; and 4. Follow some basic prescriptions while implementing the change process. Each one of these are correspondingly represented by the independent variables in this study which are discussed next.

### **Company Competitive Intelligence**

To keep in touch with what is going on in their markets, managers are increasingly recognizing the importance of competitive intelligence and knowledge as a key asset (Tarraf & Molz, 2006; Anonymous, 2005; duToit, 2003; Vedder & Guynes, 2002; Darling, 1996). With the increase in business competition, company survival and success is now determined by its rate of learning. If it is faster than external changes, the organization will experience long term success (Darling, 1996). Ironically, even though as much as 68% of U.S. companies have an organized approach to providing information to decision makers (Westervelt, 1996), according to Ettore (1995), probably less than 10 percent of American corporations manage the CI process well, and effectively integrate the information into their strategic plans. The antecedents and consequences of competitive intelligence dissemination has been studied by Maltz & Kohli (1996). Competitor Analysis (CA) was proposed by Ghoshal & Westney (1991), and other approaches useful for companies to collect information from competitors were addressed by Heil & Robertson (1991). The importance of organization intelligence to financial performance has also been demonstrated. Companies with well established CI programs on the average showed earnings per share of \$1.24, compared to those without CI programs which lost 7 cents (King, 1997).

The literature contains many examples of benefits that can be derived from CI. Among these are improved competitive edge (Editors, 2004; duToit, 2003; McCune, 1996; Sawka, 1996; Westervelt, 1996) and improved overall company performance (Davison, 2001; Guimaraes & Armstrong, 1998a; Babbar & Rai, 1993), two essential company goals that can be brought about with effective application of competitive intelligence. More specific benefits of CI include: uncovering business opportunities and problems that will enable proactive strategies (Ellis, 1993; Westervelt, 1996); providing the basis for continuous improvement (Babbar & Rai, 1993); shedding light on competitor strategies (Harkleroad, 1993; Westervelt, 1996); improving speed to markets and supporting rapid globalization (Baatz, 1994; Ettore, 1995); improving the likelihood of company survival (Westervelt, 1996); increasing business volume (Darling, 1996); providing better customer assessment (Darling, 1996); and aiding in the

understanding of external influences (Sawka, 1996). Benefits such as these provide the basis for firms to better understand the potential impact of the proposed changes and the means by which they can be infused into the company's fabric. Based on the above discussion, we propose the following hypothesis:

**H1: Company CI effectiveness is directly related to effectiveness implementing business change.**

#### **Strategic Leadership**

There is a substantial body of knowledge proposing the importance of effective leadership as an ingredient to successful organization change (Waldman, Ramirez, House, & Puranam, 2001). There are many types of leadership (i.e. formal/informal, based on specific skills, social status, etc) arising from the circumstances in which leaders/followers find themselves. However, for the purposes of this study the relevant construct is company strategic leadership. Pawar & Eastman (1997) proposed transactional strategic leadership as one operational within an existing organizational system or culture instead of trying to change it. It attempts to satisfy the current needs of followers by focusing on exchanges and contingent reward behavior. It pays close attention to exceptions or irregularities and takes action to make corrections (Bass, 1985; Burns, 1978). Conceptually similar to the cultural maintenance form of leadership described by Trice & Beyer (1993), transactional leadership acts to strengthen exiting organization processes, structures, strategies, and culture.

The second form of strategic leadership is transformational or "charismatic" leadership (Pawar & Eastman, 1997). According to Waldman, Ramirez, House, & Puranam (2001) the leader articulates "a vision and sense of mission, showing determination, and communicating high performance expectations" (p.135). The followers reply with confidence in the leader and strong admiration or respect. Also they identify with the leader's vision and with the organization itself, creating a high level of collective cohesion. This cohesion and the leader's expressions of confidence in the followers' ability to attain the vision produce, in turn, a heightened sense of self-efficacy (Podsakoff, MacKenzie, Moorman, & Fetter, 1990). Further, charismatic leaders are likely to show persistence and enthusiasm in pursuing goals and be demanding of others through the communication of high performance expectations (Kanter, 1983; Trice & Beyer, 1993). There is evidence that charismatic leadership at the top executive level is important for company performance (Day & Lord, 1988; Hambrick & Finkelstein, 1987; Yukl, 1998). Katz & Kahn (1978) argued that while charismatic leadership may be more relevant to situations where organization change is important, both transactional and transformational (charismatic) leadership are potentially important at the strategic level, that it is particularly important as a means of mobilizing an organization to meet the demands of its environment. Bass (1985) viewed transactional and charismatic leadership as being somewhat complementary in that both could be displayed by the same individual leader. Similarly, Trice & Beyer (1993) acknowledged that both maintenance- and innovation-oriented leadership could be shown by a given leader over time. Based on the above discussion a second hypothesis is proposed:

**H2: Strategic leadership is directly related to effectiveness implementing business change.**

#### **Management of Technology (MOT) To Support Business Change**

As business competitiveness increases, many business organizations have used technology for redesigning business processes, provide new products and services, and improve the organization work environment. Many authors have proposed the importance of a wide variety of technologies to support business innovation (Li-Hua & Khalil, 2006; Khalil & Ezzat, 2005). Computer Telephony Integration has been touted as a powerful tool to improve the relationship with customers (McCarthy, 1996). The effects of computer technology on organization design, intelligence and decision making have long been of interest to researchers (Huber, 1990). The use of computers for data mining and warehousing is seen as essential for decision support (Anonymous, 1995). Friedenber & Rice (1994) and Guimaraes, Yoon & Clevenson, (1997) have proposed Expert Systems as viable implementation vehicles for business change because they are effective in capturing and distributing knowledge and knowledge processing capability across an organization. The list of technologies available to support the necessary business changes is endless. For business changes requiring technology, without effective MOT the change implementation processes would be severely hindered and in many cases rendered impossible. Based on the above discussion the following is proposed

**H3: MOT effectiveness is directly related to effectiveness implementing business change.**

#### **Important Characteristics of the Change Process**

A survey of the literature on business change management reveals several pre-requisites for successfully implementing business change such as conformity to company objectives, employee and department participation in

the change process, customer input, reasonably balancing risk taking with cost benefit analysis, monitoring progress, and communication regarding the change process. In other words, how change is implemented is an important determinant of success. Specifically, as proposed by Guimaraes & Armstrong (1998a), the important characteristics of the change process enumerated above are expected to influence the company's ability to change its products, processes, and its organizational structure and culture. Thus, we have:

**H4: The extent to which the change process bears the desirable characteristics will be directly related to company effectiveness implementing business change.**

## **Study Methodology**

This section provides an overview of the field-test procedure used and a brief description of the sample supporting this study. A description of how the variables were measured, the data analysis procedures, and the discussion of the study results are presented later.

### **Data Collection Procedure**

This field test used a mailed questionnaire to collect data from the Internal Auditor Director (IA) of each company. IAs was chosen as respondents because, from a corporate perspective, they are most aware of the problems and activities throughout the company. Furthermore, the group is relatively homogeneous, a characteristic that strengthens internal validity of the data collection instrument used in the study. We felt that a survey of top managers who are directly responsible for strategic leadership, or of managers directly involved with specific projects implementing organizational changes, would have greater likelihood of bias. After some rewording of a few questions following the input from a small pilot test involving four IA's, the questionnaire was distributed by mail to the IAs of 1000 organizations randomly selected from a list of approximately 4,000 members of an Internal Auditors Association. The sample represents a wide variety of organizational settings, (i.e. small as well as large companies), from several industry sectors. Participation was voluntary, and the cover letter assured confidentiality of the responses and that only summary information from the participants would be published. The survey was accompanied by a published report from a previous study on the topic (as a courtesy to prospective respondents) and by a postage-paid envelope addressed for direct return to the researchers.

### **Sample Description**

Through the procedure just described, 1000 IAs were selected to participate in the study and 294 returned the questionnaire in time for data analysis. Nine questionnaires were thrown out due to missing data. The remaining 285 usable questionnaires provide a response rate which is acceptable for studies of this type (Teo & King, 1996) and consistent with past experience with mailed surveys (Igarria, Greenhaus & Parasuraman, 1991; George & Barksdale, 1974). Nevertheless care was taken to assess the representativeness of the sample. Chi-square tests were used with a sample of non-respondents to check for the possibility of non-response bias. The results of this test support the conclusion that based on company size (gross revenues) and primary industry sector the companies in the sample are quite similar to those in the total population. The sample composition in terms of company gross revenues and primary industry types are presented in Tables 1 and 2.

### **Variable Measurement**

Effectiveness Implementing Business Changes represents the company's ability to alter its business practices in the desired manor. It was measured by the respondents rating the effectiveness of the firm in changing four areas to address strategic problems and opportunities: products, processes, and organization structure and organization culture. This was done in comparison with the closest competing organizations and using a seven-point Likert-type scale ranging from 1 (extremely lower than average), 2 (much lower), 3 (somewhat lower), 4 (average), 5 (somewhat higher than average), 6 (much higher), and 7 (extremely higher). The ratings for the four areas were averaged to produce a single measure for effectiveness in implementing business changes.

Strategic Leadership represents the ability of the top management team to provide leadership when the organizational environment requires change. Environments perceived as highly uncertain (requiring major changes) tend to be perceived as risky, where wrong decisions could be costly. Such environments probably generate a high degree of stress. Charismatic leadership would tend to reduce stress and generate confidence, and perhaps show how

uncertainty can be turned into a vision of opportunity and success (Bass, 1985). While charismatic leadership may be more relevant to situations where organization change is of major importance, both transactional and transformational (charismatic) leadership are potentially important at the strategic level. Further, Bass (1985) viewed transactional and charismatic leadership as being somewhat complementary in that both could be displayed by the same individual leader. The same items proposed by Waldman, Ramirez, House, & Puranam (2001) were used to measure the two types of strategic leadership: It was assessed by asking the respondents to rate the extent to which their top managers in general exhibit the particular behavior when compared to managers of main competing organizations. Transactional leadership: 1. Takes actions if mistakes are made. 2. Points out what people will receive if they do what needs to be done. 3. Reinforces the link between achieving goals and obtaining rewards. 4. Focuses attention on irregularities, exceptions, or deviations from what is expected. 5. Rewards good work. Charismatic leadership: 1. Shows determination when accomplishing goals. 2. I have complete confidence in them. 3. Makes people feel good to be around them. 4. Communicates high performance expectations. 5. Generates respect. 6. Transmits a sense of mission. 7. Provides a vision of what lies ahead.

Characteristics of the Change Process is defined as the degree to which companies promote “desired” change process activities. It was assessed by asking the respondents to rate the importance or focus that the company places on ten areas of change process characteristics. These consisted of all significant changes must conform to company objectives, all affected departments participate in the change process, individual employee input is considered important, customers input is considered important, business partners input is considered important, ability to balance risk taking with cost/benefit, clearly defined measures to monitor progress, change objectives and progress are clearly communicated, responding quickly to required change, and responding effectively to required change. The same seven-point Likert-type scale was used, and the overall rating of characteristics of the change process for each firm was determined as the average of the ten areas.

MOT Effectiveness In Supporting Business Change is the extent to which the company’s needs for technology while implementing business change have been met. It was measured by asking the respondents to rate this for the overall company and in four specific areas: technology leadership in the industry, knowledge of how to get the best technology, effectiveness with which technology has been used over the years, and effectiveness in using technology in comparison with main competitors. The respondents were asked to use the same seven point scale described above. The measure for MOT effectiveness in supporting business activities is the average of the ratings for these five items.

#### **Construct Validity**

Several precautions were taken to ensure the validity of the measures used. Many of the recommendations by Carmines & Zeller (1979) were followed. To ensure content validity, a thorough survey of the relevant literature was undertaken to understand the important aspects of each major variable and its components, and not neglect important dimensions of any variable. To further reduce the possibility of any non-random error, the main source of invalidity (Carmines & Zeller, 1979, p. 15), a group of five practitioners from different companies with extensive experience in managing business change reviewed the questionnaire for validity (measuring the phenomena intended), completeness (including all relevant items), and readability (making it unlikely that subjects will misinterpret a particular question). Some questions were reworded to improve readability; otherwise, the items composing each major variable remained as derived from the literature.

As proposed by Carmines & Zeller (1979), "construct validation focuses on the extent to which a measure performs in accordance with theoretical expectations" (p.27). To ensure construct validity, the theoretical relationships between the constructs should have been previously established, and these relationships hopefully have been empirically supported by different studies over time. As discussed earlier, the theoretical underpinnings of this study are relatively well established, with most of the items in each construct having been addressed before by several authors. Second order factor analyses on the two types of strategic leadership (transactional and charismatic leadership) indicate that they can be combined into a single factor. Thus, the subsequent multivariate analysis used the combined factors.

#### **Construct Reliability**

Since many of the measures used are new, it was deemed important to re-test their reliability. Carmines & Zeller (1979) identified four basic methods to assess a measure’s reliability (re-test, alternative-form, split-halves, and the internal consistency methods) and discussed their strengths and limitations. The main advantage of the internal consistency method is that it requires a single test, in lieu of splitting or repeating of items. "By far the most popular of these

reliability estimates is given by Cronbach's alpha" (p. 44) which "in most situations provides a conservative estimate of a measure's reliability" (p. 45). The authors go on to say "that although more complex computationally, alpha has the same logical status as coefficients arising from the other methods of assessing reliability."

Several authors have proposed different acceptable levels of reliability coefficients. For example, Nunnally (1978) suggested a coefficient of 0.50 or higher would suffice. Srinivasan (1985) and Magal, Carr & Watson (1988) contended that when using a not validated data gathering instrument in exploratory research, a reliability coefficient of 0.5 or higher is acceptable. Van de Ven & Ferry (1980) posited that in this type of research even a value of 0.4 or higher will be sufficient. In our case, the reliability coefficients of all the factors were higher than 0.70, which was proposed by Peterson (1994) as useful for more rigorous studies. As Table 3 indicates, the internal consistency reliability coefficients (Cronbach's alpha) for the scales used in this study are all well above the level of 0.50 acceptable for exploratory studies of this type (Nunnally, 1978).

#### **Data Analysis Procedures**

The average and standard deviation for each item in the questionnaire were computed. Confirmatory factor analyses for the items in each main variable were conducted as the basis for their validation and as a prerequisite for assessing their internal reliability through the Cronbach's alpha coefficients presented within parentheses in Table 3. To test the proposed hypotheses, Pearson's correlation coefficients between the major study variables were computed and presented in Table 3. To detect any possible difference between the two strategic leadership types as determinants of business innovation success, they were processed separately in this analysis. Because of the possibility of collinearity among the independent variables, a stepwise multivariate regression analysis was conducted to assess the extent to which each independent variable incrementally contributes to explaining the variance in the dependent variable. In this case the two leadership types were combined since they both were found to be significant determinants of business innovation success and such combination was deemed valid by a second order factor analysis. The multivariate regression analysis results are presented in Table 4.

## **Results**

Table 3 lists the means and standard deviations for the main research variables. As a group, in comparison with their main competitors, the companies in the sample are thought to be performing above average in the areas of implementing business change, and management of technology. On the other hand, on the average the companies in the sample are thought to be performing below average in the areas of charismatic leadership, competitive intelligence, and having the specific characteristics of change process needed for success in business innovation. The relatively large standard deviations indicate significant differences along all the major variables from company to company.

#### **Results from Hypotheses Testing**

To test the proposed hypotheses, Pearson's correlation coefficients were computed and presented in Table 3. All four independent variables show a direct relationship to success in business innovation, as defined in this study. Thus, based on our sample, all four hypotheses are found significant at the 0.01 level or better. Because of the possibility of collinearity among the independent variables, a stepwise multivariate regression analysis was conducted to assess the extent to which each independent variable incrementally contributes to explaining the variance in the dependent variable. These results are presented in Table 4. In combination, the results provide clear evidence about the importance of strategic leadership, competitive intelligence, management of technology, and specific characteristics of the company's change process to the success of business innovation.

## **Conclusions**

The results provide strong evidence regarding the importance of strategic leadership, competitive intelligence, management of technology, and specific characteristics of the company's change process to the success of business innovation regarding products, business processes, organization structure, and organization culture. Given the importance of effectively implementing business innovation in these days of hyper competitiveness, it behooves top

managers to do whatever they can to improve their company's in the areas of strategic leadership, competitive intelligence, management of technology, and characteristics of the process used to implement the necessary changes.

In the area of strategic leadership, several implications can be derived from this study. Charismatic leadership (showing determination while accomplishing goals, inspiring confidence, making people feel good around you, communicating expectations for high performance, generating respect, transmitting a sense of mission, and providing a vision of what lies ahead) is on average and as a whole relatively scarce in industry today, and judging by its nature it should be difficult to develop. Nevertheless, managers must try, particularly in high clockspeed industry sectors (Guimaraes, Cook, & Natarajan, 2002) requiring continuous innovation. Also apparently important for successful business innovation but less scarce than charismatic leadership, transactional leadership (taking action if mistakes are made, pointing out what people will receive if they do what needs to be done, reinforcing the link between achieving goals and obtaining rewards, focusing attention on deviations from what is expected, and rewarding good work) by its nature should be easier to develop. Pawar & Eastman (1997) proposed that transactional leadership is more relevant within an existing organization environment instead of one attempting to implement changes. Katz & Kahn (1978) argued that charismatic leadership may be more relevant where organization change is important, but that both types of strategic leadership are potentially important. Our results indicate that for successful business innovation both types of leadership are important.

Regarding CI, there are also some major implications from this study results. To improve their CI programs, managers need to consider the collection of market intelligence based on the six areas addressed in this study: the traditional industry competitors, emerging competitors, traditional customer needs and wants, non-traditional customer needs and wants, relationships with business partners, and new product or service development. The importance of any one of these areas may be relatively higher or lower, and in some cases some of these sources may be irrelevant, depending on the company's specific industry sector, line of business, products, and processes being considered. Good performance in these areas, whenever applicable to the company's industry sector and lines of business, are likely to lead to more effective implementation of business changes. Also, before embarking in major programs of change such as TQM and/or BPR, which are supposedly market driven, the implications for company strategic competitiveness from these changes should be validated with CI information, rather than superficial guesswork by top managers or BPR consultants more focused on the change process instead of the strategic reasons for change. At the very least, the market reaction must be carefully considered by any team charged with projects involving significant changes to business processes, products, and/or the organization itself. As our sample indicates, on average companies are performing below average in this area most important to successful business innovation.

To improve technology management while implementing business innovation, managers must look at company performance in terms of its technology leadership position in its main industry sectors, knowledge of how to get the best technology available, effective use of specific technologies, and benchmarking the use of specific technologies against the company's main competitors or best-in-class target organizations. An important requirement to accomplish these objectives is the clear definition of the more important technologies necessary to support the company's main products and business processes, and technologies which will enable the structural and cultural changes considered important to improve company competitiveness. Another important requirement is management recognition that the implementation of each of the various technologies deemed important to the organization are dependent on specific success factors. The success factors for the various technologies have been identified and discussed elsewhere (Guimaraes, Igarria & Lu, 1992; Guimaraes & Igarria, 1997; Yoon, Guimaraes, & Clevenson, 1998; Yoon, Guimaraes, & Clevenson, 1995; Yoon, Guimaraes & O'Neal, 1995; Udo & Guimaraes, 1994) and are considered beyond the scope of this paper.

Last, top managers must ensure that their company's change process bear the desirable characteristics studied here: all significant changes must conform to company objectives, all affected departments participate in the change process, individual employee input is considered important, customers input is considered important, business partners input is considered important, managers ability to balance risk taking with cost/benefit, the existence of clearly defined measures to monitor progress, that clearly defined measures to monitor progress exist, that change objectives and progress are clearly communicated, and that the change management team respond quickly and effectively to required change. These guidelines must be widely disseminated and enforced by project managers responsible for significant business changes.

### Study Limitations and Research Opportunities

Based on an extensive survey of the relevant literature, this study is a first attempt at empirically testing the importance of strategic leadership, competitive intelligence, management of technology, and specific characteristics of the company's change process for the success of business innovation. While the tested model represents an integration of several constructs which in the past have been studied separately, this model needs to be expanded further to include other factors potentially important to effective implementation of strategic business change. Another important contribution from further research could be the identification and empirical testing of variables which moderate the relationships between the independent variables and success in business innovation. Perhaps the use of a path analytic modeling technique would be applicable in this case. The results should provide valuable information on the extent to which strategic leadership can positively influence the effective use of technology and CI programs for companies to improve their business competitiveness while ensuring that the change process follow prescribed guidelines suggested in this study.

### References

Contact authors for the list of references

### Appendix

TABLE 1: COMPANY INDUSTRY SECTORS

Industry Sectors	No. of Companies	%
Manufacturing	93	32.6%
Financial Services	24	8.4%
Banking	21	7.4%
Other	21	7.4%
Retailers	19	6.7%
Health Care	18	6.3%
Merchandising	16	5.6%
Transportation	15	5.3%
Utilities	15	5.3%
Communications	13	4.6%
Wholesalers	12	4.2%
Insurance	10	3.5%
Mining	8	2.7%
Government	0	0.0%
Total	285	100%



TABLE 2: COMPANY GROSS REVENUES

Gross Revenues	No. of Companies	%
Less than \$100M	0	0.0%
\$101M-\$300M	4	1.4%
\$301M-\$500M	8	2.8%
\$501M-\$700M	21	7.4%
\$701M-\$1B	31	10.9%
\$1B-\$2B	43	15.1%
\$2B-\$5B	49	17.2%
\$5B-\$10B	72	25.3%
Over \$10B	57	20.0%
Total	285	100.0%

TABLE 3: CORRELATIONS BETWEEN MAJOR VARIABLES

	Mean	Std Dev	1	2	3	4	5	6
1. Implementing Change	4.17	1.53	(.71)					
2. Competitive Intelligence	3.34	2.11	.58**	(.86)				
3. Transactional Leadership	4.02	1.10	.32**	NS	(.82)			
4. Charismatic Leadership	3.15	1.99	.38**	.40**	NS	(.85)		
5. Management of Technology	4.26	1.16	.31**	NS	.26**	.20**	(.91)	
6. Change Process Features	3.73	1.46	.44**	.33**	.25**	.35**	.19**	(.93)

Numbers in parentheses diagonally) are Cronbach's alpha reliability coefficients.

NS means not significant, \* means p<.05, \*\* means p<.01

TABLE 4: RESULTS OF MULTIPLE REGRESSION USING STEPWISE METHOD

Dependent Variable: Effectiveness Implementing Change	Incremental R Squared	Significance Level
Independent Variables*:		
1. Strategic Leadership	.33	.00
2. Change Process Features	.16	.00
2. Competitive Intelligence	.09	.03

4. Management of Technology	.05	.04
<b>Total Variance Explained</b>	<b>.63</b>	

\* In the sequence in which they entered the regression equation.

## Using Multiple Tools to Manage Global Projects

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### Abstract

Currently there is no integration among CASE tools (Computer Aided Software Engineering, also named AMD tools - Analysis Modeling and Design), Costing tools, and Project Management (PM) tools. Not only that there are no integrated tools, but there is also no conceptual integration among Software Engineering (SE) aspects and accounting-costing aspects, of software projects, within PM tools. PM tools, as well as costing tools are used not only for tracking and controlling an ongoing software project, but also at the very beginning stages of the project, in which critical estimations concerning budget and time frame are made. In order to have a firm, robust and accurate planning, project planning should be based directly upon raw SE components-objects, that is to say upon analysis and design components-objects.

### Introduction

Currently there is no integration among CASE tools (Computer Aided Software Engineering, also named AMD tools - Analysis Modeling and Design), Costing tools, and Project Management (PM) tools. Not only that there are no integrated tools, but there is also no conceptual integration among Software Engineering (SE) aspects and accounting-costing aspects, of software projects, within PM tools. PM tools, as well as costing tools are used not only for tracking and controlling an ongoing software project, but also at the very beginning stages of the project, in which critical estimations concerning budget and time frame are made. In order to have a firm, robust and accurate planning, project planning should be based directly upon raw SE components-objects, that is to say upon analysis and design components-objects.

“According to the Standish Group CHAOS Report 2003, each year in the USA there are approximately 175,000 projects in IT Application Development which spends \$250 Billion. Among these, 31.1% of projects will be cancelled, 52.7% of projects will cost 189% of their original estimates, only 52% of required features and functions make it to the released product, and Time overruns 82%. In financial terms \$55 Billion dollars is wasted in these projects” [Madpat 2005].

Budget overrun indicates cost management problems, although this area is defined, by the PMI, as one of the nine core activities of projects management. Costing difficulties result from both implementation limitations of costing solutions in a complex and changing requirements as well as technological environment.

Risk management is also defined by the PMI as one of the nine core areas of project management; but there is also no integration between PM tools and SE tools in light of the need for risk management.

According to Maciaszek & Liong [2005] success of a software project depends on five software engineering areas that are related to each other: the development of the lifecycle of the software, processes management, the model's configuration and language, SE tools and project planning. The combining between formal tools of SE and PM processes in the different stages has been proved by research as holding a positive contribution to the efficacy of the project and as an improver of the adherence to costs, technical requirements and the schedules that were allocated to the project [Barker & Verma 2003].

This study proposes and prototypes a model that integrates these three aspects of software projects by automatically mapping SE objects and accounting-costing objects into PM objects. To validate the feasibility of the model and without loss of generality, it is demonstrated using former research platform focused on

conversion of Data Flow Diagrams (DFD), which are actually full enterprise set of Use Cases diagrams reflecting entire system-software project, into Gantt Charts.

## Background

### CASE tools and PM tools

CASE /AMD tools support the analysis, design, construction, and implementation stages of the Information System Life Cycle (ISLC) [Barker & Longman 1992; Sommerville 2004; Pendharkar et al. 2005]. Commercial tools, such as IBM-Rational XDE, are covering main stages of ISLC; the “Requisite-Pro” module, for instance, is designated to the stage of requirement definition, “Rose” module to the analysis and design stage, and “Test-Studio” module to the testing stage.

Although PM tools support management and control along the ISLC, there is hardly any integration between CASE tools and PM tools. Thus, ISLC modeling approaches, such as the Functional approach (e.g. DFD, ERD, STD), as well the Object Oriented approach (e.g. Use Cases, Activity Diagrams, STD), even when automated, are used mainly in the early analysis stage primarily for visual documentation. The “database of specifications”, laboriously elicited and gathered during the creation of modeling diagrams, is hardly ever applied again for project management purposes, even though this information is valuable for project managers who are involved in the construction and implementation stages. In fact, due to lack of integration along the ISLC, the specifications database is often either overlooked altogether or collected again as if their creation earlier never took place. Moreover, standard methods for system analysis and development usually make no reference to methods for project management.

Accounting and costing parameters, which are reviewed at the next chapter, are not represented as SE tools or as PM tools, and handled in totally separated systems.

One conclusion that emerges from a thorough review of software engineering and project management areas is that SE tools are much more heterogeneous than PM tools. Gantt and Pert charts have become dominant project management modeling tools [Fox & Spence 1998; Hughes & Cotterell 2002] and are currently included in standard PM software such as MS-Project, PS-Next and others. A survey of 1,000 project managers has found that 48.4% use MS Project, 8.5% use MS Excel, and the rest use Gantt/Pert-based tools from other vendors. The average satisfaction from PM tools in this survey was 3.7 on a scale of 1 to 5. Another survey reveals that only 10% of 240 project managers do not use PM tools at all, down from 33% in 1996. Moreover, more than 50% use Gantt/Pert-based project management software to manage every project, independently of its application domain and characteristics.

In contrast, the following two commercial CASE software packages demonstrate the heterogeneity of tools in the area of software engineering. Oracle’s *Designer* supports Functional Hierarchy Analysis based on Barker & Longman methodology [1992], and IBM-Rational offers XDE-*Rose*, a modeling tool based on UML only. PM tools thus seem more standardized and mature than CASE tools. This could be the reason why 71% of 397 software engineers surveyed in 20 European countries employ PM tools while only about 26% utilize CASE tools, despite similar levels of training [Domges & Pohl 1998].

Although CASE tools, including those mentioned above, support teamwork; none contain elements that take into consideration teamwork planning, time planning, dependencies, resources allocation, cost estimation or risk management. Moreover, none include Gantt or Pert models or offer built-in interfaces to PM tools. Methodologies and models for managing software projects have yet to make it from the idea to the product phase, despite persistent improvements in automated tools for requirement definition, systems modeling, and software engineering. The failure to transform project management theory to practice in the context of software development is especially troubling since more than 50% of such projects do not succeed [Reel 1999, Standish annual's reports, Madpat 2005]. In addition to the lack of integration between SE tools and PM tools managers in charge of software projects usually refrain from basing managerial judgement on data about requirements and functional characteristics of the specific development project [Reel 1999].

With decades of systems development behind us, there is quite a consensus today with respect to the Critical Success Factors (CSF) of system development projects [Standish annual's reports], and Agile methodologies, there is still a need to introduce effective concepts-methods-measures-tools for better control of software projects. All these observations lead one to conclude that assembling a repository of system requirements and system components, complete as it might be, does not guarantee effective planning of team work, scheduling of tasks, and controlling deviations between planned milestones and actual progress.

Against this background, the questions to consider are:

- I. Is the gap between SE tools, costing methods and PM tools is bridgeable?
- II. Can SE components, collected by CASE tools, become directly available for the use of cost estimation, risk management and directly integrated within PM, without being subjectively interpreted or biased?
- III. Is there a way to improve software modeling and engineering by introducing a managerial perspective in addition to the technical perspectives?

Our preliminary answers to those questions are "Yes". This study proposes and prototypes a model that integrates these three aspects of software projects by automatically mapping SE objects and accounting-costing objects into PM objects.

We have engaged in symmetry-isomorphism research with respect to distinct methodologies for software engineering and project management. Since Gantt chart is a technique for visual description of networks, the ability to convert DFD model or hierarchical Use-Case model to a network format is at the basis of our symmetry-isomorphism research. It is our intention in this paper to demonstrate, based on this research, a possible integration scheme and provide more robust answers to the above questions. Given the wealth of CASE and PM tools, this work refrains from developing yet another one, but prototyping an integrated platform built-up of common CASE tool, costing models and common PM tool. We show that combining these sets of capabilities can create the desired synergy where the whole is greater than the sum of its parts.

#### **Costing Aspects and Methods**

Detailed costing information is expected to include all types of costs that are required for manufacturing a product-software or providing a service. Data based on financial systems, which contain costs, derived from the Income Statement and the estimation of the company's capital and assets, enclosed the historical execution data and future estimations and forecasts [Roztocki & Needy 1999]. Williams [2004] supports the integration approach according to the conception that a modern accounting system is supposed to supply a framework for strategic management of the company's resources. In order to realize this conception, Williams proposes a multidimensional construct that clusters information from the company's systems on customers base, activity areas and more, for the purpose of forming an accounting system that facilitates planning, improvement and control, analysis and regulation of resources and enhancement of profitability. Such a system is based on integrative information from a number of systems or from the arrays DW (Data Warehouse), BI (Business Intelligent) in five areas: Costs, Assets, Quality/Service, Time, and Outputs. The pioneers of the combining of financial and operational information are Cooper & Kaplan who developed the method of Activity Based Costing (ABC) at the end of the eighties. Coope & Kaplan [1998] suggest, in light of the technological development of information systems, to define the integration between operational and financial systems for the purpose of building an accurate costing model.

In light of the above, establishment of integration conception required definition not only of an enterprise costing model but also definition of interfacing between the different areas and systems; i.e. interface between SE aspects-tools, financial aspects-tools and PM tools.

Cost management is a term, which is used for a wide description of short term and long term managerial activities that are involved in planning and controlling of costs [Horngren et al. 2000]. Table 1 presents variety aspects of costing model in a technological projects environment.

TABLE 1: ASPECTS OF COSTING MODEL IN A TECHNOLOGICAL PROJECTS ENVIRONMENT

	Aspect	Description	Difficulties
1.	<b>Planning</b>	Costs estimation of the project and for each resource in the projects portfolio	Defining direct and indirect resources and their costs
2.	<b>Controlling</b>	Costs analysis for each project and executed task	Attributing In-reality-costs to each project's task
3.	<b>TimeLine</b>	Costs analysis over different time periods in planning and execution	Evaluating capacities of resources consumption over specified time periods
4.	<b>Tasks</b>	Identification and costing of project's tasks (WBS items)	Matching the costs to each of the project's components
5.	<b>Overhead Allocation</b>	A precise allocation of indirect costs	Determining the indirect cost generators in project's tasks
6.	<b>Risk management</b>	The inclusion of risk element and its value as part of the costing	Estimating risk on the basis of risk factors in the different tasks
7.	<b>Scenarios</b>	The ability to analyze alternative modes of action and costs	Defining assumptions and alternatives to the mode of cost's calculation
8.	<b>Profitability Analysis</b>	The understanding of the profit that derives from each of the projects and the whole projects portfolio	The inclusion of all the cost factors in the model

Costs analysis within the framework of technological environment must be carried out with the understanding of the project lifecycle. Kerzner [2000] portrays the distribution of the project's cost over the project's lifecycle:

- 5% - Conceptualization
- 10% - Feasibility study
- 15% - Preliminary planning
- 20% - Detail Planning
- 40% - Execution
- 10% - Testing and Commissioning

Tasks in each of these stages are described under the Work Breakdown Structure (WBS). The WBS represents the required activities for the project's management in a hierarchical structure. For each component of the WBS an evaluation of direct and indirect (overhead) costs must be included. Direct costs are divided to work's cost (usually work hours multiple hourly rate) and direct costs that are not work payment such as travel, materials, etc. It is recommended that these costs will include managerial reserve as well [Jurison, 1999].

A reinforcement of the need to include the project's tasks (or the WBS components) in a costing model is intensified in the light of the cost estimations that are founded on work hours' evaluation. It has been argued [Ooi & Soh 2003] that according to traditional approaches of software costing (Time-based estimations), there may be a bending towards time planning without linking it to the specific task and the role player that performs it. Therefore,

it is suggested to include the detailing of the tasks [Ooi & Soh 2003] and/or an elaborate planning of the various project's resources as part of the costing model.

The advantages of the resources' cost analysis throughout activities/tasks: more detailed information for managers, monitoring abilities, analysis of resources' cost and allocation and a more accurate ability of overhead allocation [Raz & Elnathan 1999; Jahangir, 2003; Kinsella, 2002; Ooi & Soh 2003].

Indirect costs (overhead costs) include all types of costs that cannot be attributed directly to a specific task in the project- marketing and sales expenses, office supplies, buildings' cost, professional services, information systems, computerization infrastructure and the like. These costs are only occasionally incorporated in the project planning but they carry great influence on the profitability of the portfolio and the projects' pricing decisions [Horngren et al. 2000]. These costs are described as one of the "major headaches" [Kerzner 2000]. However, in this context it has been argued that the ability to control costs is largely dependent on the monitoring of these costs.

Table 2 summarizes costing methods according to financial and engineering literature. The table also presents the common evaluation of model compatibility in light of entire costing aspects.

TABLE 2: COSTING METHODS ACCORDING TO FINANCIAL AND ENGINEERING LITERATURE

				Controlling	Time Line	Task Resolution	Overhead Allocation	Risk Management	Scenarios	Profitability Analysis
Software Eng.	Top Down	Analogy	√ *	P*	X	X	P*	X	X	X
		Parametric	√ *	P*	X	X	P*	P*	√	X
	Bottom Up	Function Points	√	X	X	√	P*	√*	√	X
		COCOMO II	√	P	X	√	P*	√	√	X
Costing		Target Costing	√	P	P	P*	P	X	P	√
		Standard Costing	√	P	√*	√*	P	X	√	P
		ABC	√	P	P*	X	√	X	√	√

- √ - Good compatibility
- X - No compatibility
- P - Partial compatibility
- \* - Adjustments are required

Analogy - Cost estimation based on previous experience, using Case Based Reasoning techniques (CBR). The accuracy of this method ranges from -10% to +25% [Kerzner, 2000].

Parametric - Cost estimation based on heuristics and thumb's rules [Jahangir 2003]. Similar to the analogy estimation method, a parametrical model is also based on accumulation of historical data of project costs. On the basis of these data a mathematical model is defined for the prediction of costs [Kinsella, 2002]. The level of accuracy of a parametrical model ranges on a wide scope of -25% to +75% [Kerzner, 2000].

Function Points - A method that was first introduced in 1979 by Albrecht. Its objective is to assess the software system's size while using the user's requirements without direct dependence on the technological realization [Hale & Smith 2001]. The Function Points method is calculated in three steps using the quantity and complexity of the functional components and the system attributes [Kemerer 1993].

COCOMO (Constructive Cost Model) - The model was first introduced in 1981 and since then several modifications were made in order to suit fourth generation languages, decrease in hardware costs, increase in QA levels, advanced and agile development methods. Current version, COCOMO 2.0 [Boehm et al. 1995], is not based upon line of codes but on four sub-models that match a spiral approach of software system

development that are applied according to the stage of the lifecycle (*The Application-Composition Model, The Early Design Model, The Reuse Model and Post-Architecture Model*).

Target Costing - Suits engineering framework in which there are several engineering activities simultaneously and is utilized as a means for costs strategic management. The idea behind the method is that a product's cost must be based on the sum that can be received for it in the market, and in other words, the development cost should be the basis for the quantity and mode of investment in the development rather than the development's outcome.

Standard Costing - ascertains the cost framework while employing the amount of direct cost components and a standard price that was set for this unit. It should be accentuated that the standard price does not solely include the direct price of the component (price per working hour) and is intended to contain the meaning of the cost or the consumption of indirect resources (rent, computerization, etc). In the calculation of the standard price it is customary to rely on known performance data from the past [Hornngren et al. 2000].

Activity Based Costing (ABC) - Is considered as one of the advanced models for predicting costs while incorporating managerial decisions. The model was developed in the eighties and its main innovation is in the addition of non-financial elements to the costing model. The model is widely used in a variety of industries such as agronomy, banking [Kao & Lee 2001] and medicine. In the projects area there isn't much literature that discusses the application of ABC, however, there are a few studies that help to understand the method. These studies include the description of the method for software developing and assimilation [Ooi & Soh 2003], the portrayal of the mode in which ABC can be taken on in projects [Raz & Elnathan 1999], the implementation of ABC in favor of IT cost analysis in the organization and a recommendation to include this model in PMBOK [Kinsella 2002].

## The Integrated Model

The integrated model is based upon former research [Gelbard et al. 2002] that has mapped Data Flow Diagrams, which are actually comprehensive enterprise set of Use Cases diagrams reflecting entire system-software project, into Gantt charts. Current research is focused on the following extensions:

- Extending the database schema, used as the integrated system repository, in a flexible way enabling to add any costing parameter to each of the DFD / Use Case / SE component.
- Adding specific manipulations and outputs in order to support presentation of costing aspects.

### Mapping DFD /Use Case Objects into Gantt Objects

As suggested in former research [Gelbard et al. 2002], Data Flow Diagrams as well as Use Case Diagrams can be mapped into Gantt charts based on the following conversions:

1. Each of the external entities are represented once only for input (if they produce input) and once only for output (if they produce output).
2. Each Read Only (RO) data store and each Read/Write (R/W) data store are represented once only for input and once only for output.
3. Each basic flow appears once only in every Gantt diagram.
4. Each basic process appears once only in every Gantt diagram.
5. OR connections between flows are not represented in the absence of parallels in Gantt diagrams. Logical connection traits between flows can, however, be included within basic process characteristics, thus maintaining mapping completeness.
6. A general process is represented by means of a summary task, i.e., a grouping of activities and flows under a general name.
7. General flows are those that connect between summary tasks.

### *Example: Mapping of Hierarchical DFD*

DFD as well as Use Case methodology enable hierarchical analysis of systems. The hierarchical description is achieved by "blowing-up" General Processes-USages into dedicated diagrams. Those dedicated diagrams represent



lower level descriptions and can be composed of Basic Processes as well as of General Processes, as well as of “Includes” and “Extends” Use Cases. The hierarchical description can be halted when there are no more General Processes at the lowest-level diagrams. Except for the root level, identified as “DFD-0”, each diagram in the DFD hierarchy is identified by the respective General Function, and the same can be defined for Use Case Diagrams.

For the sake of simplicity, the DFD used in the examples below contains only the following objects: basic and general processes, flows, external entities, and data stores. Processes are symbolized by ellipses and denoted by P#, entities by rectangles and E#, and flows by arrows and #.

Figures 1 and 2 demonstrate a hierarchical DFD. Figure 1 describes the root level with Basic Process P2 and General Process P1 (a General Process is depicted by concentric ellipses). Figure 2 describes a lower level description of the General Process P1.

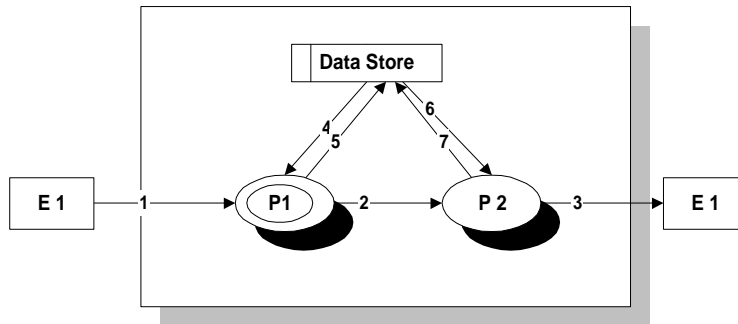


FIG. 1: DFD-0 FIG. 2: DFD-1

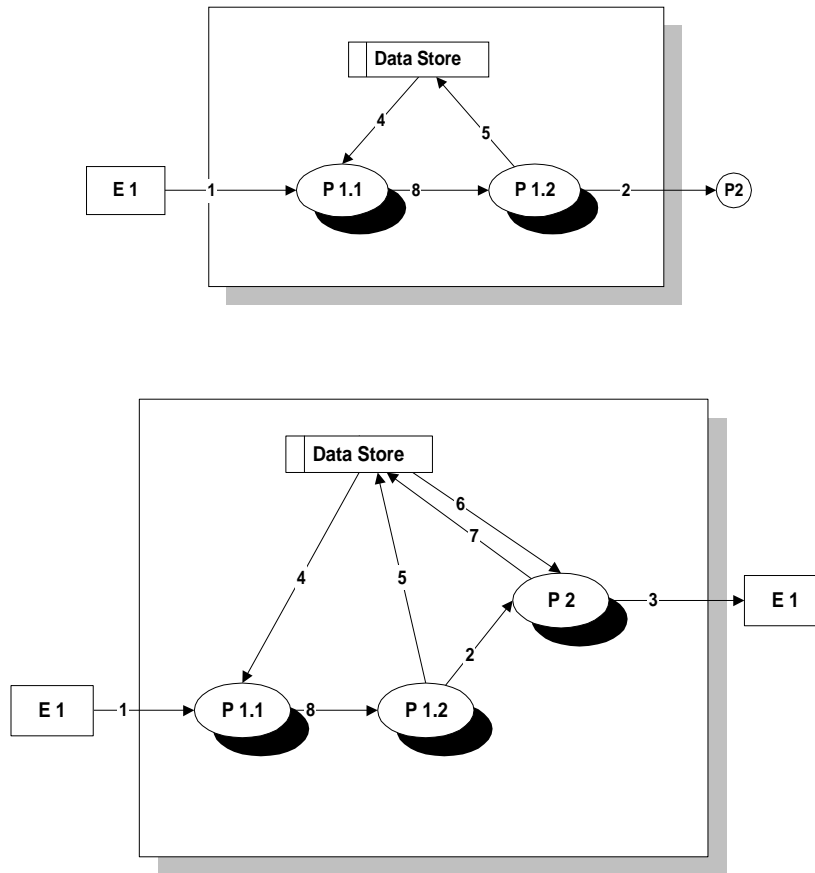


FIG. 3: A COMPOSITE DFD REPRESENTING BOTH DFD-0 AND DFD-1

A composite DFD, made up from both DFD-0 (Figure 1) and DFD-1 (Figure 2), is shown in Figure 3. A composite DFD, not a typical or common representation of a hierarchical DFD, is included here because of its similarity to Gantt diagram representation, where Summary Tasks and Subtasks can be displayed on the same diagram. A Summary Task represents, in the mapping model, a General Process, while each a Subtask represents a component at the respective hierarchical DFD level.

As can be seen in Section 4, Figure 6 depicts the Gantt diagram corresponding to DFD-0 in Figure 1, and Figure 7 depicts the mapping of the composite DFD in Figure 3 into a Gantt diagram.

#### Adding Costing Aspects

In order to enable location of any costing parameter to each of the DFD / Use Case model, we have used predefined symbols for each costing aspect. Noting a symbol with a numerical parameter beside, in the "Label" input box at any "engineering" object dialog box, as shown in figure4, inserts relevant costing value (in light of the relevant costing aspect) to the relevant software component. A parser, running over the CASE repository, recognizes those

predefined symbols, and allocates the costing data in the integrated repository for further manipulation and interchanges. Overheads (indirect costs) inputs are made as labels of the entire project (the DFD-0 object itself).

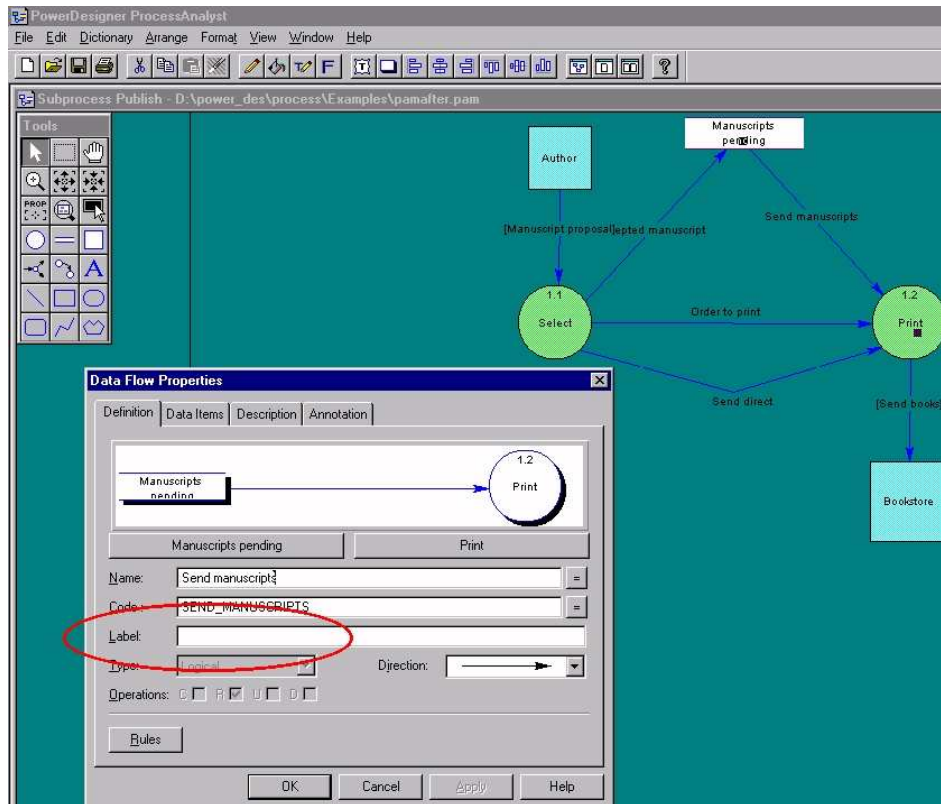


FIG. 4: THE LABEL INPUT BOX USED TO INSERT COSTING ASPECTS AND VALUES

### The Integrated Repository

As mentioned above, the database schema, used as the integrated system repository, was extended in a flexible way so it is possible to add any costing parameter to each of the DFD / Use Case / SE component. Figure 5 illustrates the integrated database schema, which supports engineering objects (DFD / Use Cases), PM objects (WBS and ascription of dependencies), and costing objects (Costing aspects and values). The integrated repository contains three main components: SE Components, PM Components and Costing Components.

SE component is based upon the following tables:

- Objects Dictionary = Tables: [DFD's COMPONENTS], and [COMPONENT's TYPES].
- Data Items Dictionary = Tables: [DATA ITEMS], [ITEM SYNONYMS], [DOMAINS], and [RELATION GROUPS].
- Ascription of Data Items to Basic Flows = Table: [DATA ITEMS in FLOWS].

PM component is based upon the following tables:

- Ascription of dependencies between SE objects = Tables: [DFD's COMPONENTS], and [PRECEDENCES].

Costing component is based upon the following tables:

- Ascription of costing aspects and values to each SE object = Tables: [DFD's COMPONENTS], [Component Costing], and [Costing's Types]

In this way those components enable representing and manipulating of DFD objects, Costing aspects and Gantt objects. The [PRECEDENCES] Table stands for many-to-many network relationships as required for a Gantt representation.

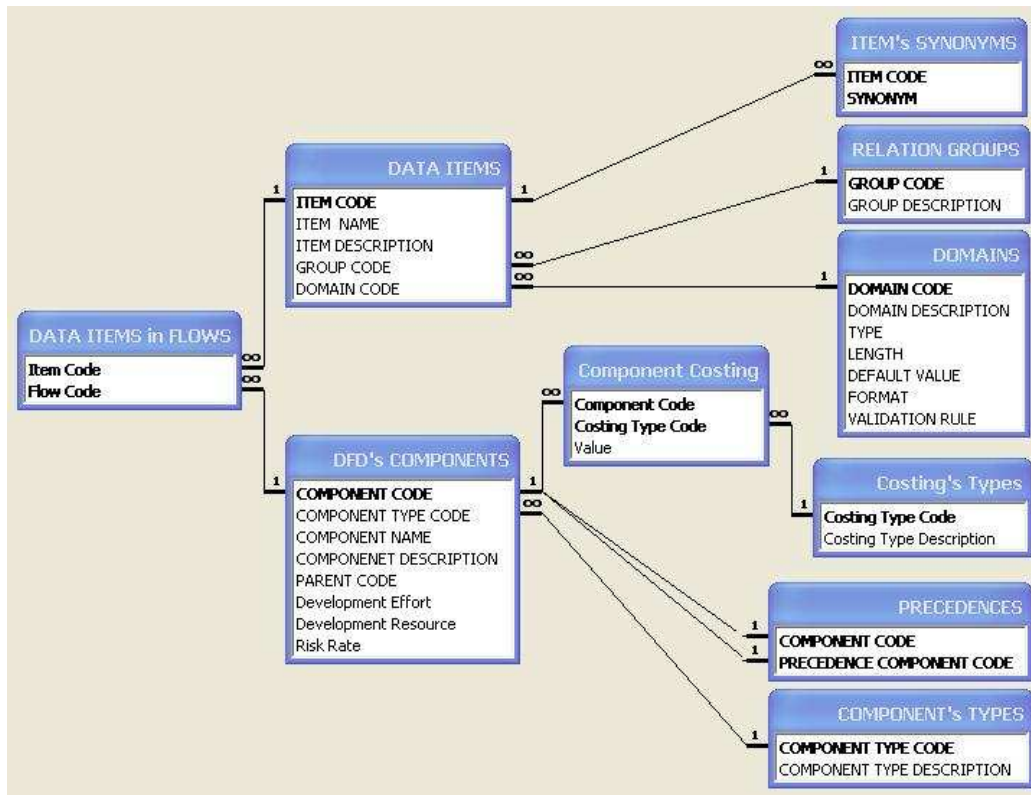


FIG. 5: DATABASE SCHEMA OF THE INTEGRATED REPOSITORY

In Figure 5, rectangles represent database tables, with the table name is contained in the blue header and the primary key bolded. Lines between rectangles represent the database constraints (foreign key) and indicate the cardinality (one-to-many) of the relation. To distinguish between the various DFD /Use Case components, each component, in the [DFD's COMPONENTS] Table, is attributed to a component type, defined in the [COMPONENT TYPES] Table. The [Costing's Types] Table stands for the variety of costing aspects, while the [Component Costing] represent many to many relations between SE component-object and costing aspects. The specific value of costing aspect of the relevant SE component-object is stored in this table (in the [Value] field).

## The Prototype

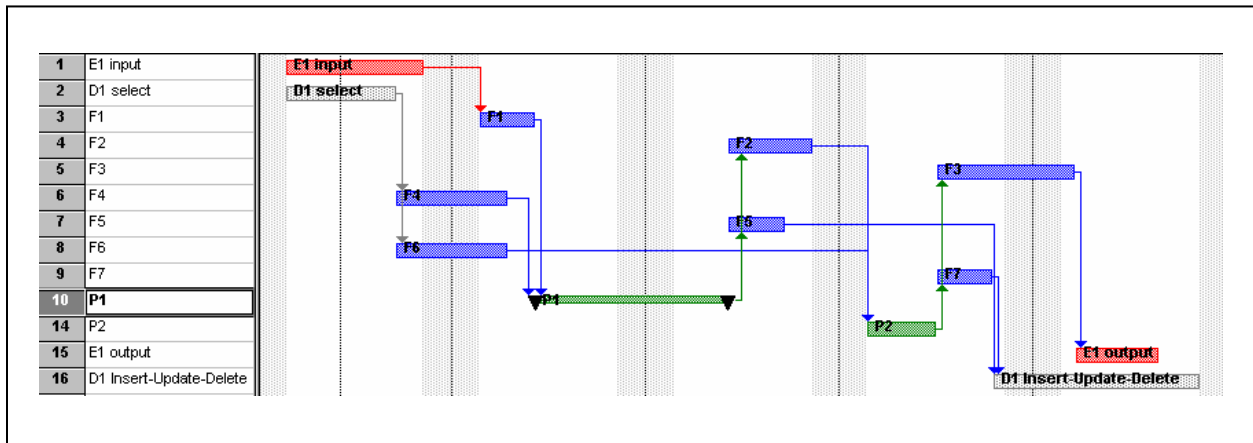
Data flow diagrams were constructed by using the CASE tool “Power Designer; Process Analyst”, worth mention that the same can be done for Use-Cases using the same tool. Costing aspects and values were referenced to each SE component (see figure 4). A parser while running over the CASE repository inserts accordingly the relevant records to the integrated database schema, as described on chapter 3 and illustrated in figure 5. Then the prototype activates Ms-Projects and Ms-Excel, creating project Gantt charts (by Ms-Project), and project summation (by Ms-Excel).

The following figures illustrate two kinds of outputs: “Classic” PM outputs and costing outputs. “Classic” PM outputs relate to Gantt chart, while costing outputs relate to project summations.

### Classic PM Outputs

DFD models shown in Figures 1, 2, and 3 were mapped into MS Project Gantt charts. Figure 6 displays the Gantt chart corresponding to DFD-0 in Figure 1 and Figure 7 displays the mapping of the composite DFD in Figure 3 into a Gantt chart. The Summary Task P1 in Figures 6 and 7 (line 10) corresponds to General Process P1, while Subtasks of P1 are represented only in Figure 7. The P1 Summary Task has a distinct symbol with emphases at the edges.

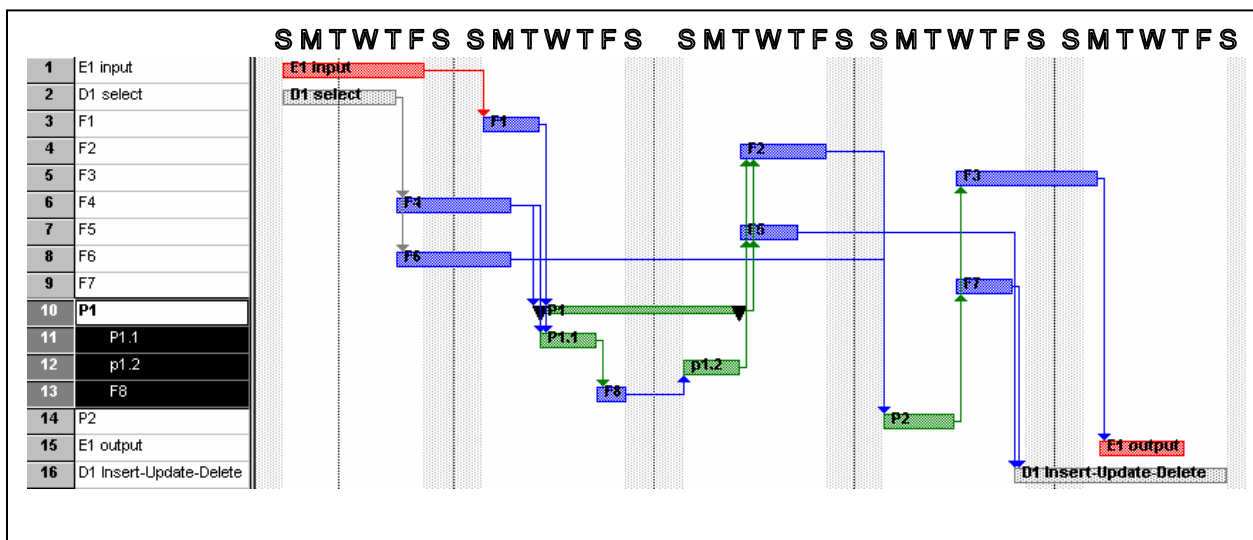
FIG. 6: MS PROJECT GANTT CHART REPRESENTATION OF FIGURE 1 DFD'S OBJECTS



Double clicking on line 10 “blows up” the Summary Task and displays its Subtasks. Lines 11, 12 and 13, in the Gantt chart of Figure 6 are hidden because they are related to a lower level in the DFD hierarchy, DFD-1 (Figure 2).

Lines 11, 12 and 13, in Figure 7 represent the DFD objects that are shown in DFD-1 (Figure 2).

FIGURE 7: MS PROJECT GANTT CHART REPRESENTATION OF FIGURE 3 DFD'S OBJECTS



### Costing Outputs

Costing aspects of Risk and Direct Costs were constructed by using the “Label” Input box (see figure 4). A parser, while running over the CASE repository, inserts accordingly the relevant records to the integrated database schema, and then activates Visual Basic Excel module, which has create a project summation accordingly. Hierarchical presentations were applied using built-in features of Ms-Excel.

Figure 8 and figure 9 illustrate hierarchical presentations of the same DFD models shown in Figures 1, 2, and 3. Figure 8 displays the summation corresponding to DFD-0 in Figure 1 and Figure 9 displays the summation of the composite DFD in Figure 3. The Summary Task P1 in Figures 8 and 9 (line 13) corresponds to General Process P1, while Subtasks of P1 are represented only in Figure 9. The P1 Summary Task has a distinct background with “+” sign beside.

Risk was assigned separately to Time, Budget and Functional aspects of each SE component-object. Direct costs are presented in units of months. Further calculation can be made according to parameters of salary rates and overheads, presented in the “Costing” sheet.

Integrating Engineering & Accounting Aspects of Software Projects									
WBS	Risk			Time Required by each Allocated Resource					
	Time	Budget	Function	AMD	Sys	UI	DB	Logic	
E1-Input	!			0.5		2			
D1-Select		!		1			1		
F-1							0.5		
F-2							0.5		
F-3							0.5		
F-4							0.5		
F-5							0.5		
F-6							0.5		
F-7							0.5		
P-1			!!!	[1.5]	[1]			[3]	
P-2				0.5	1			1	
E1-Output				0.5		2			
D1-Insert-Update-Delete				1			2		

FIG. 8: SUMMARY OF RISKS AND RESOURCES

Double clicking on the “+” sign beside line 13 “blows up” the Summary Task and displays its Subtasks. Lines 14 and 15, in the Excel spreadsheet of Figure 8 are hidden because they are related to a lower level in the DFD hierarchy, DFD-1 (Figure 2).

Lines 14 and 15, in Figure 9 represent the DFD objects that are shown in DFD-1 (Figure 2).

Integrating Engineering & Accounting Aspects of Software Projects									
WBS	Risk			Time Required by each Allocated Resource					
	Time	Budget	Function	AMD	Sys	UI	DB	Logic	
E1-Input	!			0.5		2			
D1-Select		!		1			1		
F-1							0.5		
F-2							0.5		
F-3							0.5		
F-4							0.5		
F-5							0.5		
F-6							0.5		
F-7							0.5		
P-1			!!!	[1.5]	[1]			[3]	
P-1.1			!!!	1	1			2	
P-1.2			!	0.5				1	
P-2				0.5	1			1	
E1-Output				0.5		2			
D1-Insert-Update-Delete				1			2		

FIGURE 9: RISKS RELATED TO PROCESS P-1

## Discussion and Conclusions

Current research demonstrates the derivation of PM objects and project risk and costing evaluation, directly on the basis of raw SE components-objects. By this we provide an integrating layer, which combines standard PM tools with common system analysis and design tools, and costing aspects and models. Applying such an integrating layer in software development projects enables improved risk and cost estimations at the very beginning stages of a software project, as well as better monitoring and control over various topics uniquely related to software projects.

**The integration model presented in this study has the following advantages:**

1. The integrated model enables risk, effort, direct, and indirect cost estimation for software development to be an integral part of conventional analysis and design methodologies. This is due to the possibility of deriving assessments directly from raw data stored at the repository of a CASE tool, as opposed to relying on aggregates or other secondary sources.
2. The integrated model enables extension of the basic development time assessment, beyond the mere aspects of time and direct cost, to include also risk, overheads and any accounting-costing parameter.
3. The integrated model bases the estimation process on the very common management tools, e.g. MS-Project and MS-Gantt.
4. Use of Gantt charts enables dynamic control of the estimation, based on reports regarding actual progress. This provides for projected-to-actual comparisons of cost, and moment-to-moment updates of CPM calculations, as opposed to the static control methods customary in the field of software development.
5. Use of Gantt charts allows “drilling down,” into the system code design, including master routines and system major service routines. This differs from current methods used for software development, which are limited primarily to the area of functionality.

6. The potential of a detailed drill-down concerning system code design provides for engaging and integrating the technical team (development managers) as early as the analysis stage. This results in a more reliable and accurate estimation base for the entire system development project.

It is noteworthy that conversion of a DFD model as well as of a Use-Case model into Gantt chart is actually a representation of a knowledge model as a semantic network.

We have reason to believe that the integration of SE aspects and costing aspects within PM tools, modeled and prototyped in this study, is not limited to the DFD /Use-Case approach or to the described costing methods, but can be applied to any “network-based” Software Engineering modeling, as well as to any additional costing method. The fact that DFD conversion into Gantt chart is actually a representation of a knowledge model as a semantic network, opens opportunities for commercialization for practitioners.

In sum, this study showed the feasibility and validity of converting SE objects, the risk and the cost we ascribe to those software components, into PM objects. The integration of common CASE tool, with Costing models and standard PM tool, can potentially improve estimation, planning, and control of software development projects, in terms of cost, time, and risk management. In software projects, where so many things may go out of control, any theoretical as well as practical novelty is required in order to gain additional progress.

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## Team-level Conditions and Organizational Commitment: Cross-level Study

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### Abstract

The objective of this study was to investigate the predictors of affective organizational commitment. We proposed individual- and team-level predictions. Using hierarchical linear modeling to avoid errors committed with traditional techniques. On individual level, we found three predictors of affective organizational commitment, which are internal-motivation to remaining, job challenge, and workload. In team-level, we consider two team-level elements that help explain individuals' commitment, thus contributing to a better understanding of the concept. Supervisor-leadership and coworker-relationship are the antecedents of affective organizational commitment. Key words: cross-level analysis, affective organization commitment, antecedents

### Introduction

Organizational commitment is considered to be one of the most important work attitudes of employees, because studies have consistently found that organizational commitment has a negative correlation with an individual's intention to quit (Mathieu and Zajac, 1990), and a positive relationship to work performance (Jaramillo, Mulki, and Marshall, 2005).

There was a discrepancy in the definitions of organizational commitment, so Meyer and Allen (1991) try to categorize them under three themes, which are affective orientation theme, the cost-based theme, and the obligation responsibility of commitment theme. The most prevalent theme is the affective orientation (Sanjeev and Sridhar, 1993; Wang, Bishop, Chen, and Scott, 2002) and the correlation between affective organizational commitment and organizational performance is positive ( $r=.20$ ,  $CI_{95\%} .032$  to  $.363$ ) in the meta-analysis by Ricketta (2002). This study focuses on the affective organizational commitment.

According to Mowday, Steers and Porter (1979), organizational commitment as the relative strength of an individual's identification with an involvement in a particular organization consists of a strong belief in and acceptance of organizational values and goals, a willingness to exert extra effort for the sake of the organization, and a desire to retain membership in the organization.

Though affective organizational commitment has consistently been found to be related to critical workplace behaviors, the nature and direction of the relationship are complex and depend on context and the variables under consideration (Mathieu and Zajack, 1990), including the form of commitment (Meyer, Stanley, Herscovitch, and Topolnytsky, 2002).

A wide range of antecedents of affective organizational commitment has been identified (Wang, et al., 2002). These include organizational characteristics, personal characteristics, and work experiences. However, the behavior of individuals within organizational is studied; the data often have a nested structure. Individuals are nested within organizational environment. In such circumstances, the behavior of the individual can be simultaneously function of personal-level, group-level, or organizational-level. Such interaction is called cross-level analysis. While a considerable amount of research on antecedents of affective organizational commitment, the cross-level interaction in the literature is few. To further understand the organizational environment, we need more researches about multi-level study of the prediction about individual-, group-, and organizational-level (Wright and Haggerty, 2005).

In this paper, we are interesting what team-level conditions would influence the individuals' affective organizational commitment. Answers to this question can move the mature study of affective organizational commitment forward and provide recommendations for ways in which organizations can build support environment.

## Literature Review and Hypothesis

Steers (1977) divided the antecedents of organizational commitment into three categories: personal characteristics of members, job-related characteristics, and work experiences. As regard personal characteristics, the evidence has focused on both demographic variables as age, education, sex, and need for achievement and dispositional variables like as personality traits and values. It has been shown that relations between demographic variables and affective commitment are either inconsistent or weak (Aven, Parker, and McEvoy., 1993; Mathieu and Zajac, 1990).

From the definitions of affective organizational commitment by Mowday et al. (1979), one of the important components is "a desire to retain membership in the organization", we propose that the reason of remaining on the job is a key antecedent of affective organizational commitment in personal characteristic based on the motivation theory. Employee motivation plays a central role in the field of management. Managers see motivation as an integral part of the performance equation and the fundamental building block in the development of effective management practice (Steers and Shapiro, 2004). As the discussion of affective organizational commitment, previous studies overvalue the importance on demographic variables of individuals.

We just divided reasons of remain on the job into two dimensions: internal-motivation and external-motivation. Internal-motivation means that the reason for workers desiring to stay in this organization is influenced by the extent to which the job is intrinsically challenging and provides opportunities for social identification. About external-motivation, workers stay in this organization just because of the substantial benefit, such as financial reward, security and Choiceless Awareness.

Motivation could explain the direction and persistence of an individual's behavior, and they are all principally concerned with factors or events that energize, channel, and sustain human behavior over time. From this ratiocination, we propose that affective organizational commitment will be influenced by the individual's motivation about remaining. Furthermore, affective organizational commitment focus on the individual's willing to effort extra fro the organization; we argue that the internal-motivation of reaming will be positive to affective organizational commitment. The relationship between external-motivation of reaming and affective organizational commitment is not significant. Hence, the following hypothesis:

Hypothesis 1: The reasons of remaining on the job toward internal motivation will be positively related to affective organizational commitment.

Hypothesis 2: The reasons of remaining on the job toward external motivation will be negatively related to affective organizational commitment.

Considerable research has showed that an employee's perception of job-related characteristics will influence his affective organizational commitment (Sanjeev and Sridhar, 1993; Chang and Lee, 2006). Based on the job characteristics model, task itself is key to influence individual's affective commitment.

Specifically, a boring and monotonous job stifles motivation to perform well (Ramlall, 2004) and impede the acceptance of organizational values and goals. On the contrary, a challenging job enhances motivation to perform well, and facilitate the willing to effort. Hence, the following hypothesis:

Hypothesis 3: The perception of challenge job will be positively to affective organizational commitment.

Though we proposed that job which requires the use of multiple talents and be challenge are more meaningful, it doesn't refer to the simple addition of tasks as horizontal job loading or job enlargement. Work overload will diminished personal accomplishment and has negative influence on affective organizational commitment (Maslach and Leiter, 2001). Consequently, we hypothesize that:

Hypothesis 4: Appropriate workload will be positively to affective organizational commitment.

While considering with affective organizational commitment, the great part of research address the efforts of the antecedents on individual-level, regardless of other levels is important in the context of individual's perception. For the most part social support at work has been considered as moderating the relationship between job stress and reaction of workers (Leiter and Maslach, 1988). Simon(2006) also found that trust in co-workers, trust in supervisor, and trust in organization had significantly positive relationship with organizational commitment. Therefore, in some circumstances, it may be useful to conceive of the social environments as a direct contributor to worker's reactions

to a work setting. Personal accomplishment will be related to the presence of positive contacts (contacts that are pleasant or supportive), and it will lead to positive affective organizational commitment (Leiter and Maslach, 1988). In this study, two major social environmental factors, namely, pleasant coworker and pleasant supervisor have been used.

The supervisor has the critical role of his subordinates (Sanjeev and Sridhar, 1993), enhancing the psychological state of employees and thus generate positive attitudes among them (Teas and Horrell, 1981). We argued that high-level condition of the team's perception of pleasant supervisor climate could predicate individual's affective organizational commitment. If the team assesses a strong pleasant leader climate, then team members will receive social support from his supervisor, and willing to effort extra.

On the other hand, it is also postulated that contacts with other coworker with pleasant contact in the organization will be predictive of affective organizational commitment. Social bonds lubricate the working of the relationship (Rodriguez, 2002). In the relationship support, worker could be in the existence of shared values, no opportunistic behavior (Madhok 1995; Morgan and Hunt 1994), and timely communication (Moorman, Zaltman, and Deshpande 1992). We further proposed that when individual perceive high degree of coworker supportive, he will be desire to retain membership in the organization. Hence, the following hypothesis:

Hypothesis 5: A team's level of the pleasant supervisor climate is positively related to individual's affective organizational commitment.

Hypothesis 6: A team's level of the pleasant coworker climate is positively related to individual's affective organizational commitment.

## **Methods**

### **Sample and Data Procedure**

The study participants were 1451 carried out in 21 different repair branches in Taiwan, and involved collecting ratings of leadership of unit supervisor, as well as ratings of job challenge, the reason of remaining on the job, workload, coworker-relationship, and affective organizational commitment. Participants represented all functions that are located in the sales, consumer service, purchasing, advertising, and administration.

The average number of respondents obtained from each branch is 69 (range from 38 to 120), and 55% were men. In general, respondents were aged between 21 to 40(83%), mean(55%), and full time employees (73%). Participant were well experience of this branch, with more than 52% having stay in this branch over 2 years, ensuring sufficient acquaintance of raters with the leadership and cooperation climate.

## **Measures**

### **Reasons for Remaining**

The reasons for remaining on the job were measured with ten items. Five items were cataloged to internal-motivation, such as work-meaning, coworker-relationship, supervisor-leadership, promotion, opportunity for learning. Others were cataloged to external-motivation, like as welfare, place/location (near his/her house), security, Corporate Image, and Choiceless Awareness.

From these ten items, participants were asked giving his or her priority for 1 to 5. The primary reason was rating "1", second reason was be "2", until to "5". After data collection, we recoded this variable for further analysis. The value of 1 was transferred to 5, and 5 was transferred to 1. We aggregated the internal- and external-cataloged. Any response had two values of internal- and external-motivation.

### **Job Challenge**

Job challenge was measured using items adapted form Quinn and Shepard (1974). Challenge reflects a worker's desire to be stimulated and challenged by his or her job and to be able to exercise acquired skills at work. Five items were used to measure individual's perception of the job challenge. Responses were made on a 6-point scale, with 1 representing "strongly disagree" and 5 representing "strongly agree". We took necessary step to assess the reliability

and internal consistency. With exploratory factor analysis, one factor was defined, and each item's loading value is higher than .72 (from .72 to .88), explaining 68% variation. Cronbach alpha was .88.

**Workload**

This was assessed with three items on a five-point response scale developed on the basis of relevant literature, with 1 representing "strongly disagree" and 5 representing "strongly agree". Sample item: "I could bear present workload". Higher scores on the scale indicated a more positive attitude and vice versa. Cronbach alpha was .72.

**Social Environments**

Interpersonal contact measurement was adapted from Leiter et al.(1988). Supervisor-leadership was measured using nine items to assessing the supporting environments. Sample item: "My supervisor has good communication skill to take the relationship with subordinate" and "My supervisor will respect for my opinion". Higher scores on the scale indicated a more positive attitude and vice versa. To testing the reliability and validity, we conducted exploratory factor analysis. The exploratory factor analysis resulted in one factor with the items loading strongly on the constructs (loading value ranged from .82 to .89). Cronbach alpha was .95.

Coworker-relationship was measured using five items with five-point scale. 1 was represented strongly disagree and 5 was strongly agree. A similar analysis made for supervisor-leadership as well. The exploratory factor analysis resulted in one factor, and each item loading is higher than .63 (ranged from .63 to .86). Cronbach alpha was .81.

**Affective Organizational Commitment**

Six items from the affective commitment scale (Allen and Meyer, 1990) were used to measure the employees' affective commitment in this study. This measure employs a five-point scale in Likert format; the higher scores indicate stronger commitment. Cronbach alpha was .89.

**Level of Analysis**

To justify the suitability of aggregating supervisor-leadership and coworker-relationship at the branch level, we calculated both ICC(1) and ICC(2). The ICC(1) was .07 and ICC(2) was .84 for coworker-relationship, ICC(1) was .08 and ICC(2) was .86 for supervisor-leadership, providing sufficient evidence for between-group reliability.

**Results**

Table 1 summarizes the individual-level means, standard deviations, and correlations for all variables investigated in this study. In table 1, we found that external-motivation has negatively relationship with the other variables. If the employee stays on the job for external-motivation, the perception of job-related and interpersonal-related attitude is negative, with few identification of this work, and has no willing to effort extra.

TABLE 1: MEANS, STAND DEVIATIONS, AND CORRELATIONS

Variable	Mean	S.D.	1	2	3	4	5	6
1.Job challenge	3.68	.68						
2.Workload	3.77	.65	.55**					
3.Internal-motivation	1.24	.70	.19**	.12**				
4.External-motivation	1.72	.70	-.10**	-.07**	-.60**			
5.Affective org. commitment	3.64	.67	.64**	.53**	.19**	-.12**		
6.Coworker-relationship	3.80	.60	.58**	.71**	.16**	-.20**	.56**	
7.Supervisor-leadership	3.72	.75	.51*	.51**	.18**	-.19**	.66**	.52**

+<.10; \*<.05; \*\*<.01

**Tests of Hypotheses**

We used hierarchical linear modeling (HLM) to analyze our data. Any variable used as a component of an interaction term was grand mean-centered, and tests for normality demonstrated no violations for regression assumptions.

Individual-Level Model (Level 1). Because the present study is interesting in individual's affective organizational commitment, we treat the variable as dependent, and reasons of reaming and interpersonal relationship as independent. This model is random coefficient regression model, to test individual antecedents of affective organizational commitment (AOC). The model is :

$$\text{Level: } AOC_{ij} = \beta_{0j} + \beta_{1j}(\text{external-motivation}) + \beta_{2j}(\text{internal-motivation}) + \beta_{3j}(\text{supervisor-leadership}) + \beta_{4j}(\text{coworker-relationship}) + \gamma_{ij}$$

$$\text{Level-2: } \beta_{0j} = \gamma_{00} + U_{0j}$$

$$\beta_{1j} = \gamma_{10} + U_{1j}$$

$$\beta_{2j} = \gamma_{20} + U_{2j}$$

$$\beta_{3j} = \gamma_{30} + U_{3j}$$

$$\beta_{4j} = \gamma_{40} + U_{4j}$$

Table 2 summarizes the Individual-level model outcome. From the table 2, we found that internal-motivation has significantly positive relationship with affective organizational commitment ( $\gamma=.014$ ;  $p<.05$ ). Hypotheses 1 are supported. When individual's remaining reason for internal-motivation, he or she will have more agree with the branch, and willing to effort extra and has positive organizational commitments. As to external-motivation, it has negatively relationship with affective organizational commitment, but it doesn't to significant level. Hypotheses 2 has no enough supported evidence.

Social environment about supervisor-leadership and coworker-relationship, we also found has positive relationship with affective organizational commitment, respective parameter are .21 ( $p<.01$ ) and .045 ( $p<.01$ ). Hypothesis 3 and 4 are supported. Furthermore, we will construct higher model. Otherwise, the Chi-square testing of intercept are significant ( $\tau_{00}=.027$ ,  $p<.01$ ), the higher level prediction could be having direct influence to affective organizational commitment.

TABLE 2: RESULTS OF INDIVIDUAL-LEVEL MODEL

Variable	Parameter estimate	S.E.	T-ratio	d.f.
Intercept ( $\gamma_{00}$ )	3.64**	.038	94.598	20
Internal-motivation ( $\gamma_{10}$ )	.014*	.005	2.618	20
External-motivation ( $\gamma_{20}$ )	-.002	.005	-.485	20
Job challenge ( $\gamma_{30}$ )	.045**	.038	11.775	20
Workload ( $\gamma_{40}$ )	.21**	.037	5.782	20

a:  $+<.10$ ;  $*<.05$ ;  $**<.01$

b:  $\sigma^2=.207$ ; deviance=1124.99

After the formulation of the Level 1 mode, it is necessary to construct a Level 2 model. The Level 2 model explains the impact of the team/branch factor on the mean level of individual's affective organizational commitment. The intercepts-as-outcomes model was constructed. The model is:

$$\text{Level: } AOC_{ij} = \beta_{0j} + \beta_{1j}(\text{external-motivation}) + \beta_{2j}(\text{internal-motivation}) + \beta_{3j}(\text{supervisor-leadership}) + \beta_{4j}(\text{coworker-relationship}) + \gamma_{ij}$$

$$\begin{aligned} \text{Level-2: } \beta_{0j} &= \gamma_{00} + \gamma_{01} (\text{Supervisor-Leadership}) + \gamma_{02} (\text{Coworker-relationship}) + U_{0j} \\ \beta_{1j} &= \gamma_{10} + U_{1j} \\ \beta_{2j} &= \gamma_{20} + U_{2j} \\ \beta_{3j} &= \gamma_{30} + U_{3j} \\ \beta_{4j} &= \gamma_{40} + U_{4j} \end{aligned}$$

We used procedures outlined by Hoegl, Parboteeah, and Munson (2003) to first determine whether there is a significant between-team variation in individual's affective organizational commitment. This is a necessary condition that needs to be satisfied before we can test the specific hypotheses. By running a null model, the between-team variance in affective organizational commitment ( $\tau_{00}$ ) was .02443. The within-team variance ( $\sigma^2$ ) was .36675. These estimates suggest that the between-team variance was 7% of the total variance in individuals' affective organizational commitment. Adoption by Cohen (1988), when the variance was above .059, team-level variables is importance of studying.

Table 3 reports the outcome of Level 2 model. The analysis supports our hypothesis 5 and 6, with the following team-level predictors showing significant relationship with individual's affective organizational commitment. The parameter of supervisor-leadership were .310 ( $p < .05$ ), indicating higher organizational commitment with a team's level of the pleasant supervisor climate. If the climate of coworker-relationship is pleasant, individuals' commitment is also facilitating.

TABLE 3: RESULTS OF CROSS-LEVEL MODEL

Variable	Parameter estimate	S.E.	T-ratio	d.f.
Intercept ( $\gamma_{00}$ )	3.641 <sup>**</sup>	.027	135.462	18
Supervisor-Leadership ( $\gamma_{01}$ )	.310 <sup>*</sup>	.181	2.58	18
Coworker-relationship ( $\gamma_{02}$ )	.467 <sup>*</sup>	.181	2.579	18
Internal-motivation ( $\gamma_{10}$ )	.015 <sup>*</sup>	.006	2.508	20
External-motivation ( $\gamma_{20}$ )	-.002	.001	-.255	20
Job challenge ( $\gamma_{30}$ )	.460 <sup>**</sup>	.041	11.117	20
Workload ( $\gamma_{40}$ )	.194 <sup>**</sup>	.037	5.189	20

a: +<.10; \*<.05; \*\*<.01

b:  $\sigma^2 = .009$ ; deviance = 1110.889

## Discussion

The objective of this study was to investigate the predictors of affective organizational commitment. This research was based on the premises that individuals' commitment is important to organizations, and many researches about such issue just form the individual perspective, ignoring the higher level context. We proposed individual- and team-level predictions. Using hierarchical linear modeling to avoid errors committed with traditional techniques.

On individual level, we found three predictions of affective organizational commitment, which are internal-motivation to remaining, job challenge, and workload. Three variables has positive relationship with affective organizational commitment. If individuals perceive positive attitude to job challenge, he would get fulfillment, and willing to effort extra. Otherwise, appropriate workload could make employee has positive attitude toward commitment. The reason of remaining is also important to affective organizational commitment. Form our finding, if the reason of reaming was motivated by internal factor like as opportunity for learning, or relationship, individuals will have positive attitude toward commitment.

In this research, we consider two team-level elements that help explain individuals' commitment, thus contributing to a better understanding of the concept. Supervisor-leadership and coworker-relationship are the antecedents of affective organizational commitment. Individuals are in the pleasure social relationship, he can get more support form supervisor and coworker, and it will facilitate the commitment to this organization. In practical,

to upgrade employee's commitment to organization, we have to build a supportive surrounding, making employees enjoying his workplace, and will have fervent desire to stay in this organization.

While this study use cross-level analytical technique on a large sample, we also have some limitations. This research was cross-sectional rather longitudinal, which limits our ability to infer causality. Longitudinal designs are needed in the future to avoid these problems. Second, all data in this study were collected by self-report measures, raising the possibility of common method errors. Although this likelihood cannot be denied, our analysis technique is HLM, the possibility will be abated. Nevertheless, future studies should consider employing multiple sources of data collection and with different phase. The final limitation of the present study is that our data were collected in Taiwan and in one company, raising questions of generalizing from our results. However, this is the first study of bringing up the team-level antecedents of affective organizational commitment; it still has its contribution in this field.

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# **Internationalization of Association and Cooperatives in Industrial Clusters: Case of Small & Medium size Enterprises**

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## **Abstract**

To achieve the aim in this paper, the structure will be the following: First there becomes indispensable the precision of the definitions and stances of clusters and industrial associations, from the point of view given by the different authors through documentary research. Later, by means of the comparison of documentary research are valued the experiences found by other authors, who expose the cooperation of members of the group or cluster as well as the impact in competitiveness and internationalization of the small and medium companies (SMEs). Finally, through an empirical field research with a qualitative approach, in this paper seeks to identify the determinant factors of the businesses of the dress and garment sector of the Metropolitan Zone of Guadalajara (MZG), Mexico to apply them in the internationalization and the competitiveness.

## **Challenges and Realities of the Apparel Sector**

This sector has faced a critical situation in his competitiveness from 2000. The competition for the markets worsens specially, when the countries that compete do not do it with the same labour and environmental rules, as well as competition and governmental supports. Let's see below some problems that face these companies.

Among the problems that face the small and medium companies (SMEs) of the Industry of the dress garment one finds the supply of cloths for illegal channels that provide 58% of the national market, in agreement to the report delivered in 2003 by the president of the chamber of the Garment to the Secretariat of Economy.

Another problem is the lack of competitiveness that face the SMEs of the Industry of dress and garment caused, among others, by the lack of a productive system as support to optimize the resources inside the processes, no specialized software for the cut of fabrics, the logistics distribution of the articles towards the points of sale, lack of access to inputs for the confection (such as: fabrics, threads, outfits, machinery, etc.) pertinent in time and price. Adding to the previous, in general the executives of the SMEs do not have market information on the competition to support and stablish of opportune strategies in the fashionable trends to seek for designs that satisfy the needs of the buyer with the new habits of consumption and to contribute in the projection of future sales.

With the exposed previously it is possible to estimate that the SMEs of the Industry of the Garment without being exporting must face the onslaught of the global competition inside of his own territory. The SMEs of the Industry of the Garment needs actions to diminish the impact of the above mentioned problematic. Though to strengthen his competitive position and to reduce the external disruptions should be to evolve towards basic fashionable products, with a productive and integrated chain, rapid, flexible and efficient Industry, to supply the global market of clothes that is increasingly competitive and with changeable needs, it needs time. Countries in the European (Italy, Spain, Germany, France, etc.) and Asian (China, Korea, Japan, etc.) continent, it has been achieved to diminish the impact of similar problems with companies association and forming clusters of companies.

But and in the SMEs of the Industry of the Dress and Garment located in the Metropolitan Zone of Guadalajara (MZG): Is it possible to use the same strategy of other countries, applied to specific regions, in the SMEs of the Industry of the Garment located in the MZG?; In that they defer the results obtained in the SMEs of the Industry of the Garment located in the MZG, compared with the results obtained in other regions of the world?; What factors are necessary to facilitate the process of the groups or clusters among the SMEs of the Industry of the Garment located in the MZG?

## **Research Method**

With a qualitative approach, the present research seeks to identify the determinant factors in the competitiveness of the small and medium companies of the apparel sector in the metropolitan zone of Guadalajara to apply them in his internationalization and to help these small and medium companies to compete on a global market. First of all, it is necessary to define clusters and industrial associations, from the point of view given by different authors by means of a documentary research. After and by means of an exploratory method are determined and analyzed the dimensions and variables that concern the associations to form clusters.

## **Positions and Definitions of Clusters and Industrial Associations**

Most of the literature on clusters manufacturers focuses in the basic definition, an industrial cluster is: "A geographical concentration of industries that obtain an advantage in his performance by means of the companies placed in the same locality" (Doeringer and Terkla, 1995). Schmitz (2000) defines clusters as: "... A group of producers who do the same thing or similar things in vicinity" Nevertheless, beyond the basic definition, exists a small consensus over an industrial cluster it defines. On his report, some authors think in his definitions of a way similar to the economic agglomeration, referring in an analogous way the industrial clusters as the economic agglomerations.

A conception of industrial districts comes from the work of Marshall (1920), introducing the original elements in his book *Principles of Economics*, where the author argues that the dynamics of geographical concentration of the companies drives to the growth and progress organizational allowing the companies to harvest external scale economies. When enterprises form group or clusters, the producers can manage the specialization themselves in different and complementary stages of production process, this action attract specializing suppliers, as well as buyers for his products; they create groups of specializing workers, and the ideas or new practices spread rapidly.

Alfred Marshall (ibíd.) described the phenomenon of the "Manufacturer District", defining it as a territorial agglomerate of companies with the same branch or similar, where the specializing manpower, the inputs and the services are easily available, and the innovations spread rapidly. In spite of examined the previous concepts these were forgotten, and it is not even in the eighties when his application is observed again in Italy, showing that the local structures turned out to be extremely dynamical (Piore and Sabel, 1984; Pyke, Becattini and Sengenberger, 1990). Since then to the date studies have been realized in different geographical European, American and Asian regions.

Michael Porter published in 1990 "The Competitive advantage of the Nations", where the main topic is the successful clusters in several countries; these clusters exposed by Porter do not differ from the Industrial Districts published by Marshall, defining the cluster as: "It is a geographical concentration of companies that cooperate and compete, suppliers, service, and associated institutions". His studies were based in industries of 10 nations and establishes the "Diamond of the Advantage", which consists of four factors that he determines that they will create a competitive advantage for the organizations. (FIG. 1)

Rosenfeld (1997) comments that does not exist a criterion to define the cluster exactly, and exist so many definitions like types of organizations use the term. Eexpose that: "a correct definition of the concept does not exist of cluster ... they are interested for different dimensions". Several publications have arisen, principally the related ones to the development of technology and the economies of innovation, standing out the narrow cooperation of the companies, being translated in cluster or industrial districts, as the principal element of the success in the innovative dynamic. Several contemporary clusters analysis confirms that how important are these economies to local level. Nevertheless, there exists also the risk that undesirable practices spread, particularly in clusters very closed and superficial (Bell and Albu, 1999; McCormick, 1998; Visser, 1999).

Porter's "Diamond"

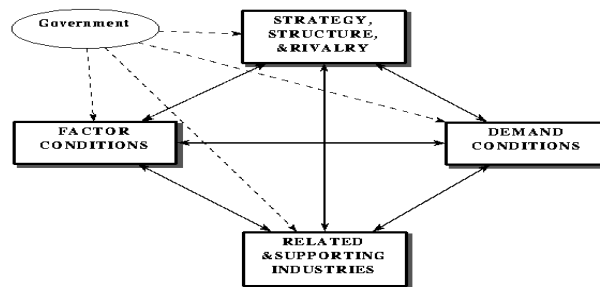


FIG. 1: PORTER'S DIAMOND

### Impact in Competitiveness and Internationalization of Group Associations or Clusters

The commercial barriers in the economic international activities tend to be reduced by some agreements like: North America Free Trade Agreement (NAFTA), European Union (EU), Market of the South Cone (MERCOSUR), among others. Some business structures that were based on national market have had to turn on international markets. The coincidence on discussions of the globalization and the internationalization of the markets, as well as on the local and regional development it is not a random result, exist a relationship among both phenomena (Jörg Meyer-Stamer, 2000).

The integration of national markets increases the competitive environment forcing the organizations, to meaning new strategies to create and support the competitive advantage. If the economic activities are geographically centralized, it is probable that the organizations form associations, clusters or industrial districts that lead them to external scale economies. Whereas the location in areas, where the institutional scheme highlights the efficiency of the operations, will enable the advantages that better help in the competitive battle in the international stage in order to increase the integration of the market (Mc Donald F. and Vertova G., 2001).

Is not frequent do an analysis of the connection between growth and cooperation, however, numerous instances of cooperation have been reported this from specific cases of Italy and other European countries. In general, the writings reveal that if the cooperation is ignored, there is a risk to do not understand an important element of the history of the industrial districts. Focusing in the studies realized during the nineties, some evidences are obtained. Meyer-Stamer (1999) examines how a cluster of ceramics bricks manufacturer, in Holy Catarina (Brazil), achieve to overcome a strong crisis at the beginning of the nineties, and he concludes that an increase in the cooperation among companies constitute the key factor.

Olson (1965) argued that all the group goals or group interests were subject to the dilemma, to act as a whole to achieve the individual interests and the interests of the group, assuming that exists a congruity between both interests. The collective action was at the time defined as any action that provides a collective well-being. The research that base the collective action are extensive, and it suggests that this action be relevant when the conglomerates face important inflection points. A narrower cooperation is essential to answer in a successful way in situations of crisis or in important opportunities. There are various examples that refer to different forms of cooperation. It is difficult to know if the diverse forms of cooperation combine or if they are interdependent; those

that stand out in a particular case often are absent in other one. Some exponents of the literature on clusters, refer very little, in an explicit way, to the cooperation.

The previous paragraphs it can explain, how a group of small and medium companies need to face the international competition, forming groups or clusters to establish a common strategy, to compete and internationalize by means of exports. It Represent a viable strategy option in order to internationalize the companies and exportation continues being the most frequent chosen way for the companies to enter to foreign markets. This has caused the interest to investigate the determinants of success in the exporting companies that continue being forts in the last two decades (Zou and Stan 1998). The emphasis is to create associations or clusters to compete in the international markets. This was originated from the success of the European industrial clusters. Later some research done in development countries revealed very unequal experiences, including examples of insertion of SMEs in the international markets. To explain these successful examples in economic terms have to emphasizes the importance of the cooperation among companies that form clusters group. (Hubert Schmitz, 2000). The emphasis in the local cooperation does not mean that this one represents the only advantage that the clusters offer. Exist a consensus, inside the literature, of which the basic advantage (specially in the small companies) to form part of a cluster resides in obtain external economies to local level, but these tend to only apply most to developed economies. Most of the paper are based on case studies argue that only the outward-Direct Investment is valuable in creating competitive advantage, and inbound-DI does not increase domestic competition significantly because the domestic firms lack the capability to defend their own markets and face a process of market-share erosion and decline. There seems to be little empirical evidence to support that claim. In other studies the influenced factors to form clusters or group associations are outside the home country.

## Empirical Results

This empirical research was conducted by an interview to leaders of success group associations. The results are used to confirm the finds with a major sample. In this qualitative approach three principal factor were found: productive system competitiveness, culture and leadership.

The productive system competitiveness refers to a some dimensions: access of inputs, economic support, access to fashion and designs trends, access to technology, work systems, costs, quality, price and market niches. The culture reported: lack of unit, no affinity of the associates, as well as, the egoism and the mistrust between the businessmen. Finally, the leadership factor reports lack or disability to support the group unit.

These results are not evaluated in the different studies exposed so far, demonstrating that Cluster's formation or association of groups depends on different factors that they must be studied especially for the different regions. Where the fundament to form a cluster in the SME of the dress and garment sector of the MZG must be realized by means of understand the dimensions previously described to explain the dimensions.

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# Exploring Boundary of the Transformational Leadership

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## Abstract

This study was to examine the contextual effect of department heads' transformational leadership on the relationship of perceived HR practices and affective commitment with cross-level analysis. Six human resource management practices, namely performance management, training, compensation, benefits, promotion and development, and communication, were explored in this article. In 2005, the survey data were collected from one corporation and its branches, including ten departments in headquarter and nineteen home improvement stores. 2,000 questionnaires were submitted and 1,809 were returned. Therefore, the response rate was 90.45%. As a result, except for performance management, the other HR practices could result in positive significant employees' affective commitment directly. Furthermore, the result shows that the modest positive significant effect of transformational leadership affects the relationship of training and affective commitment, and the negative significant effect of transformational leadership affects the relationship of compensation and affective commitment. **Keywords:** Human Resource Management Practices, Transformational Leadership, Affective Commitment, Hierarchical Linear Modeling, Cross-Level Analysis

## Introduction

HR practices were associated with organizational performance. The empirical studies in strategic human resource management (SHRM) had proven that adoption of HR practices in enterprises enhanced organization performance (Arthur, 1994; Becker & Huselid, 1998; Delaney & Huselid, 1996; Delery & Doty, 1996; Guest, Michie, Conway, & Sheehan, 2003; Huselid, 1995; Macduffie, 1995; Wright, Garder, & Moyniahn, 2003; Wright, Gardner, Moynihan, & Allen, 2005). Moreover, HR practices strengthened employees' attitudes, such as organizational commitment, job satisfaction, and motivation (Appelbaum, Bailey, Berg, & Kalleberg, 2000; Gould-Williams, 2003). Guest (1997) connected relationship of organization-level HR practices and organization performance. He revealed the impact of HR practices on HR attitudes (i.e. commitment, quality, and resilience); and then HR attitudes affected employees behaviors (i.e. motivation, cooperation, participation, and citizenship). In the result, employee behaviors influenced organization performance (i.e. high productivity, high quality, and high innovation, low absenteeism from work, low turnover, low conflict, and low customer complaint). These consequences finally reflected on organizational financial performance.

Arthur (1994) argued that organization-level HR practices in corporations were divided into control and commitment HR practices. Control HR practices emphasized efficiency, reduced labor cost, strict rules to regular employees' behavior, and result-basis reward. On the contrary, commitment HR practices were combined the firm's objective and employees' goals to change their behaviors and attitudes. If employees believed that organizations took them to achieve their goals, they would commit to them. Hence, the more advanced HR practices were, the greater employees commit to their corporation. In the past empirical studies, the construct 'organization commitment' usually was categorized into three components, namely affective, continuance, and normative commitment (Allen & Meyer, 1990; Allen & Meyer, 1996). However, Swailes (2002) suggested that rather than continuance and normative commitment, affective commitment associated the performance. When employees' attitudes played a mediating role between the HR practices and organizational performance, affective commitment would be a proper indicator as an employees' attitude. If it was needed to better understand the impact of HR practices, it was better to focus on the affective commitment.

HR practices gave positive influence on employee attitudes despite of connection with HR practices and employee attitudes remained like a black box. Theoretically, HR practices in firms were effective through employees' perception in advance to change their attitude. Chang (2005) suggested that HR system in the

organization level would reflect perception of HR practices in individual level in connecting enterprise HR practices and individual perception which hypothesis that HR system supporting organization increased perception of employee to overall HR practices. Chang (2005) summarized that all perceived HR practices had a positive correlation of overall perception of HR practices to organizational commitment. However, it did not measure the effect of one HR practices to organizational commitment. The HR profession would generate considerable interests in effect of perception of individual HR practice. The most effective HR practices would be the primary activity to be improved for obtaining better employee attitude. Adoption of HR practices must be perceived by employee to make change of individual attitude (Chang, 1999; Gartner & Nollen, 1989). Otherwise, employees' attitudes would not change if they were not affected by HR practices which aimed to build up their tasks and goals. Most SHRM literatures were organized to review the impact of firm-level HR practices to organizational commitment. There was less attention on perception in individual level. Hence, one purpose of this paper was to comprehend whether employee perception of individual HR practices would affect organization commitment, especially affective commitment.

Organization-level HR practices did not result in the same outcomes in organizations. Many works treated organizational strategy as contingency factor on the relationship between HR practices and organizational performance (Chan, Shaffer, & Snape, 2004; Delery & Doty, 1996; Karami, Analoui, & Cusworth, 2004; Neal, West, & Patterson, 2005; Youndt, Snell, Dean, & Lepak, 1996). Regardless of strategies, other factors in organization may also generate contextual influence on HR practices and organizational performance. Chan et al. (2004) suggested that organizations in different organizational cultures made different performance. Neal et al. (2005) applied organizational climate as contingency variable. In addition, in the individual-level, Conway (2004) used career stages as situational factor. Unlike the organization-level HR practices, there were fewer articles to examine the contextual influence of the individual-level HR practices.

HR practices in enterprise were not the only antecedents of management practices in organizational commitment. Leadership was also an important management practice that would affect attitudes of employees. A leader with transformational leadership was able to deliver enterprise vision and goal to the other members of the firm, and help each member to identify and participate in the firm. In advance, it would enhance organizational commitment. A few empirical works noted transformational leadership, provided positive significant influence to organization commitment, in particular to affective commitment (Bycio, Hackett, & Allen, 1995; Judge & Bono, 2000; Kane & Tremble, 2000; Koh, Steers, & Tenorg, 1995). A group leader with high transformational leadership delivered mission and strategy of firm to employees who perceived that HR practices were organization-goal-oriented upon organization strategy. This guided employees to commit to organization.

Researches in HR were based on three perspectives (Delery & Doty, 1996): universalistic perspective, that HR practices were best practices; configuration perspective, that all HR practices were regarded as a system; and contingency perspective, that HR had better outcome under certain situations. The first focus at this article is best practice approach which insisted that more advanced HR practices were better for workers' attitudes. By contrary, the secondary purpose was to adopt contingency approach which considered leadership could sufficiently play a role in workers' attitudes.

## **HR Practices and Affective Commitment**

Organizational commitment was a psychological link with employees and their organizations. An employee willing to commit recognized goal and value of organizational, in plus had enthusiasm to represent firm, or had aggressive aspiration to retain as a member of the organization (Mowday, Porter, & Steer, 1982). Conceptually, organizational commitment played a role as complicated and various in past literatures. However, organizational commitment was viewed as multi-dimensions of the work attitude which had of three components, which were affective commitment, continuance commitment, and normative commitment (Allen & Meyer, 1996). Affective commitment referred to linkage of identification, participation and affection in organization. Continuance commitment was that employee evaluated cost of resign whether or not influencing their job hunting possibility. Normative commitment meant the obligation to organization.

Organizational commitment was one of essential employees' attitudes, which referring to individual performance (Jaramillo Mulki, & Marshall, 2005; Mathieu & Zajac, 1990; Wright & Bonett, 2002) in advance to reflect on organizational performance (Becker, Huselid, Pickus, & Spratt, 1997; Guest, 1997). However, Swailes(2002) reviewed past literatures and pointed a weak relationship between organizational commitment and performance. A few researches applying multi-component observed that performance was related to affective commitment (Angle & Lawson, 1994; Hackett, Bycio, & Hausdorf, 1994; Meyer, Paunonen, Gellatly, Goffin, & Jackson, 1989; Suliman & Iles, 2000). Continuance commitment was neither zero nor negative association with performance (Angle & Lawson, 1994; Meyer et al., 1989; Somers & Birnbaum, 1998). Normative commitment was not related to performance (Hackett et al., 1994). To summaries, affective commitment had more linkage with performance. Arthur (1994) divided HP practices into two parts, control and commitment. Control HR practices stresses on efficiency and reducing laboring cost as well as regulating employees' behavior through restriction or output-oriented incentive. By contrary, commitment HR practices focused on combination individual's goal and organization goal in attempting to modify employees' behavior and attitude, in sake of turning employee to commit and trust organization. Hence, organizational commitment as medium of HR practices and organization performance could be adopted through affective commitment. The existing literatures in organizational commitment put interest in organizational commitment component. However, this application could not connect HR practices' effect and organizational performance properly. This paper would focus on organizational commitment in affective as priority.

Among those empirical works indicating employees' satisfaction and commitment were closely linked to HR practices bundles, such as promotion, training activities, output-oriented assessment (Appelbaum et al., 2000; Delery & Doty, 1996; Pfeffer, 1998). Perception of these bundles would change employees' satisfaction and commitment (Chang, 1999; Gartner & Nollen, 1989). Current human resource management (HRM) literatures extended definition of HR practices as a system to discuss its influence to organization performance, not referring to typical utility analysis. However, Jones and Wright (1992) quoted not to disregard the effect estimation of individual HRM. Surman (2000) also supported the viewpoint of Jones and Wright and reckoned the value of adjusting conventional utility analysis. In summarizes, it was necessary to consider the impact of one HR practices on organization output. The effect of one HR practices must be perceived by employee in connection to generate positive or negative attitude or behavior.

Guest (1997) suggested that HR practices reflected HR output, such as organizational commitment, quality, and resilience. Employees would be acknowledged with the direction of organization goal, outcome, and feedback within appropriate performance management. The provision of equitable performance evaluation was one tangible way that employee will trust the firm and be willing to follow up the organization goal as organizational commitment. Training activities thus raise employee skill and ability (Guest, 1997). Employees, received more training, will consider themselves as partner of the firm rather than as a productive tool in that the firm was munificence to invest in people. Consequently, employees would recognize the management practice. Moreover, employees would be clear in mind of what to achieve when the firm developed a personalized compensation system. This would also increase identification of organization goal and enhance organizational commitment (Guest, 1997). Benefits represented the willingness to invest on employees (Williams & MacDermid, 1994). Organization will receive more recognition from employees with more investment and employees will give more organizational commitment. Employees' participation in decision-making of benefits plans design allowed them undertaking their own task condition. This would also be associated with both job satisfaction and organizational commitment (Heshizer, 1994). Employees built up organization identification because they could foresee the career development in the future with the firm. They conceived that the firm was willing to strengthen them up in profession. Internal promotion in organization immediately reflected on employees' motivation and commitment (Guest, 1997). In opposite, employee would tend to decentralized from firm when their opinions were neglect, unable to be accepted, or there was lack of communication in firm system. Therefore, adoption of fluent communication system, as an individual HR practices, guarded further employees' organizational commitment.

Individual HR practices was pointed from previous empirical studies that they were positively correspond to organizational commitment. As to performance management, Fletcher and Williams (1996) claimed that there existed relationship between performance management and organizational commitment. Paul and Anantharaman (2003) proposed that performance evaluation gave a significant positive direct impact on organizational



commitment. Regarding to training activities, Bartlett (2001) commented that there was positive relationship between employees' attitudes toward training activities and organizational commitment. He noted approachable of perceptive training, social support, motivation for perceptive training, and in addition to advantages at work which were all related to organizational commitment, especially affective commitment. Regarding to incentive reward, Paul and Anantharaman (2003) pointed that incentive reward was significant positive component. Ogilvie (1986) recognized that pay for performance would obviously be predicted by organization commitment. In turn of benefits system, Weathington and Tetrick (2000) suggested that satisfaction of benefits system also resulted in organizational commitment. As to career development, Ogilvie (1986) suggested that reasonable promotion system also anticipated in organizational commitment. Ngo and Tsang (1998) proposed that internal labor market would positively affect both the affective commitment and continuance commitment. Paul and Anantharaman (2003) initiated that career development was related to organizational commitment. In addition, considering communication system, Federico (1996) agreed that satisfaction at communication had positive relationship with organizational commitment. Putti, Aryee, and Phua (1990) appealed the closely relationship between satisfaction at communication and organizational commitment. Thus, we hypothesize that:

*Hypothesis 1 □ The better the HR practices employees perceive, the higher the affective commitment will be.*

## **Boundary effect of Transformational Leadership on the Perceived HR and Affective**

### **Commitment**

Conceptual work of Burns (1978) firstly proposed transformational leadership which was a process to stimulate followers within the strong belief and ethic value. Leader with transformational leadership must define and elaborate organizational vision, while followers counted on their creditability.

Bass (1985) modified the concept of transformational leadership and divided it into four dimensions, such as charisma or idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Judge & Piccolo, 2004). Charisma or idealized influence meant the extent of identification from follower to leaders. Charisma leaders would challenge themselves to be worth of trusted, evidence their reputation, and emotionally attractive. Inspirational motivation was a leader would set up attractive and inspiring vision. This type of leaders would achieve the goal in high standard through appropriate communication, as well as help followers to feel challenged at current tasks. Intellectual stimulation was that a leader would challenge assumption, take risk, and induce followers' ideas. Leaders with this property could stimulate and inspire innovation of followers. Individualized consideration was a leader would meet the need of every follower and be a mentor or a coach by listening to followers' concern.

The function of transformational leader was to shift organization vision to follower in order to change their attitudes. When followers identified the vision of firm, they would serve the interest of organization. If employee did not perceive the leadership style assessed by leader, the impact on their attitude was limited. Hence, the sound influence on commitment was the leadership style which rose up employees' perception.

As described above, organizational commitment of employees was not only initiated from perception of individual HR practices, but also related with transformational leadership. If there was lack of transformational leadership perception from employee, organizational commitment would decline for the reason that organization vision could not be espoused. Organization vision guided the developing of strategy of firm which launched the HR strategy structure. Adoption of HR practices was based on HR strategy. When a leader was probable to shift organization vision to employees, direction of HR strategy would be more clearly since employees knew the direction of the organization as well. The effects, such organizational commitment, of perceptive HR practices would be apparent.

If the there was advanced performance management in organizations, employees would know their objectives and feedback of the tasks with fair and objective evaluation which could help to motivate them. Once employees had motivation on work, they would contribute themselves to the organization by performing their specialization well. Therefore, they would tend to identify their organizations and to have affective affiliation with

the organization. Leader with inspirational motivation could enhance the strength of the effect of motivation from performance management on affective commitment. Training system in enterprises could improve skills and stimulate potential of employees. The more complete training system was, the more various and intact skills employees possessed. Employees would tend to consider that they were viewed as assets rather than cost in the organization. And then they rather committed to the organization. When employees met problem at work, if their leaders could direct them to solve their problems by stimulating intelligence, they would improve their problem solving skills. Therefore, they would hold strong affective tie to the organization. The effect of training on employee commitment would be improved if the leaders demonstrated more transformational behaviors. If there were advanced compensation program (e.g. pay for performance) employees would know that they who achieved the goal of the organization would get more reward. As a result, they would identify the objective of the organization. If the leader could use their idealized influence, which enforced the extent of identification of organization; transformational leadership could strength the degree of impact of compensation on affective commitment. When there were complete and flexible benefits programs within the organization, employee would consider that organization could care their needs of individual difference so that developing their career in this organization. Leaders who represented individual consideration, one characteristic of transformational leadership, would improve the flexibility of work which would make employee to stay in the organization affectively. Therefore, in the better transformation leader climate, benefits would influence affective commitment well. If there were transparent and objective promotion and development systems, workers would know their career path and development opportunities as well as growth with the organization. In the climate of inspirational motivation, employees who held self-realization and chance for growth would commit to their organization. Transformational leadership could improve the positive effect of promotion and development program on affective commitment of employees. If there were more communication channels between employees and organization, information, such as the opinions from employees and goal of organization, flowed faster,. They would consider that the organization emphasized on them, and that they realized the way where organization would go. They tended to identify the organizations. Leaders with transformational leadership had to define and interpret vision of organization to the employees. Leaders' idealized influence was another kind of effective communication channel. Transformation leadership might strength the impact of communication system on the commitment.

Hence, the second hypothesis of this paper is,

*Hypothesis 2 □ There is positive contextual effect on relationship of perceived HR practices and affective commitment due to transformational leadership. The more transformational leadership, the more enormous impact of perceived HR practices on affective commitment will be. On the contrary, the less transformational leadership the leader behaviors, the less impact of perceived HR practices on affective commitment is.*

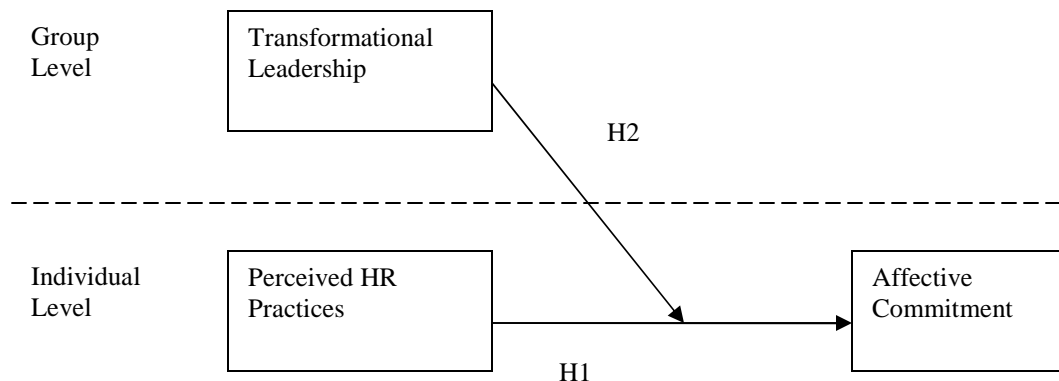


FIGURE 1 CROSS-LEVEL FRAMEWORK DEPICTING LINKING HR PRACTICES, TRANSFORMATIONAL LEADERSHIP, AND AFFECTIVE COMMITMENT.

## Methods

### Sample and Procedure

The survey data were collected from one corporation, including headquarter and its 19 home improvement stores, in 2005. 2,000 questionnaires were submitted to the employees and 1,809 were returned. Therefore, the response rate is 90.45%. After deleting ineffective questionnaires, 1790 cases were used to further analyzing. Gathering of survey questionnaires was through two approaches. Firstly, research assistants submitted and collected the questionnaires on site. Secondly, the questionnaires were mailed to the research objects and sent back by employees themselves. Of the 1790 respondents, 1008(57.6%) were male. Their mean age was 29.8, and their mean tenure was 2.3 years. 75.5% of them were full time employee. In addition, 19.9% of them held managerial positions.

### Measures

Likert-type agreement scales were used to measure variables where 1=strongly agree, 3=neither agree nor disagree, and 5=strongly disagree. For meeting common sense, which the larger number represented better agreement, the score were reversed where 1= strongly disagree, and 5=strongly agree.

**HR Practices.** The scales of HR practices were developed by Huselid (1995) and Snell and Dean (1992). Their HR practices model was developed based on performance management, training activities, compensation, benefits, career development, and communication system. There were 9 items in aspect of performance management, such as “My supervisor evaluates my performance twice, respectively in January and July, on the basis of the company policy.” There were 5 items referring to training activities, such as “My company provides considerate training activities.” There were also 5 items in turn of compensation like “Whether or not I am satisfied with my salary comparing with other retail staff in the same position.” Benefits contained 5 items in content including “I have flexible choices of inquiring overtime pay or take another day off when I am required to work overtime.” Career development was with 5 items like “I am fully aware of every promotion or job transform opportunity.” Moreover, there were 6 items in communication system, such as “I believe grievance procedures in firm are ensured catering for me.”

The analysis had supported the result with high reliability in most HR practices dimensions in that coefficient alpha for internal consistence between 0.84~0.90, except for benefits. In addition, internal consistence of performance management is  $\alpha=0.8957$ , and that of training activities is  $\alpha=0.8497$ . Moreover, compensation also has internal consistence of  $\alpha=0.900$  while benefits has  $\alpha=0.7660$ , promotion and development has  $\alpha=.8833$ , and communication system has  $\alpha=0.8891$ .

**Transformational Leadership Style.** Transformational leadership style was measured as employees evaluated transformational leadership behaviors of their department heads. Behavior inventory index was referred to perspective of multifactor leadership questionnaire (MLQ) developed by Avolio, Bass, and Jung (1995). Six items

were proposed to examine the extent of agreement in each item description. For example, there was an item as “My department head will guide me to required knowledge and skill at both work and career development aspect.” The internal consistence of these items was high reliability in that Cronbach’s  $\alpha$  was equal to 0.9361.

**Affective Commitment.** Affective commitment played a role as dependent variable in this research. The scales were proposed by Meyer and Allen (1991) and modified some items related to affective commitment. There were 5 items in measuring ‘affective commitment’, such as “I am willing to devote myself and grow with the firm.” The scale was to measure the consensus extent of items. Internal consistence of the items evidenced high reliability ( $\alpha=0.8963$ ).

#### **HLM Analysis**

The hypotheses of this study required testing the effect of the group-level property (i.e. transformational leadership) on the individual level outcome (i.e. affective commitment). Bryk and Raudenbush (1989) and Rousscau (1989) argued that the use of traditional statistical method in the cross-level research might not be proper. A statistical technique, named hierarchical linear modeling (HLM), is now used to deal with the cross-level analysis in the management studies. We employ HLM in the present research in that it solves the some problems coming from traditional statistical techniques such as aggregation and disaggregation bias, misestimated precision and unit of analysis problems (Bryk & Raudenbush, 2002).

At level-1, there are performance management, training, compensation, benefits, employee development, and communication system as independent variables as well as affective commitment as a dependent variable in the equation. These variables are collected from individual level. At level-2,  $\beta_1$  to  $\beta_6$  are estimated by transformational leader in the level 2. Transformation leadership is aggregated from the individual level to group level. Hence, the mixed model shows the final effect of level 1 and level 2. The coefficients, namely  $\gamma_{10}, \gamma_{20}, \gamma_{30}, \gamma_{40}, \gamma_{50}, \gamma_{60}$ , represent the direct effect of HR practices. In addition, the coefficients, namely  $\gamma_{11}, \gamma_{21}, \gamma_{31}, \gamma_{41}, \gamma_{51}, \gamma_{61}$ , characterize the contextual effect of transformational leadership on HR practices and affective commitment.

Level-1:

$$Y(\text{Affective Commitment}) = \beta_0 + \beta_1(\text{Performance Management}) + \beta_2(\text{Training}) + \beta_3(\text{Compensation}) + \beta_4(\text{Benefits}) + \beta_5(\text{Employee Development}) + \beta_6(\text{Communication System}) + R$$

Level-2

$$\begin{aligned} \beta_1 &= \gamma_{10} + \gamma_{11}(\text{Transformational Leadership}) + U_1 \\ \beta_2 &= \gamma_{20} + \gamma_{21}(\text{Transformational Leadership}) + U_2 \\ \beta_3 &= \gamma_{30} + \gamma_{31}(\text{Transformational Leadership}) + U_3 \\ \beta_4 &= \gamma_{40} + \gamma_{41}(\text{Transformational Leadership}) + U_4 \\ \beta_5 &= \gamma_{50} + \gamma_{51}(\text{Transformational Leadership}) + U_5 \\ \beta_6 &= \gamma_{60} + \gamma_{61}(\text{Transformational Leadership}) + U_6 \end{aligned}$$

Mixed Model:

$$Y = \beta_0 + \gamma_{10}(\text{Performance Management}) + \gamma_{20}(\text{Training}) + \gamma_{30}(\text{Compensation}) + \gamma_{40}(\text{Benefits}) + \gamma_{50}(\text{Employee Development}) + \gamma_{60}(\text{Communication System}) + \gamma_{11}(\text{Performance Management} * \text{TL}) + \gamma_{21}(\text{Training} * \text{TL}) + \gamma_{31}(\text{Compensation} * \text{TL}) + \gamma_{41}(\text{Benefits} * \text{TL}) + \gamma_{51}(\text{Employee Development} * \text{TL}) + \gamma_{61}(\text{Communication System} * \text{TL}) + R + U_1 + U_2 + U_3 + U_4 + U_5 + U_6$$

#### **Level of Analysis**

HR practices and affective commitment were examined as individual-level variables, because we interested in how employees perceived HR practices influences their affective commitment, not organizational-level HR practices. Transformation leadership was treated as a group-level variable, because we interested in examining the aggregated level of employees’ perception of their leaders.

To justify the aggregating leadership at group-level, we calculated intra-class correlations (ICCs) (Bliese, 2000). For transformational leadership, the ICC(1) was .11; and ICC(2) was .8709. Hence, these results suggest that aggregating leaders’ behavior to group-level was appropriate. (Bryk & Raudenbush, 1992)

## **Results**

**Descriptive Analysis**

Table 1 illustrated descriptive statistics of all independent variables and dependent variables across all levels. In the individual level, the correlation coefficient of the six perceptible HR practices and affective commitment were between .55 and .70, which were significant positive association ( $P < .01$ ). Correlation of group-level transformational leadership style and affective commitment is .30, which was also significant positive correlated ( $P < .01$ ). In consequence, a positive significant correlation between independent variables and the dependent variable led to next step of analysis.

TABLE 1: DESCRIPTIVE STATISTICS

	Mean	SD	1	2	3	4	5	6	7	8
1. Performance management	3.87	.54	(.90)							
2. Training	3.81	.62	.55**	(.85)						
3. Compensation	3.28	.77	.54**	.50**	(.90)					
4. Benefits	3.66	.65	.47**	.54**	.57**	(.77)				
5. Employee development	3.62	.67	.64**	.60**	.62**	.57**	(.88)			
6. Communication system	3.51	.69	.59**	.63**	.64**	.60**	.67**	(.89)		
7. Transformational leadership	3.81	.21	.26**	.21**	.28**	.22**	.27**	.30**	(.94)	
8. Affective commitment	3.79	.60	.55**	.63**	.59**	.58**	.66**	.69**	.28**	(.90)

Note:

- a. N=1790 for inter-correlations between individual-level perception of HR practices and affective commitment. N=29 for inter-correlations between aggregated transformational leadership and individual-level variables, namely affective commitment and six HR practices.
- b. Coefficient alpha were on diagonal.
- c. \*\* $p < .01$ .

**HLM Analysis**

Table 2 presented the results of hierarchical linear regression. In the hypothesis 1, we predicted that HR practices directly affected employees’ affective commitment. The result showed that most of HR practices were positive significance. Only performance management could not hold the direct effect on the employees’ affective commitment. Hence, H1 is supported in most of HR practices.

As the contextual effect of the transformational leadership, the results show that the modest positive effect exists between training and affective commitment ( $P < .10$ ), and that the significant negative effect exists between compensation and affective commitment ( $P < .01$ ). For this reason, H2 acquires limited supported.

TABLE 2: RESULTS of HLM ANALYSIS

Fixed Effect	Coefficient	S.E.	P-value
$\gamma_{10}$	.02	.03	.591
$\gamma_{11}$	-.04	.18	.811
$\gamma_{20}$	.21 ***	.02	.000
$\gamma_{21}$	.15 □	.09	.093
$\gamma_{30}$	.07 ***	.02	.000
$\gamma_{31}$	-.17 **	.06	.007
$\gamma_{40}$	.11 ***	.02	.000
$\gamma_{41}$	-.15	.10	.119
$\gamma_{50}$	.20 ***	.02	.000
$\gamma_{51}$	.06	.12	.592
$\gamma_{60}$	.22 ***	.04	.000
$\gamma_{61}$	.23	.20	.261

Note: \*\*\* p<.001, \*\*p<.01, \* p<.05, □p<.10.

## Conclusion

### Discussion

Typical work in this area is organized around direct effect in organizational commitment. However, recent literatures focused on impact of moderating factor on organizational commitment because detail discussion of cause and effect will better prove the relationship of phenomenon. The empirical work has exploring that HR practices gave influence on employees' attitude, especially organizational commitment. In this paper, leadership style of the department head is added to study how leadership as a contextual effect influence relationship between HR practices and affective commitment. Transformational leadership style is as contingency factor to confer the impact extent to which of HR practices on affective commitment in different transformational leadership style.

As statistical analysis described above, hypothesis 1 assuming that six HR practices are positively significant associated with affective commitment are supported in most HR practices, other than performance management. As to hypothesis 2, contextual effect of transformational leadership with training activities is positively modest significant associated with affective commitment. However, leadership style has significant negative effect between compensation and affective commitment, thus, hypothesis 2 is partially supported.

The empirical work of this paper supports most HR practices (i.e. training, compensation, benefits, promotion and development, and communication system) are positively significant related to organizational affective commitment. The result comes across to the same conclusion in Federico(1996), Ngo and Tsang (1998), Paul and Anantharaman (2003), Putti et al. (1990), and Ogilvie (1986) who approved specific HR practices will effect employees' attitude. Direct effect of performance management on affective commitment is not significant. The reason might be that even though employees consider that the policy of performance management is advanced, it will not affect employees' attitudes toward the positive way due to performance raters' unfairness or lacking of experience for any process of performance evaluation.

The positive contextual effect of transformation leadership obtains a little support. The climate of transformational leadership might be measured with the CEO, department heads, and supervisors. However, the construct of transformational leadership is measured in this study with employees' department heads. This might be the maim reason why the contextual effect of transformational leadership is not significant. Every day, the common worker work with their supervisor rather than their department head. Employees' attitudes are less affected by behaviors of the department head.

### Limitation and Suggestion

The limitation of this paper is that independent variables and dependent variables are all from employees which resulting to common source of variance (Podsakoff & Organ, 1986). The primary limitation of this paper is

relationship of independent variables and dependent variables might be significant due to data coming from the same source. In spite of so, this research is aimed at examining the boundary effect. Transformational leadership style is measured by aggregating the department members' perception. Hence, CMV issue becomes less highlighted. It is recommended that future work should consider social desirability as control variable in research design.

The second limitation is focusing on employee in one firm which limits the generalization. Perhaps, it can be reasoning by generalizing to the corporation with chain stores in the similar industry. However, some variables are surveyed in individual-level here. Each employee has to follow the same company policy, but employee perceives HR practices in different way due to individual characteristic or different condition which causes limitation of external validity. Even so, personal affection on HR practices is associated with organizational commitment. Future work should be concern different industry or multi-enterprise to enhance its generalization in research.

Although the previous literature (Wright et al., 2005) focusing on HR practices and organizational performance have been arguing about the cause and effect between HR practices and organizational performance, this paper crosses examining the viewpoint of HR practices leading to good organizational performance. In addition, the third limitation is that good organizational performance may assist good HR practices. Though HR practices and organizational performance is cause and effect relation, adoption of HR practices does reflect on employees' attitude. It is reasonable that employee change their attitude with the provision of investment on HR practices. However, data of this paper is cross-section and is unable to examine the cause and effect of HRM and organizational commitment. Consequently, future work should collect longitudinal data to obtain accurate cause and effect relation.

The purpose of this paper aims to study the contextual effects of transformational leadership. However, in contextual effects of transformational leadership, performance management, compensation, benefits and communication system do not have better impact on affective commitment. Future work in this area is recommended to find more contextual factors of HR practices effecting affective commitment. In addition, empirical work in this paper is based on recognition of department heads' leadership. However, leadership style of supervisors and CEOs might be also related to affective commitment of employees. The future work might work on collecting leadership style from other management level and examining the contextual effects of HR practices on affective commitment.

#### **Contribution and Conclusion**

The contribution of this paper is to examine impact of perception of HR practices on affective commitment. The prior management content of this paper is that the more HR practices perceived by employee, the better the employees' attitude (i.e. affective commitment) are. In other word, committed HR practices will result to positive employees' attitude. In this study, we verify the positive effect of HR practice as past studies did.

In addition, it is to understand the contextual effect on affective commitment when concerns transformational leadership as relationship between perceptions of HR practices and affective commitment. Although hypothesis is limited supported, this study provides a way (i.e. other contextual factors) to the next research in order to get fruitful results.

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#### **Section 4: Knowledge and Human Resource Management**

# Knowledge Management and Organizational Performance

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## Abstract

Changes in corporate environment should be reflected into the business management but their intensity and variability are hard to predict. Nowadays, we have entered “Knowledge Economy” where value of human resources and knowledge in the organizations have become more important than the traditional sources of economic power such capital, land and labor. Knowledge management is the discipline of capturing knowledge-based competencies and storing them for the benefit of the organization as a whole. Knowledge management is a systematic organized attempt to use knowledge in business within an organization to transform its ability to store and use it. It is valuable a tool how to improve individual performance of employees and performance of the whole organization. Increasing the value of human resources through knowledge management is a key to success in the challenging environment. The notion of knowledge management might seem old ground, but in transition economies like Slovakia it is still hot topic. In the article is described the level of knowledge management in Slovakia.

## Introduction

Rapid change is nothing new, there is a new discovery every day, turbulent environment and the change is the only constant. These almost “clichés” are used worldwide in describing today’s situation. Organization has to deal with this dynamic and uncertain environment. In order to succeed, the organization has to reflect this situation into their management. Organization ought to understand how these changes affect their position in competitive environment and response with appropriate changes in the business management.

Fast growth of information leads to the importance of managing knowledge in organizations. Organizations should recognize the value of knowledge and experience of its individual employees, they should capture, organize and store knowledge within and organization and make it available for others in the organization. Knowledge management deals with the process how to make the best use of the knowledge in the organization.

## Revolutions in Ages

During the evolution of mankind there have been undeniable moments, which shifted the mankind dramatically ahead in its evolution (FIG.1).

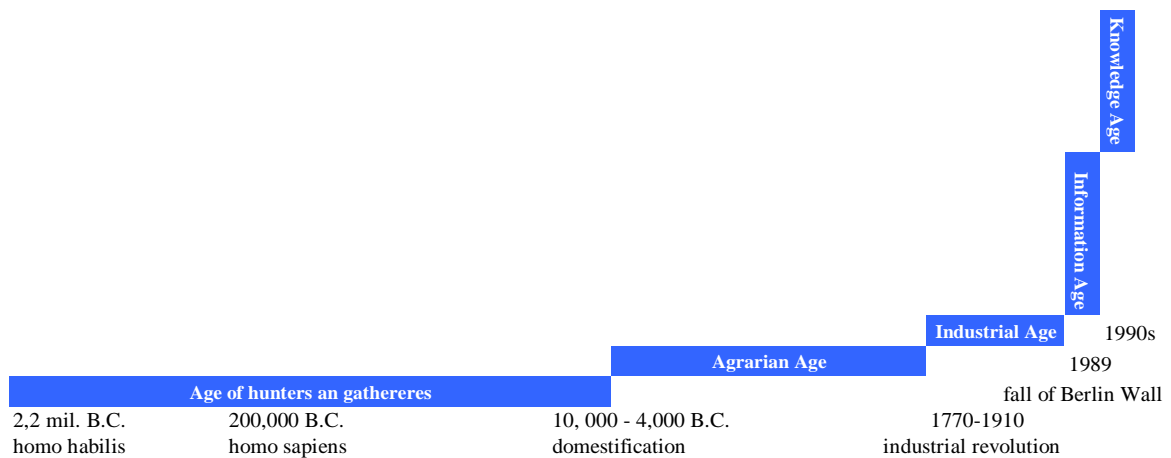


FIG. 1: EVOLUTION OF MANKIND

Back in 200,000 B.C. people were mere gatherers and hunters. Primary aim was survival by acquiring enough food. This period lasted till 10,000-4,000 B.C.

The Agrarian age started with domestication of animals and harvesting crops. Thus people became less depending on the twist of nature as they were able to store food.

Afterwards the Industrial Age started. It was started with the first Industrial Revolution, spanning approximately from 1770s to 1860s, which brought the development of steam engine, locomotive, telegraph and cotton gin. Second Industrial Revolution, spanning from the 1870s to 1910s, brought another inventions such as telephone, electric light bulb, internal combustion engine, movies and radio.

Vast increase in farm productivity freed lot of farmers to go into other occupations. The percentage of U.S. Workforce in agriculture dropped from 90% in 1700 down a mere 3% in 2000. More and more workforce was available for other industries. People changed from being self sufficient to being depended on each other.

Next change started with a widespread of computers, the Internet, nanotechnology and bioengineering. Some called it the third Industrial Revolution, but a more accepted term is Information Revolution and thus Information Age. The approximate time is usually referred to the fall of Berlin wall. This change has affected the worldwide social evolution, which is characterized by transformation from industrial to information society. Information Age is a term applied to the period where information rapidly propagated and where information was a scarce resource and its capture and distribution generated competitive advantage.

When information ceased being scarce, another era – “Knowledge Economy” commenced. This era started approximately in ninetieths. There are many names of the current era like: “New Economy”, “Digital Economy”, “Information Society” or “Experience Economy”. Modern economy is no longer driven by physical flows of material goods and products; there is a different way in which value is being created in this new economy. Some of the economists call this area “Intangible Economy”, because of the shift from tangible to intangible assets.

“The new value drivers are intangible assets such as the knowledge of your people, computer systems and software, your work processes, the culture that allows you to innovate” (Norton, 2001). “On the demand side, we consume more and more content-based information and entertainment. On the supply side, intangible assets such as brand, human capital, intellectual property and knowledge have become major determinants of performance and value.” (Goldfinger, 2000) The intangible economy is structured around relationships between man and ideas and symbols. The source of economic value and wealth is no longer the production of material goods but the creation and manipulation of intangible content

These moments, these massive changes in “ages” bring always large potential within, which is not foreseen and considered when the change starts. Demján described the apparent features of age change as: (Demján, 2006):

- Approximately 50 times increase in performance

- A big wave of unemployment due to change in technology
- Necessary change of mental model, i.e. change in paradigms

Looking back at these changes, the voyage of organization in the 20th century still looks like a smooth and quiet level of lake, where eight men (employees) are paddling the boat to move forward and one steersman (i.e. the manager) is steering the boat. This was mainly due to fact, there were more manually working employees managed by managers. However the 21st century is like going down a wild river, where pairs must coordinate themselves without a leader and make decisions at an instant. Managers are leading knowledge people, employees who must be able to learn quickly as new information is created every day. Every knowledge employee must behave as a leader, he must be able and willing to make decisions and feel responsible for own contribution to the organization (TABLE 1, Demján, 2006).

TABLE 1: PARADIGM SHIFT BETWEEN AGES

<b>20th century</b>	<b>21st century</b>
Industrial Age	Information/Knowledge Age
Increase in performance = do things right	Increase in effectiveness = do the right things right
Management of <ul style="list-style-type: none"> <li>• things (manufacturing plants)</li> <li>• industrial workers (mainly manually working)</li> </ul>	Management of <ul style="list-style-type: none"> <li>• people – knowledge workers</li> </ul>
Performance was measured by <ul style="list-style-type: none"> <li>• quantity</li> <li>• quality</li> <li>• cost</li> </ul>	Effectivity is measured by <ul style="list-style-type: none"> <li>• results</li> </ul>

At this point we can talk about a shift in paradigm from “industrial society” to “knowledge society” which is elicited by new system of wealth creation based on the knowledge where acquiring and applying knowledge will become key competitive factors. It brings the necessity to learn how to manage the knowledge and permanently increase the productivity of knowledge employees through relatively new approach – Knowledge management.

## Knowledge Management and Performance

### Knowledge Management Basics

Information systems and information technology have become at the beginning of the 21<sup>st</sup> century the most important factors for functioning of economy in developed countries. However, there are not only the information systems and information technology but actually working with information itself which convey change of thinking and creation of value in modern approaches to business and management.

These changes are reflected in current economy. The utilization of resource is being shifted from strategic resources as a capital to new strategic resources as an information, knowledge, creative thinking and innovation. Information is therefore one of the most valuable resource. For example, Peter F. Drucker already in early 1960s had mentioned the term “knowledge worker”. At the turn of millennium he pointed out: “Knowledge and information are today most meaningful resources. Traditional manufacturing resources – land, labor and capital have not disappeared, but have become second-handed. The main factor of wealth is information and knowledge.”

Successful organizations are aware that they must shift their attention toward knowledge: its creation, transformation, and ways of storage, selection, processing, usage and evaluation of the expenses. It is a process of knowledge management.

Knowledge management does not have a universal definition; the key component is to apply the already acquired knowledge to gain the new knowledge. Sharing and application of knowledge is the basics of commercial success in today world of information. No organization can underestimate their value.

In the 21<sup>st</sup> century knowledge management is equivalent to information management. It is an umbrella term for making use of the human knowledge efficiently that it exists within an organization. Burke and Howard describe Knowledge management as “a systematic approach to facilitate the flow of data, information, and knowledge to the right people at the right time so they can act more efficiently and effectively” and divide the process into 3 stages (Burke and Howard, 2005):

- Retrieve and understand the structured and unstructured data.
- Convert data into useful information.
- Share the knowledge.

Angus, Patel and Harty see Knowledge management as a concept, a way of doing business rather than only technology (Angus, Patel and Harty, 2006). It can be summarized in a four stages process (TABLE 2) and is achieved through automation on one hand and human intervention on the other hand.

TABLE 2: KNOWLEDGE MANAGEMENT PROCESS

Stage	Activities
Gathering	Data entry OCR and scanning Voice input Pulling information from various sources Searching for information to include
Organizing	Cataloging Indexing Filtering Linking
Refining	Contextualizing Collaborating Compacting Projecting Mining
Disseminating	Flow Sharing Alert Push

Knowledge guides humans in their use of information so that they can make better judgments, decisions and do their best work. Knowledge is considered now as an asset and it has to be managed just the same as the financial and physical assets. It is estimated that 70 to 80 percent of what our workers know is hidden, so the managers usually do not know what workers know and workers do not know who knows it.

Value of tacit knowledge for the organization is enormous. The greatest wealth of knowledge is in the heads of employees, in tacit form. Gain and utilize that potential is not easy. Many organization and managers have tendency to disregard and underestimate it what has harmful consequence for the organization.

**Knowledge and Performance of Individuals**

Knowledge is the primary driver of performance of individual, consequently the organization as a whole. Knowledge affects performance by making it possible for people to perform good and effective actions. Application of knowledge provides opportunities for higher performance. Although the term used widely is knowledge management, in fact the real value stems from creating and sharing knowledge not from just barely managing it. Over the past 15-20 years many heavy investments were made into “knowledge management systems” but the benefits have been limited, because they were made just for the sake of managing the knowledge rather than creating and sharing (Bryan and Joyce, 2005).

This is the heart of the problem. The usage and creation of knowledge from the stored knowledge is the most crucial point of knowledge management, i.e. the ability to work with the knowledge to produce results. The knowledge had become important “manufacturing” factor, so the organization should put it in the “production” process. This means to apply the gathered knowledge.

However, there are still some remnants from the Industrial Age. One of them is the rigid organizational structure, which is still causing nightmares for knowledge workers. The era of globalization created large multinational corporations with thousands of employees. An employee many times can spend the whole day just searching for the person who has the knowledge. This can be observed especially in cross-divisional, cross-departmental not to mention cross country communication. Brief example is that the volume of global corporate e-mail has increased almost ten times from 1998 (1.8 billion a day) to 2004 (17 billion a day). There are certain factors, which should be changed in order to reduce the complexity of interaction and to create a more suitable environment for sharing of knowledge within organization (Bryan and Joyce, 2005):

- 1) Simplify the vertical orientation in organizational structure and narrowing the scope of the line manager’s role to the creation of current earnings. Like take important support functions that require focused management, out of the hands of line managers (who are at best gifted amateurs), so specialized professionals can run them as shared utility.
- 2) Deploy off-line teams of professional (who have the freedom “to wander in the woods”) to search and discover new wealth creation opportunities for organization such as launch of new products or building new business. Not many down-line managers who must bring daily results have time for such discovery process.
- 3) Develop knowledge and talent marketplaces and formal networks to stimulate the exchange and creation of knowledge. These overlays make it easier to exchange knowledge. People with common interest (e.g. same profession, same industry or same geography) naturally form social networks, but these have limited reach due to the nature of creation. On the other hand marketplace is artificial and managed – so organization has to create them. To boost the value of network the organization should invest and formalize its role within the organization
- 4) Rely on measurement of performance rather than supervision. Let the people direct themselves, guided by performance metrics. The workforce is increasingly consisting of self-directed professional (knowledge workers), thus inspiring leadership is more needed than intrusive management. It is more important to measure the performance to motivate certain behavior than providing just financial incentives to reward it.

At first glance these ideas might look obvious and like nothing new, the hidden secret is that all four parts must be implemented at the same time or the organization need to make all four changes to be able to perform up to potential. For example, an organization can simplify the vertical organizational structure to increase efficiency. But if it not manages to help the knowledge workers to collaborate more easily the gain will be offset by decrease in its effectiveness.

Tacit knowledge is the one with higher added value but by its nature it is the hardest to transform it into shareable form. Let us assume the organization had managed to form the “perfect” internal environment for employees to share and use knowledge. This generates inherent difficulty and creates paradox – the more freedom and availability for employees to share and use knowledge there is the less willing are they actually to share it. With the availability of storing and sharing the knowledge, the performance of individual increases, consequently increases the performance of organization. Once knowledge is stored, services of some employees might not be needed. Therefore, employees might feel threatened to become reluctant to share information because somebody younger with half the cost for the organization can replace them.

On the other side, much of knowledge of the organization is in employees’ heads. If the knowledge is not stored and employee leaves, organization is losing his/her knowledge.

### **Knowledge Performance Measures**

Historically, definition of strategy and objectives of the organization were a separate process from the measurement of performance of employees and organization. Organizations typically define and manage a process for reviewing individual performance on a quarterly, semiannual or even annual basis. Therefore it is difficult for this approach to

be effective because information is often outdated. It is almost like trying to read a map based on where you have been, rather than where you are or where you are going.

Organizations have invested time and money into systems that measure and report financial and later also non-financial performance and the effectiveness and productivity of the manufacturing cycle, but these systems can not measure the performance of an individual employee (Yazdani, 2006). Because of lack of such measurement system, organizations have little or no insight into performance of employees, which skills are they missing and what learning needs to be done within the organization. Vice versa organizations do not know how the performance of employees affects the performance and productivity of organization.

Organizations start to focus at the performance of their people. Thus managers have a renewed focus on the production and performance of their employees. To achieve long-term results on a sustainable basis the organization needs to focus on people skills. However skills are rapidly becoming obsolete. Managers are challenged by the limits of the production of people. One of the factors that can constrain performance of organization is development of capabilities of employees, either as individual or groups. Employees often report that they do not understand their individual activities contribution to performance on the organization.

Like everything in the business, also the knowledge must be measured, so it can be managed. Unless the impact of knowledge management is measured, value and results would be only are only theoretical. Once the measures are defined and publicized, employees will be encourage to be act as they can contribute to achieve knowledge management results. Measures can help to change employees' behavior change because of their focusing efforts on specific goals. People will manage their time and resources to hit defined goals, so it is necessary to set up right measure.

The problem is to set up right measures and metrics. According to Wesley, there are two things organization has to keep in mind while they are identifying and creating metrics or performance measures. First, it is extremely difficult to create any measure of knowledge sharing that will show an absolute one-to-one correlation between a knowledge-sharing action and a business result. The measuring of the impact of knowledge sharing requires correlation and some assumption. It is always important to understand critical success factors for the business area that is being measured. Second, to truly understand the impact of knowledge sharing and reuse, the organization must first understand the baseline business or process performance before starting Knowledge management (Wesley, 2002).

As Norton said, there is fundamental difference in this economy because there is not a direct one-to-one relationship between an intangible asset, like the knowledge of a worker, and a financial outcome (Norton, 2001). Manager cannot show that if the employee is sent to training programs for a month that sales will go up or costs will go down. Instead it can be assumed that training will improve something like quality, and if quality will improve, customer confidence will improve, and if customer confidence improves, then they will buy more.

The mechanism by which knowledge affects performance is through people. It is not possible to isolate the value of a single intangible asset like knowledge. The creation of value is like a recipe. Several ingredients are needed to be put together. Training of employees is only one ingredient. They also need to have computer systems. Other ingredients are incentives and leadership. It's impossible for a financial system to describe this process of value creation. Financial systems are always snapshots: they cannot describe a time-based logic of cause and effect (Norton, 2001). That's why he and Kaplan created Balanced Scorecard, which allows organization to deal with non-financial indicators and to show how those are being tied to financial outcomes. Balanced Scorecard contains metrics in four perspectives, metrics for finance, for the area how your customers perceive organization, for the internal processes that are critical to success and the knowledge and resources needed to sustain organization business model. They together give the holistic view of the organization and they are linked to organization strategy.

## **Knowledge a Performance in Slovakia**

### **Position of Knowledge Management in Slovak Organizations**

The area of knowledge management is more widespread in global world than in Slovakia, in transitive economy, mainly with phase of implementation in praxis. However, the development in Slovakia indicates a trend to strengthen the role of knowledge management. Slovakia and other countries of Middle and Eastern Europe are in transitive period, trying to integrate with developed Western Europe, especially in the economic area. Requirements for knowledge and skills of employees are changing in the modern society. An employee should constantly widen and deepen his/her knowledge and skills.

In Middle and Eastern Europe skilled employees after finishing university or other preparatory studies usually learn by praxis, i.e. by actually doing the work, solving problems and communicating with people. The current trend is connected to the reasons on which the education and development of employees is based in European Union:

- Managerial praxis and theory is rapidly developing, knowledge acquired at college or university is becoming old and only personal experiences of individual are not enough to follow this development. Therefore it is necessary to follow also experience of other managers and organizations including experiences, which has been generalized into methodologies and new management theories
- Majority of managers undergo more functions and their range of authority and responsibility is changing several times. Every help that shortens or make the preparation easier is welcomed; it is inspiring to keep in touch with other managers and share experience and with other leading workers / executive from other professions, countries and cultures.
- It is more accepted that continuous education increases the quality and ability of action of the organization's management team and thus organization gains important competitive advantage

Global process of fundamental society changes leading to information society is more deeply affecting all areas of social activity. Changes, characterized by the fundamental influence of knowledge and information, on current and perspective development of civilization cannot avoid the educational system for the needs of development of organizations. Current status of education in organizations is still "stained" by the shift from central planning to market economy, whereas in centralized system the concept of customer, communication and human resource was missing. One of critical cause for this state is irrationally managed privatization. Capital and managerial function were taken over by "manager" without relevant skills and knowledge about management, what caused economical decay of many Slovak organizations. The possibilities of foreign investor with years of practice were not used at all.

Expertise of particular employees and the forms of their management are still very individual and often depend on coincidence – how they obtain information. Systematic approach to acquire professional skills and learning new knowledge is missing. Lack of knowledge is especially by starting sole proprietors, who conduct a licensed trade, which is their only skill. They lack entrepreneurial thinking in the area of management, managerial skills, experiences from working in teams, financial literacy etc.

Negative effects on praxis are low level of business ethics, lack of experience of employees with organizing creation of organizational culture, mastering strategic decision-making, communication with foreign partners. Many managers absent basic economical and legal knowledge and ability to predict economic phenomenon, acquire process and use needed information and knowledge. They underestimate the possibility of further education. According to research done by Economic University, in the area of further education in year 2003 worked approximately 2500 educational subjects. 4.8 % persons (of total population in the age of 25-65) took part in some sort of education. This is only half of European Union average (9.7 % of total population in the age of 25-65). The demand from employees and employer for further education is mainly in the area of information and communication technology (ICT), management of an organization, human resource and foreign languages (Vážna, 2004).

It is important for the organization that the employees perform at their best – quality and quantity. To measure the performance of employee and find "gaps" or opportunities for improvement and growth, organization needs to perform evaluation of the performance. Evaluation of employees consists of:



- Assessing how the employee is carrying out the assigned work, tasks a requirements of the job position, what are the relationships to co-workers and customers
- Communicating with the employee the results of evaluation
- Searching ways to improve the employee's performance

The rate of employees taking part in formal evaluation regularly is increasing and generally about ¾ of employees are assessed regularly. The Slovak organizations are aware of the need to identify the weaknesses and strengths of employees, but are not trying to use for own advantage. The organization realized the importance of evaluation as a source of information to better recognize the educational needs and development potential of an employee, but seldom do they actually use this information. On average only half of the organizations use the gathered evaluation information to analyze the needs of education and development and only one third use it for career management (Vážna, 2004). As a result the evaluation procedure becomes only a formal process happening annually or semi-annually at best.

**Subjects and Methods in Area of Knowledge Management and Performance utilizing by Slovak organizations**  
As the one of the definitions of knowledge management says "Knowledge management is the discipline of capturing knowledge-based competencies and storing them for the benefit of the organization as a whole". The organizations in Slovakia mainly focus on capturing knowledge-based competencies.

There are several ways how to increase abilities and knowledge of own employees. Majority of Slovak organization tends to rather use external lecturers than internal lectures. But the organization should first know, whether the external lectures are more suitable and skilled and offer the services that is relevant to organization's needs. Only then can they bring better results. Also line managers should take part in this process as they are familiar with the organization and can help employees to apply the learned knowledge directly into their work.

The need for education should be analyzed in organization as a whole, but also in department and teams. To recognize the need of the whole the organization needs to get down to a single individual. Tracking the needs of the individual in the organization will then help to find the needs of the whole organization. However, there is no such system designed for Slovakia (especially for managers who govern the organization), which would reflect current and future trends and at the same time the characteristics of particular regions stemming from their historical evolution, current state and geographical location. Based on the studied resources (Jasaňová, 2005) the educational process for managers in small and medium enterprises is not sufficiently or at all defined. The methodological area needs improvement in structure, length, form and lectors and in managerial areas it is mainly management of process, especially the customer process.

Education activities should focus on greater entrepreneurial awareness of organization in the area of marketing, counseling, information systems, tax and legal laws, finance, comprehending new technologies, study of world languages (technical terminology), tourism, development of crafts, agriculture and production of food characteristic for Slovakia, protection of environment and customer.

The choice of educational method plays an important role in the effectiveness of the educational process. In corporate education there is no single best or universal method, ideal method for every organization in every time and situation does not exist. Each of them has own strengths and weakness.

Methods can be divided into two groups: on the job training and off the job training. First one is educational methods used on the work place, when performing regular tasks. Second group of methods is used in courses organized in educational facility or in the organization, but not directly at the work place. Following is summary of methods as used in Slovakia, which might slightly vary from other definition of these methods.

On the job training methods are:

- **Instruction** at the workplace is the simplest method usually used to train new or less experienced employee, where experienced employee or superior shows the work procedure and employee learns by observing. This is useful for simpler procedures, so in some cases more suitable method is coaching.
- **Coaching** is time restricted partnership of employee and coach, which is created to achieve concrete goals. Qualified coach support the employee in the process of problem solving and personality development (Albert Einstein once noted that you can not solve a problem from the state in which it was created) by using precise questions and structured communication. As there are over one hundred different schools of

coaching world-wide it might look confusing as to methodology, and also because there is no universal recipe or standard advice, but only stimulus for creative problem solving and help with search for tools so the employee can solve the problem alone.

- **Counseling** is mutual relationship and influence of the employee, who is being educated, and the counselor, which remove the one side relationship of regular teacher and student. It is more time consuming and can inflict with fulfilling regular working tasks.
- **Assisting** is traditional method of forming work abilities of an employee. Employee is assigned to experience employee and helps with fulfilling the tasks and is learning from him/her. Employee is doing more and more work by himself/herself until one can perform the work alone. Advantage is that the assisting is continuous, but one educated employee can pick up bad habit and reduce own creativity.
- **Delegation** is a next step from assisting. Educated employee is assigned with a task, has the competency and the work is controlled. This method leads to self decision making and creative problem solving, but the employee can “hurt” confidence if failure occurs.
- By **rotation** employee is gradually assigned different tasks for set time period. He/she can widen skills and knowledge and learns more complex work procedures. The employee might not succeed at every workplace and can gain lower self confidence.
- **Work meeting** are sometimes just informative meeting, but can also be used to form work abilities of an employee as he/she exchange experience also with other departments. When meeting are taken during the workday, they shorten the actual time need for carrying out the assigned tasks.
- **Workshop** is newer method, at least in Slovakia. The team looks for practical solution to problems a complex level. It offer different angles of views and is good tool for building team skills. However there are extensive prerequisites for preparation of the lecturer.  
Off the training methods are:
  - **Lecture** is suitable everywhere, where a lot of theoretical information is needed. Lecturer is lecturing the speech and employees listen. Effectivity of this method is controversial.
  - When attending **seminar** the employee based on the topic covered study some material before hand and prepares a short lecture for the studied topic, which he/she also delivers. It trains the employee to independent work with literature and ability to stand up and deliver a speech.
  - **Case studies** are simulation of work tasks. A problem situation is simulated on fiction or non-fiction case, so the participating employees can learn step by step new skills and procedures, when solving the case. This knowledge is later used at concrete work.
  - **Syndicate method** is a variation of case study method. The employees are divided into small group of 2-4 people, who solve the problem independently. A selected “spokesperson” from each group then presents the group’s solution.
  - **Role playing** is a special type of situational methods, where the learning is not primarily based on the solution finding, but actually on rehearsing the right procedure as the actor rehearses in theater. Modern educational methods also have reach Slovakia and are gradually “oozing” into human resource practices of organizations.
  - **Outdoor trainings** are more diverse and dynamic than regular schooling sessions in classrooms. Natural environment together with modeled situation foster soft skills – communication and leadership, teamwork and stress control. Nonstandard tasks reveal hidden potential of the employee and are good start further personal development. The demand for this type of training is at rise
  - **Assessment centers** are based on simulation of managerial tasks, by which the aptitude of certain candidates for particular managerial position is tested. Participants solve case studies and simulated practical problems. This method is not only used for education or development of employees, but more for selection and evaluation of employees. Developing Assessment centre is called Development Centre (DC). There are basically two types of DC: first with immediate feedback when there is result available after each modeled situation, second with feedback after the end of the program where a written report is generated

and possibly also “face to face” feedback. However, Assessment centers are not that widely used, almost ¾ of questioned organization is not using this method.

- **E-learning** is considered technological approach to education. Its core are interactive multimedia course distribute to employees on CD-ROMs or via computer networks – such as internet or intranet. The education is tailored to needs of individual employee and he/she can choose own pace. The barriers could be lack of information infrastructure, large initial investment and old “methodology” of education. This will not halt the coming trend, just slow it down a little bit.
- **Distant learning methods** are used more in small and medium enterprise. These are correspondent courses done via mail, the educated employee receives study material and during certain time he can consult them with the lecturer over the phone. The education has good professional; level and the cost is lower, but there is lack of immediate control and feedback between employee and the lecturer.

Organizations use various methods for education. Each has certain advantages and some restrictions. For the organization to learn how to achieve long term performance it must not only rely on the formal schooling methods. It must take into account the motivation of the employee “to play”, to create and the need of moving forward. There is a thin line between learning/remembering and forgetting/using the learned knowledge. The employee can find opportunities for learning everywhere, anytime and anyhow. It is up to the organization to find out, how to best developed own “working capital” – knowledge worker.

The part of knowledge management which deals with storing and reusing the capturing knowledge is less developed or organized. The most used tools for this are intranet, internal database or special public folders.

#### **Occurring Problems in the Area of Knowledge Management in Slovak Organizations**

Knowledge management is complex organization activity, which does not bring the results without target setting and particular plan. There are many organizations in Slovakia that are trying to implement the concept of managing knowledge and performance of its individual employees, but without desirable outcomes. Most of the time, the problem is nonsystematic approach to this concept, without uncertain goals or the financial burden/cost of implementation.

Managers of the organizations mostly focus on two criteria – strictly bounded methodology and technology of implementation of knowledge management. They hire external consultancy organization to create project of knowledge management implementation. That could be a problem, because offered methodology by consulting organization can contradict the processes in the implementing organization. These offered methodologies are often just generalized “best practices” of consulting organization supported by suppliers of technology.

On one hand technology vendors frequently affirm that with purchase of technology the organization also secures ongoing knowledge management. For knowledge management is more needed than just providing the equipment and its maintenance. Every organization should have own methodology that respects the particular organization needs. Consulting organizations on the other hand sometimes rely on good result achieved in similar situation and therefore they offer this solution to other customers. The problem usually shows up - incompatibility of that particular environment and “historical” situation derived from other environment. Organization can not expect that when it comes out from foreign environment, it can achieve identical good result.

Another problem is excessive dependence on technology. Although technology is priceless helper in knowledge management (gathering, sorting, organizing and storing knowledge) but the sole processing of knowledge is not enough. The usage of knowledge depend mainly on the individual employees, thus the technology should not be put at the first place.

Many organizations believe that there is one “universal” key or receipt, how to implement knowledge management but it is incorrect assumption. Organizations operate in different areas; they have different employees, different history, culture and goals. Creation of the structure of sharing and managing knowledge requires individual approach.

However, there are still many organizations in Slovakia, which executive believes that knowledge management is something above standard, something not really necessary. They are not aware that competition is “not sleeping” and not staying still. Organization, which wants to grow/survive, cannot stop improving and it also cannot lose knowledge without storing it when key employees leave. Unfortunately the days various

employees spend in schooling are staggering - in the bad meaning. The managers spend only eight days per year in educational activities. Specialist and administration staff average on six days and blue collar worker spent a minimum - just two days, which mostly represents a bare minimum of education required by law. It is the skilled and knowledge employees who can help the organization to become and stay competitive. Slovak organization seemed not to have realized this fact yet. And even when education of employees occurs, only 2/3 of organization actually evaluates the efficiency of the education, whereas the evaluation carried out several months after schooling is even more underestimated – almost 2/5 of organization do not perform second postponed evaluation at all. Searching, gathering and above all sharing and using knowledge is increasingly affecting the performance of individuals in the organization and evaluation of the organization as a whole. Employees are the main source of knowledge. They could be more efficient and could speed the decision-making process, because they have accurate information and they create new sources of income in case the organization finds the value in what it knows.

## Conclusion

People are again “on stage”. After several years of IT dominance the organizations all over the world began focus on the biggest values – the knowledge of people. Sharing and application of knowledge is the basic of success of organization in current economy. Much of knowledge of the organization is in employees’ heads.

If they want to balance out the fast changes in science, technology, economy and the character of work, they must learn continuously the whole life. If the organization wants to be successful, it needs to pay attention to the concept of knowledge management and learn how to create store, select, process, reuse and evaluate knowledge. Development and management of knowledge increase the performance of the employees.

To identify whether the performance of organization or employees has decreased or increased, management must be able to measure the performance of individual. Annual reports are filled with financial information but offer little about employees beyond a simple expense item. Yet it is the talented knowledge workers who drive the creation of wealth. Technology is available for every organization to buy and the employees will make the difference in the performance of organization. The organization will lose the knowledge that has not been captured yet (e.g. employee leaving the organization). However if the organization manages only to capture the knowledge but fails to create the environment in which it can be further shared, organization will reduce the opportunity for performance improvement.

Although there is not a direct casual relationship between knowledge and performance, organization still should find measures that can help change the employees’ behavior to increase the performance thus it also important to set the right measures.

Although Slovak organizations are falling a little behind after current world trends, here we can talk about this topic as very actual and in the centre of attention. Organizations in Slovakia should be active in implementation of knowledge management and be interested in these newest trends.

All who will work on solid knowledge and thought base can assure good position in the fast global development and also in future.

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## Knowledge Management in Compliance with Organization Strategy

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### Abstract

Knowledge management, as a current concept in business management, is not a new term. A lot of organizations have already dealt with creating, keeping, sharing and multiplying their knowledge. Successful organizations, which established these knowledge management processes right into their organization cultures, are called “learning organizations”. But the current trends do not lead only to better and proper execution of these well-known knowledge management processes, but they also try to achieve the right knowledge management performance as part of the business performance. In this meaning organizations have to bring their knowledge management into line with corporate strategy and this way they can make sure that organizational goals will be achieved.

### Management Strategy under the Influence of the Changing Environment

The development of the management theory and the need of its further improvement is the objective consequence of constant pressure of the management practice. The pressure on improving management is produced by the effort of managers to achieve success of organizations in the demanding and constantly changing competitive environment. Problem solving of the articulation of abilities of the flexible reaction of management with the ability to prepare for the future in advance belongs to important problems of current management practice and nowadays there is space for the direction of the development of management theory. At the same time, the constantly changing environment, on one side, is increasing the level of difficulty of searching for ways of improving management, on the other side, it constantly creates new and unexpected scope for its improvement. Rivalry with competitors, the pursuit of competitiveness and getting comparative advantages is one of the important motives and driving forces for improvement of management of organizations.

Successfulness of organizations in the constantly changing environment depends to a large degree on the ability of managers of organizations to adapt the exercised methods and techniques to changes being in progress in the environment. These days, hardly anybody doubts the importance of preparation for the future in advance, the importance of strategy and management strategy of organizations. The task of strategic management in the current turbulent environment is to ensure the ability of the organization to react to changes being in progress in the environment. Considering fast changes of the market environment, where products, markets and rules are changed in the short time horizon, the existing efficiency and time response of decisions ceases to be enough for the company management. Taking into consideration the regularities of development, it has been confirmed that if the pace of changes in an organization is lower than the pace of changes in the environment, the organization will come to an end [Papula, 2005].

Understanding the importance of preparation for the future and searching for possibilities of how better to prepare for the future than others is the fundamental motive for the development of strategic management of organizations. Preparation for the future means being prepared for the use of expected future opportunities and to prepare for fighting against future obstacles and threats.

On the basis of this it can be said that the one who prepares for the future and prepares for changes, is in the frame to join the competition for the best positions. That’s the reason why many of important specialists in the field of management consider strategy to be one of the decisive critical factors of a company’s success [Papula, 2005].

The level of difficulty of management decision-making processes and the information ensurance of these processes are increasing particularly under the influence of uncertainty and vagueness of the environment. Management decision-making is getting more sophisticated and requires information of higher quality. That’s also the reason why changes related to the transition from functional to procedural approach belong to most important

changes in theory and practice of current management; this together with informatization and building up a knowledge company creates better prerequisites for the ability to react to changes in the environment.

## **Knowledge as a Strategic Tool of Competitiveness of Organizations**

In the current era of globalization, which is characterized by high dynamics of constant changes, terms like competitiveness and productivity particularly resonate when evaluating successfulness of organizations. It is possible to measure competitiveness by comparing parameters of the own company to parameters of a competitive company in the same area. Productivity represents effectiveness of how inputs are changed into outputs. But it is necessary to understand these terms in a complex way and attention has also to be paid to managing a company's processes and the company environment, which make it possible to achieve them.

A competitive company has to maximize productivity of all its resources that are at its disposal. It is impossible to achieve a profit without a customer and therefore company management runs company's processes in order to satisfy the customer and at the same time it creates the company environment that is favorable to all who achieve high productivity and participate in increasing of competitiveness. To sustain competitiveness it is inevitable to search constantly for ways of how to improve the use of all company's resources – people, machines, materials, information and other inputs – by day-to-day running and managing of the company. To make the right decision it is necessary to have all the needed information and knowledge. People are the most important resource in the company and their level of know-how and skills is the fundamental category of sustainable growth. The ability of workers to make use of gained knowledge at every-day work enables them to react flexibly and quickly to arising situations and to find immediately solutions to them regarding company's effectiveness. According to constant changes brought by the common era, it is vitally important to adapt knowledge and skills to current requirements.

Knowledge is becoming the most valuable capital of the company. The growing globalization forces companies to penetrate into less-known areas what makes company management focus their attention not only to traditional developed resources, such as material resources, financial resources and workforce but also to an until now less appreciated and used resource – knowledge. Constant changes in the environment, in which the company is situated, force managers to re-consider their view on knowledge and know-how and their approach to them. In today's quickly changing world it ceases to be important to teach someone that something is given because tomorrow this can mean that the learned fact is not true anymore. And that's way the ability to find the right information at the right time is considered more important than anytime before.

And here we have knowledge management to help companies react through their instrumentarium to processes taking place at the present time and decide upon future on the basis of knowing the past and the ability to analyze future development. In companies based on knowledge, managing human resources concentrates on increasing the so-called organization intelligence and developing potential of workers by means such as learning, participation, co-operation and initiative. To know is an advantage, to learn is necessity. This has always been acknowledged. But these attributes are gradually becoming the main comparative advantage in a knowledge company now and they are the basis for creating wealth.

Knowledge management can be generally understood as an effort to make know-how available in an organization to those who need it, there where it is needed, at that time, when it is needed and in a form in which it is needed in order to increase human and organization performance. A problem can arise when nobody really knows what knowledge is and how to make use of it. Figure 1 points out the difference between information and knowledge.

Know-how is an important source for manufacturing and it improves business performance. The current business environment of a today's world places high requirements for interpreting information from the information systems considering the fact that future is predictable only to a certain degree of probability. On the basis of this it is necessary to combine, with the help of knowledge management, information and know-how and to develop such flexible strategies that are based on the real situation of the company. Knowledge management deals mainly with organizations' adaptation to constant changes of the environment so that organizations are competitive in the long

run. This includes organization processes that integrate data, information and know-how with the help of information technologies and link them with innovation and creativity of employees.

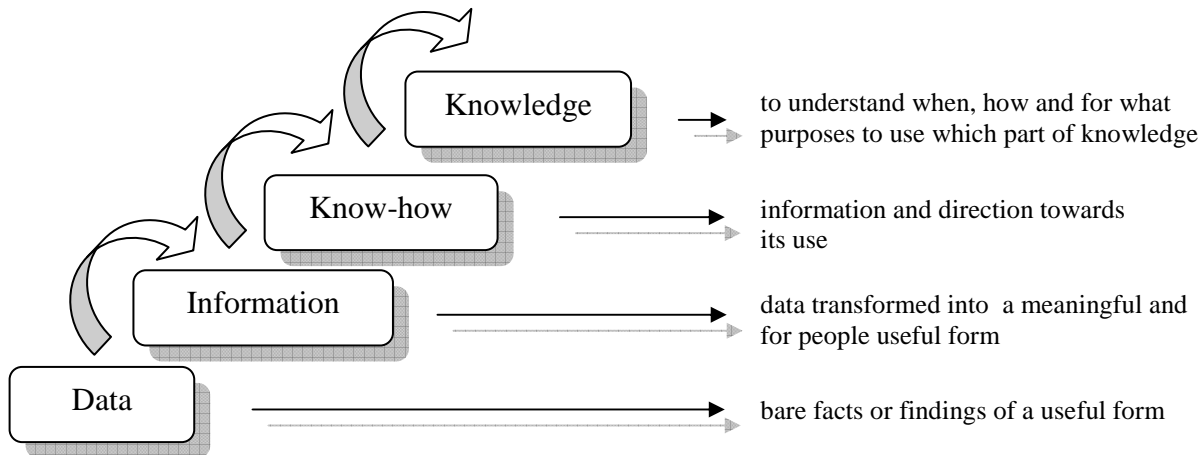


FIG. 1: PROCESS-DATA-INFORMATION-KNOW HOW-KNOWLEDGE

Commercially, knowledge is all about the need to know to be competitive. This need to know is ultimately necessary for our survival, and in particular, to enhance our decision-making processes. Although our successes will ultimately depend on worthy, on-time and on-line know how – knowledge [Davis]. But the effective use of knowledge management requires that know-how, which contributes to development of key processes and running of the company, is at a company’s disposal in time. Should knowledge management be a comparative advantage, it is necessary that it takes into consideration all aspects of the organization. While implementing knowledge management, it is essential to find out what organization culture is like and at which level knowledge assets of the organization are, including various information, communication and knowledge technologies. It is also essential that implementation of knowledge management leads to measurable results commonly monitored in an organization. Managing company knowledge could be effective if it does not only become a declared concept but also people – their work, habits and culture – will get an active role in it.

The importance of knowledge management in company’s development lies mainly in maximal use of the entire intellectual property of the company in main firm’s value forming processes and its development for future needs. It should speed up and help the adaptative mechanism of the organization, adaptation to an internal and external change and react to these changes in an appropriate way. The main objectives of in this way composed knowledge management are [Mesároš, 2005]:

- a) Identifying knowledge (to make it visible) and showing the possible use of it in the company.
- b) Introducing knowledge culture in the company by supporting such activities and pursuits of employees that enable them mutual exchange and information supply.
- c) Building up a suitable infrastructure, a system of working knowledge management, by which we understand not only the technical side, but also it is necessary to create connections among people, techniques and working methods and support mutual co-operation.

Organizations that meet these objectives are known as learning organizations. Peter Senge [Senge, 1994] describes learning organizations as a type of organization culture that has to be introduced in the company, and whose objective is progress not only of its individual workers but thanks to them it also means progress for the entire company. Such a company shows an increased capacity to learn, adapt and change via people who are learning. If we refer to the statement that a man is the primary holder of knowledge capital – knowledge, then it is



just people who are the most important elements while working on the project of implementation and use of the knowledge management system.

## **Intellectual Capital as a Hidden Potential of an Organization**

Knowledge is becoming the most important form of capital of a modern company. This does not mean that capital or technical progress is not important at creating a product, but priorities have changed – knowledge is becoming a priority. Knowledge management is then a process that makes use of knowledge assets of a company.

In connection with this, the term intellectual capital has been arising more and more intensively since the mid nineties, and experts have used it trying to explain striking differences between accounting value of a company and its actual market value, i.e. those differences which can be added to effects that are derived from a company's knowledge management.

Intellectual capital can be regarded as the hidden value of an organization [Davis]. These are differences, which are often justified as influence of factors such as: 'trade name', 'know-how', or 'goodwill'. Due to the fact that these differences have arisen too often, mainly in connection with businesses operating in the area of information technologies, finance and business consulting, experts started to ask a question, what is it what is significantly increasing the market value of a company? One of the explanations for this is that it is the functioning intellectual capital, which essentially increases economic results of companies, and that it is intangible property hidden inside a company in a form of the ability of its employees to create not only a comparative advantage on the market but also an additional value of a firm. [Němec, 2003]

An organization should achieve and maintain its comparative advantage by effective use of intellectual capital and knowledge within a company.

Getting to the subject of evaluation and measuring of intellectual capital, it is necessary to recognize single components which intellectual capital consists of. Intellectual capital includes / consists of ideas, inventions, general know-how, computer programs, publications, etc. Distinguishing between different components of intellectual capital can help us enhance the understanding of the problem of intellectual capital and subsequently we can apply this concept at both the strategic and operative levels. To show the positions of intellectual capital and its influence on the market value of an organization, together with a detailed and structured description of the content of this quantity I will use the scheme of the Swedish company Skandia (see Figure 2), which was published in the second half of the nineties, but it has often been referred to by experts and authors of scientific publications.

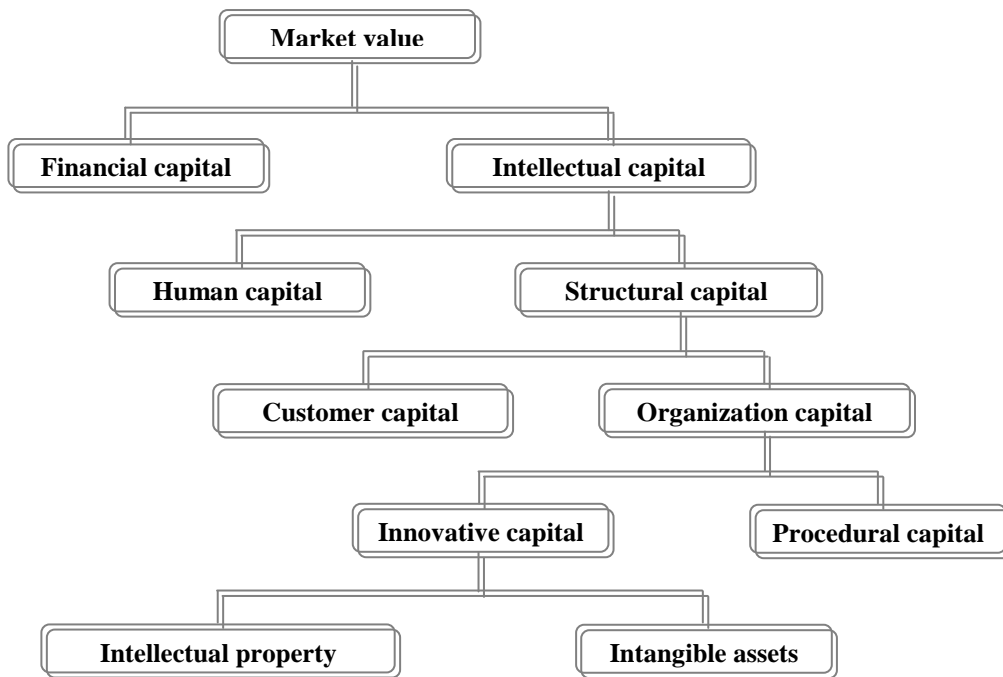


FIG 2: SKANDIA MODEL-INFLUENCE OF INTELLECTUAL CAPITAL ON THE MARKET PRICE OF THE COMPANY

This model differentiates six parts of intellectual capital [Van Deventer, 2002].

- Human capital represents the part of intellectual capital concentrated on company managers, specialists and employees. We can describe it as a complex of intellectual property which can be transferred into a real value by a company. Human capital is the main driving force of creation, innovation and value of intellectual capital.
- Structural capital is a complex of what remains in a company if we absorb it in our workers. Here we have company organization (organizational structure, company rules, regulations, procedures), processes, manuals, documentation, working procedures, customer database, technologies, software, brands, patents, and inventions.
- Customer capital is a complex of what is characterized by the relationship of the company to its customers, e.g. market share, market segmentation, brand awareness, and customer satisfaction.
- Organization capital describes the ability of a firm to create added value with the help of company processes and to innovate and improve the current methods of creating the added value, and other types of intangible capital.
- Innovative capital describes the ability of a firm to innovate, create and improve the current methods of creating added value, products and services, manufacturing procedures, new patents, trademarks. Innovative capital is composed not only of its own innovations but also of innovation methods and procedures, their documentation, publication and use for other parts of intellectual capital.
- Procedural capital is mainly determined by the proportion of documented and stabilized processes, the proportion of outstanding commitments and speed and quality of communication.

Besides the right understanding of importance and role of intellectual capital, effective managing is also important for the company. To succeed in managing intellectual capital, it is necessary to measure it, i.e. to monitor measurable changes in all parts of intellectual capital.

Recently, new and new procedures and methods have been arising in connection with the research of possibilities measuring intellectual capital. In short, we illustrate four fundamental groups [Nepolská, Hlínová, 2003]:

- Methods that directly measure intellectual capital. These methods result from a detailed structure of parts of intellectual capital and are followed by evaluation of each part. Summarizing evaluations we get the overall value of a company's intellectual capital.
- Methods based on market capitalization. The value of intellectual capital is set as a difference between the market capitalization of the company and its equities.
- Methods based on measuring capital return. These methods result from different values of capital return in a branch, where the valuation of a company's intellectual capital is derived from a reverse calculation of calculated increased effects.
- Methods based on scorecard. Individual parts of intellectual capital are measured and evaluated in a form of indicators and indexes by these methods.

The concept of managing intellectual capital is focused on complex assessment of how a company deals with the identification of individual parts of intellectual capital, how strictly a company measures it, how consistently it monitors development and changes, how it approaches benchmarking of key factors, which influence the given business segment, and how it plans its development.

The organization has to implement management of intellectual capital, which was composed this way, into its corporate culture, processes and company strategy, because this is the only way to successfully put into effect needed measures at both the operative and management levels.

## **Balancing Knowledge Management with Processes of Strategic Management by using the Concept Balanced Scorecard**

The concept Balanced Scorecard (BSC) and its role in the area of implementing strategy arises out of the facts that objectives and indicators, by which successfulness of achieving them is evaluated, are a common denominator of a plan and strategy too. BSC is more a tactical rather than an operative system of indicators focused on measurement and managing performance of a company. Innovative companies use BSC as a strategic management system, that means they use it in order to manage their long-term strategy. These businesses use metrical attributes to implement critical management processes, which means for:

- 1 clarifying and translating vision and strategy into actual objectives that may help management identify the right strategy and create a model directed at implementation of strategy;
- 2 communicating and connecting strategic plans and indicators, by which strategy is given to other hierarchical levels and by this way strategy is further specified. Specific objectives in the given area and individual objectives are balancing, what makes sure that all participants understand and identify themselves with long-term objectives;
- 3 planning and setting objectives and balancing strategic initiatives where partial allocations of sources directed at a company strategy are carried out;
- 4 improving strategic feedback and learning process that is used for analysis and additional questions related to achieved results and possibilities of improvement.

First users of this concept have already found out that by the right choice of objectives and indicators BSC clarifies the strategic direction of a business and at the same time it makes its measuring possible. Another important quality of BSC is the fact that by an appropriate choice of objectives behavior can be directed in compliance with strategy (because objectives influence behavior). So, the most important meaning of the original concept has significantly been changed: strategic objectives and their illustration are of a high interest rather than a structured list of indicators (see Figure 3).

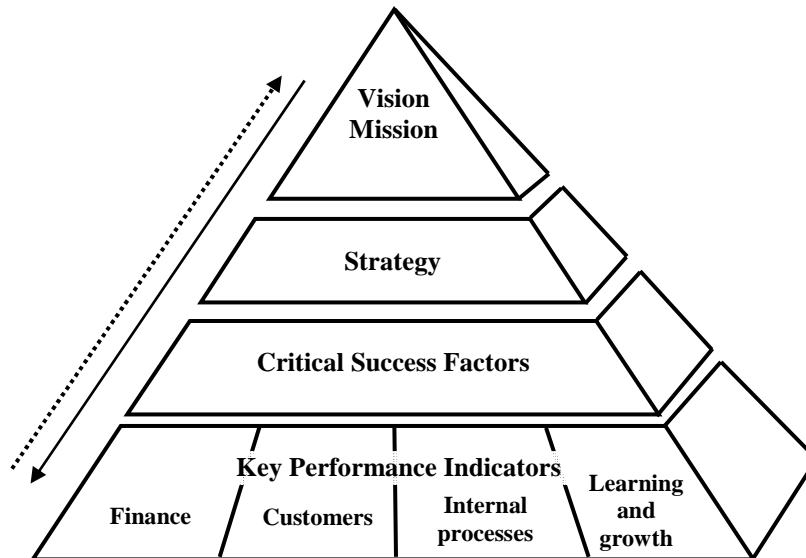


FIG: 3 BALANCING INDICATORS OF PERFORMANCE WITH STRATEGY

It could be said that the concept Balanced Scorecard includes an integrated process of managing in which strategies of a company and company units are consistently operationalized, communicated in a top-down direction within the entire company and divided into projects of different priority.

Strategic objectives stem from vision and strategy, and this way they become objectives of strategic importance determining a company's success. If it is possible to plan and follow their achievement, it is necessary to add to these objectives relevant financial and non-financial indicators as well as objective and real values of these indicators. Strategic actions, which match single objectives, should enable the company to achieve objectives. Each strategic action is given a deadline, budget and responsible person. On the basis of the strict logic of the concept introducing vision and strategy into strategic actions Kaplan and Norton extended BSC methodology by a subheading "Translating Strategy into Action".

In practice companies often face problems of setting actual objectives arisen from strategic thinking. Strategies are, that is to say, not clearly defined, they are composed of many single opinions, isolated concepts, huge analyses, loudly sounding visions, etc. BSC process forces companies to concretization of objectives on the basis of the 'fundamental strategy' so that this fundamental strategy is confronted with questions of perspectives (see Figure 4).

Strategy operationalization is running in a way that strategic objectives and defined relevant indicators are drawn for each perspective. Objective values are determined and concrete measures are developed to execute strategy and achieve objectives for every single indicator.

Introducing BSC means that objectives, indicators and strategic actions are matched to a concrete frame of reference, to the so-called perspectives. Matching perspectives should prevent companies from one-sided thinking while stemming and following objectives. Thinking in a frame of perspectives and their connecting document main associations important for strategy implementation. The authors of BSC suggest on the basis of the empirical experience mainly four fundamental perspectives: financial, customers, internal processes and (learning and growth) potential. Of course, perspectives can be modified to specific conditions of the field and company. A balanced consideration of perspectives at setting strategic objectives leads to a balanced system of objectives – Balanced scorecard.

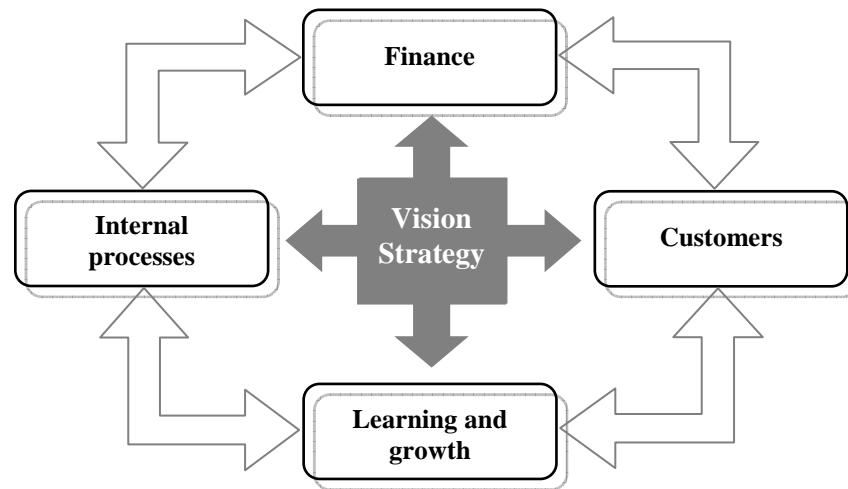


FIG: 4 FUNDAMENTAL PERSPECTIVES OF BALANCED SCORECARD

Perspectives of Balanced scorecard are the fundamental building blocks for creating a working model. The four fundamental perspectives of BSC enable companies to set balance between long-term and short-term objectives, between needed outputs and driving forces of these outputs and between hard indicators and more subjective (soft) indicators of performance.

The BSC concept innovatively combines lots of known elements of company management (e.g. objectives, indicators, plans and actions) with new approaches to strategy illustration, thinking in perspectives and differentiating strategic and operative objectives.

Strategic objectives as well as their indicators and strategic actions are not mutually separated, on the contrary, they are closely linked by cause-and-effect relationships. Implementation of one strategic objective helps to achieve other objectives, which are part of the complete balanced system of objectives. Identifying and illustrating significant strategic relations is an important BSC output. Only the mutual connection of objectives describes strategy in full.

Besides illustrating strategy a clear illustration of apparent links and dependency among strategic objectives is a further contribution of this procedural way. Reciprocal effects at achieving objectives will be cleared by this documentation. Knowing the links and meaning of single objectives requires common understanding of strategy, which means that co-operation among managers is being improved. By developing links we are returning to systems of objectives again. In a general view of links, some of the objectives will lose their importance whereas others will strengthen it or they will get a new meaning.

But the system of BSC objectives is not based on algorithmic relations. Objectives and also indicators are linked together on the basis of logical, but not strictly mathematical connections. However, this does not decrease the quality and contribution of this concept in the process of strategy implementation at all.

The influence of introducing knowledge management on company performance is most visible in the area of innovations due to improved processes, products, and services or because of developing new more effective ways of manufacturing. The degree of success of knowledge management is to be seen in company's outputs based on innovations resulting from knowledge management strategy and practice in a company. Processes and objectives of knowledge management are in BSC shown by a learning and growth perspective which creates the innovative potential of a company.

This is possible thanks to the existence of three groups of sources: employees, information systems and company procedures. To achieve high performance requires considerable investments in people, systems and procedures, which create company's abilities. The effort to do quality work and the feeling of responsibility, i.e. increasing abilities of employees, their satisfaction, development and career, the relationship with the company,

development of the working environment, improving access to strategic information, linking rewarding to employees' performance:

- company strategy – determines fundamental starting points of all activities carried out in a company;
- organizational structure – precisely shows authority and responsibilities, enables employees to co-operate and communicate effectively among departments;
- company culture – favors mutual co-operation, formal and informal communication channels in a way that new knowledge can be generated;
- motivated workers – represent a critical factor. They are the only holders of hidden, tacit knowledge;
- company processes – workers in companies know why they do certain activity, how they should do it, regardless of the fact whether they work in production or marketing. They benefit from knowing the best procedures in the branch and try to use them in their own company environment;
- information and communications technologies – represent technological infrastructure, which supports and makes processing and flowing of data, information and knowledge easier.

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## Knowledge Management in Guadalajara Firms

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### Abstract

**Knowledge Management (KM) refers to a range of practices used by organizations to identify, create, represent, and distribute knowledge for reuse, awareness and learning across the organization. And it can also apply to the ways organizations gather, manage, and use the knowledge that they acquire. Current studies show that knowledge management leaders look forward to utilizing initiatives oriented to a better way of sharing their knowledge, communication and decision making to all levels, bringing up a research culture about new knowledge. The present research, applies the e-knowledge center methodology adapted to the Mexican culture environment in 60 Guadalajara companies, where directives, supervisors and operatives were surveyed. Based on the obtained results from the surveys that reveal the differences between the companies, the present research tries to show a model that identifies what they are doing, in order to propose a model that can improve it.**

### Introduction

In 1991 Argyris commented “Any company that aspires to succeed in the tougher business environment of the 1990s must first resolve a basic dilemma: success in the marketplace increasingly depends on learning, yet most people don’t know how to learn. What’s more, those members of the organization that many assume to be the best at learning are, in fact, not very good at it.” A learning organization is an organization skilled at creating, acquiring, and transferring knowledge, and at modifying its behavior to reflect new knowledge and insights (Garvin, 93). As an organization learned, knowledge is created, and the task is now how to share and developed it. Nonaka (1994) developed a model for the knowledge that represents how the tacit and explicit knowledge interacts to create knowledge in an organization. This was the frame of reference for an organization that learns (identifying four processes or patterns of conversion of the knowledge: the socialization (tacit to Tacit); the externalization (of Tacit to explicit); the combination (explicit to explicit) and the internalization (of explicit to Tacit). This model implies that the KM activities are within these four phases, whereas the business’ intelligence can directly affect the combination, but is indirectly smaller to the socialization, externalization and internalization.

As today, we can say that knowledge management was introduced into the business world to help the companies to create efficiently, to share and to use the knowledge (Davenport, 2000). According to Gottschalk and Khandelwal (2003) the Knowledge management can be classified in four categories or stages. The first stage is general support in the Information Technologies for the workers of the knowledge. This includes data processing, spreadsheets and electronic mail. The second stage is information on knowledge’s sources. An information system keeps information about who knows what is inside and outside the company but the system does not keep what they know tangibly. The third stage is information representing knowledge. The fourth and last stage is the processing of information. An information system uses information to evaluate situations.

The most important processes of a business are frequently found in the value’s configuration of a company. A value configuration shows how the most important processes of a businesses work to create value for the clients. The most known configuration of value is the chain of value (Gottschalk, 2003). The value not only can be created through chains. The value also can be created in two alternating configurations: The establishment of value and the linking of value. The value establishment is a company that creates value when solving unique problems for its consumers and clients. The knowledge is the most important resource and the reputation is critical for the success of

the company. Often, these companies are called companies of professional services. The linking of value is a company that creates value when connecting clients and consumers who are, or want to be, dependants between them. The knowledge component will be found mainly in the services of a linking of value, in the shape of information systems provided to the costumers to interchange relevant information (Stabell, 1998).

The society of the knowledge is a structural change for the long term in the economy; the production, dissemination and use of the knowledge will play a prominent role like source of creation and operation of wealth. The learning is critical for such society in terms of comfort, assimilation and transformation, slope of subjects, contexts and conditions, and for the individuals, organizations and nations in terms of formation of new abilities to be able to produce new knowledge (Lindley, 2003).

## Literature Overview

A definition of KM It is the process to collect the knowledge in where this it exists - data bases, in paper, the hands of the people - and to distribute this where it can help to produce the best result (Hibbard, 1997). This concept is arising again as an interdisciplinary model leading with all the aspects of the knowledge within the organization, including: creation of knowledge, codification, to share it and to know as those activities promote the learning and the innovation. For Taft (1999), it consists of the classification, dissemination and categorization of information and thoughts of the people in an organization. Knowledge management is a discipline that promotes an integrated approach to identifying, managing, and sharing all of an organization's knowledge assets, including unarticulated expertise and experience resident in individual workers. Knowledge management involves the identification and analysis of available and required knowledge, and the subsequent planning and control of actions to develop knowledge assets so as to fulfill organizational objectives (Kim, 2000). Knowledge management is defined as the process that creates or locates knowledge and manages the dissemination and use of knowledge within and between organizations (Darroch, 2003).

Knowledge can come from a variety of different sources and relate to a broad spectrum of issues facing a firm (Darroch, 2003). Knowledge management is not a technology; however, technology is fundamental to the knowledge management process. Knowledge is the new organizational wealth. It underpins an organization's worth, fuels profitable growth, and drives stakeholder value. The term "knowledge assets" denotes core competencies, processes and human potential that together create value for a company. Perhaps the biggest barrier to the widespread implementation of knowledge management practices is the demand placed on organizational resources by other priorities (Duffy, 2000).

The systems of knowledge management are based on information technologies developed to support and to improve the organizational processes of creation, storage/recovery, transference and application of knowledge (Alavi, 2001). It is of conventional understanding that a system of KM must fit with the culture, norms and schemes of existing incentives in the organization; when lacking such components, the result will be highly uncertain (Gallivan, 1997). The "process" is highly associated with concepts like "explicit knowledge", "routine" and "codification" whereas the "practice" is highly associated with the "tacit knowledge", "heuristic" and the "non-codifications". Explicit knowledge is rule-based knowledge that is used to match actions to situations by invoking appropriate rules (Kim, 2000). Explicit knowledge is used in the design of routines, standard operation procedures, and the structure of data records.

A business practice is frequently looked like a repeated act, a habit or custom made at level known abilities. Often described like a decoded "know-how" product of the human experience, the improvisation and innovation. One of the benefits attributed to the management of the knowledge has been the ability to share better practices in great organizations. Eight basic functions exist that include/understand the administrative system of process of businesses (Lee, 2005):

1. Process of discovery: to discover since the things are produced.
2. Design process: to mold, to simulate and to redesign a process.
3. Unfolding process: to distribute the process to all the participants.
4. Execution process: to assure that all carry out the process.



5. Maintenance process: to solve exceptions and adaptations.
6. Interaction process: to allow the human interaction with the process.
7. Optimization process: improvement of the process.
8. Analysis process: to measure the operation and to devise improvement strategies.

The driver for the use of a management process in businesses comes from the desire of the organizations to participate in Inter-companies collaborations, creating therefore the demand of a common way to implement inter-company business processes independent as well of the technology used for nourishment (Lee, 2005). The knowledge has been recognized like corporative assets key and the only source of sustainable competitive advantage. The organizational knowledge is due to apply, to administer and to use of effective way to maintain a competitive advantage.

The advances in the technology of e-commerce and Internet provide to the companies not only of new ways to create knowledge, also opportunities to improve their ability in the management and use of the knowledge, (Siau, 2000). In order to reach the goal of the KM, a systematic approach is needed to identify and to capture information and knowledge on the processes, products, services, markets, clients and competitors of the company, and to share them to reach an objective greater of well-being and operation (Bushko, 1998).

The intellectual capital exists in all the companies and includes rights of author, investigations, databases that improve the practice, loyalty to the marks and the ability of the management (Dzinkowski, 1999). It is the combination of the physicist (buildings, equipment) and the intangible property that the capital of all company (Nasser, 1996).

How to obtain within companies the transformations that contribute to this Knowledge Society? The answer to this question is knowledge management.

For Probst, Raub and Romhardt (2001) recommends the following:

- I. Review your company, your department and yourself against the pillars of knowledge management.
- II. Knowledge is the prime material of the future. Try to understand it better and to use it for your own intentions.
- III. Observe things from the knowledge view point and see your company through different eyes.
- IV. Re orientate yourself in your personal atmosphere of knowledge.
- V. Maintain your own competency folder.
- VI. Look for people with your same mentality in and outside the company.
- VII. Use the existing knowledge systems and information infrastructures
- VIII. Develop a language to speak about knowledge.
- IX. Knowledge management needs knowledge managers. Assign somebody.

Fui-Hoon Nah, Siau & Tian. (2005) comment that knowledge has been recognized as a key corporate asset and the only source of sustainable competitive advantage. One must effectively apply, manage, and utilize organizational knowledge to sustain competitive advantage, and explain it in their research model FIG. 1.

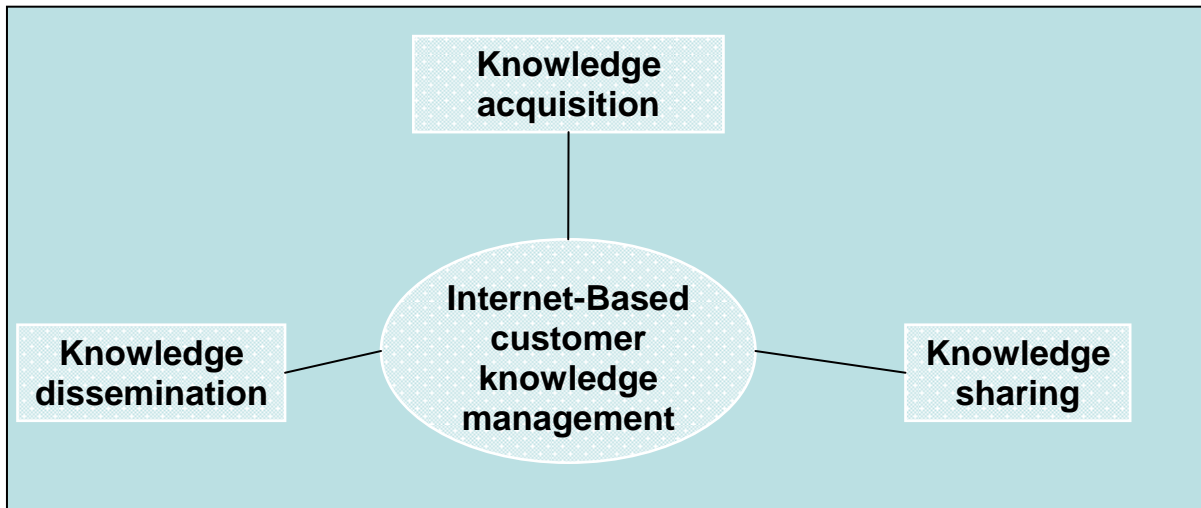


FIG.1: RESEARCH MODEL

Source: Fui-Hoon Nah, F., Siau, K., Tian, Y. (2005). Knowledge Management Mechanism of Financial Service Sites

Knowledge management significantly affects short-term stock market returns; moreover the integrated governance framework indicates that an integration of process compliance, performance, measurement, and knowledge management throughout an organization is necessary for future firms gaining success. It views accountability toward the stakeholders in three perspectives- compliance, performance, and knowledge with a integrated governance framework (Sabherwal and Sabherwal 2005), presenting a model that link the three perspectives (FIG. 2).

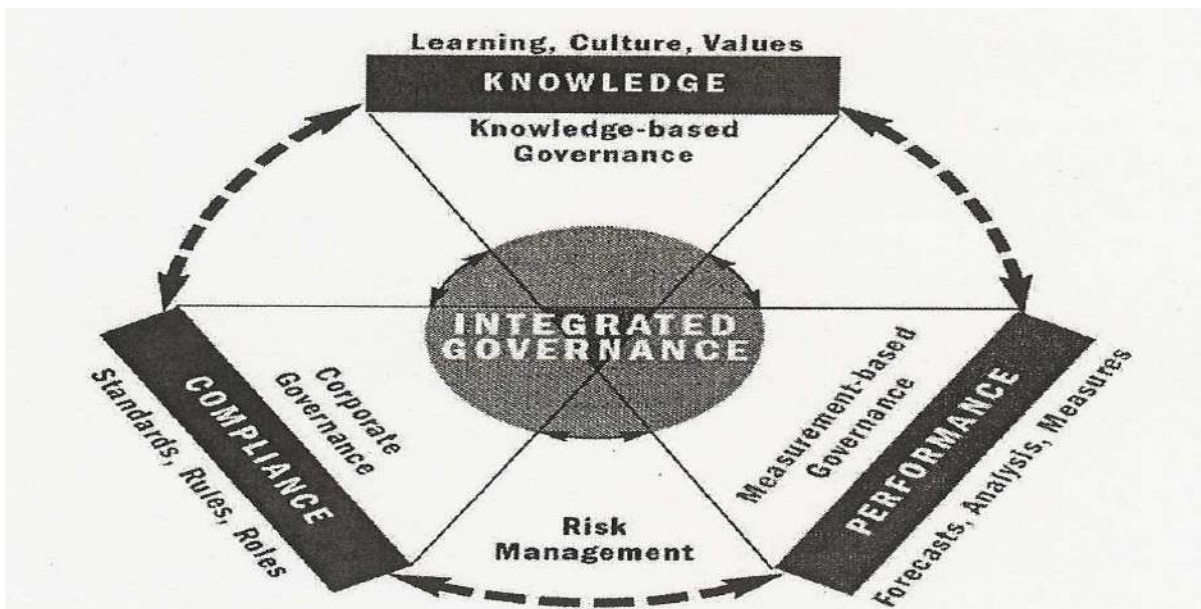


FIG.2: THE INTEGRATED GOVERNANCE FRAMEWORK.

Source: Sabherwal, R., Sabherwal, S. (2005). Knowledge Management using information technology: determinants of short-term impact on firm value. *Decision Sciences*.

## Methodology

For this work the methodology proposed by the eKnowledge Center (2000) was used. This is an organization specialized in knowledge management. This organization proposes and designs a survey as a tool to measure the knowledge management in several dimension and purposes dealing with KM such as:

- Events, activities, facts and goals, with the idea to be sure that the project or program of KM has a positive impact in the measuring process.
- Players, activities, times, objectives, innovations, feelings, goals and metrics, with the idea of determinate the organization's primary knowledge sources, and the methods used to acquired it.
- The entire dimension, with the idea of developed a good image of the future in the knowledge's environment, and to present the needed goals needed to be reached.

A survey was applied to 60 small enterprises oriented to the retailing industry, all them from Guadalajara, the capital city of Jalisco, second largest city in Mexico population. The questionnaire was apply to directives, supervisors and operatives from each enterprise, in order to perceive if there were homogeneous in their comments related to the way of how the KM is realized and what elements they consider necessities. The questions used in this study were adapted with the structure proposed by the eKnowledge Center.

## Results

The Figures and their interpretation of the questions in the survey applied to the directives, supervisors and operatives in the companies are presented.

The organizational culture to develop show that the support and cooperation are the most important activities considered, and second are the high communications level. Personal development accounts by only the 18% followed by autonomy by areas (FIG. 3).

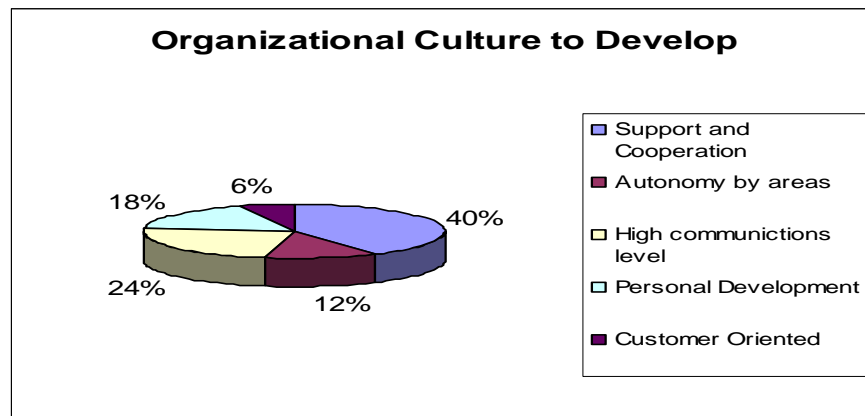


FIG. 3: ORGANIZATIONAL CULTURE

Training was most important for the people surveyed (FIG. 4), and was almost tied with the sharing of the information with the employees.

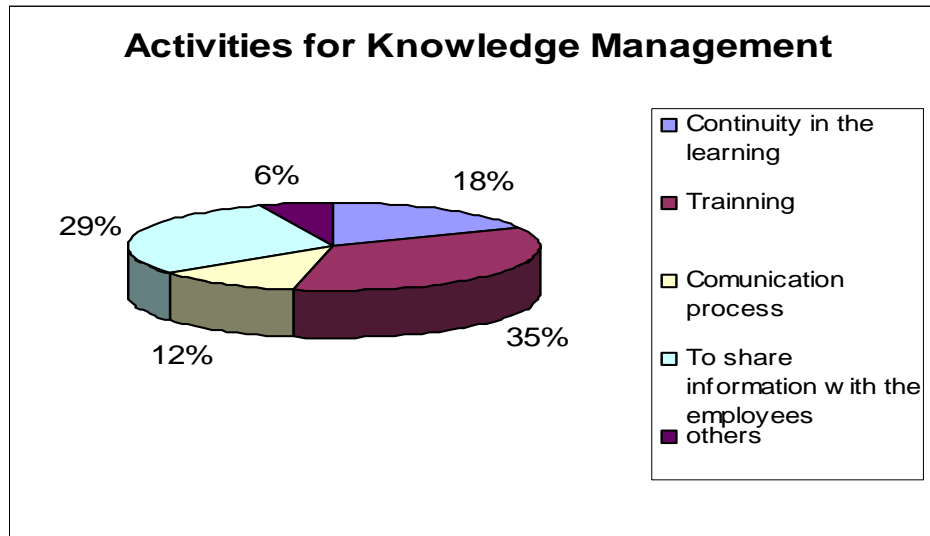


FIG. 4: KNOWLEDGE MANAGEMENT ACTIVITIES

The most important source of generating of KM (FIG. 5) was the objective’s accomplishments, the total involvement of the individuals was considered on second place (27%), the aligned objectives were third important issue.

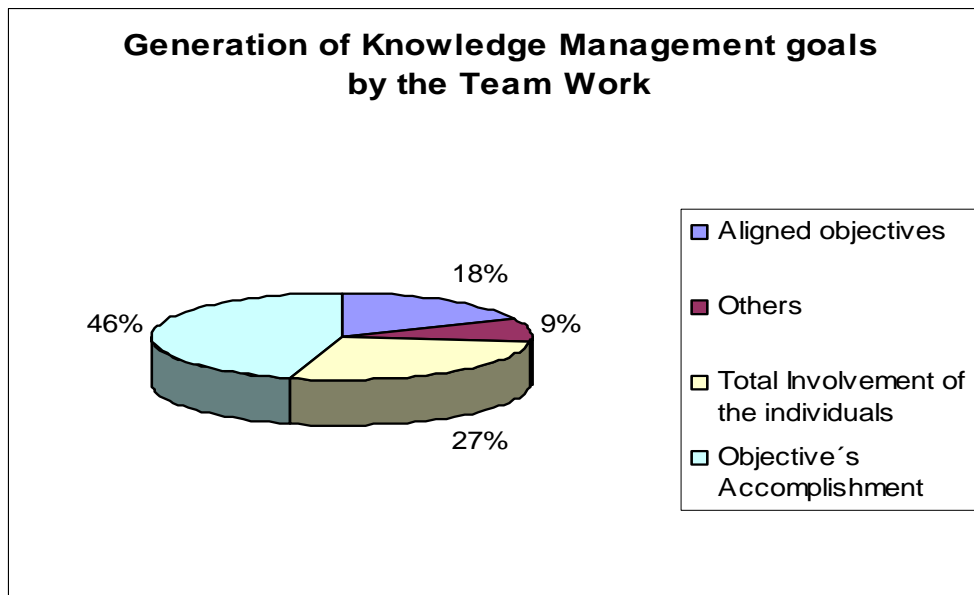


FIG. 5: GENERATION OF KM GOALS BY TEAM WORK

The metrics of the KM goals were the profits and sales (43%) are the most important source for, and they considered important the resulting vision (FIG. 6).

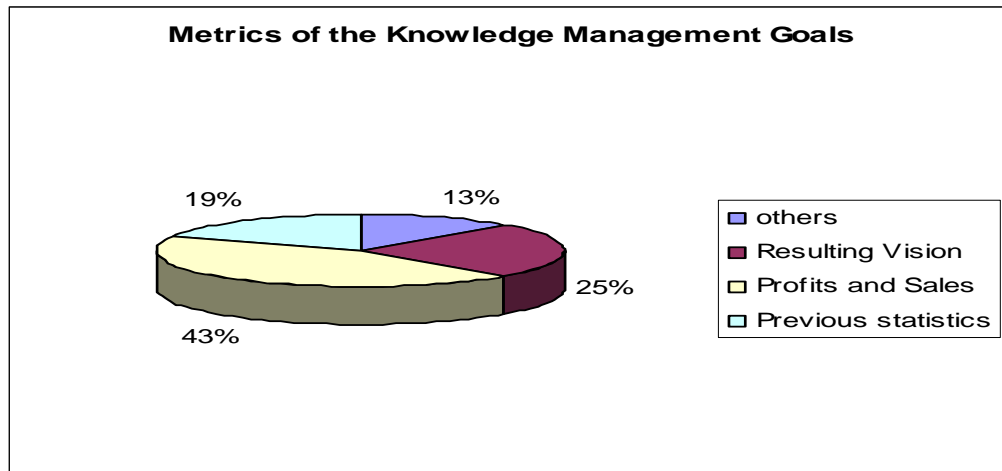


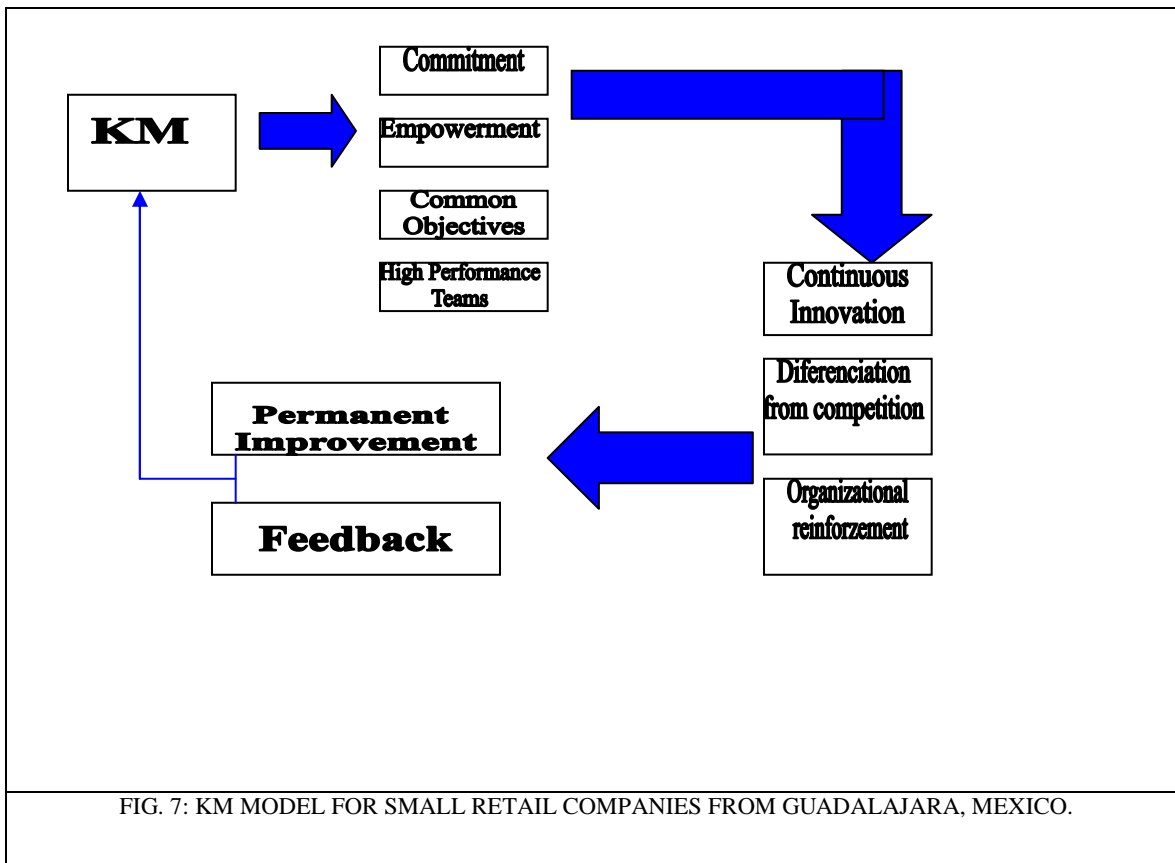
FIG. 6: METRIC OF KM GOALS

Other important characteristic was the performance of the personnel on KM. They gave more importance to the empowerment of the employees. They comment that the KM must be reinforced by knowledge sharing, and with this get performance improvement and organizational reinforcement.

The opinion about the effects to share the knowledge is the compromise and motivation that could generate in the work environment.

Related to innovation roll, they considered necessary the continuous update in knowledge and methods and to hold in vanguard about the company and the competence.

The structure shown for FIG. 7, shows that small and medium enterprises in Guadalajara focuses also on reaching results and income, but their culture in the starting point of the KM process is oriented to support and cooperation. The training process is helped with the sharing of information and the companies learning, all these to achieve their objectives, with the involvement of the individuals.



## Conclusion

The present research shows KM theories and concepts from several authors such as Nonaka, Davenport, Prusak, Kim, Duffy, Pollard, Fui-Hoon, Sabherwal, who have developed KM application processes in several studies. Surveys were applied on directives, supervisors and operatives from 60 small retail enterprises, from Guadalajara's metropolitan area in Mexico. It is perceived that they have little notion of what KM implies, with a primary approach on developing customer oriented cultures, but only in theory, because their processes do not stimulate or motivate employees to focus on the customer.

KM must lead to involve the individuals, and also contributes to the sharing of the information. The people surveyed consider that the manager and the employees must act different regarding KM processes does enhance the need to encourage superior levels of responsibility, as well as, individual and team empowerment. KM goal metrics do not focus on all aspects knowledge search, as well as their processes, they solely aim to revenue metrics.

Regarding the use of technology in KM just computers and computer systems are well known, but there is a complete ignorance regarding technologies and methodologies for the systemic development of KM, in the people surveyed. The results show that KM technology is practically non existing, given the fact that they do not know how to generate, process, implement, communicate, and develop new knowledge in a systemic manner, which requires training reinforcement in that aspect, to foment a KM culture towards each and every member of the organization.

The people surveyed has general opinions in the generation of KM, due the ideas commented about empowerment development, total participation, high performance teamwork, and with this strategy have a

differentiation of competition and continuous improvement and feedback, it may be attributed to the changing and development of a city that was focused in the commerce in past years, and now is turning its orientation to the services and industrial activities.

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# Knowledge Management Initiative at Bharti Airtel Limited: A Case Study

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## Abstract

The unprecedented growth in mobile market is, perhaps, the most vivid facet of India's economic transformation since 1990s. As a pioneer, Bharti Airtel Ltd (BAL) has been instrumental in leading and ushering the mobile revolution in India. The case intends to present “Knowledge Management (KM) Initiative at BAL”. The research methodology adopted, is case study, which helps in building analytic bridges between theory and practice (Case Method: Cases in Management, 2005). The focus, in our research has been to recount as objectively and meticulously as possible—real events and problems in adopting KM as a strategy, so that it opens doors for further research. This case study would help in understanding not only what KM means for BAL, but also throw light on what KM strategy can do for organizations' excellence. The findings reflect how this initiative of BAL has been a strategic move to achieve its vision of becoming a benchmark for the global telecom industry.

## Introduction

Every day new products are introduced in the market but only few survive. Why does the new product even with good features fail? Also, some products that make a good beginning, loose their market at a later stage, example - pagers. What causes the product or business to fail? Going into fundamentals, business does not exist in vacuum but in an environment - customers, suppliers, competitors, and government. It scans the environment for changes and finds new opportunity, which is a continuous process for a business and when it stops, it is out of the race. When business interacts with environment it starts acquiring knowledge by learning, perceiving, communicating and associating. This acquired knowledge facilitates the business to find new opportunities for growth and survival in the market.

According to Webster's Dictionary, knowledge is the fact or condition of knowing something with familiarity gained through experience or association. Knowledge may also be described as a set of models that describe various properties and behaviour within a domain. Knowledge may be recorded in an individual brain or stored in organizational processes, products, facilities, systems and documents. In reality, though, there exist many possible equally plausible definitions of knowledge for the purpose of this paper the focus will be on this definition: **“The ideas or understandings, which an entity possesses that are used to take effective action to achieve the entity's goal(s). This knowledge hence is specific to the entity, which created it”.**

## Stages of Indian Economy

India has started economic reforms from 1991 due to the winds of change in the international economic scenario. The need for a policy shift had become evident earlier, as many countries in East Asia achieved high growth and poverty reduction through policies, which emphasized greater export orientation and encouragement of the private sector. India had taken some steps in this direction in the 1980s, but it was only in 1991 that the paradigm shift occurred. Policies signaled a more open economy with greater reliance on market forces, a larger role for the private sector, including foreign investment.

On the face of it, the figures are compelling. India's real GDP grew by 9.2% in the year (2006) to last (2005) September. Over the past four years it has clocked up an average annual pace of more than 8%, compared with around 6% in the 1980s and 1990s—and a meager 3.5% during last three decades. India seems to be reaping



the rewards of reforms that were made in the early 1990s. These lowered barriers to trade and liberalized capital markets. As a result, total trade in goods and services has leapt to 45% of GDP, from 17% in 1990.

## **Overview of Indian Telecom Industry**

The Indian Telecommunications network with 110.01 million connections is the fifth largest in the world and the second largest among the emerging economies of Asia. Today, it is the fastest growing market in the world and represents unique opportunities for U.S. and other foreign companies in the stagnant global scenario. The total subscriber base, which has grown by 40% in 2005, is expected to reach 250 million in 2007. According to Broadband Policy 2004, Government of India aims at 9 million broadband connections and 18 million Internet connections by 2007. The wireless subscriber base has jumped from 33.69 million in 2004 to 62.57 million in 2005. In the last 3 years, two out of every three new telephone subscribers were wireless subscribers. Consequently, wireless now accounts for 54.6% of the total telephone subscriber base, as compared to only 40% in 2003. Wireless subscriber growth is expected to surpass 2.5 million new subscribers per month by 2007. The wireless technologies currently in use are Global System for Mobile Communications (GSM) and Code Division Multiple Access (CDMA). There are primarily 9 GSM and 5 CDMA operators providing mobile services in 19 telecom circles and 4 metro cities, covering 2000 towns across the country.

## **Early Bird – Bharti Airtel Ltd (BAL)**

Sunil Bharti Mittal, the founder-chairman of Bharti Enterprises (which owns Airtel), is today, the most celebrated face of the telecom sector in India. He symbolizes the adage that success comes to those who dream big and then work assiduously. Sunil Bharti Mittal began his entrepreneurial career manufacturing bicycle spare parts in the late 1970s. His strong entrepreneurial instincts gave him a unique flair for sensing new business opportunities. In the early years, BAL established itself as a supplier of basic telecom equipments. His true calling came in the mid 1990s when the Government opened up the telecom sector.

## **Genesis of BAL**

Bharti Enterprises accepted every opportunity provided by the 1991 new economic policy to evolve into India's largest telecommunications company and one of India's most respected brands. Airtel was launched in 1995 in Delhi. In the ensuing years, as the Airtel network expanded to several parts of India, the brand came to symbolize the very essence of mobile services.

Since its inception BAL has achieved many firsts and unique records: it was the first to launch nationwide roaming operations, it was the first to cross the one million and the five million customer marks. It was also the first to launch overseas services. There are other 'firsts' credited to BAL - many of them in the area of innovative products and services. Today, BAL innovates in almost everything that it presents to the market. An excellent example is Easy Charge - India's first paperless electronic recharging facility for prepaid customers. The numerous awards, conferred upon it, reflect the evidence of BAL's fine record. It won the prestigious Techies Award for 'being the best cellular services provider' for four consecutive years between 1997 and 2000 – an unbeaten record. In 2003, it received the Voice & Data Award for being 'India's largest cellular service provider'. BAL's strategic objective is *“to capitalize on the growth opportunities available in the telecommunications market and to consolidate its position in being the leader for integrated telecommunications services provider, with a focus on providing mobile services.”*

## **Business Model at BAL**

BAL started information technology as its central function to support various functional processes. During that time the focus of the company was on systems automation and cost efficiency. The IT functions mainly focused on

development of technology and maintenance of the system through in-house resources. In due course of time, it realized that technology couldn't be at the core of its central function, because it is the customer who forms the core. Having realized that the customer is the focal point, BAL went for transformational business innovations through outsourcing as reflected in Table 1.

Table 1 is a proof of BAL's realization that its strength is not technology but customer relations which led to transformational business innovations through outsourcing network maintenance and information technology services. This has made it India's largest telecom service provider with a huge customer base. This is also the period when BAL gained knowledge about the telecom industry and its customers. This knowledge gained is its core strength and if lost to competitors, would mean threat to the business. Hence, managing this knowledge-both internal and external, has become an important corporate agenda for BAL. Thus – "Knowledge Management" initiative undertaken is a pioneering case worth studying Indian corporate sector.

TABLE 1: BAL'S OUTSOURCING MODEL

<b>Business Innovations Through Outsourcing</b>		
<b>Outsourcing Deals</b>	<b>Vendors</b>	<b>Features/Advantage</b>
Network outsourcing and Maintenance	ERRICSSON® NOKIA®	- Pricing linked to capacity as US\$ per erlang - Payment linked to usage and network quality - Ease in network planning - Scalability, sustainability and accountability
Information Technology(IT)	IBM®	- Pricing and payment as a % of revenue - S1 Outsourcing, which provide end to end IT including hardware, software and services - Service Delivery Platform which enables delivery of content to end user mobiles and personal computers - Service level agreements for quality and deployment - Scalability, sustainability and accountability
Call Center	IBM Daksh®, Mphasis®, Hinduja TMT®, Tele Tech®, Nortel®	-Enhanced and consistent customer experience - Common platform across the group - Scalable business model to meet business needs

Source: Bharti Airtel Ltd.

## Challenges Encountered by BAL

The growth story of BAL is encountered with various challenges. In its early days BAL faced challenges to establish itself as prominent telecom service provider. Later it faced challenges to sustain its growth and be the leader in Indian telecom space. To increase its presence and customer base BAL adopted both inorganic growth models by acquisitions and organic growth model by rolling out new circles. Due to this increased geographical spread BAL encountered with some of the key challenges. They are,

- Inadequate-trained manpower for telecom services in India
- Local and regional variations in service and products to meet specific needs of customers
- Ever changing Indian telecom regulatory environment
- Significant upsurge in number of subscribers lead to increased usage of resources and maintenance cost
- Increase in geographies serve lead to meeting diversified customer's needs

The bottom line of the above challenges faced by BAL is even with its increased geographical spread and customer base it wanted to provide consistent customer experience across all locations covering all lines of business. BAL's outsourcing model shown in Table 1 would address only few of the above issues. But after a detailed study of these challenges by BAL team, Knowledge Management was identified as a strategy to address these issues.

## KM – Overview

In the corporate world where uncertainty is the order of the day, the only source of lasting competitive advantage is knowledge. When markets shift, technologies proliferate, competitors multiply, and products become obsolete overnight, successful companies are those that constantly create new knowledge, disseminate it widely throughout the organization, and quickly embody it in new technologies and products. Companies, which indulge in these activities, are defined as knowledge creators, and their businesses tend to focus and revolve around innovation. Therefore, KM is a means to an end and not an end in itself. But what does KM mean? Managing knowledge or is it much more than that?

*"Knowledge is the right information put into use in the right way at the right time, whereas information is merely the amalgamation of various data sets within a specific context."*

*- Darwin Magazine, July 2001*

Consider, if someone says that sales started at \$100,000 per quarter and have been rising 20% per quarter for the last four quarters, we are somewhat confident that sales are now about \$207,000 per quarter. We are confident because we know what "rising 20% per quarter" means and one can always calculate.

Yet, if someone asks what the likely sales are in the next quarter, we would have to say, "It depends!" we would have to say this because although we have data and information, we have no knowledge. This is a trap that many fall into, because they don't understand that data doesn't predict trends of data. What predicts trends of data is the activity that is responsible for the data. To be able to estimate the sales for next quarter, we would need information about the competition, market size, extent of market saturation, current backlog, customer satisfaction levels associated with current product delivery, current production capacity, the extent of capacity utilization, and a whole host of other things. When we are able to amass sufficient data and information to form a complete pattern that we understand, we would have knowledge, and would then be somewhat comfortable estimating the sales for next quarter. Anything less would be just a guess! In this example what need to be managed to create value is the data that defines past results, the data and information associated with the organization, market, customers, competition, and the patterns, which relate all these items to enable a reliable level of predictability of the future.

Research has already indicated that value of data and information deplete with passage of time since data and information tend to be time-related (Fig.1). But the value of knowledge increases as one keeps on applying the learning. Knowledge when applied not only enlarges but also encompasses more and more, thereby taking a dynamic characteristic. The reason is, data and information can be transferred by well designed databases, software applications and documentations, but it may often be out of date with respect to evolving strategic needs, whereas knowledge gets transferred when information is shared, interpreted among and by people. During the information sharing process, dynamic transformation takes place as it gets updated according to time.

*"Successful knowledge transfer involves neither computers nor documents but rather interactions between people."*

*- Davenport, T.H. "Think Tank: The Future of Knowledge Management," CIO, December 15, 1995*

What we would refer to, as KM would be the capture, retention, and reuse of the foundation for imparting an understanding of how all these pieces fit together and how to convey them meaningfully to some other person. KM is an audit of "intellectual assets" that highlight unique sources, critical functions and potential bottlenecks, which hinder knowledge flows to the point of use. It protects intellectual assets from decay, seeks opportunities to enhance decisions, services and products through adding intelligence, increasing value and providing flexibility. KM should complement and enhance other organizational initiatives such as Total Quality Management (TQM), Business Process Re-engineering (BPR) and Organizational Development and Learning (ODL), providing a new and urgent focus to sustain competitive position. KM in organizations can be considered from three perspectives namely:

**Business Perspective:** focusing on why, where, and to what extent the organization must invest in or exploit knowledge. Strategies, products and services, alliances, acquisitions, or divestments should be considered from knowledge-related viewpoint.

**Management Perspective:** focusing on determining, organizing, directing, facilitating, and monitoring knowledge-related practices and activities required to achieve the desired business strategies and objectives.

**Hands-On Operational Perspective:** focusing on applying the expertise to conduct explicit knowledge-related work and tasks.

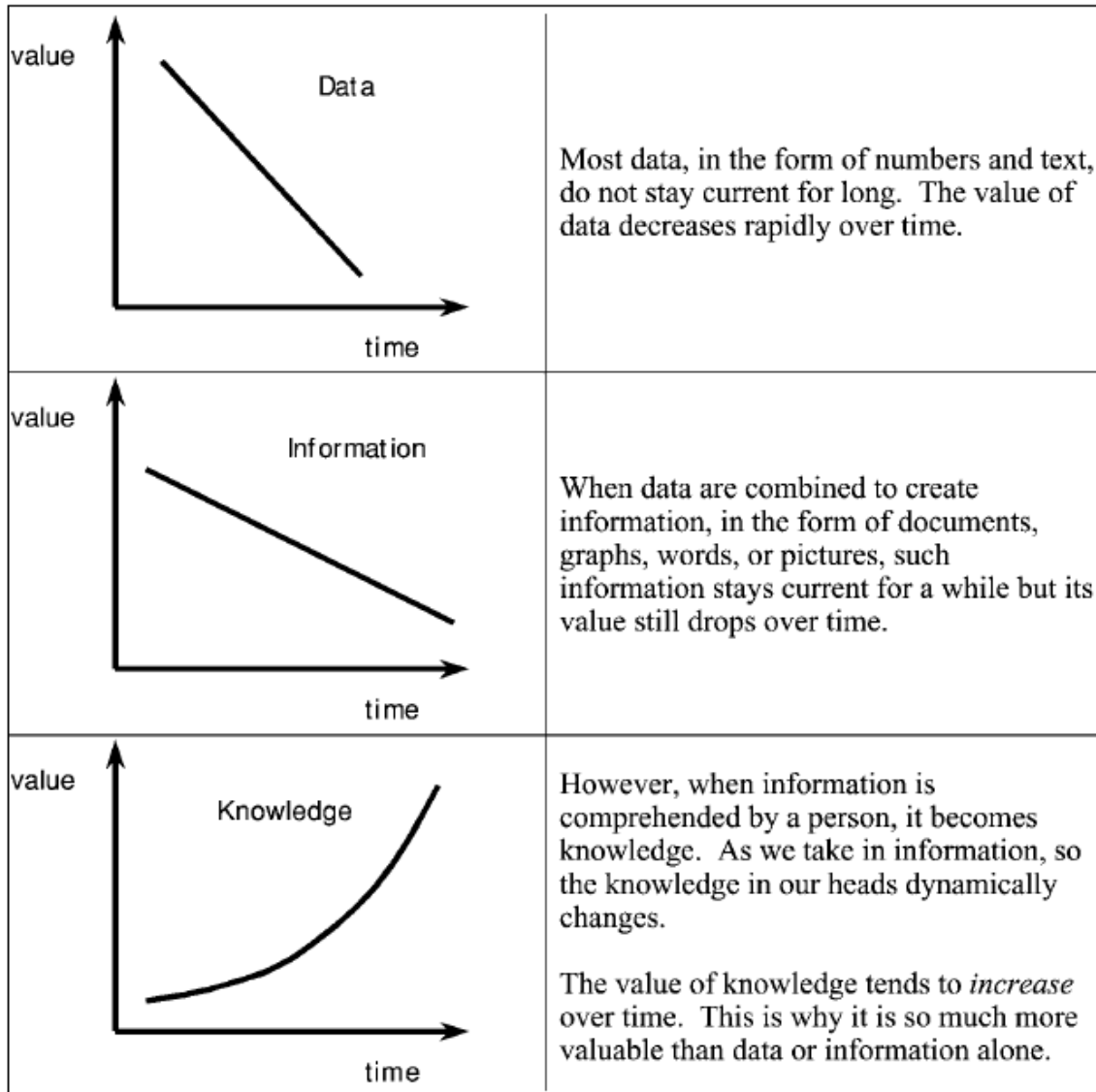


FIG.1: DATA, INFORMATION AND KNOWLEDGE VALUE GRAPH (ROBERT B. POJASEK, JOHN GARN AND NICK PAPADOPOULOS, 2001)

### KM from Telecom Perspective

KM for the Telecommunication is relatively new term as in the case with other industries. It is used to describe a number of loosely related approaches and tools. KM is the name of a concept in which an enterprise consciously and

comprehensively gathers, organizes shares and analyzes its knowledge in terms of resources, document, and people skills. In early 1998, it was believed that few enterprises actually had a comprehensive KM practice in operation. Advancement in technology and the way we access and share information has changed that and many enterprises now have some kind of KM framework in place.

From this theoretical perspective, we could actually consider telecommunication business intelligence, telecommunication data warehousing and telecommunication data mining to be subsets of the broader telecommunication KM. However, in day-to-day operational term, we use the term telecommunications KM, to identify all of those solutions that have to do with the storage, management, retrieval and analysis of non-data based information.

## **KM Process**

In one *Information Week* article, Jeff Angus and Jeetu Patel described the four major functions of KM, and the processes involved in accomplishing them. These functions include:

- Gathering of information to bring the data into the system.
- Organizing it into a usable form through the process of associating items to subjects and giving them context.
- Refining what is being stored for accessibility and utility through the process of adding value by discovering relationships, abstracting, synthesis and sharing.
- Disseminating it to the people who can use it.

## **Telecommunications KM Tools**

By far the single most popular and highly utilized telecommunication knowledge management "tool" is a company's website. Both the internet and intranet provide most telecom companies with a huge backlog of opportunities to gather, organize, refine and disseminate the information critical to telecommunications company executives, employees, business partners, stakeholders and customers at an exceedingly low cost. In addition to this packaged solutions are also available which include "knowledge engines", "knowledge portals", "text mining" and a variety of other systems.

## **Need for KM at BAL**

*"Learn and labor before you grow old, for learning is better than silver and gold, Silver and gold may vanish away, but knowledge acquired if managed well will never decay"*

*-Anonymous*

One of the key challenges faced of BAL discussed earlier in the case is inadequate trained manpower in telecom services space. Due to shortage in human resource competitors poach knowledge workers with decades of experience who can easily migrate to any other location or organization. People with adaptive minds can park their knowledge anywhere and become mobile. In many ways, BAL can lose their vital intangible assets overnight if employee leaves. Organizations without a KM initiative become vulnerable to the turnover of knowledge workers and become victim to high-cost operations. The following are some of the key findings by BAL when knowledge workers leave their organization:

- When they leave, 70% of their knowledge leaves with them.
- They spend 30% to 40% of their time looking for information.
- Redeveloping information that already exists costs approximately \$5,500 annually per employee and the average document is copied nine to eleven times.

To overcome the above listed issues of knowledge worker leaving the organization, BAL has initiated KM as Corporate IT agenda. KM initiates knowledge convergence and management of common knowledge that are

essential to accelerate learning and innovation, improve time-to-market and maximize service quality. Corporate IT leads this initiative in the organization as it has the overview of the organization and hence in better position to identify opportunities for knowledge sharing. It also understands and has capabilities to deploy IT tools to make knowledge sharing happen.

KM for **BAL** is a strategy to achieve business objectives faster and better - through an integrated set of initiatives, systems and behavioral interventions to promote smooth flow and sharing of knowledge relevant to the business and eliminate re-invention. Mr. Manoj Kholi, President, Bharti Airtel Ltd. says, *“I believe that within our circle and functions, there exist pockets that are truly global benchmarks. There is substantial opportunity for us to transfer these best practices across all our circles and functions and make 2007 the year of “Made in Airtel”. We must share and replicate to be best- in-class as One Airtel. The circle or unit which has already become best of Bharti can target becoming best of globe so that we achieve our vision of becoming a benchmark across the telekom world”*

## **Good to Great**

“Knowing is not enough; we must apply. Willing is not enough; we must do” is what Goethe rightly said. World over KM has become embedded in policy and strategy and successful implementation of KM will help in making organizations good and to a large extent successful. But for BAL, KM initiative was not seen as a mere strategy but as a differentiator in helping it to become from ‘good to great’ (Collins, 2001). The most successful business enterprise distinguishes itself from its peers is by making a leap from “good to great”. BAL also did the same by taking care of the following points:

1. Focusing solely on what it can potentially do better than any other organization and outsourcing non-core functions.
2. Thoughtless reliance on technology is a liability (Malhotra, 2005). When used right with a clear vision it accelerates growth, at BAL KM ranks number five out of the company’s top ten strategies identified to achieve the company’s business objectives.
3. The good-to-great companies never began with technology-push model (Malhotra, 2005) but with strategy-pull model, which facilitates organic sense making (Malhotra, 2001b) as in the case of BAL.

This “good to great” journey has made BAL to win “Most Admired Knowledge Enterprises (MAKE)” award in 2006 and MIS Asia IT Excellence Award at the MIS Asia IT Summit 2006 for Best Knowledge Management company, a milestone which no other telecom service provider to have ever won.

## **Four pillars of KM at Bharti Airtel Ltd**

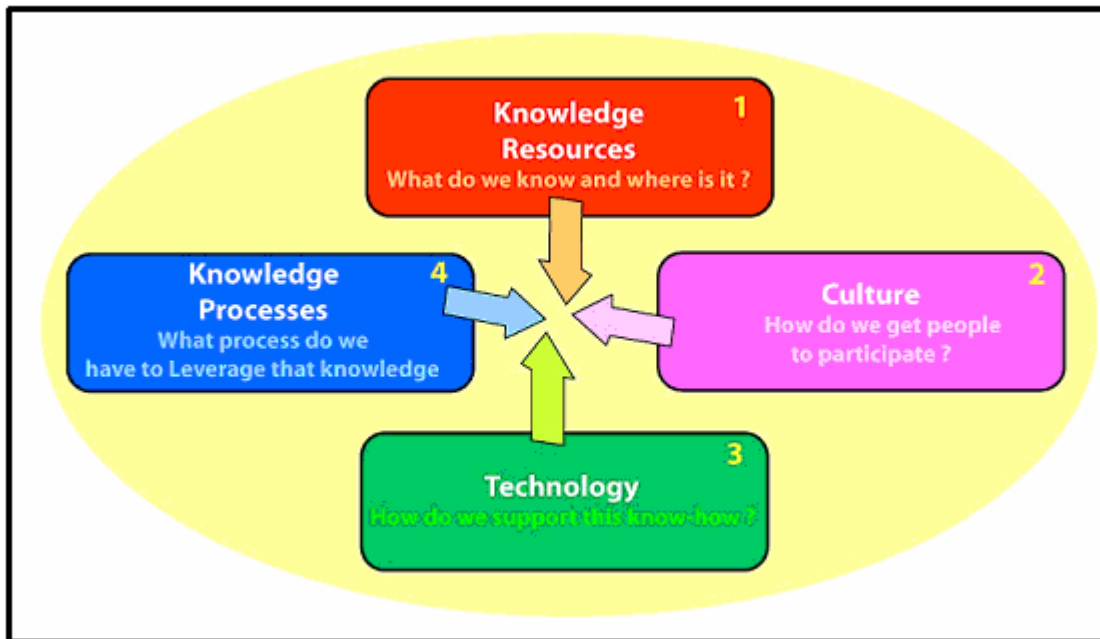


FIG.2: KM PILLARS

#### Knowledge Resources

Knowledge resources are the source where knowledge could be identified. Employees are the major source for knowledge for BAL as they are the real knowledge contributors and knowledge users. Another major source of knowledge is telecom circles. The best performing circles share, while others replicate the best performing circle, which acts as knowledge resources can be replicated in new or emerging circle. To create additional knowledge sources KM initiatives is around the following parameters: creating internal and external benchmarking, identification and sharing of best practices, replication of best practices, creation of communities of experts, measurement of results and variation across circles. Most importantly the knowledge identified through knowledge resources should address at least any one of the following strategic imperatives.

- Increase customer satisfaction, which leads to customer delight.
- Share holders value maximization through increased productivity and efficiency.
- Revenue enhancement.

#### Culture

The overlapping portfolios of customers and suppliers have made it possible for the group to derive maximum value out of KM. Recognizing this potential of KM in giving Bharti Airtel Ltd. an edge over the competition, a formal KM process was embarked. This was started by conducting a survey amongst the senior executives in the organization to understand their expectations from KM, which led to the launch of a KM site called “**Insight@Airtel**” on the intranet. However, realizing the importance of KM being a people centric process, the focus was shifted on emphasizing formal / informal interaction amongst people from various functions organizations. A significant amount of success has been achieved in R&D and quality functions through well-established KM process. This ranges from sharing information and knowledge on products, projects and processes to formation of informal groups known as the Eureka Club, and communities facilitating KM. Sharing of information, expertise and even facilities have started yielding results. With the usage of KM technologies group companies also began participating in KM movement. The knowledge from these companies is being made 'shareable' for the benefit of the group.



FIG.3: SNAP SHOT OF KNOWLEDGE PORTAL INSIGHTS@AIRTEL

To make employees create, share and replicate knowledge BAL has created following initiatives towards KM culture.

- Sharing and replications of knowledge is part of employee Key Resultant Areas (KRAs)
- Knowledge competency of the employee is taken as one of the behavioral indicators
- Greater focus on replications as it allows people to spend time on true innovation
- “K-Dollars” reward scheme for employees sharing and replication knowledge.

But, the KM movement will reach the high success levels once it spreads to every individual of the organization and becomes an organizational culture.

#### Technology

KM entails processes of capturing, distributing and using knowledge effectively. KM is not about servers, software and database, although a set of sophisticated tools is the backbone of a reliable KM system. Thus KM should never be equated to information technology. One such tool used in BAL for KM is *Airtel world* – it is Airtel’ intranet site which is every employee’s prime interface with the organization and also the organization’s key interface with the employee as seen in Fig.4. This is the hub of communication and information; and is accessible by all Airtel employees. A dedicated corporate communication group updates the intranet regularly. Airtel world contains top stories, corporate event, group home pages and helpdesk application for each of the functions. It has a direct link to KM web Airtel knowledge portal Insights@Airtel, acts as a primary vehicle for information and knowledge sharing. The portal contains KM tools enables employees all location log in to complete all knowledge related task as seen in Fig.3.





FIG.4: SNAP SHOT OF AIRTEL WORLD

**Knowledge Process**

At BAL the various processes performed are defined and standardized which are followed the same way across various circle. To have a systematic and standard KM process, knowledge processes are formally defined as shown in Fig.5.

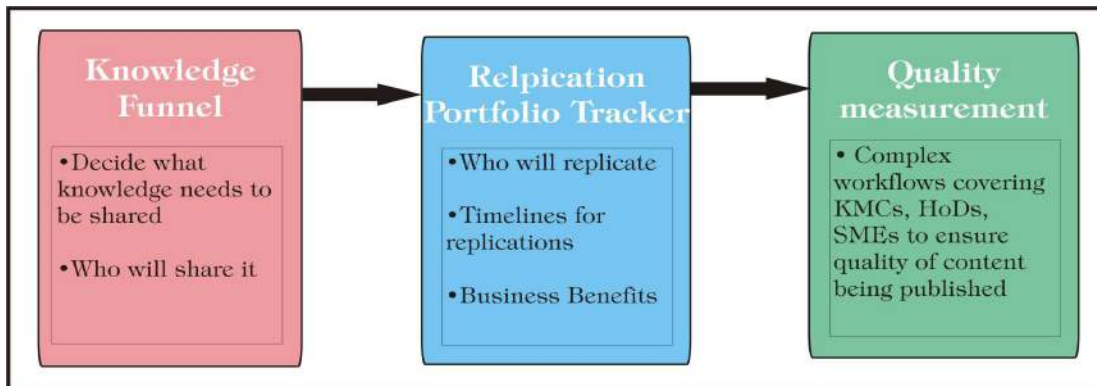


FIG.5: KNOWLEDGE PROCESS

## **Key Enablers for KM at BAL**

### **Strategic Focus**

The biggest enabler is the focus and seriousness of top management and high expectations from KM. KM ranks number five out of the company's top ten strategies identified to achieve the company's business objectives over the next three to five year time horizon. KM and its results form part of monthly business reviews, and of all important management communications. Performance appraisals at all levels include KM-specific measures.

### **Alignment with business objectives**

KM and its results form a permanent agenda item on the President's business reviews with CEOs of each business productivity / value maximization. A set of top priority business measures has been defined. It is ensured that each top priority measure maps with at least one of the President's three strategic imperatives (discussed in Knowledge Resource section) otherwise, it wouldn't be on the top priority list. All KM initiatives including knowledge repositories, sharing, replication and communities of experts, are structured around each of these top priority business measures.

### **KM organization and roles**

BAL has dedicated KM coordinators centrally and at each business unit. These people act as catalysts in the KM process. They are change agents who bring in and spread the culture of knowledge sharing across the organization. They influence other employees and facilitate the process of sharing and replicating knowledge and measuring the results.

### **Standard KM processes**

They have defined and are institutionalizing standardized, close-looped processes for knowledge-sharing, replication and measurement of results. They believe that knowledge-sharing and replication that could help improve performance on critical business measures will no longer be a matter of chance or choice, but a mandatory activity like any other business process.

### **Culture and people engagement**

For creating an organization-wide culture of knowledge sharing and replication, and to institutionalize KM, it is critical for all employees to engage in KM activities, and not just a fraction of the employee base. To track of this they are putting in place a measurement of "employee engagement in KM". Each month, the percentage of employees in every business unit and in every critical business process who have been part of at least one knowledge submission to the company knowledge base, or a knowledge replication initiative or a knowledge sharing session, will be measured and reported. This will be included in regular business reviews.

BAL has "**knowledge-dollar (K\$)**" scheme under which employees earn points or K\$'s every time they share new knowledge in the company knowledge base or every time they replicate or apply knowledge shared by others. The K\$ is redeemed in exchange for gifts listed in KM portal. This and similar reward and recognition schemes have been institutionalized at the level of individual employees, functional heads and business units.

### **Quality of content in knowledge repositories**

Quality of content is ensured in two steps. First, all content submitted is scanned by a member of the KM team to ensure relevance to the business, quality of documentation and adherence to standard KM formats. The content then goes to the knowledge champion and community of experts who own the concerned knowledge repository. They finally review and approve content for publishing, or edit or reject it if required. Having standard documentation formats for knowledge sharing, replication and knowledge-sharing sessions helps to maintain quality and objectivity of content. These standards are also part of the KM orientation training, which a majority of the employees have gone through.

### **Technology enablement**

Knowledge portal "**Gyan Bharti**" on the corporate Intranet is a common virtual platform for all employees to share knowledge and replication at BAL. It contains repositories of re-usable organizational knowledge structured around critical business processes. The KM portal has automated workflows for knowledge submission, approval and publishing. It also automatically allots K\$ to employees, and lets them check their K\$ balance and transactions.

## KM Gear Wheel

The knowledge value graph in fig.1 reflects that value of knowledge increases with time but our study, observation while doing the project at BAL and subsequent analysis in the area of KM brings out, that value of knowledge, if unutilized and unshared also deplete, due to passage of time. Technology is only an enabler, Strassmann (1997) emphasized, that it is not computers but what people do with them that matters.

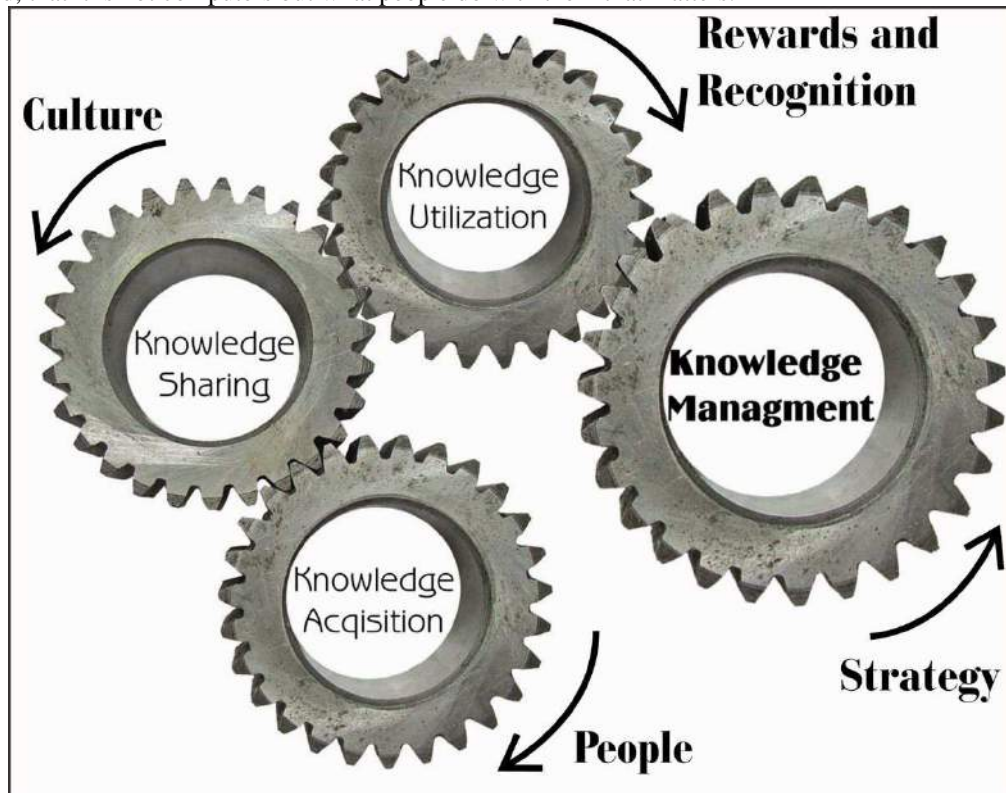


FIG.6: KM GEAR WHEEL (SOURCE: AUTHORS)

Similarly, we have identified four gears, which form the KM wheel. To ensure that the KM wheel operates smoothly, one needs to understand the inter linkage of these four gears. They are: People, Culture, Rewards and recognition, Strategy. These gears are independent and interdependent and a fine alignment among these only will ensure that KM is a not a myth and it becomes a reality. Knowledge acquisition wheel is moved by *people* and not through technology. Knowledge sharing wheel is moved by organizational *culture* characterized by high level of commitment and motivation. Knowledge utilization wheel used to share knowledge and increase the value of knowledge, is moved by *rewards and recognition* program as K\$ in the case of BAL. *Strategy* is the fourth gear which will make KM the differentiator and help other organizations to benchmark against and unless seen as the most important gear will not enable the organizations to higher plane of success.

Thus, KM gear wheel helps us to understand that, KM is all about people, culture, rewards and recognition and strategy - development of strategy, based on knowledge and how of it, which in turn helps to achieve organizational objectives, goals, mission and vision.

## Results of KM

As emphasized earlier, for BAL, KM is what it does for business results. It measures the results of KM in terms of its impact on critical business measures. The impact of each knowledge replication on a business measure is captured and documented. It has a simple standard format for documenting replications. The format includes the quantified impact of the replication on a business measure. Till date (2006) more than 14000 knowledge submissions by employees were published on the KM portal. Each one of these was from an internal or external source, and screened for relevance to at least one critical business process before publishing. During this period, nearly 69% of these submissions were applied or replicated by at least one other business unit within the group. The data below highlights the benefits BAL has gained through its KM initiative.

TABLE 2: KM BUSINESS RESULTS

Particulars	Business Results
<b>Savings (from Replications)</b>	
–Mobility (2005-06)	~ Rs. 320 Million (23 circles)
–ABTS & Others (2005-06)	~ Rs. 30 Million (7 circles)
<b>No. of Submissions on Portal</b>	
–Oct 2004 to Dec 2006	14000+
–Replication rate	69%
<b>Employee Engagement</b>	
–Penetration (Usage):	65%
–Engagement (Contribution):	35%

SOURCE: BHARTI AIRTEL LTD

TABLE 3: KM BENEFITS

Particulars	Benefits
<b>Reduction in Bills Not Received Complaints</b>	From 4.2% to 0.74%
<b>Billing by eBilling by e-mail</b>	2-5 days of dispatch time saved
<b>Reduction in faults on new installation within 30 days per 100 new installations</b>	From 4.4 to 1
<b>Reduction in Hard and Soft Fault rate (from Aug’’03 to Feb’’04)</b>	From 4.4 to 1
<b>Reduction in Tariff Plan Migration Complaints</b>	From 5.1% to 3%
<b>Savings in Power Cost</b>	Savings of Rs.1.90 Mn as against the target of Rs.1.19 Mn (budgeted).

SOURCE: BHARTI AIRTEL LTD

### Factors Responsible for Institutionalization of KM at Bharti

While many enablers have been discussed above, and Fig.7 reflects the KM Journey, the biggest factors responsible for results, institutionalization to date, and future sustenance are:

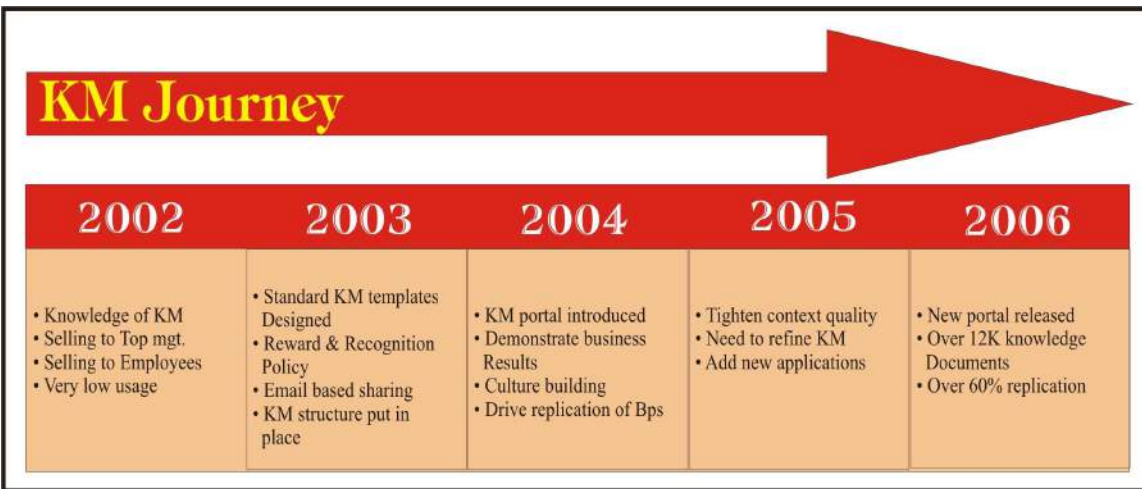


FIG.7:

KM JOURNEY

- High expectations and seriousness of top management. The alignment of performance appraisal systems at all levels to include KM-specific measures and including KM performance as a regular agenda item on business reviews reflect this seriousness. At Bharti, KM is not a fad, but is a serious tool for business excellence.
- Constant focus on hard business results, without losing sight of the culture angle.
- Standardized close-loop processes for knowledge sharing, replication and measurement of results.

This is just a snapshot of application of KM. Knowledge has always been managed, at least implicitly. However, effective and active knowledge management requires new perspectives and techniques and touches almost all facets of an organization. The organizations need to develop a new discipline and prepare a cadre of knowledge professionals with a blend of expertise that no one has, previously. The impact on business of use of KM is measurable. Knowledge is an asset that transcends time, individuals and geographies (Neeta Baporikar, 2004).

## Conclusion

KM is the process of capturing and making use of a firm's collective expertise anywhere in the business on paper, in documents in databases or in people's heads. It is not intended to favor expert systems of the early processes. The goal is to present a balanced view of how computer technology captures, distributes and shares knowledge in the organization by linking human expertise and documentation in an integrated KM system. This is what exactly the KM initiative at BAL aimed at and succeeded to a large extent. In some ways, KM was all about survival in a new business world of telecom - a world of competition that increased in complexity and uncertainty each day. The mobile technology belongs to a world that challenges the traditional way of doing things. The focus is not only on finding the right answers, but also on asking the right questions. What worked yesterday may or may not work tomorrow. The focus is on 'doing the right things' rather than "doing things right" so that core competencies do not become core rigidities in the future (Malhotra, 2000).

KM is fuel or raw material for innovation and the only competitive advantage that can sustain a company in an unpredictable business environment, hence organizations need to keep outward eye and focus on unseen opportunities for growth. This research paper aims at opening new vistas in the field of knowledge management. Questions, which need to be addressed in the coming years for organizations to excel, in spite of good strategies and knowledge base, would be:

- How to convert data, information into knowledge powerhouse?
- How knowledge management leads to organizational learning and development?

- How to evolve successful strategies of merger, acquisition or diversification by using KM for crafting global organizations?
- How such strategies can be replicated?

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# Financial Leverage Changes Following Mergers of Australian Firms

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## Abstract

This study analyzes the changes in financial leverage for the firms involved in merger and acquisitions in Australia during the period 1996 to 2004 and attempts to identify the reasons for changes in leverage. Consistent with previous studies, the present study also finds that the target firms' shareholders gain the highest in takeovers and that the combined firms financial leverage tend to increase after the merger. Further, the present study finds support for the argument that it is increased debt capacity that influences increased financial leverage.

## Introduction

Firms may engage in mergers and acquisitions for several reasons: to realize synergies between the merging entities, to achieve market power by forming monopolies or oligopolies (Andrade, Mitchell and Stafford, 2001), to take advantage of the market valuation errors of the acquisition candidates, and to utilize the unused debt capacity of the acquired firms. All these are in turn expected to lead to an increase in the market value of the combined firm.

Mergers and acquisitions have several implications for investors, managers and other stakeholders. For instance, investors of both merging and merged entity may experience wealth redistribution that may or may not be fair and often face a new set of risk return characteristics<sup>1</sup>. Similarly managers may have to deal with several people related issues besides a modified agency structure that they may have to adapt to. Other stakeholders including the government and lenders may have implications: governments may be concerned about concentration of market power where as lenders may be concerned with possible increases in debt levels. Lewellen (1971), Shrieves and Pashley (1987), Trifts (1991) and Ghosh and Jain (2000) provide support to the argument that financial leverage of the combined firm tend to increase for the following reasons: increase in debt capacity<sup>2</sup>, motives of wealth transfer from bondholder to shareholders and ex ante unused debt capacity.

Increase in debt capacity may be due to lower probability of default of the merged entity compared to the erstwhile individual entities on account of increase in the size of the merged entity. As literature on credit risk explains size is an important factor and has positive influence on debt capacity. However, the increase in financial leverage has mixed implications in that it may lead to tax savings on one hand and increasing the bankruptcy cost on the other hand. Thus the firm may have incentives to use up increased debt capacity up to a point where the increased bankruptcy costs are just offset by the tax benefits<sup>3</sup>. Shrieves and Pashley (1984) and Ghosh and Jain (2000) find that the increase in financial leverage after merger is caused by the increase in debt capacity.

Another argument relates to unused debt capacity in the past in one of the individual firms thereby implying that an increase in leverage would enable the merged firm to attain its optimal capital structure and thereby deriving the benefits of increased market value. Melicher and Rush (1974) find evidence of conglomerate firms taking advantage of unused debt capacity to finance acquisitions. However, Shrieves and Pashley (1984) and Ghosh and Jain (2000) find weak evidence of unused debt capacity resulting in increased financial leverage.

Similarly firms either individually or through mergers and acquisitions may engage in acts that tend to increase the financial leverage when there is a possibility of expropriation of lenders by shareholders (Jensen and Meckling, (1976)). Increased debt implies that the claims of bondholders are diluted thereby reducing the value of bonds. Increased debt may also enable the firm to undertake risky projects which when they actually pay off would provide increased returns to shareholders after meeting the fixed claims of bondholders. Galai and Masulis (1976) argue that there may be a possibility of expropriation of wealth by bondholders of shareholders or new bondholders after mergers. This would be the case if bondholders have same seniority of claims as they have more protection now either due to increased size of the firm or due to new investments financed through issue of subordinated debt.

Most of the previous studies analyzing the relationship between financial leverage and mergers and acquisitions are confined to the US despite an increase in merger and acquisition activity in Australia in the last few decades<sup>4</sup>. Hence the present study focuses on the firms listed on Australian Stock Exchange (ASX). Given the similarities between the Australian corporate law and securities regulation and that of the US system<sup>5</sup>, it would be interesting to study the Australian markets to see whether the leverage changes after mergers and acquisitions are similar. Similarly the present study also analyzes the reasons for changes in leverage in the post mergers and acquisitions period.

## **Theoretical Framework and Hypotheses Tested**

### **Financial Leverage in the Post Merger Period**

Given that coinsurance benefits are derived entirely by bondholders thereby reducing the value of equity (Galai and Masulis, 1976), firms may increase financial leverage so as to expropriate wealth from bondholders to shareholders. Similarly presence of unused debt capacity in the pre-merger period may lead to increased leverage in the post merger period as firms may want to take advantage of tax deductibility of interest payments.

Kim and McConnel (1977) and Ghosh and Jain (2000) show that financial leverage of the combined firm increases in the post merger period compared to the aggregate leverage of the acquiring and target firms in the pre-merger period. We therefore hypothesize that financial leverage of the combined firm increases in the post merger period.

### **Financial Leverage and Return to Shareholders**

The gains from mergers are shared between target and acquirer shareholders (Israel, 1991). Since the shareholders of target firm lose control of the firm, they expect a premium to be paid. Therefore it may be hypothesized that shareholders of target firm experience higher returns compared to that of the shareholders of acquiring firm.

### **Method of Payment and Shareholder Return**

Similarly, the method of payment in takeovers and acquisitions also influences the returns of shareholders. Trifts (1991) and Datta and Iskandar-Datta (1995) show that cash transactions tend to be financed by debt, increasing the leverage of combined firm, where as stock financed transactions tend to decrease leverage, reducing leverage. Therefore we hypothesize that shareholders gain more when the transaction is financed by stock rather when cash is used to finance the transaction.

### **Increased Debt Capacity as a Reason for Increased Leverage**

Lewellen (1977) finds that the default risk of merged firms decline in most mergers because of the correlation between cash flows of acquiring and target firms is less than one. Only in the extreme case, where the earnings are perfectly positively correlated, the default risk stays the same. The reduced probability of default implies that the merged firms derive the diversification benefits and these benefits accrue to the bondholders as coinsurance. Thus coinsurance leads to expropriation of wealth by bondholders of shareholders. This prompts the shareholders to require increased leverage as the investors have better pay off compared to bond holders. Therefore it is hypothesized that increase in financial leverage is on account of increased debt capacity.

### **Past Unused Debt Capacity as a Reason for Increased Leverage**

Another possible reason for the increase in financial leverage could be because of the underutilization of the past unused debt capacity of the target and / or the acquiring firm in the pre-merger years. The merged firm tends to gain from such increase in leverage in the post merger period. Hence it is hypothesized that increased financial leverage is on account of unused debt capacity.

### **Desire of Shareholders to Expropriate the Wealth of Bondholders as Reason for Increased Leverage**

Yet another reason why firms may increase leverage is the desire of shareholders to expropriate the wealth of bondholders. Expropriation is possible by either increasing the variability of firm cash flows or by diluting the claims of investors. The latter – dilution of earnings claims of bondholders – would occur when fresh debt is issued with similar seniority to the existing debt. Given that bondholders anticipate expropriation; their concerns may have been reflected in the covenants, particularly in countries like Australia. Therefore it is hypothesized that financial leverage increase may not be on account of desires of shareholders to expropriate wealth from bondholders.

Permanence of Increase in Financial Leverage



Choudhry and Nanda (1993) argue that the increase in financial leverage surrounding mergers and acquisitions is short term in nature and that firms use leverage strategically. Hence it is proposed to study the permanence of increase in financial leverage following mergers and acquisitions. We hypothesize that increase in financial leverage tend to be short run as leverage is only used strategically.

## Data and Methodology

### Sample Selection and Data Sources

Information relating to announcement date, actual takeover date, industry category, and method of payment for the firms engaged in mergers and acquisitions are obtained from the Securities Data Company (SDC) merger and acquisition database.

The initial sample consists of companies that fulfill the following requirements: (i) companies involved in merger and acquisition activity in Australia from 1996 to 2004, and have financial statement for a period of five year prior to and after the takeover for either the target or the acquirer firm; (ii) listed and traded in the Australian Stock exchange (ASX); (iii) firms whose primary business is not in financial businesses - banking, insurance, investment and financial services industry; and (iv) the merger and acquisition activity listed in the Financial Analysis publication "Takeovers in Australia"<sup>6</sup>. These criteria result in a final sample consisting of a set of 104 mergers or acquisitions. Distribution of these firms on the basis of method of payment shows that a majority of these are cash offers (63), followed by stock offers (34) and the remaining transactions are financed using combination of cash and stock (Table 1). The mergers and acquisitions are distributed evenly throughout the sample period except for 1998 where there are only 2 cases.

TABLE 1: YEAR-WISE DISTRIBUTION AND THE METHOD OF PAYMENT OF MERGERS AND ACQUISITIONS

By Method of Payment	1996	1997	1998	1999	2000	2001	2002	2003	2004	Total
Cash Tender Offer	1	9	7	2	10	6	5	11	12	63
Stock Swaps	1	2	1	5	2	5	6	9	3	34
Combined	0	1	2	1	0	1	0	1	1	7
Total	2	12	10	8	12	12	11	21	16	104
%	1.9%	11.5%	9.6%	7.7%	11.5%	11.5%	10.6%	20.2%	15.4%	100%

Year-wise distribution and the method of financing are based on 104 target and acquirer firms from 1996 to 2004. These firms must be listed on the ASX at the time of merger. At least one of the firms involved in the merger must have financial statements available for 5 years before and 5 years after the merger and acquisition.

A 5-year time frame is used to see the changes of financial leverage overtime. The announcement date is used as the event or reference year instead of the effective takeover date because it is more reflective of the expectations of investors of acquiring and target companies. Another important reason as pointed out by Asquith and Kim (1982) is that a time lag between the announcement and the merger date tend to be different between different mergers and if the merger date is used as the reference period, the statistical tests may not be able to detect any systematic movement in share prices due to the noise that the variable time lag may create.

The financial statements of the target and acquirer firms are obtained from DataDisc CD-ROM, company Analysis database and Datastream database. Similarly, the closing share price information is obtained from the Datastream database. Market capitalization for each firm is calculated by multiplying the number of shares outstanding at the end of each financial year with the share price at the end of that financial year.

### Description of Methodology

Market adjusted returns are calculated to capture the returns gained by the target and acquirer firms shareholders. All Ordinaries Price Index return is used as a proxy for the market return. The market adjusted return is calculated as the difference between daily return of each firm and the market index return. The market adjusted return is defined as the difference between the daily return of each firm and the daily market return. Cumulative abnormal returns (CAR) are calculated relative to the announcement date.

The market adjusted return for the acquirer firms' are separated and grouped according to the method of payment – cash, stock and combination of cash and stock – to analyze the influence of method of payment on the gains to the shareholders.

To analyze the increased debt capacity hypothesis, firms in the final sample are compared with a matched sample. The matched firms are selected on the basis of the market value of equity of the combined firm i.e., the combined market value of the target and acquirers one year prior to merger.

### Discussion of Results

Results show that the shareholders of the target firms on average tend to gain substantially more than the shareholders of the acquirer firms around the merger announcement period (Table 2). The shareholders of the target firms tend to gain highest for the period of -20 to +1, whereas at the same time, the shareholders of the acquirer firms have a negative gain (-3.12%). However, the shareholders' of the target and acquirer firms in the US appear to earn substantially more than the Australian shareholders of acquiring and target firms around the merger announcement<sup>7</sup>. Another striking aspect is that the acquirers on average lose where as the target companies gain on a market-adjusted basis in mergers and acquisitions in Australia.

TABLE 2: MARKET ADJUSTED RETURNS AROUND THE MERGER ANNOUNCEMENT DATE

Days relative to the Announcement Date	Market Adjusted Returns		
	Acquirers (%)	Target (%)	Weighted average (Acquirers + Targets) (%)
-1	0.71%	0.56%	1.2585%
0	-0.92%	4.24%	-0.6129%
-1 to 0	-0.21%	4.80%	0.5839%
-1 to +1	-0.33%	9.24%	2.3053%
-5 to +1	-0.40%	10.09%	2.1729%
-10 to +1	-1.83%	10.74%	1.1201%
-10 to +5	-3.38%	10.95%	1.6452%
-20 to +1	-3.12%	12.79%	1.5307%
-119 to -7	-4.21%	2.87%	2.2649%

Consistent with Israel (1991), shareholders of the target firm benefit more from the merger (Table 3). However, the target firms' shareholders tend to benefit more if the transaction is financed using cash rather than stock. On the other hand, around the announcement period (1 day prior to the announcement), the acquirer' shareholders tend to gain more if they use stock as a method of payment. However, although the market adjusted return of the acquirer appear to be negative, the acquirer shareholders are better off when they use cash as method of financing rather than stock as the market adjusted returns is negative albeit low.

TABLE 3: MARKET ADJUSTED RETURNS AROUND THE MERGER ANNOUNCEMENT DATE BY METHOD OF PAYMENT

Days relative to the Announcement Date	Market Adjusted Returns		
	Acquirers (%)	Targets (%)	Weighted average (Acquirers + Targets) (%)
Panel A: Cash as a Method of Payment			
-1	-0.0497%	0.1658%	-0.4080%
0	-0.3978%	7.4800%	-0.4206%
-1 to 0	-0.4475%	7.6458%	-0.8286%
-1 to +1	-0.0705%	11.5209%	1.6438%
-5 to +1	0.1367%	11.9812%	1.7350%
-10 to +1	-0.8086%	11.2851%	-0.2849%
-10 to +5	-1.5294%	11.7756%	-0.5798%
-20 to +1	-3.0754%	16.1021%	0.2010%
-119 to -7	-6.4937%	4.6201%	1.6782%
Panel B: Stock as a Method of Payment			
-1	1.4956%	1.5976%	2.5467%
0	-2.0990%	-1.0425%	-1.3297%
-1 to 0	-0.6034%	0.5551%	0.9849%
-1 to +1	-1.3996%	6.6373%	2.6512%
-5 to +1	-2.2287%	8.0626%	1.6957%
-10 to +1	-5.2178%	11.6766%	0.8417%
-10 to +5	-7.8305%	10.5927%	2.5324%
-20 to +1	-7.2982%	7.8201%	-0.6281%
-119 to -7	-1.6969%	-2.7461%	1.2311%

Analysis of the changes in financial leverage of the combined firms shows an increase in financial leverage in the post-merger and acquisition period compared to the pre-merger years (Table 4 and 5). The weighted average financial leverage for combined companies increases from 19.91% (year -3 to -1) to 22.11% (year +1 to -3). Similarly the weighted average financial leverage increases from 18.52% during the period -2 to -1 to a level of 21.10% during the period +1 to +2. This is consistent with earlier studies.

TABLE 4: FINANCIAL LEVERAGE AROUND MERGERS FOR THE COMBINED FIRMS

Year	No of Firms	Mean (%)	Median (%)	Min (%)	Max (%)
<b>Panel A: Year-wise analysis of financial leverage around mergers</b>					
-5	10	25.87%	25.49%	4.00%	48.18%
-4	10	27.82%	25.49%	1.95%	61.00%
-3	15	25.11%	25.45%	0	62.29%
-2	27	19.47%	18.51%	0	55.32%
-1	29	17.63%	10.40%	0	88.13%
1	60	20.30%	19.52%	0	62.10%
2	56	21.96%	21.39%	0	99.72%
3	56	24.21%	24.55%	0	99.26%
4	53	23.85%	22.68%	0	96.54%
5	41	23.54%	21.87%	0	99.07%
<b>Panel B: 3-year Average before and after Merger</b>					
Weighted Average for Period -3 to -1		19.91%	16.56%	0.00%	70.19
Weighted Average for Period +1 to +3		22.11%	21.77%	0.00%	86.45%
Increase		2.20%	5.21%	0.00%	16.25%
<b>Panel C: 2-year Average before and after Merger</b>					
Average for Period -2 to -1		18.52%	14.31%	0.00%	72.31%
Average for Period +1 to +2		21.10%	20.42%	0.00%	80.26%
Increase		2.59%	6.11%	0.00%	7.95%

From table 5, the increase in financial leverage can be seen more clearly. Instead of the combined firms' financial leverage, individual firms' financial leverage has been examined. Financial leverage increases from 19.55% for the acquiring firms in t-1 and 17.71% for the target firms in t-1 to 20.30% for the merged firm in year t+1. The 3 years and 2 years weighted average of the individual firms' financial leverage also show increase during the post merger period. Hence, consistent with the findings of Kim and McConnel (1997) and Ghosh and Jain (2000) for the American firms, the financial leverage tends to increase after the acquisition for the Australian firms.

Further, the increase in leverage appears to be permanent rather than a short-run phenomenon and therefore the findings of this study appear to contradict the findings of Chowdry and Nanda (1993). Chowdry and Nanda point out that the acquirers use financial leverage to finance the bidding wars to acquire the target firms at a bargain price. Therefore they expect the financial leverage to decline over a period of time. The financial leverage in the case of Australian firms appears to be stable even for five year after the merger. Hence, it may be concluded that the increase in financial leverage appears to be permanent.

Analysis of reasons for an increase in financial leverage shows that increased debt capacity could be a possible explanation (Table 6). The weighted average of the difference in financial leverage for the period of year -3 to -1 compared with the difference in financial leverage for the period of year +1 to +3 shows an increase of 0.14%. Where as the weighted average of the difference in financial leverage for the period -2 to -1 compared with the difference for the period +1 to +2 shows an increase of 3.04%. This could possibly on account of increased debt capacity. Hence, the findings of the present study are consistent with Shrieves and Pashley (1984) and Ghosh and Jain (2000).

TABLE 5: ACTUAL FINANCIAL LEVERAGE (DEBT TO MARKET VALUE) AROUND MERGERS

Actual Financial Leverage														
Acquiring Firms					Target Firms					Combined Firms				
N	Mean	Median	Min	Max	N	Mean	Median	Min	Max	N	Mean	Median	Min	Max
-5	21	34.66%	30.58%	0.14%	99.28%	38	28.01%	24.86%	0.00%	90.87%				
-4	27	24.57%	24.84%	0.00%	51.39%	46	28.74%	22.36%	0.00%	93.29%				
-3	41	22.31%	21.48%	0.00%	75.10%	52	28.48%	18.37%	0.00%	92.65%				
-2	54	20.66%	19.06%	0.00%	75.10%	62	19.61%	8.99%	0.00%	91.04%				
-1	60	19.55%	18.11%	0.00%	99.52%	51	17.71%	8.81%	0.00%	97.89%				
<hr/>														
Averaged for														
-3 to -1		20.66%	19.34%	0.00%	84.55%		20.24%	11.89%	0.00%	93.67%				
-2 to -1		20.07%	18.56%	0.00%	87.95%		18.75%	8.91%	0.00%	94.13%				
+1										60	20.30%	19.52%	0.00%	60
+2										56	21.96%	21.39%	0.00%	99
+3										56	24.21%	24.55%	0.00%	99
+4										53	23.85%	22.68%	0.00%	90
+5										41	23.54%	21.87%	0.00%	99
<hr/>														
Averaged for														
-1 to -3											22.11%	21.77%	0.00%	80
-1 to +2											21.10%	20.42%	0.00%	80

TABLE 6: FINANCIAL LEVERAGE AROUND MERGERS FOR THE COMBINED FIRMS AND THE MATCHED FIRMS

<u>Year</u>	<u>No of Firms</u>	<u>Mean (%)</u>	<u>Median (%)</u>	<u>Min (%)</u>	<u>Max (%)</u>
<b>Panel A: Year-wise analysis of financial leverage around mergers</b>					
-5	6	3.13%	-5.55%	-11.58%	26.36%
-4	7	8.29%	6.31%	-22.19%	42.84%
-3	11	0.46%	1.17%	-50.14%	58.86%
-2	22	-7.20%	-0.45%	-82.21%	54.55%
-1	27	-4.68%	-0.16%	-86.70%	68.95%
1	24	-5.62%	-3.40%	-41.56%	29.90%
2	24	0.07%	-0.39%	-35.95%	43.20%
3	25	-7.89%	-1.58%	-67.75%	44.87%
4	22	-5.69%	-0.04%	-82.25%	35.59%
5	18	-3.61%	-4.44%	-76.18%	39.26%
<b>Panel B: 3-year Average before and after Merger</b>					
Weighted Average for					
Period -3 to -1		-4.66%	-0.02%	-78.35%	61.82%
Weighted Average for					
Period +1 to +3		-4.53%	-1.78%	-48.69%	39.40%
Increase		0.14%	-1.77%	29.67%	-22.42%
<b>Panel C: 2-year Average before and after Merger</b>					
Average for Period -2					
to -1		-5.81%	-0.29%	-84.69%	62.48%
Average for Period +1					
to +2		-2.78%	-1.89%	-38.76%	36.55%
Increase		3.04%	-1.60%	45.93%	-25.93%

## Summary and Conclusion

This study analyzes the changes in financial leverage following mergers and acquisitions of Australian firms and attempts to explain the reasons for changes in financial leverage. An analysis of firms engaged in mergers and acquisitions during the period 1996 to 2004 shows that the target firms' shareholders tends to gain more than the acquirers' shareholders around the merger announcement. This result is consistent with several earlier studies. The study also finds that the target shareholders tend to gain more if the acquirers use cash rather than stock as a method of financing the acquisition. It appears that this gain is higher when the debt level of target firms is higher while the financial leverage of the acquiring firms is lower. The study also finds that financial leverage tends to increase after the merger and that the potential reason for the increase in leverage is the increased debt capacity. These findings are consistent with Ghosh and Jain (2000) and that the firms in Australia appear to show similar behavior compared to that of the American firms.

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## End Notes

<sup>1</sup> Several studies offer support for the view that the wealth gained by the acquired firm’s shareholders is greater than that of the acquiring firms’ shareholders.

<sup>2</sup> Stapleton (1982) define debt capacity as the amount of debt that can be raised at a give rate of interest.

<sup>3</sup> Copeland and Weston (1988) shows that the value of the common stocks increase as the firm uses the increase in debt capacity after the merger on account of tax savings on interest payments.

<sup>4</sup> According to Thomson Financial figures, Australia has the highest merger announcements amounting to US \$ 36 billion in 2001 followed by US \$ 18.6 billion in South Korea. Source: [www.aar.com.au](http://www.aar.com.au).

<sup>5</sup> De Mott (1988) compares the corporate law and securities regulations in the US and Australia among other countries.

<sup>6</sup> This is necessary since SDC provide a list of merger and acquisition announcements including those that are unsuccessful.

<sup>7</sup> See Ghosh and Jain (2000) Table 2, pp.384. Ghosh and Jain (2000) report that the target shareholders earn 28% for the period of -20 to +1 and around 24% for the period -10 to +1 and -10 to +5.



## Managing Cultural Differences: Values and Work Goals in Culture and Personality Contexts

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### Abstract

International business, expatriates' work and any international cooperation require understanding of cultural differences. Along with globalization, the knowledge of cultural differences and their association with people's values, attitudes and behavior have become more and more important. It is not enough to know the values but it is also important to recognize that each individual personality has its own ranking of values. Knowing the relationship between personality, values and cultures can assist the expatriates in better understanding the intercultural differences within regions. Hofstede's cultural dimensions (masculinity-feminism, collectivism-individualism, power distance and uncertainty avoidance) serve well to explain the differences of values of different countries. In this paper, the value differences of different personality preferences in two cultural contexts will be compared.

### Introduction

International business, foreign direct investments, expatriates' work and any international cooperation require understanding of differences between cultures. For example business negotiations, expatriate managers and professionals, management of foreign personnel, and cross-cultural teams presuppose good knowledge of cultural differences (see e.g. Boyanova, Routamaa & Hautala 2006). Studies abound with recommendations on how to increase expatriate success mostly with lists of "suitable" personality characteristics and behaviors to succeed in a new culture. However, research on expatriates indicates that failed expatriate assignments are still costly and numerous. Kale and Barnes (1995:271-280) recommend for international salespeople training in a combination of Hofstede's national cultural dimensions, Reynold's typology for organizational culture and the MBTI as a method of understanding personality. Studies abound with recommendations on how to increase expatriate success mostly with lists of "suitable" personality characteristics and behaviors to succeed in a new culture. Black, Mendenhall and Oddou (1991) introduced three main skill areas that expatriates need to focus on to survive in a new culture: skills related to maintenance of self, skills relating to fostering relationships with host nationals and skills that promote a correct perception of the host environment and its social systems. Strategies for coping with this adjustment process introduced by Berry, Kim and Boski (1988:63) were three. Expatriates could psychologically adjust by adjusting their behavior to the environment, or they can adjust by changing the environment, or they can move to a more congenial environment. Recently more emphasis has been placed on cross-cultural training but research shows this to be sporadic and culture-based. Some personal characteristics needed for a successful assignment are technical ability, stress tolerance, flexibility, communication skills, and cultural empathy (Hiltrop & Jassens 1995:358-365). For example, Routamaa & Rautiainen (2002) found that the psychological type has an association with the expatriate adjustment in a new culture.

Along with globalization, value types and values from a cross-cultural perspective have awakened great interest in recent years (e.g. Abramson & Inglehart 1995; Hofstede 1980, 1982, 1991; Markus & Kitayama 1991; Schwartz 1992, 1994, 1997; Schwartz & Bardi 1997; Schwartz & Ros 1995; Smith & Schwartz 1997; Inglehart 1997; Triandis 1990, 1995; etc.). In different cultural contexts, the values have different weights but mostly the relationship structure between personality types and values is similar (cf. analogical results, Routamaa & Pollari 1998).

Taylor (1871) defined culture as 'that complex whole that includes knowledge, beliefs, art, laws, custom, and any other capabilities and habits acquired by man as a member of society'. Fundamental webs of culture constitute patterned ways of thinking, acting, feeling, and interpreting (see e.g. Kluckhohn 1951: 86; Ting-Toomey 1985: 75). As Hofstede (1984: 21) defines it, culture is 'the collective programming of the mind that distinguishes the members of one human group from another'. Ronen (1986: 18) sees culture as 'the frame of reference' of individuals, and Harris and Moran (1987: 102) discuss 'mental frameworks' which groups, organizations and nations develop. The more individuals conform to each other in terms of background variables such as nationality, education and sex, the more probably they perceive their social environment similarly and in that way share the same subjective culture (Hofstede 1976). Dealing with values here, the subjective culture is of special interest instead of the objective culture, which is composed of the more concrete infrastructure (cf. Routamaa & Pollari 1998).

Hofstede's definition referring to *the collective programming* is a good frame of reference in analyzing values in a cultural context. Studying work-related values at the societal level, Hofstede (1984) identified four dimensions: 1) Power distance, 2) Individualism, 3), Uncertainty avoidance, and 4) Masculinity.

**Power distance** can be defined as the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally. **Individualism-collectivism** pertains to societies in which the ties between individuals are loose: everyone is expected to look after himself or herself and his or her immediate family. Collectivism as its opposite pertains to societies in which people from birth onwards are integrated into strong, cohesive in groups, which throughout people's lifetime continue to protect them in exchange for unquestioning loyalty. **Uncertainty avoidance** is defined as the extent to which the members of a culture feel threatened by uncertain or unknown situations. This feeling is expressed e.g. through nervous stress and in a need for predictability: a need for written and unwritten rules. **Masculinity** pertains to societies in which social gender roles are clearly distinct, and femininity pertains to societies in which social gender roles overlap. (Hofstede 1991:23-158) Also a fifth dimension, long-term versus short-term orientation, has later been identified in a survey with the Chinese Value Survey instrument carried out by M. H. Bond (Hofstede 1993), which could be of great use if some comparative data across countries were employed.

In spite of the criticism (see e.g. Spector, Cooper & Sparks 2001; Hofstede 2002; Spector & Cooper 2002), Hofstede's studies and cultural dimensions serve well the understanding of cultural differences. Different cultural contexts may also explain the differences of values of different countries. Culture, 'software of the mind' or 'collective programming', as Hofstede puts it, may affect our values. However, as found by Routamaa and Pollari (1998), the mutual relationships between values and personality types may be fairly similar in each culture. They found that the cultural background affects leadership style. In the masculine culture, the average manager may favor more dedicated, benevolent autocrat behavior. Correspondingly, the feminine culture with its negotiating and compromising practices refers to integrated, even related styles. However, the leadership style differences between personality types were similar in both cultures except that they were more task oriented in the masculine culture. Accordingly, a similar relationship between culture, values and personality preferences may be assumed.

'Software of the mind' functions as a filter when people interpret what kind of values they emphasize. Do the values differ significantly because of the cultural differences when the personality type is controlled? Controlling the type may be an answer to the question of the effect of the culture. In this paper, the relationships between personality preferences and values in Pakistani and Finnish contexts will be compared. In fact, the countries are not as important as the cultures represented by them that are high vs. low power distance, high vs. low uncertainty avoidance, collectivism vs. individualism, and masculinity vs. feminism.

Next, Pakistan and Finland that represent the cultures concerned here will be compared to each other in relation to Hofstede's cultural dimensions and based on Hofstede's (1984) results, and the differences will be characterized to the extent they are relevant to potential value differences.

## Culture Differences of Pakistan and Finland

Comparing Pakistan and Finland with regard to power distance and masculinity dimensions, both are higher in Pakistan. Finland is characterized by small-power distance, and a less masculine cluster. Finland is feminine and a small-power distance country compared to Pakistan. In the individualism-collectivism dimension, Finland is in the individualism cluster whereas individualism is lower in Pakistan. Uncertainty avoidance is higher in Pakistan (See Table 1).

In feminine cultures, the preference for resolving conflicts is compromise and negotiation. In masculine cultures, there is a feeling that conflicts should be resolved by a good fight: Let the best man win (Hofstede 1991: 92). In feminine cultures a humanized job gives more opportunities for mutual help and social contacts. The masculine leadership culture is assertive, decisive, 'aggressive', and a decision-maker is looking for facts rather more than a group-discussion leader. The management in a feminine culture is less visible, more intuitive than decisive and more consensus seeking than the counterpart in a masculine culture (Hofstede 1991:94). In weak uncertainty avoidance, masculine cluster, *achievement* and *esteem* are typical whereas *security* and *belongingness* are typical of strong uncertainty avoidance, feminine cluster (Hofstede 1991:125).

On the power distance and uncertainty avoidance dimension, Finland is in the cluster of small-power distance and strong uncertainty-avoidance cluster, whereas Pakistan is in the cluster of larger-power distance and a little stronger uncertainty avoidance. Countries with strong uncertainty avoidance but small power distance have organizations on the *well-oiled machine model*, the activities structured without concentrating the authority. In the large-power distance, weak-uncertainty-avoidance countries, a *family* organization with an omnipotent owner-manager is characteristic; concentration of authority without structuring of activities (Hofstede 1991: 142-143).

TABLE 1: COMPARISON OF HOFSTEDE'S CULTURAL DIMENSIONS IN THE CASE OF PAKISTAN AND FINLAND

Cultural dimensions	Pakistan	Finland
Power distance	Higher power distance	Small power distance
Masculinity	Highly masculine	Feminine
Individualism-collectivism	High collectivism	Quite high individualism
Uncertainty avoidance	Higher uncertainty avoidance	Lower uncertainty avoidance

## Values and Work Goals

In accordance with Hofstede's 'social programming', values are also seen as 'abstract social cognitions' that help people's adaptation to the environment (Claxton & McIntyre 1996). According to Comte, value consensus is usually defined as concurrence among members of a society concerning their values (Comte, cited in Partridge 1971; see Schwartz & Sagie 2000)

Theoretically, the values, i.e. the types of values used here are based on Schwartz's (1992) and Schwartz and Boehnke's (2004) definitions (TABLE 2).

The comparison of work goals is based on Vunderink and Hofstede's (1998) list of items (see Appendix 1) that measure their importance in one's ideal work. The work goals indicate values on work.

TABLE 2: TYPES OF VALUES AND SUB-VALUES OF THE STUDY

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<b>Achievement</b>	- Implies personal success through demonstrating capabilities respecting the social standards that the individual has to respect. The associated values include ambition, influence, capability, success, intelligence and self-respect
<b>Benevolence</b>	- Is associated with the values of being helpful, responsible, forgiving, honest, loyal, capability for mature love and true friendship
<b>Conformity</b>	- The restraint on action, inclination and impulses that are likely to upset or harm other individuals or groups and violate social norms or expectations are the relevant goals here. The associated values include obedience, self-discipline, politeness and honoring of parents and elders
<b>Hedonism</b>	- Pleasure and the sensuous gratification of oneself are the defining goals here, leading to pursuit of pleasure and enjoyment of life
<b>Power</b>	- The attainment of social status and prestige and control or dominance over others and resources define this motivational type. Values associated with this include social power, wealth, authority, preserving public image and social recognition
<b>Security</b>	- Safety, harmony and the stability of society, of relationships and of self-preservation are the defining goals of this value type. The relevant values include national security, reciprocation of favors, family security, a sense of belonging, social order, health and clean living
<b>Self-direction</b>	- Independent thought and action in choosing, creating, exploring (creativity, freedom, choosing one's own goals, curiosity and independence)
<b>Spirituality</b>	- Implies meaning and inner peace through the transcendence of everyday life. The associated values associated include a spiritual life, meaning in life, inner harmony and detachment
<b>Stimulation</b>	- Values derive from the assumed need of individuals and groups for variety and stimulation in order to maintain an ideal level of activity, motivating an exciting life, a varied life, and a daring outlook
<b>Tradition</b>	- It springs from commitment to, and acceptance of, the customs and ideals that are imposed by an individual's culture or religion. The associated values are tradition, devotion, acceptance of one's 'lot in life', humbleness and moderation
<b>Universalism</b>	- This motivational type is defined by understanding, appreciation, tolerance and protection for the welfare of all other people and of nature. The associated values include equality, unity with nature, wisdom, a world of beauty, social justice, broad-mindedness, protecting the environment and a world at peace.

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## Personality Preferences

There are several ways to conceptualize and assess personality. In this study, the Myers-Briggs Type Indicator (MBTI) was used. It is based on Carl Jung's theory of psychological types and it reports personality preferences on four scales: Jungian Extraversion – Introversion, Sensing – iNtuition, Thinking – Feeling, and the Judging – Perceiving preference added by Briggs and Myers (Myers 1990). According to Myers (1990) *'the MBTI is primarily concerned with the valuable differences in people that result from where they like to focus their attention, the way they like to take information, the way they like to decide, and the way they like to adopt'*. Usually one pole dominates over another. The eight preferences are identified in sixteen types, each representing a certain preference order (Myers & McCaulley 1985). Briefly illustrated the preferences or dimensions are (Myers 1990):

Extraversion (E)	Interested in people and things in the world around them.
Introversion (I)	Interested in the ideas in their minds that explain the world.
Sensing (S)	Interested in what is real and can be seen, heard and touched.
Intuition (N)	Interested in what can be imagined and seen with 'the mind's eye'.
Thinking (T)	Interested in what is logical and works by cause and effect.
Feeling (F)	Interested in knowing what is important and valuable.
Judging (J)	Interested in acting by organizing, planning, deciding.
Perceiving (P)	Interested in acting by watching, trying out, adapting.

As stated by Myers & McCaulley (1985), *"according to theory, each of the 16 types results from a preference for one pole of each of the four preferences over the opposite pole. A preference of any dimension is designed to be psychometrically independent of the preferences of the other three dichotomies, so that the preferences on the four dichotomies yield sixteen possible combinations called types, denoted by the four letters identifying the poles preferred (e.g., ESTJ, INFP). The theory postulates specific dynamic relationships between the*

*preferences. For each type, one process is the leading or dominant process and a second process serves as an auxiliary. Each type has its own pattern of dominant and auxiliary processes and the attitudes (E or I) in which these are habitually used. Determining these dynamic relationships is enabled by the J-P dichotomy of the MBTI. The characteristics of each type follow from the dynamic interplay of these processes and attitudes”.*

Next, the personality preferences will be briefly illustrated (obtained from Hautala 2005).

*Extraversion (E) – introversion (I).* Extraverted people direct energy mainly toward the outer world of people and objects. They are energized by interaction and activity. At work, extraverted people try to reach understanding through interaction and discussion. They are willing to engage and involve others and are energetic and prone to take action. Extraverted types seek and give feedback. Introverted people direct energy mainly toward the inner world of experiences and ideas. They are energized by reflection and solitude. At work introverted types experience people who "stop by" as interruptions and they prefer physical space, which allows for privacy and concentration. They seem less engaged, even when around others (Demarest 1997; Myers et al. 1998). Extraverted people can be seen easily as too overwhelming with their energy and enthusiasm. Too many extraverts in groups or teams can result in confusion because they interrupt each other to express their views (Bradley & Hebert 1997; Demarest 1997). On the contrary, introverted people may be seen as too quiet, stable, thoughtful, deep, and sometimes as disinterested, less active than others and not naturally sharing much information (Demarest 1997).

*Sensing (S) – intuition (N).* Sensing people focus mainly on what can be perceived by the five senses. They are naturally interested in concrete and verifiable information about what is or what has been. Sensing people prefer to work at a steady pace, and complete instructions indicating both the end result and the specifics about how to get there. They like to work with one thing at a time. In teams, they tend to want clear purposes and goals. Intuitive people focus mainly on perceiving patterns and interrelationships. They tend to be naturally interested in flashes of insight, abstractions, theory, and notions of what could be. Intuitive people prefer to work in bursts and wait for inspiration. They prefer general instructions and may work on several things at the same time. In groups and teams they want to have an engaging vision and mission (Demarest 1997; Myers et al. 1998). Sensing types may be experienced as too much down-to-earth, meticulous, reminding others of what is practical and realistic, and sometimes not giving much attention to the long-range view, paying too much attention to details and not wanting to try something new. Whereas intuitives may be experienced as too full of ideas, rising to a challenge, looking to the future, seeing connections among seemingly unrelated things, and sometimes as overlooking the facts and making proposals that seem impossible to carry out (Demarest 1997).

*Thinking (T) – feeling (F).* Thinking people tend to base their conclusions on logical analysis with a focus on objectivity and detachment. They prefer to focus on the work at hand, and do not spend much time on getting to know others and building relationships. They have interaction that is often brief and to the point. They are also often critical of ideas and proposals, and often make suggestions for "how to improve" things. Feeling people tend to base their conclusions on personal or social values with a focus on understanding and harmony. At work they often want to spend time getting to know others. They have interactions that encompass both work and non-work matters. They are naturally appreciative of people's contributions (Demarest 1997; Myers et al. 1998). Thinking types may be experienced as independent thinkers, task-oriented, skeptical, analytical and sometimes as making suggestions for improvements that are experienced as criticism by others. On the contrary, others may see feeling types as too people-oriented, affirming, and sometimes as not making the "hard" decisions, giving too much attention to relationships, taking things personally when they were not intended to be and not being logical (Demarest 1997). According to Kroeger and Thuesen (1992) the difference between thinkers and feelers can cause major problems in organizations, because thinking types are mostly concerned with accomplishing the task, while feeling types are concerned with how well people work together.

*Judging (J) – perceiving (P).* Judging people prefer decisiveness and closure. They like to live in an orderly and structured fashion. As a working style, judging types tend to be methodical and systematic, and often develop routine approaches to work. They like to finish things, bring a structure to the work at hand and see work and play as distinct aspects of life. Perceiving (P) people prefer flexibility and spontaneity. They like to live with options open as long as possible in an unstructured way. Perceiving people tend to be adaptable and often device flexible and have innovative approaches to work. They like to start things, but motivation and interest may decline when it is time to finish. They see work and play as combined aspects of life, and want work to be both productive and

enjoyable (Demarest 1997; Myers et al. 1998). Judging types may be experienced as dependable, deliberate, conclusive, focused, and sometimes as taking things too seriously, deciding too quickly, demanding, and being so focused on goals they have set that they miss out on other things. However, perceiving people may be experienced as too spontaneous, open to new experiences, fun loving, and sometimes as having difficulty deciding, tentative and less organized than others (Demarest 1997).

## Sample and Method

The sample consisted of 390 Finnish people and 98 Pakistani people who completed the Myers-Briggs Type Indicator (MBTI) and the value questionnaires. In case of the value questionnaire (Schwartz), a 7-degree scale was provided for respondents to indicate how important the values presented are. Because of the cultural differences, the rankings of the sub-values will be reported. The factors, that are the value dimensions obtained of US or Finnish data, do not correspond to the factors obtained from the Pakistani data, perhaps due to the cultural differences and different conceptual and language surroundings. In order to measure work goals, a 5-degree questionnaire presented by Vunderink and Hofstede (1998) was administered. 22 items indicate how important it would be to a respondent to have the goals presented in an ideal job. The ranking orders of each personality preference and total samples will be compared. Because of the limited number of different personality types, the analysis was based on personality preferences E, I, S, N, T, F, J and P (see TABLE 3).

Actually, concerning values, the preferences play an important role in differentiating people. The comparison of values and work values will be presented in the form of ranking orders in the whole sample of each culture and of ranking orders of each personality preference. In TABLES 4 and 5, Pakistani data is normal text, Finnish *italic*, and the Common Values or work goals of each preference of the sample are **Bolded**. The rankings of each preference will not be analyzed in detail but the purpose is to show the variation of value and work goal rankings between preferences, in addition between cultures.

Even though men and women are not compared here, it may be mentioned that the differences between male and female respondents were insignificant in feminine culture and individual culture. Instead, in collective and masculine culture the rankings of values differed more; the status of women is different. In this connection, however, the means of total sample will be analyzed.

TABLE 3: THE DISTRIBUTION OF THE PREFERENCES

Preference	Sample		Pakistani Sample		Finnish Sample	
	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>
<b>E</b>	323	66,2	46	46,9	277	71,0
<b>I</b>	165	33,8	52	53,1	113	29,0
<b>S</b>	321	65,8	64	65,3	257	65,9
<b>N</b>	167	34,2	34	34,7	133	34,1
<b>T</b>	265	54,3	61	62,2	204	52,3
<b>F</b>	223	45,7	37	37,8	186	47,7
<b>J</b>	260	53,3	55	56,1	205	52,6
<b>P</b>	228	46,7	43	43,9	185	47,4
Total	488	100,0	98	100,0	390	100,0

## Results

### Values

Concerning the personality preferences and values, there were many differences. As could be concluded, based on the mean of the whole sample and the means of most preferences, the most preferred value in Pakistan was **self-**

**respect.** That is, achievement in terms of self-respect is honored in masculine, collective environment. **Honoring parents and elders** was second, on the average, and at least among the three top values of all preferences. That is, conformity seems to be important in a collective culture. On the average, **family security** was the third in Pakistani culture even though there were variations from second to sixth place in the ranking lists of the preferences. This means that security, especially family security, is very important in a collective and in a high- uncertainty-avoidance culture. Averagely, **the meaning of life** (spirituality) was fourth in the ranking list, varying from second to tenth place depending on preference. **True friendship** (benevolence) was on the fifth place but the variation was large.

**Family security, meaning of life** (spirituality), **true friendship** (benevolence), **health** (security), **inner harmony** (spirituality), **capability** (achievement), **freedom** (self-direction), and **loyalty** (benevolence) were the next of the top ten.

TABLE 4A: A COMPARISON OF THE RANKINGS OF THE MEANS OF THE VALUES OF PAKISTANI (1P-10P) AND FINNISH (1F-10F) PREFERENCES (FINNISH *ITALIC*, COMMON VALUES FOR BOTH COUNTRIES **BOLD**)

Total Sample (n=P98/F410)	Extraversion (n=46/277)	Introversion (n=52/113)	Sensing (n=64/257)	iNtuition (n=34/133)
1P. <b>Self-respect</b>	1P. <b>Self-respect</b>	1P. <b>Self-respect</b>	1P. Honoring of parents and elders	1P. <b>Self-respect</b>
<i>1F. Health</i>	<i>1F. Health</i>	<i>1F. Family security</i>	<i>1F. Family security</i>	<i>1F. Health</i>
2P. Honoring of parents and elders	2P. Honoring of parents and elders	2P. <b>Family security</b>	2P. <b>Self-respect</b>	2P. <b>True friendship</b>
<i>2F. Family security</i>	<i>2F. Family security</i>	<i>2F. Healthy</i>	<i>2F. Healthy</i>	<i>2F. Family security</i>
3P. <b>Family security</b>	3P. Meaning in life	3P. Honoring of parents and elders	3P. <b>Family security</b>	3P. Honoring of parents and elders
<i>3F. True friendship</i>	<i>3F. True friendship</i>	<i>3F. Freedom</i>	<i>3F. True friendship</i>	<i>3F. True friendship</i>
4P. Meaning in life	4P. <b>Family security</b>	4P. <b>True friendship</b>	4P. Meaning in life	4P. Meaning in life
<i>4F. Self-respect</i>	<i>4F. Self-respect</i>	<i>4F. Inner harmony</i>	<i>4F. Self-respect</i>	<i>4F. Freedom</i>
5P. <b>True friendship</b>	5P. Cleanity	5P. Inner harmony	5P. <b>Loyalty</b>	5P. <b>Freedom</b>
<i>5F. Freedom</i>	<i>5F. Freedom</i>	<i>5F. Honesty</i>	<i>5F. Freedom</i>	<i>5F. Self-respect</i>
6P. <b>Healthy</b>	6P. Successful	6P. <b>Health</b>	6P. <b>Health</b>	6P. <b>Family security</b>
<i>6F. Honest</i>	<i>6F. Honest</i>	<i>6F. Self-respect</i>	<i>6F. Honest</i>	<i>6F. Honest</i>
7P. <b>Inner harmony</b>	7P. Equality	7P. Meaning in life	7P. <b>Honesty</b>	7P. Successful
<i>7F. Inner harmony</i>	<i>7F. Enjoying life</i>	<i>7F. True friendship</i>	<i>7F. Inner harmony</i>	<i>7F. Enjoying life</i>
8P. Capability	8P. <b>Healthy</b>	8P. Capability	8P. <b>Inner harmony</b>	8P. Broad-minded
<i>8F. Enjoying life</i>	<i>8F. Loyalty</i>	<i>8F. Responsibility</i>	<i>8F. Loyalty</i>	<i>8F. Inner harmony</i>
9P. <b>Freedom</b>	9P. Responsibility	9P. <b>Freedom</b>	9P. <b>True friendship</b>	9P. <b>Inner harmony</b>
<i>9F. Loyal</i>	<i>9F. Inner harmony</i>	<i>9F. Loyalty</i>	<i>9F. Enjoying life</i>	<i>9F. Mature love</i>
10P. <b>Loyal</b>	10P. <b>Honest</b>	10P. <b>Loyalty</b>	10P. Capability	10P. Capability
<i>10F. Responsibility</i>	<i>10F. Mature love</i>	<i>10F. Enjoying life</i>	<i>10F. Responsibility</i>	<i>10F. Equality</i>

TABLE 4B: A COMPARISON OF THE RANKINGS OF THE MEANS OF THE VALUES OF PAKISTANI (1P-10P) AND FINNISH (1F-10F) PREFERENCES (FINNISH *ITALIC*, COMMON VALUES FOR BOTH COUNTRIES **BOLD**)

Feeling (n=37/187)	Thinking (n=61/204)	Perceiving (n=43/185)	Judging (n=55/205)
1P. Honoring of parents and elders <i>1F. Healthy</i> 2P. <b>Self-respect</b> 2F. <i>Family security</i> 3P. <b>Inner harmony</b>  3F. <i>True friendship</i> 4P. Sense on belonging 4F. <i>Self-respect</i> 5P. <b>True friendship</b> 5F. <i>Honesty</i> 6P. <b>Family security</b> 6F. <i>Inner harmony</i> 7P. Cleanity 7F. <i>Enjoying life</i> 8P. <b>Freedom</b> 8F. <i>Freedom</i> 9P. <b>Loyalty</b> 9F. <i>Mature love</i> 10P. Meaning in life  10F. <i>Loyalty</i>	1P. <b>Self-respect</b>  1F. <i>Healthy</i> 2P. Meaning in life 2F. <i>Family security</i> 3P. Honoring of parents and elders 3F. <i>True friendship</i> 4P. <b>Family security</b>  4F. <i>Freedom</i> 5P. <b>Healthy</b> 5F. <i>Self-respect</i> 6P. Capability 6F. <i>Honesty</i> 7P. Successful 7F. <i>Enjoying life</i> 8P. <b>True friendship</b> 8F. <i>Responsibility</i> 9P. Social justice 9F. <i>Loyalty</i> 10P. <b>Honest/ Responsible</b> 10F. <i>Inner harmony</i>	1P. Honoring of parents and elders 1F. <i>Healthy</i> 2P. <b>Self-respect</b> 2F. <i>Family security</i> 3P. Inner harmony  3F. <i>True friendship</i> 4P. <b>Family security</b>  4F. <i>Freedom</i> 5P. <b>True friendship</b> 5F. <i>Enjoying life</i> 6P. Meaning in life 6F. <i>Self-respect</i> 7P. <b>Healthy</b> 7F. <i>Honesty</i> 8P. <b>Freedom</b> 8F. <i>Inner harmony</i> 9P. Capbility 9F. <i>Mature love</i> 10P. <b>Honest</b>  10F. <i>Loyalty</i>	1P. <b>Self-respect</b>  1F. <i>Family security</i> 2P. Meaning in life 2F. <i>Healthy</i> 3P. Honoring of parents and elders 3F. <i>True friendship</i> 4P. <b>Family security</b>  4F. <i>Self-respect</i> 5P. <b>Healthy</b> 5F. <i>Honesty</i> 6P. <b>Loyalty</b> 6F. <i>Loyalty</i> 7P. Cleanity 7F. <i>Inner harmony</i> 8P. Capability 8F. <i>Responsibility</i> 9P. <b>Honesty</b> 9F. <i>Freedom</i> 10P. Successful  10F. <i>Mature love</i>

Honoring of parents and elders (conformity), meaning of life (spirituality), and capability (achievement) differed from the Finnish top ten. As could be assumed, it seems that in the collective culture conformity (honoring of parents and elders) is valued more explicitly than in the individual culture. The importance of meaning of life (spirituality) may also arise from the collective Asian religious culture which is different from individual Lutheran culture. On the other hand, the top place of self-respect and the placement of capability (both typical of achievement) in the top ten may be derived of the masculine culture where power and effectiveness are honored. In an individual culture, personal health and freedom (self-direction) seem to be more important than in a collective culture. True friendship (benevolence) and family security (security) seem to be of great importance in both cultures, maybe due to both collectivism and feminism.

Looking at the personality preferences, because of the collective and masculine cultures, especially, self-respect (achievement) and honoring of parents and elders (conformity) were nearly independent of preferences. Also family security (security) was generally valued. Typical culture based value in feminine and individual culture was security in terms of health, family security, and also inner harmony. Enjoying life (hedonism) was quite valued in individual culture but not ranked in masculine culture. Also responsibility was ranked only in feminine, small-power distance culture, mainly by Es, Is, Ts and Js.

That is, the culture standardizes certain values. In feminine culture, extraverted (E), intuitive (N) and spontaneous (P) valued mature love that was not on the top ten of any preference of masculine culture. Clean, referring to security, was mentioned by extraverted (E), feeling types (F) and judging (J) types maybe due to higher uncertainty avoidance. Single preferences had some typical values for their nature, for example Pakistani intuitive (N) broad-minded, and Finnish feelers (F) sense of belonging (for details, see TABLES 4A and 4B).



### Work Goals

Looking at the work goals (TABLES 5a and 5b), fully using skills and abilities on the job was most valued by Pakistani respondents, except feeling (F) preference that valued most having sufficient time left for personal life, and secondly having a good working relationship with the supervisor. That is typical of feelers who prefer nice atmosphere and company. Fully using skills and abilities was in correspondence with masculine, achievement-valuing culture.

TABLE 5A: A COMPARISON OF THE RANKINGS OF THE MEANS OF THE WORK GOALS OF PAKISTANI (1P-5P) AND FINNISH (1F-5F) PREFERENCES (FINNISH *ITALIC*, COMMON VALUES FOR BOTH COUNTRIES **BOLD**)

Total Sample (n=P98/F390)	Extraversion (n=46/277)	Introversion (n=52/114)	Sensing (n=64/258)	iNtuition (n=34/133)
<p>1P. <b>Fully using skills and abilities on the job</b>  <i>1F. Have sufficient time left for personal life</i>            2P. Get the deserved recognition when doing a good job  <b>2F. Fully using skills and abilities on the job</b>            3P. Make a real contribution to the success of the company  <i>3F. Have challenging tasks to do</i>            4P. Have an opportunity for advancement to higher jobs  <i>4F. Have a good working relationship with supervisor</i>  <b>5P. Have a good working relationship with supervisor/ Have sufficient time left for personal life</b>  <i>5F. Work with people who cooperate well</i></p>	<p>1P. <b>Fully using skills and abilities on the job</b>  <i>1F. Have sufficient time left for personal life</i>            2P. Make a real contribution to the success of the company  <b>2F. Fully using skills and abilities on the job</b>            3P. Get the deserved recognition when doing a good job  <i>3F. Have challenging tasks to do</i>            4P. Have an opportunity for advancement to higher jobs  <b>4F. Have a good working relationship with supervisor</b>  <b>5P. Have a good working relationship with supervisor</b>  <i>5F. Work with people who cooperate well</i></p>	<p>1P. Fully using skills and abilities on the job  <i>1F. Have sufficient time left for personal life</i>            2P. Get the deserved recognition when doing a good job  <i>2F. Live in a desirable area</i>            3P. Have an opportunity for advancement to higher jobs  <i>3F. Have a good working relationship with supervisor</i>            4P. Have an opportunity for high earnings  <i>4F. Have challenging tasks to do</i>  <b>5P. Have sufficient time left for personal life</b>  <i>5F. Work with people who cooperate well</i></p>	<p>1P. <b>Fully using skills and abilities on the job</b>  <i>1F. Have sufficient time left for personal life</i>            2P. Make a real contribution to the success of the company  <b>2F. Fully using skills and abilities on the job</b>            3P. Work in a prestigious, successful company  <i>3F. Have a good working relationship with supervisor</i>            4P. Get the deserved recognition when doing a good job  <i>4F. Live in a desirable area</i>            5P. Have training opportunities/ <b>Have a good working relationship with supervisor</b>  <i>5F. Work with people who cooperate well</i></p>	<p>1P. <b>Fully using skills and abilities on the job</b>  <i>1F. Have challenging tasks to do</i>            2P. Get the deserved recognition when doing a good job  <b>2F. Fully using skills and abilities on the job</b>            3P. Have an opportunity for advancement to higher jobs  <i>3F. Have an element of variety and adventure in the job</i>  <b>4P. Have sufficient time left for personal life</b>  <i>4F. Have sufficient time left for personal life</i>            5P. Make a real contribution to the success of the company/ Have good fringe benefits  <i>5F. Have a good working relationship with supervisor/Work with people who cooperate well</i></p>

TABLE 5B: A COMPARISON OF THE RANKINGS OF THE MEANS OF THE WORK GOALS OF PAKISTANI (1P-5P) AND FINNISH (1F-5F) PREFERENCES (FINNISH *ITALIC*, COMMON VALUES FOR BOTH COUNTRIES **BOLD**)

<b>Feeling (37/186)</b>	<b>Thinking (61/204)</b>	<b>Perceiving (43/185)</b>	<b>Judging (55/203)</b>
<p>1P. <b>Have sufficient time left for personal life</b>  <i>1F. Have sufficient time left for personal life</i>            2P. <b>Have a good working relationship with supervisor</b>  <i>2F. Fully using skills and abilities on the job</i>            3P. Make a real contribution to the success of the company  <i>3F. Work with people who cooperate well</i>            4P. <b>Live in a desirable area</b>    <i>4F. Live in a desirable area</i>              5P. Have an opportunity for high earnings / <b>Fully using skills and abilities on the job</b>  <i>5F. Have a good working relationship with supervisor</i></p>	<p>1P. <b>Fully using skills and abilities on the job</b>  <i>1F. Have challenging tasks to do</i>            2P. Get the deserved recognition when doing a good job  <i>2F. Fully using skills and abilities on the job</i>            3P. Have an opportunity for advancement to higher jobs  <i>3F. Have sufficient time left for personal life</i>            4P. Make a real contribution to the success of the company  <i>4F. Have an element of variety and adventure in the job</i>            5P. Work in a prestigious, successful company    <i>5F. Have a good working relationship with supervisor</i></p>	<p>1P. <b>Fully using skills and abilities on the job</b>  <i>1F. Have sufficient time left for personal life</i>            2P. Have an opportunity for advancement to higher jobs  <i>2F. Fully using skills and abilities on the job</i>            3P. Get the deserved recognition when doing a good job  <i>3F. Work with people who cooperate well</i>            4P. Make a real contribution to the success of the company  <i>4F. Have an element of variety and adventure in the job</i>            5P. <b>Have sufficient time left for personal life</b>    <i>5F. Have challenging tasks to do</i></p>	<p>1P. <b>Fully using skills and abilities on the job</b>  <i>1F. Have sufficient time left for personal life</i>            2P. Get the deserved recognition when doing a good job  <i>2F. Have challenging tasks to do</i>            3P. Make a real contribution to the success of the company  <i>3F. Fully using skills and abilities on the job</i>            4P. <b>Have a good working relationship with supervisor</b>  <i>4F. Have a good working relationship with supervisor</i>            5P. Have training opportunities    <i>5F. Work with people who cooperate well</i></p>

To get the deserved recognition when doing a good job and to make a real contribution to the success of the company were also at the top of valued work goals suiting well in the masculine, achievement culture. Along the same lines was also having an opportunity for advancement to higher jobs that could also be typical of an individual culture but it was not, maybe due to the feminine dimension.

In the individual and feministic culture, to have sufficient time left for personal life was the most important work goal. Also to have challenging tasks to do was felt as valuable. To work with people who cooperate well was also emphasized in the feministic culture.

The common work goals for both cultures concerned were fully using skills and abilities on the job and having a good working relationship with the supervisor but the feminine, individual culture emphasized strongly sufficient time left for personal life instead of only the job. The top fives of work goals were quite different in each culture except feelers (F) who had four common work goals of five. Typical of feelers were to have sufficient time left for personal life, of course, to live in a desirable area, to have a good working relationship with the supervisor, and fully using skills and abilities on the job. Also other preferences had typical work goals for their traits but not common in both cultures. To mention some examples, Pakistani sensing (S) respondents want to work in a prestigious, successful company and have training opportunities. Introverts (I), sensors (S), and feelers (F) want also to live in a desirable area in the individual culture. Typical of intuitive (N) and spontaneous (P) people and also thinkers (T) in individual culture, they want to have an element of variety and adventure in the job. In all, except the feelers (F), work values differed quite much between the cultures concerned.

## Conclusions

What are the lessons to be learned based on the analysis above? Firstly, the study confirmed the earliest studies that there are culture-based stresses in the values that must be taken into consideration in international business. Secondly, the study revealed that there is a certain amount of conformity among members of a society concerning their values. That is there may be some shared values over the individual values. Thirdly, the study uncovered that there are values and work goals typical of certain personalities. Fourthly, the study confirmed that certain personalities have common values or work goals over cultures.

Most typical values for high power distance, high uncertainty avoidance, collectivism and masculinity culture were particularly achievement and conformity but also spirituality, security, benevolence and self-direction to some extent. Hedonism, benevolence, security, self-direction, and partly spirituality in terms of inner harmony were valued in the opposite culture. It may be noted that, for example, power, tradition, and universalism were not on the top of rankings.

Inside cultures, personalities have their value and especially work goal differences. Each individual personality has its own ranking of values. In global business, the business person or traveler should recognize the intercultural differences within regions in order to succeed in business or leisure relationships. As was noted, for example, true friendship, to have a good working relationship with the supervisor and to work with people who cooperate well were high values in both cultures. That is personal relationships are a sensitive area where insulting of values may lead to bad effects. The great number of unsuccessful expatriate recruitments is a serious example of scarce understanding of cultural and personality differences of values and work goals.

To succeed as manager work in foreign culture needs training and coaching in self-knowledge and cultural differences in terms of values and work goals. For example, a manager in masculine, collective, high-power distance, and high-uncertainty-avoidance culture has to take into account achievement and security which demand quite task-oriented leadership behavior while benevolence and self-direction require a certain degree of human orientation. Also honoring spiritual values may be hard to manage for a western manager. A manager from an individual and feminine culture may also have difficulties to apply task oriented and collective leadership style when used to working in work communities colored by hedonism and benevolence. Correspondingly an expatriate coming from high-power distance, high uncertainty avoidance, collectivism and masculinity culture to the opposite culture may feel insecure and inactive in an un-collective milieu of hedonism. Additionally come personality differences, which, at best improve effectiveness and organizational climate but, at worst will be misunderstood and wasted. In a global world, business communities are more and more multicultural, despite the country where they are. That is why knowledge of the relationships between cultural dimensions, values, work goal and personalities is a big challenge for management.

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## Appendix

APPENDIX 1: WORK GOALS QUESTIONNAIRE ITEMS (VUNDERINK & HOFSTEDE, 1998).

1. have sufficient time left for your personal or family life
2. have challenging tasks to do, from which you can get a personal sense of achievement
3. have little tension and stress on the job
4. have good physical working conditions (good ventilation and lighting, adequate work space, etc.)
5. have a good working relationship with your direct supervisor
6. have security of employment
7. have considerable freedom to adopt your own approach to the job
8. work with people who cooperate well with one another
9. be consulted by your direct superior in his/her decisions
10. make a real contribution to the success of your company or organization
11. have an opportunity for high earnings
12. serve your country
13. live in an area desirable to you and your family
14. have an opportunity for advancement to higher level jobs
15. have an element of variety and adventure in the job
16. work in a prestigious, successful company or organization
17. have an opportunity for helping other people
18. work in a well-defined job situation where the requirements are clear
19. have training opportunities (to improve your skills or learn new skills)
20. have good fringe benefits (material advantages other than cash salary)
21. get the recognition you deserve when you do a good job
22. fully use your skills and abilities on the job
1. have sufficient time left for your personal or family life
2. have challenging tasks to do, from which you can get a personal sense of achievement
3. have little tension and stress on the job
4. have good physical working conditions (good ventilation and lighting, adequate work space, etc.)
5. have a good working relationship with your direct supervisor
6. have security of employment
7. have considerable freedom to adopt your own approach to the job
8. work with people who cooperate well with one another
9. be consulted by your direct superior in his/her decisions
10. make a real contribution to the success of your company or organization
11. have an opportunity for high earnings

12. serve your country
13. live in an area desirable to you and your family
14. have an opportunity for advancement to higher level jobs
15. have an element of variety and adventure in the job
16. work in a prestigious, successful company or organization
17. have an opportunity for helping other people
18. work in a well-defined job situation where the requirements are clear
19. have training opportunities (to improve your skills or learn new skills)
20. have good fringe benefits (material advantages other than cash salary)
21. get the recognition you deserve when you do a good job
22. fully use your skills and abilities on the job

## Cross Cultural Management: Understanding the Implications of Malaysian Work Culture

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### Abstract

This study investigated the influence of work culture on organizational effectiveness in Malaysia. Based on The Twelve Pillars, a structured questionnaire was developed and self-administered to two uniformed organizations in Malaysia. The Twelve Pillars specified twelve fundamental values that should guide the conduct of all Malaysian civil servants, namely valuing time, perseverance, pleasure of working, dignity of simplicity, character, kindness, influence of examples, obligation of duty, wisdom of economy, patience, improvement of talent, and innovativeness. The results showed that there was an association between work culture and organizational effectiveness. The findings also identified dimensions of work culture that influence organizational effectiveness. This means that certain type of work culture could facilitate commitment and satisfaction among workers in uniformed organization. The implications of this research were also discussed.

### Introduction

The idea of organization or corporate culture has been identified as an important aspect of organizational behavior and as a concept that is useful in helping to understand how organizations function, (Kristof, 1996). In addition, culture helps determine how well a person “organization cultures” within a particular organization because the “organization culture” includes feeling comfortable with the culture (O' Reilly, 1989). Research has indicated that the degree of organization culture between a person and the organization is related to both productivity and employee turnover (Rousseau and Parks, 1992; Ryan and Schmit, 1996).

While the study of these concepts has been primarily limited to Western and in particular American organizations, there has been some research in other cultures. Hofstede *et al.* (1993) studied organizational culture in several national cultures and found that individuals' values and organizational practices need to be integrated and that demographic variables, such as age and gender, have an impact the degree of organization culture. Elizur *et al.* (1991) examined the relative importance of work value items and organizational structure in eight different countries. While some cultural differences in value ratings were found, these differences were actually relatively small in the context of organizational structure differences. Calori and Sarnin (1991) examined the relationship between organization cultural traits and economic performance and between strength of corporate culture and economic performance in France and concluded that economic performance of the organization is directly tied to the strength of the corporate culture particularly the work-related values of employees and the cultural traits.

The related concepts of work culture and organizational effectiveness are important to organizational success. However, there has been little attention paid to the interaction of work culture with such concepts as job satisfaction and organizational commitment and the application of this concept in non-western cultures. Douglas (1988, 389) notes that: “The western model may provide an ideal for organizational development, and its classical use may help less developed countries (L.D.C.s) achieve goals they have set for themselves, but the model rests on certain normative assumptions about society, man, motivation and time not found in non-western societies...”

Douglas (1988, 375) further observes that:

“Each country has a unique value system which is relevant to it alone; this places a premium on administrators who understand and accept the indigenous value system... It is nearly impossible to transfer cultural values without provoking inconsistencies in the environment into which they are introduced...”

The research in Malaysia on work culture and organizational effectiveness is also limited. In all aspects of Malaysian life attempts are made to identify indigenous values which are cherished by the people. These values are then elaborated, particularly through the speeches of national leaders in all types of leadership roles. When crucial and necessary, these various values are articulated as policies, for instance, Malaysia Incorporated and Privatization Policies, the Look East Policy or the policy of a Caring Civil Society.

In Malaysian context, among the management concepts which are receiving wide and popular usage are the following: consultation (*musyawarah*), collaboration (*cooperativeness*), excellence (*al falah*), personal refinements (*adab*), accountability (*amanah*), etc.. Many of the concepts being explored are indigenous concepts but Islamic in origin. This is because Malay culture is essentially Islamic and the Malay language itself has a large number of “loan words” from the Arabic language in matters pertaining to history, philosophy and spirituality. Likewise, in the domain of the sciences and technology, the Malay language expands its terminology by incorporating “loan words” from the English language or from Greek and Latin roots. The Islamic worldview is fostered primarily by three principles. These principles are, *tawhid* (unity), *khalifah* (vicegerent) and *al ‘Adl* (justice). Universal values held by Islam and considered to be applicable in all situations and in all societies include the following:

- every act should be accompanied by intention (*niyat*);
- conscientiousness and knowledgeable in all endeavors (*itqan*);
- proficiency and efficiency (*ihsan*);
- sincerity (*ikhlas*);
- passion for excellence (*al falah*);
- continuous self-examination;
- forever mindful of the almighty - piety (*taqwa*);
- *Justice* (*‘Adl*); truthfulness (*amanah*);
- patience (*sabar*);
- moderation;
- promise keeping;
- accountability;
- dedication;
- gratefulness;
- cleanliness;
- consistency;
- discipline; and
- co-operation.

An example of a collaborative indigenous effort to identify the sets of relevant values to be upheld by civil servants and Malaysians as a society is what is known as the “Twelve Pillars”. Seminar participants and experts and other knowledge and opinion leaders have come together and identified values worth knowing and disseminating. After a series of seminars and discussions the Twelve Pillars were accepted and widely distributed nationally to encourage individuals to emulate such values so that the organizations they serve in will be productive and uphold high ideals. The Twelve Pillars are:

- the value of time;
- the success of perseverance;
- the pleasure/joy of working;
- the dignity of simplicity;
- the importance/worth of character;
- the power of kindness;
- the influence of positive examples;
- the obligation of duty;
- the wisdom of economy;
- the virtue of patience;



- the improvement of talent; and
- the joy of creativity/invention/origination.

Each of these ideas was explained clearly with examples in the public service sector. The intention of disseminating these ideas together with such other notions as “zero defect” was to ensure that managers at all levels share a collective managerial memory to achieve the goals of providing services that are excellent and of world-class quality. In the formulation of these ideas, generic concepts are drawn from the literature and from examples elsewhere but are then adapted and made relevant to the Malaysian situation.

Thus, the objectives of this paper are to discuss the relationship between Malaysia work culture, organizational commitment and job satisfaction. Work culture refers to the current practices by the Malaysian employees who work in uniformed organizations. Whereas, organizational commitment is a work attitude that is directly related to employee participation and intention to remain with the organization and is clearly linked to job performance (Mathieu and Zajac, 1990). Organizational commitment includes the three components of affective (desire to remain), continuance (perceived cost of leaving) and normative (perceived obligation to remain) (Meyer and Allen, 1991). A study of Japanese employees found that organizational commitment could be viewed as a multidimensional construct that applied in Japan and that the organizational commitment questionnaire (OCQ) is an effective cross-cultural tool for measuring organizational commitment (White *et al.*, 1995). Job satisfaction is a general attitude that the employee has towards their job and is directly related to individual needs including challenging work, equitable rewards and a supportive work environment and colleagues (Ostroff, 1992). It is also related to personality-job organization culture, one of the components of the Organization culture (Kristof, 1996). Job satisfaction has also been linked to productivity (Katzell *et al.*, 1992). Greater productivity implies that many non-material costs will remain the same while output and proorganization cultures should increase (Stiles *et al.*, 1997).

## **Work Culture and Organizational Effectiveness**

In a case study of the China Steel Company, Chao (1990) discussed the Confucian tradition and ethos and their implications for management and worker performance in Asian societies and found that the management philosophy and corporate culture were rooted in and guided by Confucianism in the Chinese character and approach to work. Another study in Taiwan investigated organizational structure and managerial assumptions, values, and other socio-demographical features of senior managers (Jou and Sung, 1993). The results indicated that four different managerial patterns exist in Taiwanese organizations. Two of these, labeled mainlander and grass roots, were said to represent an approach characteristic of traditional Chinese value orientations. A third type of managerial pattern was labeled the specialist type and this was said to assimilate the Western logic of rationalism as its basic value. The fourth type of managerial pattern, transition, was considered a hybrid of the traditional Chinese values, Japanese management style and Western rationalism.

An individual learns to perform in an organization through socialization (Schein, 1980). Individuals come to appreciate the values, the expected behaviors, and social knowledge that are essential for effective organizational behavior. Since work culture serves many purposes including establishing the norms for employees behavior, it has a direct impact on the Organization culture. In trying to improve effectiveness, companies look to engaging the employees more in the organization and the goal of this research was to explore issues relating to the influence of Organization culture and culture on organizational commitment and job satisfaction.

Culture consists of some combination of artifacts (also called practices, expressive symbols or forms), values and beliefs and underlying assumptions that organizational members share about appropriate behavior (Gordon and DiTomaso, 1992; Schein, 1992; Schwartz and Davis, 1981). Although there are many definitions of culture, work culture has been viewed as holistic, historically determined, and socially constructed. Culture involves beliefs and behavior, exists at a various levels, and manifests itself in a wide range of features of organizational life (Hofstede *et al.*, 1990). As such, work culture refers to a set of shared values, belief, assumptions, and practices that shape and guide members’ attitudes and behavior in the organization (Davis, 1984; Denison, 1990; Kotter and Heskett, 1992; O’Reilly and Chatman, 1996; Wilson, 2001).

From past research, studies on corporate culture focused on its relationship with performance (Denison, 1990; Denison and Mishra, 1995; Gordon, 1985; Kotter and Heskett, 1992; Peters and Waterman, 1982; Ouchi, 1981), cultural change (Harrison and Carrol, 1991; Ogbonna and Harris, 1998; Sathe, 1983; Silvester and Anderson, 1999), strategy (Choe, 1993; Schwartz and Davis, 1981) and the relationship between work culture and industry characteristics (Christensen and Gordon, 1999; Gordon, 1991; Hofstede *et al.*, 1990; Spender, 1989;). Despande and Farley (1999) studied the relationship between corporate culture and market orientation in Indian and Japanese firms. They found that the most successful Indian firms had entrepreneurial culture, while the Japanese firms had entrepreneurial and competitive culture.

Work culture has also been recognized to have an important role in assuring efforts in organizational change (Ahmed, 1998; DeLisi, 1990; Lorenzo, 1998; Schneider and Brief, 1996; Silvester and Anderson, 1999; Pool, 2000). Herguner and Reeves (2000) investigated Turkish work culture change in higher education. Between 1991-1994, the Turkish culture was more consultative, but by 1998, it was more toward participative. This means that over a period of time, there was a change in the work culture. Since work culture also described the part of the organization's internal environment (organizational climate and culture), which incorporates a set of assumptions, beliefs, and values that organizational members share and use to guide their functions (Kilmann *et al.*, 1985; Schein, 1992), therefore it could be expected that these assumptions, belief, and values might guide and shape people's attitudes toward organizational change.

## Method

This study employs a quantitative method that applies cross-sectional exploratory mode utilizing questionnaire survey. This method has been chosen due to its strengths from the perspective of cost and it is able to gather enormous data within a limited time frame.

## Measures

A questionnaire was designed to address the research questions of this study. A questionnaire booklet was assembled consisting several scales. Questionnaire items included demographic questions relating to gender, age, ethnicity, and academic qualification.

The Malay Work Values scale was developed based on items in The Twelve Pillars and was adapted by the researchers based on dimensions introduced by Deal and Kennedy (1982) and O'Reilly, Chatman and Caldwell (1991). The instrument was designed using the method of interater reliability. A total of 3 coders were involved. Each coder was required to categorize the characteristics found in Twelve Pillars based on organizational cultural dimensions founded by Deal and Kennedy (1982) i.e. strictness, meticulousness, results orientation, comfortable working environment, stability, innovation, humanistic orientation, aggressiveness, emphasis on reward, group orientation, and working as part of good deed. The dimensions introduced by the researchers were *cooperativeness* (working cooperatively), dignity, hierarchy/courtesy, and religious values. . A five-point Likert-type scale ranging from 1 = *Strongly Disagree*; 2 = *Disagree*; 3 = *Seldom*; 4 = *Agree*; and 5 = *Strongly Agree*. This scaling is similar to that recommended by Nunnally (1978).

From the aspect of reliability, Table 1 shows the alpha value for the whole instrument on Malay Work Culture developed by the researchers based on the main values in The Twelve Pillars (Table 1). The whole alpha value for the instrument on Malay work culture instrument is 0.79. Each dimension in the instrument shows a satisfactory alpha value. It can be concluded that the instrument used is reliable and acceptable.

Organizational commitment was measured using instrument developed by Meyer and Allen (1990) Organizational Commitment Questionnaire (OCQ). This questionnaire is composed of twenty four items. A five point scale ranging from 1 (strongly disagree) to 5 (strongly agree) was employed.

Job satisfaction was measured using 24 items adopted from the Minnesota Satisfaction Questionnaire (MSQ) developed by Weiss et al (1971). A five point scale ranging from 1 (strongly disagree) to 5 (strongly agree) was employed. All of the scales were translated from English into Malay using the double translation method unless

already available in Malay Language. The instruments have been validated for use in the US and the reliability and validity for Malay Language use were established using the sample from the pilot study.

TABLE 1: ANALYSIS OF RELIABILITY ON THE INSTRUMENTS

Dimension	Alpha Value
Work culture	.79
Strictness	.71
Meticulousness	.70
Results orientation	.71
Comfortable working environment	.71
Stability	.71
Innovation	.71
Humanistic orientation	.72
Aggressiveness	.70
Emphasis on reward	.71
Group orientation	.72
Working as part of deed	.72
<i>Cooperativeness</i> /Cooperativeness	.70
Observing one's dignity	.71
Courtesy	.72
Religious values	.71
Organizational Commitment	.76
Affective	.81
Normative	.77
Continuance	.79
Job Satisfaction	.79
Intrinsic	.82
Extrinsic	.90

## Analysis

Data were analyzed using the Statistical Package for Social Sciences (SPSS) version 10.0 for Windows software. Descriptive statistics, which include frequencies and percentages, were utilized to present the main characteristics of the sample and the profile of work culture and organization effectiveness.

### Participants

The population for this study consisted of workers in uniformed organizations. A total of 2,264 respondents were randomly selected from the population. A total of 59.65% of the respondents were male and 40.35% female. Regarding marital status, 87.66% of respondents were married, 9.91% single, and 2.43% divorcee/Widow. The majority of the respondents were Malays (86.40%), Chinese (7.54%), Indian (5.30%) and other races (0.6%). The majority of the respondents were aged between 30-49 (71.8%) In terms of academic qualification, duration of service and income. From the total, 53.18% of the respondents had Malaysian School Certificate or lower, 23.86% Malaysia High School Certificate or equivalent, 7.48% diploma, 10.28% bachelor's degree, and 3.34% other qualifications.

On the total of respondents based on duration of service, 63.39% had served more than 15 years, 8.69% 3-6 years, 8.99% 3 years or less, 4.45 % 7-9 years, 8.39% 10-12 years and 4.95% 13-15 years. A total of 19.00% of the

respondents earned a monthly income of RM1001-RM1500, 5.96% RM1000 or less, 29.32% RM1501-RM2000, 16.99% RM 2001-2501 and 13.75% earned more than RM2501-RM3000. A total of 82.00% respondents were from the support staff and the remaining (412.74%) were from the professional groups.

## Findings

### Descriptions Analysis of Work Culture Practices among Staff in the Prison and Custom Department Based On Dimension

The following part is the descriptive analysis of the Work culture practices which is divided into two parts, Work Culture 1 and Work Culture 2. Variables of work culture 1 consists of fifteen dimensions. The dimensions are strictness, dimension meticulousness, results orientation, comfortable working environment, stability, innovation, humanistic orientation, aggressiveness, emphasis on reward, group orientation, working as part of deed, dimension cooperativeness, observing one's dignity, hierarchy and religious values. Work Culture 2 on the other hand, consists of 8 dimensions. They are innovation, strictness, aggressiveness, cooperation, meticulousness, encouragement, result orientation and emphasis on reward. The two work culture were analysed using mean and standard deviation value.

#### Strictness

Table 2 indicate mean and standard deviation value for dimension strictness. Item punctuality shows the highest mean followed by sympathy to other's difficulty and problems and quality cannot be sacrifice.

TABLE 2: DIMENSION STRICTNESS

Item	n	Mean	SD
Punctuality	2262	3.38	.58
Sympathise with other's difficulty and problems	2261	3.20	.55
Quality can be sacrifice	2260	2.20	.83
Lacikadaisikal	2263	1.74	.88
Total participants	2254*		

\* Exclusive of non-respondents

#### Meticulousness

The highest mean value is following work manual. This is followed by Hardwork and emphasis on result compatible to effort as indicated in Table 3.

TABLE 3: METICULOUSNESS

Item	n	Mean	SD
Following work manual	2259	3.34	.57
Hard work	2260	3.25	.72
Emphasis on reward	2263	2.79	.83
Priority	2258	2.05	.72
Total participants	2249*		

\* Exclusive of non-respondents

#### Results Orientation

The Table 4 shows the highest mean value for the Result Orientation Dimension. The highest is Hardwork followed by Feeling Happy to Give Suggestions and Work and Punctuality.

TABLE 4: RESULTS ORIENTATION

Item	n	Mean	SD
Hard Work	2262	3.39	.55
Feeling happy to give idea and suggestion	2262	3.25	.60
Punctuality	2261	2.93	.77
Total participants	2257*		

- *Exclusive of non-respondent*

#### Comfortable Working Environment

The highest mean value is the Work Equally Shared By All followed by Friendliness, and Able To Leave The Office On Personal Matters.

TABLE 5: COMFORTABLE WORKING ENVIRONMENT

Item	n	Mean	SD
Work equally shared by all	2260	3.42	.58
Friendliness	2264	3.35	.55
Able to leave office on personal matters	2259	2.29	.85
Total participants	2255*		

- *Exclusive of non-respondent*

#### Stability

In the dimension of stability, Work For Allah/God shows the highest mean value followed by Clear Work Procedures At The Workplace and Opposing Others Opinion Without Giving Constructive Suggestions.

TABLE 6: STABILITY

Item	n	Mean	SD
Opposing Others Opinion Without Giving Constructive Suggestion	2261	3.55	.59
Work For Allah/God	2260	3.02	.69
Clear Work Procedures	2258	2.00	.84
Total participants	2252*		

- *Exclusive of non-respondent*

#### Innovativeness

Table 6 indicates Emphasis on reward if one is creative in his work as the highest mean value. This is followed by to inform through a third party and praiseworthy job.

TABLE 7: INNOVATIVENESS

Item	n	Mean	SD
Emphasis On Reward If One Is Creative In His Work	2256	2.58	.82
Inform Through A Third Party	2261	2.27	.85
Praiseworthy Job.	2262	1.74	.71
Total participants	2251*		

- *Exclusive of non-respondent*

### Humanistic Orientation

Cooperation shows a high mean value of 3.24 followed by teamwork and vague instructions (Table 8).

TABLE 8: HUMANISTIC ORIENTATION

Item	n	Mean	SD
Cooperation	2263	3.24	.61
Work As Group Member/Teamwork	2261	3.17	.74
Vague Instructions	2258	2.26	.75
Total participants	2254*		

• *Exclusive of non-respondent*

### Aggressiveness

Table 9 shows the aggressiveness dimension. The highest mean value is God's Will, followed by Work Punctuality and Temperamental.

TABLE 9: AGGRESSIVENESS

Item	n	Mean	SD
God's Will	2259	3.11	.83
Work Punctuality	2262	3.10	.68
Temperamental	2262	2.03	.88
Jealousy	2258	1.79	.92
Dislike People's Success	2264	1.74	.75
Total participants	2249*		

\* *Exclusive of non-respondent*

### Emphasis On Reward

Table 10 shows the following items which record the highest mean value. They are work for Promotional Reward, Failures To Recognize People's Success, and Procastination. Procastination is a negative item.

TABLE 10: EMPHASIS ON REWARD

Item	n	Mean	SD
Work For Promotional Reward	2258	2.53	.86
Failure To Recognize People's Success	2261	2.26	.81
Procastination	2264	1.85	.82
Total participants	2256*		

\* *Exclusive of non-respondent*

### Group Orientation

Table 11 indicates the mean values and standard deviation for group orientation dimension. The highest mean value is cooperation and respectful of others. This is followed by It's Okay Attitude If Being Late which is a negative item.

TABLE 11: GROUP ORIENTATION

Item	n	Mean	SD
Cooperation And Respectful Of Others	2259	3.37	.63
It's Okay Attitude	2260	2.04	.78
Total participants	2255*		

\* Exclusive of non-respondent

**Working As Part Of Deed**

Table 12 shows the mean values for the items in Working As Part Of Deed dimension. The highest mean value is Work Must Have Aims. This is followed by Work Quality and Follow Instructions.

TABLE 12: WORKING AS PART OF DEED

Item	n	Mean	SD
Work Must Have Aims	2260	3.45	.84
Work Quality	2263	3.21	.74
Follow Instructions	2262	3.01	.80
Total participants	2257*		

\* Exclusive of non-respondent

**Cooperativeness**

This dimension has five items. The highest mean value is Work Completion Priority, followed by Happy Working and Working Alone Is Better.

TABLE 13: COOPERATIVENESS

Item	n	Mean	SD
Work Completion Priority	2260	3.38	.54
Happy Working	2263	3.07	.77
Prefer To Work Alone	2255	2.06	.74
Busybody	2260	1.73	.88
Snobbish	2261	1.64	.89
Total participants	2245*		

\* Exclusive of non-respondent

**Observing One's Dignity**

Table 14 indicates Observing One's Dignity Dimension. The highest mean value is Like Helping Others followed by Conducive Work Place and then Difficult To Make A Suitable Decision.

TABLE 14: OBSERVING ONE'S DIGNITY

Item	n	Mean	SD
Helping Others	2264	3.28	.55
Conducive Workplace	2261	3.12	.76
Difficult To Make Suitable Decision	2262	2.25	.78
Total participants	2259*		

\*Exclusive of non-respondent

### Courtesy

Table 15 indicates the mean value and standard deviation for courtesy dimension. Working as part of deed show the highest mean value among the items. This is followed by Meticulousness and the Vague Procedures For Work Promotions.

TABLE 15: COURTESY

Item	n	Mean	SD
Work as part of deed	2264	3.50	.58
Meticulousness	2262	3.24	.63
Vague procedure for work promotions	2261	2.60	.84
Total participants	2259*		

*\*Exclusive of non-respondent*

### Religious Values

Table 16 shows that Hardwork has the highest value, followed by New Innovations and Bragging About One Self.

TABLE 16: DIMENSION VALUE RELIGIOUS VALUES

Item	n	Mean	SD
Hardwork	2264	3.38	.57
Encouragement for new innovation	2260	3.05	.65
Bragging about oneself	2264	1.81	1.00
Total participants	2260*		

*\*Exclusive of non-respondent*

### Correlation Between Work Culture and Job Satisfaction

There is a significant correlation between work culture 1 and work culture 2 and overall job satisfaction. The dimensions for work culture which have highest correlations with job satisfaction are result orientation, observing one's dignity and comfortable working environment. The dimensions which have low correlations with job satisfaction on the other hand, are Innovativeness, Emphasis On Reward and Aggressiveness. Eventhough work culture 1 has a significant relationship with job satisfaction, there are dimensions which show negative correlations such as innovativeness, and emphasis on reward. This indicates that greater emphasis on reward and innovativeness will result lower level of job satisfaction. As for work culture 2, the dimensions which show high correlations with job satisfaction are encouragement, strictness, emphasis on reward and value. Dimensions which have low correlation with job satisfaction are aggressiveness, meticulousness and innovativeness. Therefore, these findings support the hypotheses designed.

In term of the relationship between Work culture and job satisfaction, research findings indicate that there is a significance and positive correlation and positive between both variables ( $p < 0.01$ ) as in Table 17. This findings support the hypotheses. This indicate that the more positive work culture among employees, the higher their job satisfaction.



TABLE 17: CORRELATION WORK CULTURE AND JOB SATISFACTION

Work Culture	Job Satisfaction
	.29**
<u>Work Culture 1:</u>	
Strictness	.11**
Meticulousness	.23**
Result orientation	.32**
Comfortable working environment	.26**
Stability	.19**
Innovation	-.06**
Humanistic orientation	.20**
Aggressive	.03**
Emphasis on reward	-.06**
Group orientation	.14**
Working as part of deed	.24**
Cooperativeness (Gotong-royong)	.09**
Observing one's dignity	.31**
Courtesy	.16**
Religious values	.23**
	.42**
<u>Work Culture 2:</u>	
Innovation	.29**
Strictness	.39**
Aggressive	.23**
Cooperativeness (Gotong-royong)	.36**
Attention to detail	.28**
Encouragement	.42**
Result orientation	.34**
Emphasis on reward	.39**

\*\* Correlation significance at level .01 (2-tailed)

#### Correlation Between Work Culture and Organizational Commitment

There is a significant, moderate and positive correlation level between work culture and organizational commitment. This further supports the hypothesis designed. The findings indicate positive workculture practices in an organization will result in high value of work culture among staff/workers as incated in table 18. Table 18 also indicates significant and positive correlations between work culture and organizational for all variables. There is no relationship between innovativeness and emphasis on reward and work culture. Other dimensions in work culture 1 have significant relationshoip with work culture. For work culture 1, results orientation, observing one's dignity and meticulousness are highly correlated. In contrast, aggresiveness, cooperativeness and group orientation has low correlation. As for work culture 2, on the other hand, there is a high value of correlations among dimension like strictness, encouragement, and result orientation. However, dimensions which show low correlation value are aggresiveness, meticulousness and innovativeness. As a whole, the findings support the hypotheses designed by the researchers

TABLE 18: CORRELATION BETWEEN WORK CULTURE AND ORGANIZATIONAL COMMITMENT

Work Culture	Organizational Commitment
	.330**
<u>Work Culture 1:</u>	
Strictness	.119**
Meticulousness	.274**
Results orientation	.312**
Comfortable working environment	.245**
Stability	.222**
Innovation	.022
Humanisti orientation	.245**
Aggresive	.056*
Emphasis on reward	.002
Group orientation	.118**
Working as part of deed	.226**
Cooperativeness (Gotong-royong)	.108**
Observing's one dignity	.301**
Courtesy	.204**
Religious values	.212**
	.43**
<u>Work Culture 2:</u>	
Innovation	.313**
Strictness	.409**
Aggresiveness	.258**
Cooperating	.352**
Attention to detail	.296**
Encouragement	.406**
Results orientation	.384**
Emphasis on reward	.371**

\*\* Correlation significance at .01 (2-tailed)

\* Correlation significance at .05 (2-tailed)

## Discussion

This part discusses the mean values for the items in Work Culture 1 and work culture 2. Work culture 1 has 15 dimensions. Participants have put high mean value for dimension like strictness; punctuality, and sympathize with people's problems. For dimension like meticulousness, the mean values are high for items like hardworking and always strive hard and happy to give ideas and suggestions. Participants also have put high mean values for dimensions like comfortable working environment, work wholly shared by everybody and friendliness. For stability, the mean values are high for items like Work for Allah/God and clear work procedures at the workplace. As for innovativeness, emphasis on reward if one is creative in carrying out his job and to inform through a third party show high mean values. Furthermore, for humanistic orientation dimension, willing to cooperate and teamwork have recorded high mean values. However, the high mean values for aggressiveness are God's will and work punctuality.

For dimensions which emphasizes on reward, the mean value are high for items like work promotion and difficult to praise for other people's success. As for group orientation, the mean values are high for items like cooperation, respect for one another and it is okay if you are a little bit late. For dimension like working as part of deed, work must have aims, and work quality show high mean values. As for cooperativeness, work punctuality and feeling happy to work show high mean values. For observing one's dignity, the mean values are high for items such as like to help others and conducive workplace. For courtesy, work as part of deed and meticulousness show high mean value. This is followed by religious values, which record high mean values for hardwork and innovativeness.

Work culture 2 has 8 dimensions,. Participants has put high mean values in dimensions like innovativeness for items able to follow instructions and able to suit oneself. For dimension like strictness, items which show high mean values are follow the procedures, and no conflict at the work place. As for aggressiveness, the mean values are high for items like to grab any opportunities, and like challenging work. However, in cooperation, the mean values are high for respect for people's rights, tolerance and fair. For dimension like meticulousness, the mean values are high for items like spirit of hardwork, and making the right decision. As for encouragement, the mean values are high for items like easy sharing information and have clear principle of life. Another interesting dimension is result orientation, which show high mean values for items like hoping for high performance and job security. Lastly, emphasis on reward, show high mean values for items like opportunity for success and able to suit oneself.

The findings of this study showed that work culture is associated with attitudes toward organizational effectiveness. Different types of work culture have different levels of acceptance on attitudes toward organizational change. Overall, the sample in this study showed that the respondents have a positive or strongly positive attitude toward work culture practices by the organization.

One major implication of this finding is that work culture has an effect on job satisfaction and organizational commitment. This study has provided empirical evidence and suggested that certain types of Islamic values have an effect on attitudes toward organizational commitment. which was not known earlier. Second, this study showed how the cultural dimension was related/associated with job satisfaction and organizational commitment. This demonstrated the importance of each type of culture and organizational effectiveness. Finally, the findings of this study support the previous studies on the importance of culture in organizational effectiveness in non-Western context, which is not widely known in the literature.

The present research has several implications for managers. The findings showed that local culture have strong positive attitude toward job satisfaction and organizational commitment. Therefore, as managers, the local culture in an organization can ensure effective and efficient management of organizational goals and objectives. This type of culture will ensure that people will work hard, make things happen and hit the targets that were set. The largest percentage of employees in this type of culture suggests the need to ensure achievement of organizational goals and objectives. As such, some managers may be ruthless in handling the situation and have negative effects on other employees or organizations. On the contrary, this type of culture is most appropriate in a rapid changing business environment that required immediate action.

As mentioned earlier, the concept of work culture has received attention from a number of theorists. However, there has been little attention paid to the interaction of this work culture to such concepts as job satisfaction and organizational commitment. The results indicate that Organization culture is key in both the level of job satisfaction that employees experience and also in their level of organizational commitment whether measured by turnover rates or an OCQ. Specifically, the research tested the hypothesis that work culture impacts job satisfaction. Clearly work culture can play an important role in the level of job satisfaction of employees.

A second key issue is the impact of the work culture on employees. This was explored by looking at the impact of work culture on job satisfaction and organizational commitment and the results indicate that work culture plays an important role. The better the work culture the higher the level of job satisfaction will be. This is an important finding since it indicates that culture plays an important role in attracting or keeping employees and the maintenance of the good work culture is essential for maintaining job satisfaction.

These results indicate that a good work culture is a powerful variable within the organization and that it has a positive impact on job satisfaction and organizational commitment. The better the work culture the higher the job satisfaction, the higher the organizational commitment. More importantly, these effects occurred in both work cultures. While the culture may provide a framework within which the influence of the work culture occurs, a good work culture is important in all work cultures implying that sharing information about the culture before hiring employees and using culture to guide the selection process and criteria will result in a better work culture and hence higher job satisfaction and organizational commitment.

The results reinforce the findings from earlier research (Chatman, 1989) that the concept of work culture plays an important role for employees in a variety of organizational settings. The results also indicate that although the impact of organization culture is consistent across work cultures, there are differences in levels of job

satisfaction and organization commitment between cultures. Finally, this research provides support for the importance of indigenous values in work culture in organizations in Malaysia.

This study also has limitations. First, the sample size ( $n=$ ) is relatively small compared to the total number of public sector employees in Malaysia. Further, the findings are focused on public sector employees, and did not include the private and other sectors. This might constrain the generalizability of the findings and conclusions. Second, the use of questionnaire to collect data regarding employees' attitude toward organizational change might not fully capture the dynamic nature of organizational change. A questionnaire followed by series of interviews might better capture individuals' attitude toward work culture.

For further research, a few suggestions are recommended. First, a longitudinal study of the relationships between various dimensions of work culture, job satisfaction and commitment might better capture the dynamic nature of work culture. Second, a study on the relationship between work culture and its impact on job satisfaction and organizational commitment may also provide potential implications on organizational performance. This is particularly important as the fundamental issue in organizations is to meet its proorganization cultureability expectations or shareholders' return on investment. Further research could also be considered by considering the impact of organizational size, age of the organization and the type of industry/sector of the firms.

## Conclusion

This paper is an attempt to clarify and articulate the need to understand and search for indigenous perspectives of work culture. Notes that any understanding of an indigenous perspective requires a real understanding of the theoretical bases of the subject, and an understanding of the particular indigenous environment or setting. In order to differentiate culture free and culture bound content in Malaysia organizational management, the core management theories, concepts and terminology have to be identified; the culture specific ways of knowing must be examined; and unique categories made identifiable. This paper uses the Malaysian experience as an example of the quest for an indigenous perspective of work.

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Note: Contact author for the list of references

## Appendix

### Description of Respondents

Item	Description	Frequency	Percent
Gender	Male	587	59.65
	Female	397	40.35
Ethnicity	Malay	848	86.40
	Chinese	74	7.54
	Indian	52	5.30
	Others	7	0.70
Education	SPM/MCE	526	53.18
	STPM/HSC	236	23.86
	Diploma	74	7.48
	Bachelor's Degree	104	10.28
	Masters/PhD	16	1.62
	Others	33	3.34
Field Specialization			
	Economy/Accounting/Law	35	7.0
	Computer Science	28	5.6
	Finance/Banking/Marketing	67	13.49
	Public Administration	34	6.8
	Engineering/Physic/Chemistry	230	46.09
	Others	105	21.04
	No Answers/Not related	490	
Job position	Professional	126	12.74
	Support staff	811	82.00
	No answer	52	5.25
Marital States	Married	867	87.66
	Single	98	9.91
	Divorcee/Widow	24	2.43
Age	Less than 20 years	5	0.5
	20-29 years	133	13.44
	30-39 years	161	16.28
	40-49	503	50.86

	More than 50 years	179		18.10
	No answer	8		0.81
Length of service				
	Less than 3 years	89	8.99	
	3-6 years	86		8.69
	7-9 years	44		4.45
	10-12 years	83		8.39
	13-15 years	49		4.95
	More than 15 years	627		63.39
	No answers	11		1.11
Income				
	Less than RM1000	59		5.96
	RM1001-RM1500	188		19.00
	RM1501-RM2000	290		29.32
	RM2001-RM2500	168		16.99
	RM2501-RM3000	136		13.75
	RM3001 and above	136		13.75
	No answer	12		1.2

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# Strategic Human Resource Management and Development of Competitive Advantage

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## Abstract

**Business companies today operate in a frequently changing environment. Companies tend to extend their sales, ownership and manufacturing to new markets abroad. They go global. Most of organizations today must achieve high performance in the context of a competitive and complex global environment. The competitive advantage is the challenge the company management has to meet in order to survive. The competitive advantage can take many forms. People are regarded as an organization's most important assets because they have a potential to become the company's sustainable competitive advantage. Accordingly, the traditional role of human resource management in the organization should be changed.**

**The paper deals with the traditional and new role of human resource management, analyses approaches to strategic human resource management and describes the key requirements and ways how human resource can become the company's competitive advantage. Based on the author's first-hand experience as a former CEO in a large state-owned company the paper provides some suggestions and managerial implications.**

## Traditional and New Role of Human Resource Management

About one hundred years ago Frederick W. Taylor came up with sensational changes known as a system of scientific management. Among his contributions were instituting job analysis, time-and-motion studies, and standardization of processes, efficiency techniques, and productivity measurements to systematically track labor costs. He introduced worker rest periods and the idea of training employees including managers. All these activities are typical human resource management activities today. Managers and organizations today operate in a completely different business environment but still there is even higher expectation for productivity and low costs - all in a social context of ethical behavior and social responsibility. What has been changed since the Taylor's era is in reality a history of human resource management approaches evolution. Personnel management people in the organizations first took over hiring and firing from line managers and administered wages and salaries including benefit plans. This is the point where the term personnel management comes from. Personnel management role in the organizations has been enlarged as well as enriched after the emergence of trade union legislation. The primary role of personnel management was to protect the organization as a response to unions' intention to protect workers. Collective bargaining as a personnel management function is a typical example of this development. Later it was recognized that a company's competitiveness depends on its people. Human resource professionals realized the fact that people are the most important assets of the organization. The term human resource management reflects the changing role of people in the organization. Human resource management systems were introduced and their primary role was modified as a two-fold: First, to get an appropriate number of people, second, to provide positive behavior of people in the organization. This is done through human resource management functions ranging from job analysis and to safety and health protection. Human resource today is shifting from its traditional role as a protector to strategic partner. As a consequence the new role of human resource management is associated with strategic human resource management.

## Strategic Human Resource Management

What is strategic human resource management? This question seems to be very easy if we take into account a huge number of publications related to strategic human resource management and strategic management in general. Unfortunately, the answer is much more difficult. There are several reasons for that. For example there are

thousands of textbooks and other study materials dealing with strategic management but still there is confusion even about the strategy definition. There are just a few examples:

- According to Oxford Pocket Dictionary the strategy is the art of war, especially the planning of movements of troops and ships etc. into favorable positions; plan of action or policy in business or politics etc.
- Strategy is the company's long-term plan for how it will balance its internal strengths and weaknesses with its external opportunities and threats to maintain a competitive advantage. [2]
- Strategy guides organizations to operate in ways that outperform competitors. [4]
- Strategy is the determination of the basic long-term goals and objectives of an enterprise, and the adoption of courses of action and the allocation of the resources necessary for carrying out these goals. [1]
- Strategy is a choice between the possibilities how to reach the target.

This list, of course, could be much longer. The result of this confusion is that managers talk about their company strategy, consultants advise how to develop strategy and universities run courses about business strategy knowing what strategy could be but they are not sure what in reality it is. It looks like Chinese syndrome as Europeans used to say: After having a lunch in a Chinese restaurant you still feel hungry.

A similar situation is in the case of strategic human resource management. Based on the definitions in the literature managers know that strategic human resource management is at least one of the following:

- The linking of human resource management with strategic goals and objectives in order to improve business performance and develop organizational cultures that foster innovation and flexibility, or
- Vertical integration between human resource practices and an organization's business strategy, in order to enhance performance, or
- Formulating and executing human resource systems, human resource policies and activities that produce the employee competencies and behaviors the company needs to achieve its strategic aims.

All these definitions of a strategy as well as strategic human resource management are acceptable most of all from the academic discussion point of view. The only issue is that human resource managers in companies are practitioners not scholars. Of course they cannot expect to get a "ready food" because they operate in different business environments and organizational cultures. But probably, and just probably, they need more specific "ready-to-cook" product.

In case of strategic human resource management there could be another part of the reason for this confusion. It is about one hundred years long history of personnel or human resource management. During all this time human resource management activities were viewed as strictly operational staff activities providing support to line managers. For example almost 45% out of 150 top and mid-level managers interviewed in a large (almost 17,000 employees) state-owned company operating in the area of Central Europe believe that strategic human resource management is just a "new fashion" but from the practical point of view it is supposed to do what it used to do before. This is the typical example of well-known "old wine in new bottles" approach that is often associated with strategic human resource management. As a result of that, in general, there are three groups of companies that could be identified according to their approach to strategic human resource management.

The companies where human resource activities are done in a way "as our fathers did it" are the first group. Managers in this group of companies believe that strategic human resource management is just the rhetoric and nothing more or less. There are also companies that focus on the strategy implementation phase. The human resource professional's role is the strategy implementation in this case. They do not participate in the entire process of strategic management but they are "given" tasks – not objectives - for implementation in the area of human resource management. This could be the second group of companies. Finally, there are companies that do not pretend the strategic role of human resource management and try to get the competitive advantage through people. In this case human resource professionals play an active role in the entire process of strategic management. The active role means that they participate in the strategy formulation phase, strategy implementation as well as in strategy evaluation phase.



Now there is a logical question: What is strategic human resource management and why companies should implement it into their managerial practice? To answer this question we should start with the role of people in the organization. People create organizations because this is the only way how to reach certain specific goals. In this sense the organization makes room for the synergy effect achievement by combining activities of individuals. People also run organizations that are aimed for the specific goal achievement. Finally, the organization's products serve to satisfy the needs of people. If we take into account just these attributes of organizations it is clear how important the role of people in the organization is. But people in the organization are not just the work force. In reality it never was so even we did not realize it. The term **human capital** as the economic value of people with job-relevant abilities, knowledge, ideas, energies and commitments describes the unique role of people in the organization. Human capital is turned to **intellectual capital** that includes competencies, creativity, commitment and performance potential of people. Material resources such as money, technology or raw materials can be effectively utilized only through human efforts – through people. This is the reason why human resources are the most valuable resource of the organization. At the same time this is the reason why human resources are the strategic assets of the organization.

Based on this we can state that strategic human resource management is the involvement of human resources in strategic management process. The word involvement is used intentionally to differentiate it from linking or vertical integration. Vertical integration is a link between business strategy and the performance of every individual in the organization. [3] It can be explicitly demonstrated through the linking of a business goal to individual objective setting, to measurement and rewarding of that business goal. Majority of strategic human resource management models are based on vertical integration. However, vertical integration refers most of all to the strategy implementation phase. What is more, there are some traditional approaches to the goal setting, for example management by objectives approach (MBO). MBO approach has been applied in managerial practice for several decades and business goals could be integrated with individual goals by this approach as well.

Human resource management involvement in strategic management process means that human resource professionals will participate in the entire strategic management process. There are two basic reasons for that. First, they are supposed to be very well informed about the present stage of the company employees from their competence point of view. This helps to get more realistic strategic plans and strategic goals. Second, based on their first-hand information they can manage necessary changes in the human resource management system more easily. It helps the company to become more flexible in its reaction to the changed needs. A flexible response of the company to the changed needs is important particularly from the human resource as a competitive advantage point of view.

Strategic management and business strategy is associated with the executive level. Is it enough to “invite” the human resource professional to become the strategy-making body member? This is a very frequent question that human resource professionals ask because they are interested in earning a seat in such a body. The answer is - certainly not. There are several reasons for that.

First of all, we should keep in mind that human resource management is not an exclusive issue of human resource professionals. Line managers should be involved in the human resource management process as well. The reason is very clear - selection of candidates, performance appraisal, compensation systems, etc. cannot function effectively without the line manager's participation and involvement. On the other hand, existing human resource management skills do not necessarily guarantee the conceptual and other skills that strategy makers possess. There are two issues that should be resolved in this context. Human resource professionals cannot persuade the company executives about strategic role of human resources. This initiative should come from the company top management level. However, human resource managers will have to acquire some additional skills. They should break down the borders of narrow specialization and become more generalists. They will need a better understanding of the business they are involved in. Management development On-The-Job practices and particularly rotation technique in Japanese companies could be a good example how this can be achieved.

## **Competitive Advantage through People**

The most common understanding of a competitive advantage is the ability of the company to add such a value to its products or services that competitors cannot. A competitive advantage is the factor that allows the company to differentiate its product or service from the competitors' products or services. The company needs at least one competitive advantage to keep or increase its market share. The factors that allow the company to get a competitive advantage could be technological, economic, social, cultural, and potentially other. Accordingly, a competitive advantage can take many forms. For example, a typical technological competitive advantage is the technology or product innovation. Low costs could be an economic competitive advantage. The work force of a high educational level could be taken as a social competitive advantage. Ethical behavior as a competitive advantage is associated with cultural factors, etc.

There is a number of competitive advantage models described in literature. For example, some of them focus on the idea of strategic choice and are related to the very well known Porter's model. The other models describe the company's human resource as a competitive advantage through the framework of value, rarity, inimitability and organization.

The basic issue that should be resolved in getting the competitive advantage through people is its sustainability. For example, the technological competitive advantages are usually short-term advantages because technology can be imitated easily. The same or similar is true in other cases of competitive advantage. On the contrary, human resources have a potential to become the sustainable competitive advantage. However, we should remember that a competitive advantage through people does not mean getting the advantage due to the company employees and at the same time to get it "for ever". Managers more or less recognize that competitive advantage can be obtained with a high quality workforce. The workforce quality is usually viewed through the product and service quality, differentiated products, market responsiveness, technological innovation, etc. All this makes sense because it creates a basis for the company's competitiveness. In order to reach the workforce high quality level, managers are advised to value people as human assets, mobilize teams, thrive on learning, empower all members to fully use talents, etc. They are advised to bring out the best of people and create high-performance organizations.

However, there is another issue that should be remembered in this context. Do the employees have a good reason to become a high-quality workforce or do just the managers want them to do so? In order to get a competitive advantage through people both parts of the question should be answered "yes". Only well-motivated people work effectively. People do not have to do it but they should want to do it. The way to get such a positive behavior of people in the company leads through the value creation. Value creation is the extent to which a company satisfies the needs of strategic partners. These are the owners, customers, suppliers, communities, local government, and last but not least, the employees. All these partners have a good reason to be sustainable strategic partners only if the company satisfies their needs. The company creates value for employees through wages, satisfaction, career opportunities, development, etc. Strategic management is about the company's multiple responsibilities for value creation. Human resources are an integral part of this process.

## **Conclusion**

Human resources as company's key stakeholder should be an integral part of the strategic management process. They should be involved in the entire process, not in the implementation phase only. This is so because they are involved in all activities that contribute to value creation for all stakeholders. They help to fulfill the company's multiple responsibilities for value creation. Human resource professionals involved in the strategic management process should acquire some new skills. They should cross the borders that are linked by specialization and they need more understanding of the value creating process. Of course, they cannot persuade top management to involve them in the strategy-making process as the strategy-making body members. This "need" should come from the top management level. Human resources have a potential to become the company sustainable competitive advantage if they work under the leadership that is aware of the role of strategic human resource management. This is probably the most important task that strategic human resource management is facing today.

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# **The Effect of Affirmative Action on Motivational Factors in the SANDF**

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## **Abstract**

Affirmative action is usually introduced where other mechanisms has failed to reduce discrimination and ensure a diverse workforce. Acceptance of affirmative action and its outcomes namely diversity, cultural differences and equal employment opportunities, is the responsibility of the manager. The organisation however can assist in this acceptance by understanding that although the implementation of affirmative action can be regarded as the first step in the right direction, it cannot stand on its own but it should be supported by interventions based on the effective management of diversity. Intervention by the organisation, on an urgent basis, is critical in order to ensure effective group dynamics and teamwork from the human resources available, to the joint advantage of the individual and of the organisation. The organisation and its management need to be competitive on a quality basis in order to survive, and should also ensure growth and motivation within the team, as well as in the character of its individual members. It is therefore the responsibility of management to facilitate the assimilation of individuals into the organisation and create a culture supportive of individual differences. There is a strong link between the implementation of affirmative action on the one hand, and the psychology of the diverse groups of people involved. Attention should be paid to steadiness of their attitudes, motivational factors and their productivity.

## **Introduction to – and Purpose of the Study**

On 27 April 1994, with the Freedom Celebrations in South Africa, the concept of affirmative action was officially introduced into many South African organisations. Against the background of the former Apartheid regime, the application of affirmative action was important in order to ensure that all the population groups in South Africa would be represented demographically in the workforce of all organisations. The constitution was amended in order to enforce this factor in the management of diversity in all companies, including the public service. This introduction of Affirmative Action is in line with world wide trends once there are perceived discriminatory barriers that limit opportunities for certain minority groups, including the Equal Employment Opportunities for Women act that was implemented in 1986 in Australia (Sheridan A 1998 p 243) and Affirmative Action programmes that were implemented in India for scheduled castes in scheduled tribes in the sphere of employment.

The main purpose of this study is to measure the attitude of individuals towards affirmative action and also the effect of an affirmative action programme on that which motivate individuals. The study would search for indications whether affirmative action decrease and or increase motivation and interest for both targeted and non-targeted groups. This study suggests that affirmative action programmes may have positive, negative, or both positive and negative motivational consequences for recipients and non recipients. Proposed recommendations are offered based on the outcome of the study. These recommendations can benefit individuals, teams and the greater organisation.

## **Literature Review**

### **Affirmative Action**

Human (1993:35) states that affirmative action is a mechanism whereby competent previously disadvantaged/ underrepresented individuals can be recruited and developed. It also links to the process of managing diversity and ensuring the development of human resource potential. Cheminais (1998:255) states that if properly implemented, an affirmative action programme can lead to improved human resource management. Managers and supervisors are

forced to be sensitive to, and to become involved in, the development of human resources. Training and development occur according to the needs of individuals and not according to the needs of groups. From this it can be deduced that affirmative action programmes, if properly implemented and managed, can raise the standard of performance in the workplace.

Affirmative action is a process of eliminating discrimination, rather than a process of furthering the interests of a particular group or groups, according to Pillay (1998: 9). Innes (1993: 14) states that management should use any means available to provide opportunities, which the newly transformed workforce can utilize for their own advancement. Management's decisions regarding promotion or job advancement must be determined largely on the basis of merit.

Bayat and Meyer (1994:283) view affirmative action as an important strategy, which is necessary in order to achieve the following utilitarian and moral objectives:

- Restitution for past discrimination,
- Combating racism,
- Equitable distribution of public service job opportunities.

Various models of affirmative action provide different ways of implementation. The success of an organisation in implementing affirmative action depends largely on the type of model chosen by the organisation. Since organisations differ, the success of the chosen model will also be determined by the particular organisational culture and structures (Masiloane, 2001:62).

Experience throughout the rest of the world clearly indicates that affirmative action cannot stand on its own and although it can be regarded as the first step in the right direction the implementation of an affirmative action programme would inevitably necessitate interventions based on the principles of effective management of change and management of diversity (Cassel 1996: 51).

In the search for a new approach in order to manage the challenges of affirmative action, both during transition and afterwards, and to adapt to a democratic environment, Van Rooyen (1994:198) and Bayat and Meyer (1994:263) feel that a new management model needs to:

- be sensitive to the values of individuals and groups and be responsive to problems, needs and values;
- ensure programme efficiency and effectiveness in an open system where civil service is in equilibrium with the environment and functions in harmony with the general and particular values and wishes of the communities;
- strive for social equality and justice with an ethical content; and deploy efforts on behalf of others.

Management should therefore recognize that sharp divisions in respect of views and perceptions will inevitably occur in a diverse organisation; and that they should be prepared to deal with managerial challenges during this new era in which affirmative action is the order of the day.

#### **Motivational Factors**

Bredell (2000: Summary) states that an individual's job performance mainly depends on two aspects, namely ability and motivation. Ability refers to the individual's potential to successfully complete a task or job. Motivation is an internal driving force which activates and energizes an individual and which directs his/her behaviour in such a way that goals may be achieved.

Kanter (1997:169) states that four closely related concerns are currently driving employers to rethink the meaning of "worth" and to look beyond job assignments in determining pay, namely, equity, cost, productivity and the rewards of entrepreneurship. Kanter (1997:132) argues that when people are empowered to contribute, they want to be specifically rewarded for their results.

#### **Individuals' Expectations**

Sundstrom and Associates (1999:11) state that for a work team to be a viable unit, individuals need to be motivated to channel their efforts and ideas towards the achievement of goals. This should comprise a sufficiently satisfying experience to make them want to continue working. Furthermore, in terms of the expectations of individuals, the organisation should provide some intrinsic and extrinsic motivators; it should also provide the help and resources necessary to maintain conditions conducive to work and to congenial relations among co-workers. It is therefore of the utmost importance that management should understand these expectations and address them. With guidance, support and the involvement of individuals, members gain individual and collective confidence in their capacities. This will contribute to promoting both self-sufficiency and optimal performance.

According to the expectancy theory of motivation (Nelson & Quick 2006 p 168) people's motivation increase along with their belief that effort leads to performance and performance lead to reward. It is important to note that it is a person's belief about the relationship between the performance-reward constructs that are important and not the actual relationship between the constructs. During volatile times in the organisation, the performance-reward link may become confusing.

Johnson and Redmond (2000:88) point out that the individual is most likely to be motivated when he/she:

- Receives praise for a job well done;
- Appreciates belonging to a successful team;
- See how his/her work fits into the overall picture;
- Considers him-herself to be properly informed about the organisation and the future; and
- Feel that his/her work is valued.

### **Targeted and Non-targeted Groups**

Johnson and Redmond (2000:91) make it clear that people need to know the basis on which promotion is granted, so that they can work towards this goal, and in this way they acquire information through other channels than the formal sources. People from minority groups may not be part of this in-group, nor the conversations that take place within it; and therefore often do not get to know what exactly is expected of them.

Several studies have been done on the psychological effects of affirmative action on the **targeted individuals** (Society for Industrial and Organisation Psychology, 1996). It is important to realise that there can be a negative psychological impact on those that benefit from affirmative action. When people feel that they have been appointed for reasons other than competence, it could have a negative effect on self image and motivation. These members can also find themselves on the receiving end of a backlash from those excluded from the target group.

One of the many sad effects of colonialism and apartheid in South Africa is the fact that the majority of the population was disadvantaged. Affirmative action therefore in this country is designed to uplift the majority. The **non-targeted individuals** are thus becoming the minority which increase the chances of marginalisation of the non-targeted individuals. According to Johnson and Redmond (2000:91). People who share the same culture and background and other common attributes, tend to form cliques or "in-groups" in the organisation. When cliques of targeted individuals are formed, formerly empowered individuals may not be included. Reactions to this marginalisation may vary from withdrawal from group and work activities to resignation. The expediency of these reactions is arguable but the loss of expertise and experience will eventually impede organisational effectiveness.

## **The Design of the Research**

From a theoretical perspective, this research aims to use information gleaned from the questionnaire and compare it to information obtained from the literature study and, on the basis thereof, to identify possible positive aspects, as well as any negative areas of concern with regards to the attitude of individuals and their motivation to perform, during and after the implementation of affirmative action.

The study was conducted in specific geographical area of the South African National Defence Force (SANDF). The objective was to determine how a sampled group of individuals are experiencing the implementation of affirmative action within the SANDF and in addition the study aimed to test how affirmative action is impacting on perceptions of targeted and non-targeted individuals on extrinsic motivators and intrinsic motivators. This was done by means of a questionnaire.

The target group for this research included individuals from different racial groups, as well as both genders. Members falling within the different rank levels within the SANDF were targeted, in order to ensure an overall viewpoint in the interpretation of the results.

### **Compilation of the Questionnaire**

To investigate the attitudes and perceptions of the employees of the SANDF, a questionnaire was used. Respondents were provided with a series of descriptive statements in respect of job-related opinions. A five-point Likert-type scale was used. In the Likert scale each statement entails five possible reactions, ranging from totally true to totally false. The questionnaire measured two major areas of concern namely:

- to determine the attitudes of employees regarding the implementation and application of affirmative action,
- to determine the difference in motivational factors for targeted and non-targeted groupings within the organisations.

### Compilation of the Random Test Sample

Approximately four thousand members were identified in military units in the Bloemfontein region. In order to enhance the randomised test sample, a proportional allocation was carried out in respect of each stratum (rank group), in order to determine the test sample of that stratum (rank group). In order to ensure consistent results in this study, a minimum of ten percent of the target group, must partake in this research. See Table 1 for an illustration of the compilation and participation of the test sample.

TABLE 1: ILLUSTRATION OF THE COMPILATION OF THE TEST SAMPLE

Participants	Total members in Military Unit	Minimum of 10 % participation required from the Military Unit
School of Armour	565	56
1 South African Infantry	550	55
44 Parachute Regiment	650	65
1 Special Service Battalion	897	89
Army Support Base Bloemfontein	1450	145
<b>Total</b>	<b>4110</b>	<b>411</b>

### Distribution of Test Sample per Race

Figure 1 indicates the distribution of the test sample in terms of race. This distribution refers to members who completed the questionnaire.

It is important to note that The Broad-Based Black Economic Empowerment Act of 2003 defines "black people" as a generic term that includes "Africans, Coloureds and Indians". According to the Act, "broad-based black economic empowerment" refers to the economic empowerment of all black people including women, workers, youth, people with disabilities and people living in rural areas.

The issue of affirmative action is slightly different where the term Historically Disadvantaged Individuals (HDIs) are used, which indicates black ownership and managerial empowerment levels in a business and includes white women in its empowerment measurement.

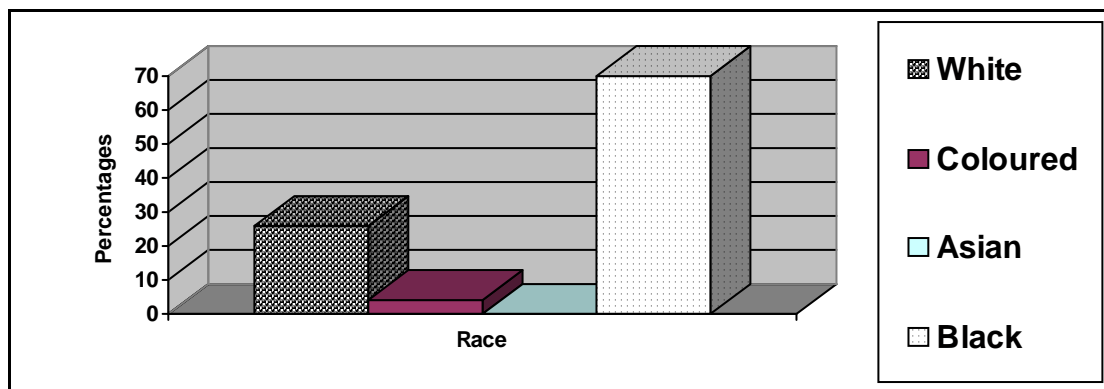


FIGURE 1: DISTRIBUTION OF TEST SAMPLE BY RACE

Figure 1 indicates that 25% of the sample was White, 4% was Coloured, 1% was Asian and 70% was Black.

#### **Distribution of Test Sample by Gender**

Figure 2 indicates the distribution of the test sample in terms of gender. The distribution refers to members who completed the questionnaire.

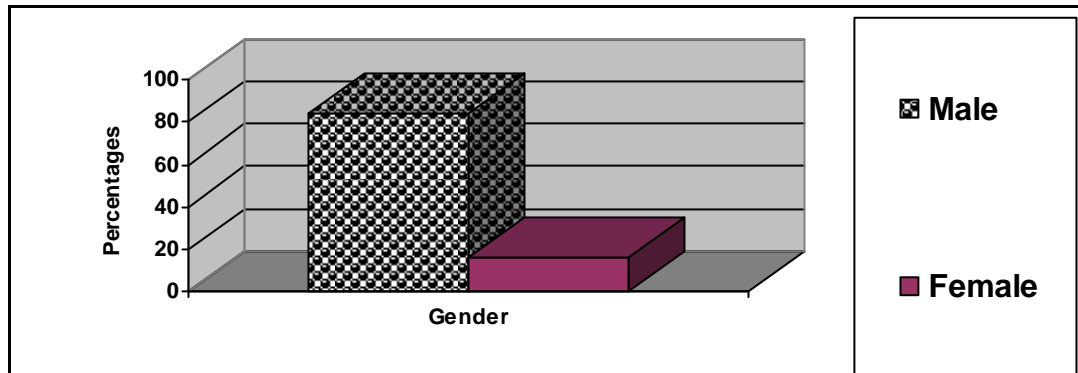


FIGURE 2: DISTRIBUTION OF TEST SAMPLE BY GENDER

Figure 2 indicates that 82% of the sample was male and 18% was female.

#### **Findings**

Because of the fact that affirmative action in South Africa is based firstly on race and secondly on gender the importance of these results lies mainly in the difference in attitudes between these racial and gender groups. Because of the respondent's race and gender he/she would either perceive him/herself as a **targeted** individual or beneficiary of affirmative action or as a **non-targeted** or non-beneficiary even "victim" of affirmative action. In analysing the results it is important to realise that the same response by individuals can have different meanings depending on the racial - or gender group of that individual. This is specifically true for the part of the questionnaire that measures motivational factors.

#### **Targeted and non-targeted individuals' attitudes towards affirmative action are reflected positively in terms of the following factors:**

- The majority of the respondents agreed with the general concept that opportunities should be created for people who were previously discriminated against, regardless of race or gender;
- Targeted and non-targeted individuals are positive that structures that have been put in place to facilitate affirmative action would promote democracy;
- On the whole, the respondents are positive that the approaches adopted in the implementation of affirmative action are sufficiently transparent and inclusive;
- A majority of the respondents are supportive of the notion that affirmative action should be a long-term project, with training and development as the first priority;
- The respondents also agreed that the group who were favoured in the past should assist target members who were disadvantaged in the past.

#### **Targeted and non-targeted individuals' attitudes towards affirmative action reflected negatively and/or differed in terms of the following factors:**

- Targeted individuals agreed that career progression opportunities should be created for targeted individuals regardless of experience or qualifications where non-targeted individuals feel that career progression opportunities should not be created for targeted individuals regardless of experience or qualifications
- A majority of the respondents do not understand the envisioned end result of affirmative action within the SANDF and do not support the implementation thereof, although the female members prefer to remain neutral in this regard;



- The majority of the respondents reacted negatively to the question of whether the current laws and policy statements that apply in the SANDF are successful in facilitating affirmative action; and
- White males felt that affirmative action is a witch-hunt that is advancing discrimination.

**Targeted and non-targeted individuals felt the same about the following personal motivational factors:**

- Over 90% of all respondents irrespective of race or gender feel that they are good enough to be promoted and that they deserve to be promoted;
- All the **members of the different groupings indicated that a more senior position is important to them although** the Chi-Squared test by gender shows a probability of  $<.0001$ , which indicates a high significance between gender and this item. Female members irrespective of race are less concerned than male members about the likelihood of obtaining a more senior position;
- From the respondents, 97.64% of all races and both genders agree that recognition, growth and responsibility are important to them in their work situation. They also indicated that it would make them negative if all of these are absent in their workplace. It is thus clear that all respondents consider these aspects important;
- From the respondents, 82.12% agree that, if their performance is above average and they do not receive promotion, they will stop doing good work. Members of all the racial groups, excluding 42.72% of the white members, agree that, if their performance is above average and they do not receive promotion, they will stop doing good work.

**Regarding perceptions of individuals that the SANDF would provide incentives to perform the following results were shown:**

- Targeted and non-targeted individuals disagree that hard work (performance) and showing responsibility in their job will lead to promotion in the SANDF;
- Non-targeted individuals felt that the SANDF do not regard them as individuals who are important enough to be promoted. Targeted individuals preferred to remain neutral in this statement.

**Targeted and non-targeted individuals differ significantly in their expectations of opportunities within the SANDF.**

- Targeted individuals are convinced that even though they are just as good as their colleagues, they are not going to be promoted. Non-targeted are less cynical and they do not feel that even though they are just as good as their colleagues, they are not going to be promoted. Although targeted and non-targeted individuals felt equally strong about having intrinsic motivators present in their jobs, targeted individuals also indicated that they would feel negative if the extrinsic motivators are not present, while non-targeted individuals feel that as long as intrinsic motivators are there they would be satisfied with their jobs. Examples are:
  - Targeted individuals indicated that they do not agree with the statement that if the tasks they perform in their current job make sense to them, they do not mind if they do not receive promotion. Non-targeted individuals agree that if the tasks required by their current job make sense to them, they do not mind if they do not receive promotion.
  - Almost the same distribution could be seen in the statement that if their employer makes their job interesting, they do not mind if they do not receive promotion. Targeted individuals disagreed with the statement whereas non-targeted individuals mostly agreed with the statement.

The latter findings correspond with the viewpoint of Bloisi, Cook and Hunsaker (2003: 183) which is based on the assumption that a person's current circumstances determine which level of need will be acted upon. Figure 3 explains this theory

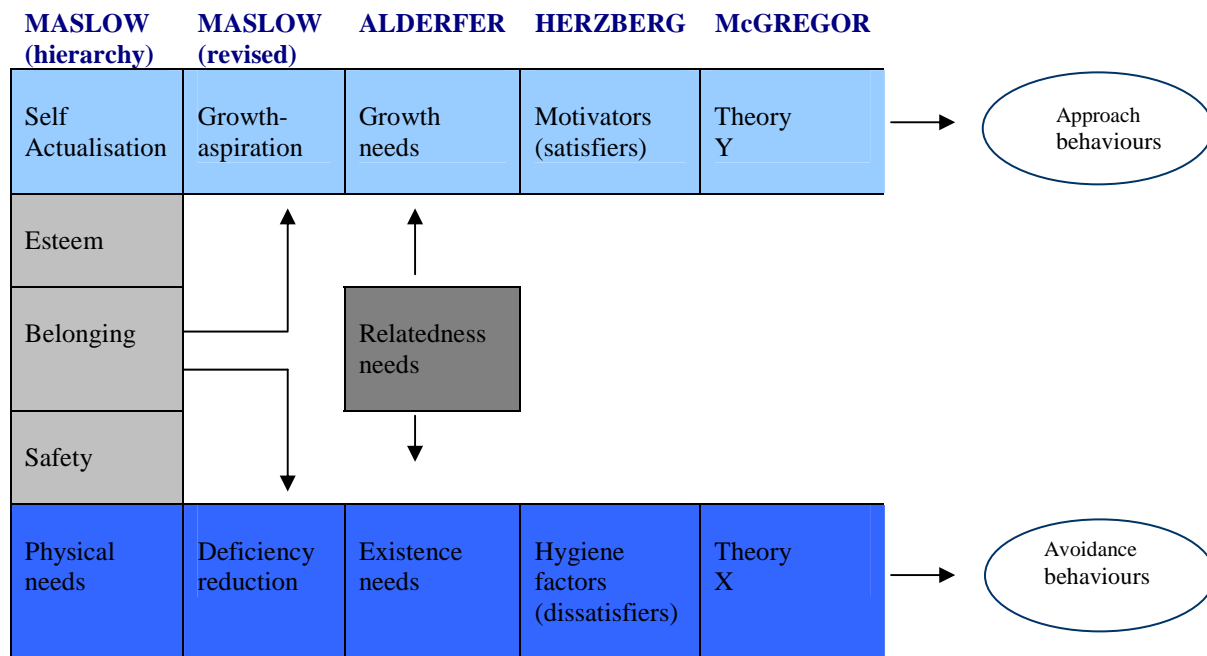
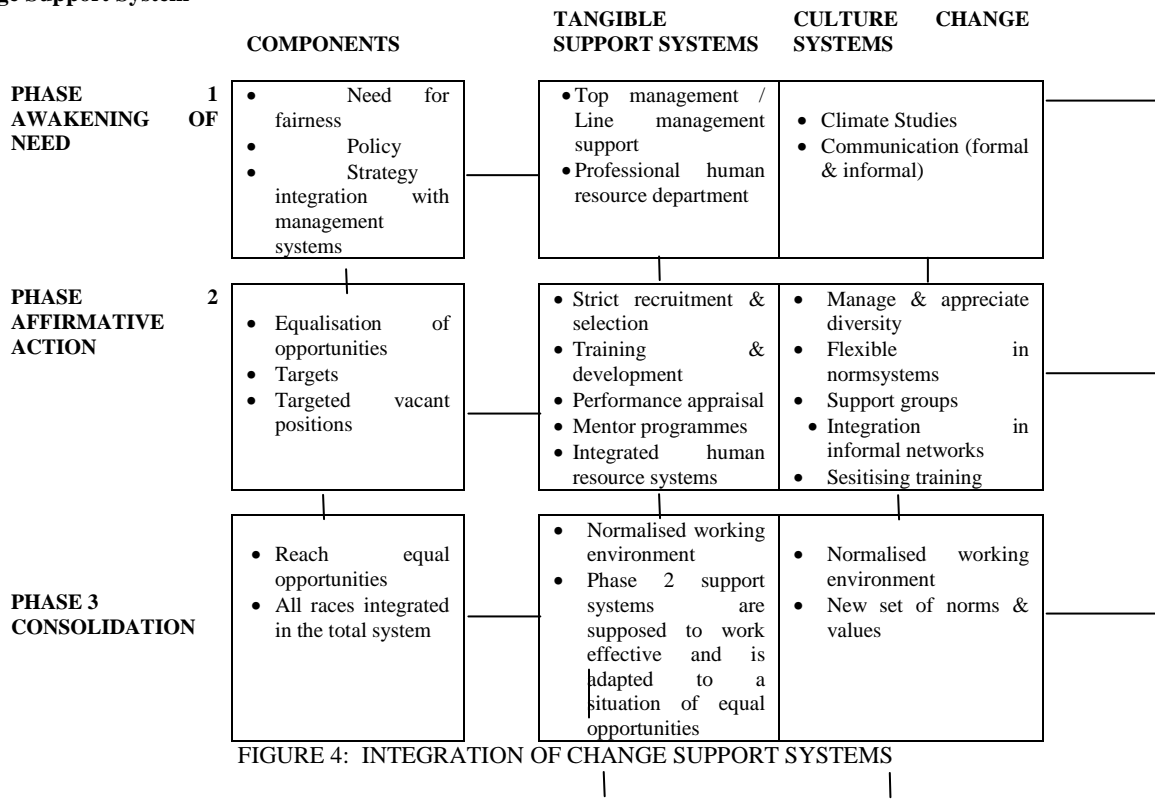


FIGURE 3: PARALLELS AMONG POPULAR THEORIES OF MOTIVATION

Source: Bloisi, Cook and Hunsaker (2003: 182)

The needs at the top of the model lead to approach behaviours, while those at the bottom lead to avoidance behaviours if not adequately obtained. Those in the middle (Maslow's belonging and Alderfer's relatedness) are potentially unstable and can direct behaviour, in either direction, depending on the circumstances.

## Change Support System



### Awakening of Need

Much has been expressed about the reason why the presence of cultural diversity is linked to improve organisational performance. At this stage the applicable components are strategic planning (forming of vision, mission ect.) development of policies and the integration thereof with management systems.

Tangible support systems applicable at this stage are strong support from top and middle management and a professional human resource department, culture change climate studies and intensive two-way communication. During this communication process, important principles, values and mind-sets, which underpin all activities, must be clarified. It is important to understand that true culture change only take place if the following principles holds true.

- Never lose sight of the business case for change.
- Engaging the entire organisation (targeted and non-targeted individuals), in ways that lead to ownership of and commitment to a shared future.
- Creating community amongst employees.
- Building a common understanding of strategic issues in order that all decisions are aligned with these issues.
- Creating a collective “image of potential” for the future which forms the basis of today’s action.
- A continual focus on the simultaneous and, sometimes conflicting, realities within the organisation’s internal and external environments.

### Affirmative Action

The equalisation of opportunities must take place during this phase. It is also important to set measurable targets so that individuals understand the goals of their organisation’s affirmative action strategy. Tangible support systems at this point consist of integrated and focused human resource systems which ensure the desired performance of

targeted individuals. These systems also serve as a source of continuous encouragement whilst measuring the achievement of objectives.

#### **Consolidation**

Although this stage can be regarded as the desired outcome, where the true integration of all cultural groups has taken place and equal opportunities exist, continuous follow-up is necessary to ensure that the organisation remains in the proximity of the expressed desired outcome.

#### **Recommendations**

It is crucial that diversity (the outcome of affirmative action) is observed as making business sense and that it is not merely regarded as a case of fairness, justice or group parity. It is therefore important to link it to the overall strategic direction of a company. A model which was developed to illustrate this integration is shown below. The model shows there are two types of support systems that must work in a co-ordinated fashion in order to support the components in the implementation and management of diversity.

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# Some Lessons in Creating (Not Creating) Entrepreneurship through Affirmative Action: A Case Study

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## Abstract

Malaysia's affirmative action, introduced as the New Economic Policy (NEP) in 1971 to redress Malay economic setbacks, failed in its objective of acquiring, for Malay entrepreneurs, 30 percent equity of public companies by 1991. The Government believed that affirmative action, boosted by Malay political primacy, was a recipe for the creation of entrepreneurship. While not minimizing the role it justifiably plays for marginalized societies, affirmative action for the creation of entrepreneurs is questionable. This paper attempts to explain that state assistance to an economically-challenged society does little to create entrepreneurship, and because of its dependency ethos, it is more likely to inhibit the survival instinct and the tenacity required to face the challenges of entrepreneurship. It offers a proposition: in the context of Malaysia, selective assistance under affirmative action invites cronyism which non-Malay entrepreneurs resent and react with even higher competitive resilience by organizing themselves more collaboratively and optimizing their resources.

## Why Affirmative Action?

Affirmation action is 'affirm to act' against perceived social imbalances and is essentially based on the principle of non-discrimination (Findley, H. et al., 2004). To put it another way, it means assistance to the underprivileged. Whichever we look at it, it is not new as various ways of asserting affirmative action have been with us since time immemorial. But its institutionalization is quite recent. India can be said to be the first country to introduce affirmative action policies when it extended special treatment to its untouchable castes following independence in 1947. But, of course, India never called it affirmative action.

For more intense studies of affirmative action, we should take a leaf from the USA since it was there where the term was introduced. President John F. Kennedy first applied the term officially in an Executive Order in 1961 which established the President's Commission on Equal Employment Opportunity (Sowell, 2004, p.4). Though Kennedy said in that landmark speech that the Government "will take affirmative action to ensure that applicants are employed, and employees are treated during their employment, without regard to their race, creed, color, or national origin", the order did not advocate preferential treatment of affected groups, rather it called for employees be treated without regard to their ethnic or national differences and sought to eliminate discrimination. When Kennedy's pronouncement subsequently became law during President Lyndon Johnson's tenure, under The Civil Rights Act (1964), courts were empowered to order an organization to adopt "affirmative action as may be appropriate as both punishment and correction for a finding of discrimination (Crosby, 1994).

Since then there have been several edicts that reinforced the requirements of equal employment opportunity and affirmative action. In defining affirmative action, it means to affirm action to ensure that ethnic-minority groups, women, people with disabilities, and other underrepresented groups are fairly represented in the colleges and in the workplace (Miller, et al., 1997). This includes preference for qualified and employable 'target groups' identified by the US Code of Federal Regulations as ethnic-minority groups (African American, Hispanic American, Native American, and Asian American) and women, and as those bearing the brunt of discrimination (Crosby, 1994).

But definitions of affirmative action are not entirely satisfactory as there are tensions applying it between equal employment opportunity and equal opportunity policy. Basically, affirmative action seeks to address historical injustices or avoid the wrongs of the past. It is proactive and looks to public policy for redress. Whereas, equal opportunity is reactive and focuses on the individual or what he or she considers it to be equal. There is also the paradox of inequality as either can perpetuate tyranny. Affirmative action policies are applied in a variety of ways;

employment, workplace issues, and minority quotas in colleges were given the most prominence in the US. But, there is no escaping the fact that an underlying objective of affirmative action must accrue in the general economic upliftment of marginalized communities. In the case of Malaysia, this is the focus through which entrepreneurship development is given special attention. What does affirmative action mean in Malaysia?

## **Malaysia Background**

Malaysia has a population of 25 million comprising 50 percent Malays, 24 percent Chinese, 11 percent Indigenous, 7 percent Indians (mostly Tamils), and 8 per cent others. The Chinese have been in the Malay States since the fifteenth century, that by 1930 there they were over a million in number. Most Chinese came as traders but their biggest presence was in the tin industry. The Indians too came as traders from as early as the fifteenth century but the majority were brought in by the British as indentured rubber tappers at the turn of the last century. Indians were later brought in to fill positions in the civil service, teaching professions, and the railways. The Chinese, in the meanwhile, as they have always been, concerned themselves with business. The armed forces and the police were mainly filled by the Malays but most confined themselves in the rural areas working as fishermen or growing rice. With the economy dominated by the Chinese and the civil service by the Indians, the Malays felt left behind.

Malay dissatisfaction came to a head at the 1969 parliamentary general elections when riots broke out between the Malays and the Chinese. The event (hereinafter referred to as the "Riots") precipitated the far-reaching reforms of the New Economic Policy (NEP) which was primarily a policy to address Malay grouches (Yoshihara, 1988, p.60; Crouch, 1992, p.23). The NEP was justified not only on economic but also political grounds. A major event that followed the Riots was the establishment of Barisan Nasional (BN), a multi-party grand coalition that combined all the major ethnic parties. The brainchild of incoming prime minister Tun Razak, the establishment of the BN was heralded as the most successful political event and has been the government continuously since. Tun Razak immediately set out to address Malay dissatisfaction and initiated the Government's Report on the Riots (in a White Paper entitled *Towards National Harmony*) which stressed that political and psychological factors had contributed to the conflict. The Report and public comments of Government leaders also emphasized economic causes: they cited the failure of earlier economic policies to address the 'relative deprivation' of the Malays in comparison with non-Malays. Expert commentaries at the time, while accepting that the Malays still lagged the Chinese economically, did not, however, subscribe to 'relative deprivation' as a reason for the conflict (Means, 1991, p.23). Yet theories of 'relative deprivation' continued to be ascribed to the Riots by the Razak administration to justify certain policies. Resting on the notion of Malay dissatisfaction as the cause of the 1969 unrest, Razak embarked on an aggressive economic agenda that was primarily directed to correct the perceived inequities of Malay underdevelopment.

To allay anti-Malay cynicism, he assured non-Malays that their wealth and jobs would not be expropriated to hasten Malay aspirations as his economic policies 'will be distributed in a just and equitable manner'. Underlying this assurance, he promoted the slogan of *Masyarakat Adil* (Just Society) in his launching of the NEP in the Second Malaysia Plan on 11 July 1971.

## **The New Economic Policy (NEP)**

The NEP, metaphorically an affirmative action reform, was designed basically to reform the economy to meet Malay expectations for a greater share in the economy (Shome, 2002, pp.98-101). The NEP prioritized its objectives by tending first to the needs of rural Malays whose plight was identified with stagnated rural projects, lower production yields, and rising poverty in their rapidly increasing population. Recommendations in the NEP included the rapid modernization of rural development, facilitating the more efficient access and use of state-sponsored land, and the reducing of stringent requirements for state loans. Along with these facilities the Government also stepped up its drive to improve public amenities in the rural areas, and training opportunities for the high number of unemployed rural youths. The second measure was for the progressive reduction of Malay dependence on the diminishing agriculture subsistence. In line with this policy, the NEP recommended a concerted drive for greater

Malay exposure in the urban sectors of commerce and industry to be steered by such public enterprises as the Majlis Amanah Rakyat (MARA), Perbadanan Nasional Berhad (Pernas - the National Corporation Ltd), the State Economic Development Corporations (SEDCs), the Urban Development Authority (UDA), and the Malaysian Industrial Development Finance Ltd (MIDF).

Razak set a range of goals for the next two decades to measure the success of the NEP recommendations. One of those goals was to target 30 percent of the country's corporate wealth for Malay ownership by the year 1990. To achieve this, the Government adopted a highly corporatist 'Government-in-business' strategy to fulfil its 'bumiputra' (literally 'son of the soil' applies to indigenous peoples of Malaysia but often to Malays) ownership of public corporations. The Government's deft acquisitions and equity holdings in major public companies through Pernas, UDA, and the SEDCs though growing steadily, did not immediately address the more pressing needs of general upliftment for most ordinary Malays. To overcome this problem the NEP bolstered its objectives with a range of measures that were designed to accelerate Malay participation in the reform process. Included in these measures were the retrospective expansion of Malay special rights in the form of land rights, subsidized education, generous recruitment quotas for the civil service, and certain business prerogatives that were already protected in the Constitution and had been gradually expanded in the past decade. The NEP re-formulated the system of job quotas and Malay special rights for greater privileged access to higher paying jobs, management positions, the professions, tertiary education admissions, and equity stakes in companies. NEP restructuring targets were also extended to the private sector. Companies were asked to submit plans for employing, training, and promoting Malays at all levels of their operations, and to adhere to the Malay employment quotas that were generally set at 40 percent of the total labour force of the company. Many companies however chose to ignore this directive for the obvious impracticality of it and the absence of effective monitoring of their compliance. But for new foreign companies there was no escape from this policy, as Malay employment was a condition for their acceptance of the licensing and tax concessions that were available to them.

## **The Outcomes of the NEP**

The implementation of the NEP coincided with a buoyant Malaysian economy during the years from 1970 to 1974. Politically, the environment presented Razak with a most propitious time to push through with relative ease many of the provocative NEP recommendations as it made the task of managing opposition dissent and racial cynicism easier to handle. The vitality of the NEP in the Second Malaysia Plan 1971-5 was manifested by a real GDP growth rate of 7.1 percent per annum that was achieved against the target growth rate of 6.8 percent per annum. While the industrial sector doubled its share of growth since 1961, agriculture declined by a third underscoring a successful policy shift towards industrialization (Bowie, 1991, p.93). Due to a world-wide recession, the hiatus in 1975 was cushioned by the high growth rates of earlier years. The rapid recovery that followed in 1976, meant that little or no adjustment was necessary to alter either the pace or strategies of the NEP. In the early seventies, the Government acquired multinational companies that had their major business interests in Malaysia such as London Tin (by whose acquisition Malaysia controlled the world tin market) and rubber giants, Sime Darby and Socfin (Yoshihara, 1988, p.22). By 1975 Malay ownership of capital increased to 7.8 percent from 2.4 percent in 1970 but still fell short of the target of 9 percent. Within three years of the NEP implementation, 98 percent of all those recruited for government service were Malays, a percentage that far exceeded the 4:1 Malay ratio (Means, 1991, p.26). During the period of the Second Malaysia Plan, Malay employment in the commercial and industrial sectors rose rapidly to parallel the rate in the public service. Similarly, Malay admissions to institutions of higher education also increased dramatically. Malay student numbers at the University of Malaya, for instance, increased from 49.7 percent to 66.4 percent between 1970 and 1979 and in about the same period Government expenditure per student rose from MR3,700 to MR12,900 underscoring the NEP policy for greater access and privileges to Malay students. Of the total of 4,930 scholarships offered in its 1974/5 calendar year, the University of Malaya offered 3,505 to Malay students. The Government also actively participated in funding Malay students for overseas studies.

The Razak Administration's efforts to eradicate poverty did not match the impressive growth in the economy. It managed to reduce poverty by a paltry 5.4 percent of the 49.3 percent households that were listed to be

living in poverty (Means, 1991, p.70). Part of the problem was attributed to the Government's policy of winding down agriculture that caused untrained rural Malays to look for work in the cities where they soon established themselves in the notorious squatter colonies of Kuala Lumpur - the subject of constant jibes by cynics of the NEP. The Second Malaysia Plan had also experienced a widening gap in income disparities between the rich and the poor, a phenomenon that not only called into question the inequality of Razak's reforms but was also a perennial embarrassment which successive Governments were simply unable to redress. While the NEP was generally positive to the overall well-being of the Malays, it did not give to them benefits at the speed which Razak had intended. One of the reasons for the slower than expected growth was the Government's acquisitive policy of corporate ownership that muddled fiscal policy and foreign investment. First, inordinate Government spending in infrastructural and non-productive sectors caused revenue deficits and increased borrowings. Funds were also being drained for an equity buying spree to meet corporate ownership objectives. Second, rising inflation, ambiguities in acquisition policies, and interventionist regulations as well as repressing private sector expansion compounded by capital outflows, frightened away foreign investments.

Investors also found it hard to reserve bumiputra preferential shareholding since bumiputra capital was acutely scarce. Capital was of no issue if the Government was itself the equity partner as funds could be allocated from state budgets or from borrowings from state boards which too had been set up with state endowment. But for the average private individual, the option was often straight Government loans through either state loan agencies or banks such as Bank Pembangunan, Bank Rakyat, and Bank Bumiputra whose liquidity in the main was also tax-resourced. The shares were often enough for the collateral required for the loans and interest could be nothing or minimal. Sometimes shares were gifted at absolutely no cost to the beneficiary bumiputra director especially in instances where the benefactor was of such prestige that his name (always male) alone carried enormous commercial value to the investor. If access to loans was impossible and if the investor wanted a bumiputra partner badly enough, a company advance was usually arranged for the partner and repayments were offset against future dividends or other remuneration. This system could alternatively have a complex 'buy back' arrangement where the shares could only be resold to the investor at a pre-determined price (Shome, 2002, p.101). Although bumiputra equity obliged no further contribution from the partner, the company would normally utilize the services of its Malay partner in largely public relations roles. The performance and the day-to-day running of the company rested exclusively with the investor and the prohibition on the repatriation of foreign capital negated debt-recovery by liquidation.

Though the NEP managed only 20.4 percent Malay ownership of public companies in 1990 against the target of 30 percent (<http://www.epu.jpm.my>) it was a well-conceived policy anchored by its main objectives of poverty eradication and the reduction of inequality of wealth. On the face of it everyone ought to be happy with it as the NEP was not race-specific and sought equal treatment across all ethnic groups. But implicit in its objectives was its intention to boost Malays participation in the commercial activity of the nation that was dominated by the Chinese, the second largest ethnic group (Milne & Mauzy, 1999: 51-53; Korff, 2001). The policy has been seen as successful in attaining its first objective of poverty eradication but less successful in attaining the second objective of wealth distribution (Yusof, 2001: 74-92; Baharin, 2006). Granted that under the NEP the Malays had been exposed to all the tools of modern business (Mahmud, 1981, pp. 30-31; Ahmed, Mahajar & Alon, 2005), but that alone would not be enough to catch up with the Chinese. First there had to be equity in the employment market to get some sense of what the commercial world is about. It is well known that the Malays were faced with difficulties to obtain employment in business organizations mainly owned by the Chinese and foreigners (Md.Said, 1974, pp. 37, 46; Gullick, 1981, p. 149). This may be attributed to the lack of confidence among by the foreigners of Malays' entrepreneurial and managerial skills and the inclination by the Chinese to employ Chinese workers (Mahathir, 1970, pp.39-40, 82-83).

The NEP also provides an avenue for the Malays to mobilise their capital and increase their savings. This was achieved through the establishment of agencies such as the Pilgrims Fund Board or Lembaga Tabung Haji and National Equity Corporation or Permodalan Nasional Berhad (PNB). Traditionally, the Malays, being Muslims, shunned saving money at banks due to the usury associated with investment activities of banks (Gullick, 1981, p. 148; Mahmud, 1981, p.36). In addition, unlike the Chinese who were more sophisticated with money dealings (Yoshihara, 1988, p.56; Freedman, 1959, as cited in Mackie, 1992, p.164), the Malays were seen as less capable to manage their money competitively (Mahathir, 1970, pp.167-169). The Chinese also have a strong and organized



network to mobilise their capital and this has served as their competitive advantage over the Malays in business activities (McVey, 1992, pp.20-21; Othman, Ghazali & Cheng, 2005). Therefore, concerted effort by the Government to strategically mobilize Malay capital and to encourage investment among them, has helped the Malays to build their commercial acumen as well as to increase their savings.

Another advantage of the NEP is that it provides the Malays with an opportunity to obtain better qualifications (Shamsul, 1997) with the assumption that it will create entrepreneurial savvy. By 1990 it did create an enlarging Malay middle-class and professionals (Kessler, 1992, p.145) so that by 2004 there were, in fact, more Malay doctors than Chinese doctors (Sowell, 2004, p.70). The presence of these Malays in various professional and employment sectors has, in some ways, helped to restore Malay confidence and the perception that the NEP has helped the Malays to improve their standard of living and economic position (Sloane, 1999, pp.54, 119-120). A significant outcome under the NEP was the creation of government-owned entities that became directly involved in the commercial activities of the nation. These public and state enterprises became proxies of Malay wealth, supposedly on behalf of the Malay population (Jesudason, 1989, pp.72, pp. 86-100; Searle, 1999, pp. 58-78). Therefore, even though Malays corporate ownership had increased during the period of NEP, this ownership was mainly concentrated in public enterprises rather than in the hands of individual Malays (Gullick, 1981, p.147), a situation the Malays find unacceptable. Another major setback of NEP is that it gave too much attention to the economic aspect of Malays capital building and too little attention to the psychological and sociological aspects of enterprise creation. For example, the Government was accused of providing Malays with easy access to large capital (Mahmud, 1981, pp.30-31; Gomez, 1999, p.35) without instilling and nurturing an entrepreneurial spirit among the Malays as well as providing a conducive environment for their entrepreneurship development (Md.Said, 1974, pp.206-210; Tan, 2006). Finally, while NEP has been successful in containing Malays discontent towards other ethnic groups in Malaysia, the policy, however, created dissatisfaction with the non-Malays (Tan, 1992, p.194; Milne & Mauzy, 1999, p.54). The non-Malays, in particular the Chinese, felt that they have been discriminated against under the policy and this then created feelings of insecurity with regards to their business investment in the country (Gullick, 1981, pp.146,149, 250) and, as a result, there had been massive movements of capital overseas (Gomez & Jomo, 1999, p.44).

This foregoing discussion has illustrated the advantages and disadvantages of Malaysia's NEP. While the NEP has been successful in eradicating poverty and reducing inter-ethnic income disparities by providing Malays with better access to education and employment opportunities, its success in promoting and providing conducive environment for Malay entrepreneurial development is questionable. Even though the NEP has been successful in restoring Malay confidence in the Government and reducing their discontent towards other ethnic groups in Malaysia, the policy has been seen as discriminating against the non-Malays.

## **NEP on Entrepreneurship Development**

Before we begin to discuss this issue, we should explain, at least briefly, what we understand by entrepreneurship in the context of the NEP. First, what is entrepreneurship? Despite a mass of literature, scholars are still not able to come up with a clear and consistent definition of entrepreneurship. Part of this difficulty is due to a failure to integrate the two main approaches in defining the term: the functional approach and the indicative approach (Casson, 2003). The functional approach is quite abstract and it simply describes what an entrepreneur does. On the other hand, the indicative approach provides a description of the entrepreneur by which s/he may be recognized. The former approach has been adopted mainly by the economic theorist whereas the latter by the economic historian. One can find almost as many definitions of the entrepreneur as there are literatures. Generally, the entrepreneur can be defined as:

- One who creates a new business in the face of risk and uncertainty for the purpose of achieving profit and growth by identifying opportunities and assembling the necessary resources to capitalize on them (Foley, 2003, p.135).
- Enterprising individuals who dare to be different and risk envy and ostracism to reap possible personal gain from the exploitation of opportunities, (Kalantaridis, 2004, p.39).

- Individuals, who innovate, identify and create business opportunities, assemble and coordinate new combinations of resources so as to extract the most profits from their innovations in an uncertain environment (Swierczek & Quang, 2004, p.134).
- any member of the economy whose activities are in some manner novel, and entail the use of imagination, boldness, ingenuity, leadership, persistence, and determination in the pursuit of wealth, power, and position (Montanye, 2006, p.555).

Most scholars are agreed that entrepreneurship is about vision, innovation and change, but there are those like Schumpeter (1934) who will not accept the often-touted quality of risk-taking (Schumpeter, 1934) while others such as Knight (1921) thinks uncertainty is a significant element in the making of an entrepreneur. Schumpeter detaches the entrepreneur from risk bearing. He says “risk taking is in no case an element of the entrepreneurial function. Even though [the entrepreneur] may risk his reputation, the direct economic responsibility of failure never falls on him” (Schumpeter, 1934, p.137). Schumpeter makes a clear distinction between entrepreneurship and invention. To him, inventions are economically irrelevant if they are not being put into practice. He accepts that entrepreneurs could well be inventors but proposes that they are inventors, not by nature of their function, but by coincidence and vice versa (Schumpeter, 1934, pp.88-89). Schumpeter further argues that the typical entrepreneur is more self-centred and relies less on tradition and connection (Schumpeter, 1934, p.92).

Schumpeter associates entrepreneurship to creating and the entrepreneur as a resourceful innovator (Kirzner, 1973). To Schumpeter, the entrepreneur is the bold leader who was willing to break through a wide array of ordinary constraints which set him apart from the manager (Kalantaridis, 2004). Schumpeter (1934) advances the view that the entrepreneur is motivated by first, “the dream and the will to found a private kingdom”. Second, by the will to prove oneself superior to others; third, for the challenge of creating. (p.93). But he does not seem to think that entrepreneurship is necessarily a life-long pursuit rather, he says as the market becomes more cluttered and competitive, the rate of profits will deteriorate and the innovative activity will diminish (Kalantaridis, 2004). Schumpeter is no different to other theorists who see the entrepreneur as one strongly motivated by pecuniary profit, who is a sociologically distinct creative innovator unafraid to break away from established routines (Kirzner, 1973, Montanye, 2006).

Frank Knight’s work appeared about the same time as that of Schumpeter. One of Knight’s main contributions is attributed to his well-known theory of profit (Knight, 1921). He says profit is the reward for those who are willing to bear the cost of uncertainty. What distinguishes entrepreneur from non-entrepreneur is their “capacity by perception and inference to form correct judgments as to the future course of events in the environment...of special importance is the variation in the power of reading human nature, of forecasting the conduct of other men” (pp.241-242).

Another important aspect of Knight’s contribution to entrepreneurial studies is his detailed distinction between risk and uncertainty as an economy-wide feature affecting all economic agents (Grebel et al., 2003). Knight argues that uncertainty cannot be treated as risk because one cannot formulate a risk distribution for unique events such as the likelihood of a singer losing his voice (Khalil, 2003). Hence, unlike risk, uncertainty cannot be estimated and therefore it cannot be insured. Knight (1921) further emphasizes that the only risk that leads to profit is a unique uncertainty resulting from an exercise of ultimate responsibility which in its very nature cannot be insured nor capitalized nor salaried” (p.310). Knight asserts that the major effect of uncertainty follows with the establishment of enterprises where the great mass of population, who provide productive services to the entrepreneurs, are offered the certainty of employment and income.

For Knight, the entrepreneurs are distinguishable from the others due to their willingness to bear the uncertainty with control and social responsibility. The entrepreneurs are ultimately in control of the venture and are ultimately responsible for all receipts and outlays (Kirzner, 1973). In return, they will be justly rewarded if they succeed.

## The Implications of the NEP on Entrepreneurship Development

In discussing the implications, we should look at some of the elements of entrepreneurship and their relevance to Malay entrepreneurial development on the back of the NEP. In her study on early Malay entrepreneurialism, Li points out the differences in the migrating patterns of the Malays and Chinese, saying that the former were more dispersal than the waves of the collectivist Chinese bands (Li-Murray, 1998, p.150). By this, Li-Murray posits that the Malays were inclined to individualistic pursuits and supported themselves as independent wage earners since there were few Malay businesses. Li-Murray also says that the personalization of commercial relationship contributed to Chinese business success. While it is true that the Malays lacked the kind of organizations or *kongsi* the Chinese had, they were no less entrepreneurial as observed by such eminent Malay World historians as Reid (1993), Andaya (1982), and Ricklefs (1993). However, in modern Malaysia, not only did Malay enterprises remain small and traditional, independent trading scarcely survived. Malays were drawn into the kind of productive services Knight (1921) talks about where the certainty of employment was better than the uncertainty of business. The risk of uncertain income also meant that the Malays were averse to venturing into business. Kalantaridis (2004) says it takes a certain amount of dare to venture into business. Malay entrepreneurs, especially in the rural areas, were looked upon with hostility for their apparent obsession with money and profit (Wilder, 1982, Bank, 1983, as cited in Li-Murray, 1998, p.159). This probably explains their reluctance to go into business. Besides, religious virtuousness frowns upon the exploitative nature of business as it is sometimes perceived to be. The Schumpeter (1934) thesis of the entrepreneur as the “bold leader looking to found a private kingdom” too does not go down well with the Malay egalitarian psyche.

The Islamic concept of the *ummah* or community has reinforced the Malay spirit of *gotong-royong* or cooperative work; together they inspire the laudable giving nature of the Malay. From this we can infer that individualism and competitiveness, that are demanded in entrepreneurship, are traits less likely admired and pursued. This may be true of those more religiously-inclined particularly in the rural and semi-urban areas where traditions and religions are strong, the Malay trader in the urban centres, though, is more likely to be the individualist who is forced to go it alone since there is a lack of community network to organize businesses as successfully as the Chinese as observed by Li-Murray, (1998). But there are many independently-run Malay businesses all over urban centres but they are mostly very small and unspecialized and whose businesses are not exactly built upon the qualities of innovation, boldness and wealth creation that identifies the classical entrepreneur (Schumpeter, 1934, Swierczek & Quang, 2004, Montanye, 2006). The lack of growth of sole proprietorships and family businesses, that characterize most Malay businesses, to medium and small-sized enterprises (SMEs) underscores this point.

Therefore, with this in mind, entrepreneurial development based on the objectives of the NEP seem a tortuous task. The major objective of the NEP that 30 percent of all corporate stock would be owned by Malays by 1990 (Sowell, 2004, p.61) was assumed on the basis that the Malays would be sufficiently entrepreneurial by then. The Government had believed that if the Malays were attracted by generous financing and preferences for licences, permits, and public tenders, that would give rapid birth to a generation of entrepreneurs who would have the experience to garner the 30 percent corporate equity. What was not anticipated was that the Malays were lacking in adequate skills and know-how to develop a large enough base of Malay enterprises that had the liquidity to acquire equity in public companies. What was disturbing was that the Malays, who had been recipients of various concessions, such as timber mining, or licensed government contractors, or given access to cheap financing, bartered their privileges to the Chinese in return for silent partnerships or company board seats.

Former Prime Minister Tun Mahathir said, “the vast majority regarded the opportunities given them as something to be exploited for the quickest return ... became sleeping partners ... learn(ed) nothing ... became less capable of doing business” (*Straits Times*, 1 August 2002). Termed the “Ali-Baba” syndrome, where the former, Ali the Malay, sold off to the Chinese, the Baba. This has been alleged for many years and repeated even more recently by former Deputy Prime Minister Tun Musa Hitam (*Star*, 23 March 2007). The NEP has also been exploited by ‘fake entrepreneurs’ or what some called the ‘rent-seekers’ (Yoshihara, 1988, p.68; Searle, 1999). The main activity of this group of people was not entrepreneurial in nature but merely to take advantage of their political connections

and access to government resources (Yoshihara, 1988, p.68). To some extent, the politicized nature of Malaysian businesses has discouraged many Malays to get involved in business as they feel that they are at a disadvantaged position to compete with the more politically-connected businesspeople (Gomez & Jomo, 1999, p. 49). There were allegations that the 20-odd percent that was achieved went to Malay elites whose political support was important to UMNO (Crouch, 1996, pp.37-38). Of this, only 5 percent of Malays benefited from the NEP (Sowell, 2004, p.74).

One of the major setbacks of NEP is in fact its policy of dependency that equates to a “crutch-mentality” according to former Prime Minister, Tun Mahathir said this when he addressed the UMNO General Assembly in June 2003. He said it was he and his Government “who provided the crutches. The NEP was meant as a leg-up but it consigned the Malays to permanent disability” (*Far Eastern Economic Review*, 23 June 2003). What this is saying is that the Government cannot create a class of Malay entrepreneurs if it continues to give out assistance and provide a superficial safe and comfortable environment for them. This goes against the grain of risk taking, innovativeness and autonomy, the elements that are crucial in the development of entrepreneurship. Another problem with the NEP, like any other affirmative action, is that once in place, it is very difficult to put an end to it. Instead, it is likely to grow and create a subsidy mentality with the Malays (Khoo, 1992, p. 65; Gomez & Jomo, 1999, p. 25). In this respect, the Malays were inclined to expect more regardless of whether the Government is capable to meet their demands or not (Md. Said, 1974, p. 203; Milne & Mauzy, 1999, p. 54). They would feel that it is within their right to be favoured and any attempt to question or put an end to this right, would very likely cause a stir and anger with the Malays (Mahathir, 2002c, as cited in Khoo, 2003, pp. 194-195). A government handout, that some analysts alleged as yet another example of the dependency culture, was shown in February 2000 when the Government announced a RM300-million (USD87 million) fund to help ethnic Malays survive in business. Analysts supportive of the initiative described the central bank fund as a necessary lifeline following the 1997 Asian Financial Crisis. Bank Negara Malaysia Governor Ali Abul Hassan Sulaiman said the Bumiputra Entrepreneurial Project Fund was aimed to help bumiputra entrepreneurs of small and medium-sized companies with financing at reasonable costs to enable them to undertake new or existing projects (*Straits Times*, 11 February 2000).

## **The Proposition**

The proposition: Selective assistance under affirmative action invites cronyism which non-Malay entrepreneurs resent and react with even higher competitive resilience by organizing themselves more collaboratively and optimizing their resources.

To address this proposition, we need to recap briefly some of the earlier points. The NEP was formulated in response to a political crisis, of a disgruntled electorate who felt they were left out in the economic process. The loss of several Malay seats in 1969 general elections to the Chinese further fuelled the emotion of estrangement. The reaction of the Government, controlled by the United Malays Organisation (UMNO) the principal in the ruling coalition, was to appease to the Malays. And the result was the NEP. When it failed to meet Malay equity objectives to build a core of budding entrepreneurs, changes were put in place to put less emphasis on setting targets for ethnic restructuring and income distribution. The reality is that it continued very much on the path of the original NEP. This was due to the political pressure that was brought to bear on UMNO by its grassroots. The Government by then Prime Minister Dr Mahathir took a number of Malay entrepreneurs under his wing to stimulate Malay stewardship in a number of enterprises which had government interests. Some of these entrepreneurs were Halim Saad of Renong, Tajuddin Ramli of Malaysia Airlines, businessman-lawyer Diam Zianuddin, and Syed Mokhtar Al-Bukhary to name a few (Balfour, 2002). All went well until the bubble burst with the 1997 Asian Financial Crisis and the mantle of cronyism was cut wide opened with several bailouts that included Mahathir’s son.

The Government’s sponsorship of Malay entrepreneurs was received with understandable resentment by non-Malays and equally by Malays who saw this as betrayal of the objectives of affirmative action which was about narrowing income gaps not on enriching the elite class. The non-Malays, more significantly the Chinese, had always grouped themselves in cartels under the aegis of the *guanxi* (or *kongsi* as it is known in Malaysia) that ensured a system of self-help (Gomez, 1999, Mackie, 1992, Jesudason, 1989, Heng, 1992). The Chinese *kongsi* has a very long tradition in Malaysia that dates back from their earliest arrivals in the country. It is clan-based and till today

Chinese businesses can be identified by their clan affiliations. The system has served them well to the extent that they are virtually self-supported with their own welfare services, schools, temples, and a source of financing. Mackie (1998) attributes Chinese success over other indigenous rivals to their stronger socialization process and family patrimony characteristics (pp.142, 142). In their pioneering days they enjoyed a high degree of autonomy and had a free rein in involving themselves in any business. That was until the NEP when a system of preferences for the Malays precluded them from many businesses. Even then, under the Ali-Baba relationship, Chinese were able to circumnavigate around the restrictions. But, over time, Chinese business influence eroded, firstly by their dwindling population numbers, secondly by the absorption of their businesses into public conglomerates that are no longer ethnically distinguishable. As the Government tightens its policing of Ali-Baba business, Chinese reach into new businesses are curtailed. But far from weakening, Chinese entrepreneurship is still formidable and are now more vocal in their resentment of NEP policies.

## **Testing the Proposition**

This paper undertook a small survey to test the proposition. Twenty-five former Malaysian Chinese business people now resident in New Zealand were surveyed. I asked questions about a) the degree of helpfulness of policies of the Malaysian Government b) if they consider government policies racially discriminatory c) if unfavourable government policies made them more determined d) their views on affirmative action, cronyism and corruption.

Most were divided on the question of helpfulness. On government policies, only about a quarter thought they were racially discriminatory; the majority did not think they impacted much on their businesses. This was tempered by question three in which most think that unfavourable government policies had something to do with their determination to succeed.

On the last question, their responses were more forthright. What came across quite strongly was that they were ever mindful and unhappy with Malay preferential rights which they blamed excluded them and other non-Malays from new business opportunities. But, despite this, they do not believe they are racially discriminated against by the Government or the Malays. Most have very good Malay friends and find Malays generally honest, caring and easy to work with. Most believed affirmative action had worked better for political and business elites than for ordinary Malays. They believe affirmative action was responsible for creating an environment of cronyism but thought much of it has abated since the 1997 Asian Financial Crisis. Still, they are disturbed to see too many plum projects being concentrated in the hands of a few elites.

From the survey I draw an impression that the Chinese have a dogged 'can do' attitude in their business pursuits. They are most comfortable doing business with their own kind; in many cases, a preference for their own dialect groups. They can be clanish and even chauvinistic and owe their successes to Confucian and other Chinese values. Their tendency to work within their racial community is not only for the purpose of optimizing kinship but also to create a protective curtain for their continuing survival. This I see as a reaction against outside forces and defence against policies inimical to their interests.

From this, I believe Malaysia's affirmative action has contributed to an impetus for greater Chinese resolve in their entrepreneurial endeavours. However, these findings, from a pilot study of a much bigger survey planned, are by no means conclusive. But it provided a sampling of a view of a population now removed from their former environment. I had expected some bias from disgruntled immigrants but there was none. Responses were not quite as acerbic as I had expected, if anything, they had undertones of nostalgia.

## **Conclusion**

In summarizing, this paper has offered definitions of affirmative action and entrepreneurship and applied them in the Malaysian experience. The NEP was also examined to see in what ways it has assisted in entrepreneurship development. The NEP has had many successes but in its role for entrepreneurship development, it did not measure up. This is based on its benchmark of 30 percent Malay ownership of public companies. While there is some

justification in pursuing a policy of affirmative action to redress economic imbalances, it is hard to see how it can create entrepreneurs.

One could argue that the state could hold hostage to power by its culture of preferential treatment of the electorate. Would the state then consciously and purposefully perpetuate such a dependency culture? But then, we assume the state has more noble aims and would not be self-serving. The reality is: governments always aspire to rule forever and would buy gratitude if that is what it takes. So, is there a will by the Malaysian Government to do anything less with the NEP if its political survival depends on it? Probably not. The hard question is, why should it? The economy has ticked along very well but is that good enough justification for holding on to the NEP at the expense of entrepreneurship under-development?

The NEP reaffirmed Malay preferential rights and this aggregated mostly with jobs in the civil service and in the uniformed and armed services, preferential treatment of Malay businesses for public projects, and tertiary admissions. With the security offered in their employment, there is the question whether this has inhibited the Malays to strike out on their own? Paradoxically, affirmative action could be seen as the Malays' worst enemy as it has the potential of 'uncreating' entrepreneurship because it takes away the psychological element of risk-taking. And, with no burden of risks, there is little pain should the business fail. Rather than making the Malays more entrepreneurial, government assistance can be seen as indirectly contributing to the greater resiliency, of the non-recipients, the Chinese and the Indians, which breeds a stronger resolve for survival and the prudent use of capital and resources. But there is also the moral question of equity: NEP budget is funded by taxpayers, many of whom are poor, is it conscionable to see their money enriching others?

There is no cultural baggage that inhibits Malay entrepreneurship. It should be noted the lack of entrepreneurial drive by the Malays cannot be attributed to their strict adherence to religious precepts because Islam does not prohibit business. In fact, Islam was propagated throughout the Malays isles by the entrepreneurial endeavours of Muslim traders in the spirit of their *ummah* (Ricklefs, 1993).

If we do away with affirmative action, since evidence points to it stifling creativity, innovation and competition, we will still have to find yet another way to deal with the difficult questions of racial estrangement and inequality that spawned affirmative action in the first place. Simple answers will be to apply selective application and exacting preconditions. That could work where marginalized communities are demographically small and where the political cost is minimal. It is more problematic and politically unfeasible where the majority are the beneficiaries. Such is the case with Malaysia.

There is already talk about clipping the perks of the NEP (*Star*, 23 March 2007). Former Deputy Prime Minister Tun Musa Hitam, who sits on the advisory council of the huge Iskandar Development Project in the southern state of Johor, said investors will not be constrained by NEP policies of local partnerships, capital structures, Malay employment quotas and other pro-bumiputra policies (*Straits Times*, 24 March 2007) This is an incremental step but all the same a major step back for the NEP. It does manifest a willingness to re-visit the NEP. How it will pan out eventually and if it would pervade to the rest of the country is a political minefield the Government will have to tread very carefully indeed. And doing away with it is therefore not an immediate option as there is still much to be done to redress Malay economic unhappiness and entrepreneurship under-development. There are also the consequences of losing grassroots support of rural Malays who regard affirmative action as their inviolable right and a symbol of national ownership. That said, Malaysia's non-Malay constituents are not exactly demanding the abolition of the NEP and will continue to tolerate it if it promises further political stability, growth and ethnic harmony. For the longer term, a watered down version of the NEP, cleared of the more obvious inequities and one that is inclusive of all economically marginalized communities, would be a more palatable and sustainable proposition.

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# Employee Satisfaction: The Impact of Benefit and Reward Policies

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## Abstract

The paper is an analysis of the impact of benefit and reward policies on employee satisfaction in the chemical companies in Malaysia. Analysis was done on four companies, which were selected based on equity ownership. It is hypothesized that foreign-owned multinational companies (MNCs) being more globalized and technologically advanced would have better benefit and reward policies, and employees in these companies are more satisfied with the benefit and reward policies. However, findings show that not all foreign-owned MNCs are giving better benefit and reward packages. Companies that have some Malaysian interests seem to have better benefit policies though this is not the case for rewards. As far as rewards are concerned, the respondents in the Malaysian-owned company experienced the lowest level of employee satisfaction among the four companies. On the contrary, respondents in European-owned MNCs felt that they are better rewarded than those companies with Asian equity. Benefit packages in all the companies are in line with global trends, with much emphasis on flexible benefits though standard and voluntary benefits are available. **Keywords:** benefits, rewards, employee satisfaction, standard, flexible, voluntary, recognition

## Introduction

Benefit and reward policies are recognized as being critical to the delivery of an organization's business strategy and change initiatives, motivating and mobilizing staff to achieve these goals. Organizations that maintain effective benefit and reward policies have a sustained competitive advantage, as key employees are effectively locked into their careers and employment costs are minimized. What then are the benefits and rewards policies most desired by company employees? This study aims to understand the current benefit and reward policies in the chemical and petrochemical industry in Malaysia and its effect on the satisfaction of the employees. The chemical and petrochemical industry was selected for this research to understand what drives employees to stay on in these companies despite the perilous nature of the job.

In this research, case study analysis was done on four companies - identified based on the equity ownership to see if different ownership has an impact on the benefit and reward policies of the company. For the purpose of this research, it is hypothesized that employees in foreign-owned MNCs are more satisfied with the benefit and reward policies of their companies as compared to locally-owned MNCs. Foreign-owned MNCs being more globalized and technologically advanced would have better benefit and reward policies for its employees. Hence, employees in the foreign-owned MNCs are expected to be more satisfied with the benefit and reward policies.

## Literature Review

Employee benefits package such as tuition reimbursement, paid leave policies (bereavement, examinations, etc.), paid personal time off, enhanced health insurance, retirement plans, paid vacations/holidays and overtime multipliers that are competitive and attractive would increase employee satisfaction. Giving long-service awards, visit/send cards to sick employees, baby blankets/gifts, picnics/holiday parties and family day would also engender employee satisfaction. Acknowledging employees for excellence among their peers through an announcement in the company newsletter, an employee recognition award or a perk such as a special parking space, also serves to enhance a sense of satisfaction. Similarly, recognition and rewards that are given fairly and adequately according to job performance have a positive effect on employee satisfaction. Ongoing feedback about performance from superiors in the form of praise/recognition also tends to stimulate employee satisfaction. Employees are also more satisfied with flexible benefit options.



Parents, for example, are opting for companies offering home working or flexi-time, as well as private medical insurance, pension contributions or critical illness cover. Workers living in rural areas are more likely to favour a company car or subsidised travel. In a survey conducted by William M. Mercer Inc., where 25,000 employees at nine large companies were asked their opinions of 65 potential benefit programs, the benefits identified as the most important for productivity are flex time (90%), clear sense of organizational purpose (89%), employee provided or subsidized office equipment for work at home (87%), a comfortable, attractive workspace (86%), telecommuting (84%), on-site fitness center or subsidized health-club membership (78%), work schedule compatible with school calendar (75%), career planning and appraisal (74%), child care center at or near work site (73%) and job sharing (72%) (Smith, 2005).

Most surveys carried out showed that, businesses are increasingly turning to rewards and benefits packages to recruit and retain staff. According to the CIPD, around 50% of businesses it surveyed this year now offer benefits or rewards in addition to base salary. One fifth of respondents intended to improve their existing benefits in 2005, adding new policies rather than phasing any out.<sup>1</sup> Similarly, Day (2005) reiterated that with potential employees able to take their pick of the jobs in a buoyant market, employers need to offer the right bait to land the best talent. But paying the right salary is only part of the story (Day, 2005). Jardine Lloyd Thompson, a benefits provider found that in small and medium-sized firms, nearly half used benefits schemes to keep up with market rates and another 37% used them purely to attract and retain staff.<sup>2</sup>

Benefits offered by companies vary enormously in terms of quality and variety. Generally, there are three styles of benefits: standard (share plans, pensions and holiday entitlement); flexible (cars, dental insurance, life and disability insurance, discounted services, financial planning, give-as-you-earn charitable contributions, home phone packages, pensions, life assurance and concierge benefits); and voluntary (services such as health care schemes). The CIPD found that the top 10 employee benefits were still rudimentary incentives such as sick pay, 25 days paid leave, on-site parking, private healthcare, a party at Christmas or tea and coffee. To retain or attract new staff, the companies need to keep up with the trend to provide flexible packages. Flexible benefits packages provide added extras to staff and allow them to pick and choose between the type of benefits package they want. Hewitt Associates, a human resources firm found that, in nearly half of all the companies it had surveyed, their chief executive officers were now involved in setting up flexible benefits schemes.<sup>3</sup>

A study focusing on companies that employ 100 or more workers released by The Families and Work Institute has the following findings on the trends in employer benefit offerings: allow workers to take time off to attend school events (90%), flextime (67%), let workers stay home with mildly ill children without using vacation or sick days (50%), provide dependent care assistance plans (50%), hold supervisors accountable for sensitivity to their employee's work/family needs (44%), offer maternity leaves longer than 13 weeks (33%), offer elder care resources and referral services (23%), and offer childcare at or near the workplace (9%) (Smith, 2005).

Company rewards are just as important as pay and benefits. Today, organizations acknowledge the important role reward programs play in contributing to business success. Put simply, an effective total rewards strategy enables organizations to deliver the right amount of rewards, to the right people, at the right time, for the right reason (Cornish and Gilbert, 2005). Besides monetary rewards, recognition and appreciation are integral components of a winning strategic reward system. Though comparatively less costly, these two elements rarely receive the attention they deserve from business owners. Showing appreciation to employees by acknowledging excellent performance and the kind of behavior desired is best done through a personal note, stopping by the employee's desk to convey your appreciation, a public statement of thanks in front of the employee's co-workers or team, citing specific examples of what they've done that has positively impacted the organization (Sarvadi, 2005). Instantly rewarding and recognizing a good job has a major impact on improving morale and motivation. A motivated worker will contribute vigor and dynamism to the organization, instilling the organization with remarkable productivity and a competitive edge - all the while providing a valuable service or product for the business and its customers.

Heathfield (2006), emphasizes on quality of work life rewards, in addition to traditional increases to base pay, and variable rewards, such as bonuses, profit-sharing and gain-sharing. Recommendations include payment of a one-time, lump sum payment for a result or outcome that deserves recognition; payment of smaller rewards with "thank you" notes for above the call of duty contributions; increased emphasis on additional benefits such as pre-

paid legal assistance, educational assistance, and vision insurance; increased opportunity for flexible work arrangements and job-sharing; an organizational emphasis on the training and development of employees; and clear career paths so employees see opportunities within your organization. In short, forward thinking organizations are emphasizing “quality of work life” rewards and recognition to add to the value of the total compensation package.

## Methodology

The main method used for this research is primary data survey collected through a questionnaire survey as well as in-depth interviews with the human resource director or manager and some employees of each company. The four companies are given the fictitious names of GMCC, JCC, BCC and MCC to preserve their anonymity. GMCC is a joint venture between a local and European company (about 800 employees); JCC is wholly Japanese owned (about 400 employees); BCC a European company (about 300 employees); and MCC a local company (about 500 employees). At GMCC, two senior HR managers and two HR executives were interviewed. At JCC, the Assistant HR Manager, a HR executive and the Quality Manager provided information. At BCC, the Senior HR Manager and two HR Advisors were interviewed while at MCC the Senior HR Manager and two HR executives participated in the study. As for the employee satisfaction survey, 100 questionnaires were given to each participating company and distributed randomly to the employees in different departments within the organization. Respondents were given two weeks to return the questionnaire. The data collected from the questionnaire was analyzed using the SPSS Version 11.0 for Windows software program.

After contacting the HR department of each of the companies by telephone, a meeting with the HR director was arranged and a general outline of this research's aim and methodology (the theme, the purpose, general outline, method, and details of this study) was mailed to them in advance. At the first meeting, permission was obtained to administer the questionnaire and privately interview company employees. Subsequent meetings involved interviews, which were carried out in a private room and lasted for an hour to an hour and a half. A summary of each interview was drafted based on the tape recordings and notes taken during the interview. The drafts were then sent back to the interviewees for verification. Follow-up discussions were carried out electronically through e-mails, facsimile and telephone. The responses to the interviews were tabulated to identify key trends. Summaries were then developed for each variable.

## Results

### (a) Demographic Data

(b) The demographic data covers sex, race, age, age of entry, education level, job category, type of employees, years of working experience, and length of service with the organization, income group and number of previous jobs held. The majority of the respondents in all the four companies are young male Bumiputras with an average age of between 32 – 35 years. Majority of the respondents have 7 - 12 years of working experience, with MCC having more experienced staff as compared to the other companies. Length of service ranges from 1 – 25 years and MCC has more senior employees as compared to the other companies. 60.5% of the respondents in MCC have more than 10 years of service with the company. This is also reflected in the high percentage of respondents (63.2%) in MCC not having any previous jobs before joining the organization. Table 1 is a summary of the demographic data of the respondents of the four companies.

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(t) TABLE 1: DEMOGRAPHIC DATA

(u)	(v) GMCC	(w) JCC	(x) BCC	(y) MCC
(z) Number of respondents	(aa) 62	(bb) 56	(cc) 62	(dd) 38
(ee) Sex: Male (ff) Female	(gg) 64.5 (hh) 35.5	(ii) 64.3 (jj) 35.7	(kk) 75.8 (ll) 24.2	(mm) 73.7 (nn) 26.3
(oo) Race: Bumiputras (pp) Chinese (qq) Indians (rr) Others	(ss) 75.8 (tt) 21 (uu) 1.6 (vv) 1.6	(ww) 82.1 (xx) 17.9 (yy) - (zz) -	(aaa) 64.5 (bbb) 29 (ccc) 4.8 (ddd) 1.6	(eee) 94.7 (fff) 2.6 (ggg) 2.6 (hhh) -
(iii) Age: Age range (jjj) Average age (kkk) Mode	(lll) 25 – 48 (mmm) 35 (nnn) 30, 40 (11.3%)	(ooo) 21 – 47 (ppp) 32 (qqq) 29 (14.3%)	(rrr) 25 – 49 (sss) 34 (ttt) 28 (16.1%)	(uuu) 23 – 49 (vvv) 35 (www) 36, 45 (21%)
(xxx) Entry age: Entry age range (yyy) Average age of entry (zzz) Mode	(aaaa) 20 – 46 (bbbb) 31 (cccc) 30, 34 (11.3%)	(dddd) 19 – 42 (eeee) 26 (fff) 26 (14.3%)	(gggg) 20 – 39 (hhhh) 26 (iiii) 24 (14.5%)	(jjjj) 20 – 36 (kkkk) 26 (llll) 23, 25 (31.6%)
(mmmm) Working experience: Range in years (nnnn) Average (oooo) Majority	(pppp) 5 – 27 (qqqq) 12.42 (rrrr) 10 (14.5%)	(ssss) 1 – 24 (tttt) 8.93 (uuuu) 7 (12.5%)	(vvvv) 3 – 30 (wwww) 11.8 (xxxx) 8 (24.2%)	(yyyy) 1 – 25 (zzzz) 12.11 (aaaa) 12 (23.7%)
(bbbb) Length of service: Range in years (ccccc) Average (dddd) Majority	(eeee) 1 – 7 (ffff) 4 (gggg) 5 (32.3%)	(hhhh) 1 – 10 (iiii) 5.07 (jjjj) 4 (25%)	(kkkk) 1 – 10 (llll) 7.36 (mmmm) 4 (33.9%)	(nnnn) 1 – 25 (oooo) 9.63 (pppp) 12 (26.3%)
(qqqq) Number of previous jobs held: None (rrrr) 1 – 3	(ssss) 1.6 (tttt) 75.8	(uuuu) 23.2 (vvvv) 67.8	(wwww) 5.5 (xxxx) 54.8	(yyyy) 63.2 (zzzz) 31.6

(aaaaaa)

**Current Benefits and Reward Policies**

In all the companies surveyed, the compensation package includes various benefits and rewards as well. Though

there are differences, all the companies surveyed state that the benefits are very attractive and include housing loan, vehicle loan, medical benefits, insurance, staff development program (company sponsors staff to go for further education), stock option scheme, petrol allowance for senior management staff, transfer allowance, compassionate leave, and so on. Some of the employees interviewed opined that besides the pay, which is rather competitive, it is the benefits that made them stay on in the company. The following section will trace the current trends in benefits and rewards offered by the various companies.

**(bbbbbb) Medical and Dental Benefits**

One of the benefits that all the companies boast of is the very good medical benefit, which is extended to the immediate family too. Employees in GMCC agree that the company's medical benefits are one of the best in the area. In BCC, each family member is allowed to seek treatment at medical clinics for up to 30 times a year at the company's expense. However, there is no limit as to the medical bill. If they seek medical treatment at specialist hospitals, the maximum medical expenditure allowed is RM500 for each family member though there is no limit for the employee. As for hospitalization fees, the company bears up to RM12,500<sup>4</sup> for each family member each time. If it exceeds the amount the company has a co-insurance scheme to cover the extra expenditure. In this case, the employee will pay 20% and the balance covered by insurance. For dental allowance, employees can claim up to RM300 a year. Similarly in JCC and MCC, medical benefits cover both the employee and their families (up to 5 children). Executives in MCC can also claim up to RM500 for dental care. Non-executives are eligible up to second-class ward at general hospitals.

**(ccccc) Housing and Vehicle Loan Interest Subsidy**

Interests for both vehicle and housing loans in GMCC are subsidized by as much 50%, with maximum limit at RM5,000. In JCC, the company encourages all staff to have their own vehicle. The amount that an employee can loan from the company depends on their job grade and salary.<sup>5</sup> For example, for grade 5 and below, the maximum loan is RM35,000. For grades 6 to 9, the company allows up to RM45,000, for grades 10 to 13, it is up to RM60,000 and for grade 14 and above RM80,000. The company charges 4% interest on all motor vehicle loans. It is calculated on the balance of the loan, that is, the flat rate is about 2%. The company also encourages employees to own houses. For this, the company provides interest subsidy for housing loans. The company subsidizes 5% of the amount of interest that the employee has to pay back to the bank for the housing loan.<sup>6</sup> This is calculated for the duration of the loan and it would be credited back to the salary on a monthly basis. This amount is calculated based on a certain formula set by the company. All interest subsidies are taxable.

In BCC, employees are given vehicle allowance if they buy a car. Only employees with more than one year of service are eligible for this allowance. The company actually subsidizes 4% of the interest rates on car loan. If the actual interest rate for the loan is less than 4%, the balance will be credited back to the employee. In short, the employee actually gains if he takes a car loan that charges less than 4% interest. Employees tend to change cars and a glance at the parking lot in the plant actually confirms this.<sup>7</sup> Similarly, for the housing loan subsidy, the company reimburses 6% of the interest rate. About 90% of the employees have benefited from this attractive interest allowance. For a monthly housing loan installment of RM1,300, as much as RM800 comes from the company. Most prefer to buy rather than rent because the company does not subsidize the rental for the house. Though the payment is the same for rental and loan installment, the buyer can claim ownership of the property after paying off the loan. Thus, if the employee does not take the housing loan, he/she loses the benefit.

All employees in MCC are eligible for the housing loan. The eligibility for housing loan for each employee depends on which job grade he/she is in. The employees repay the loan in monthly installments, which is deducted from the salary. However, not everyone is entitled for the vehicle loan. Vehicle loans are charged 3.5% interest and the amount for executive starts at RM60,000. The amount of the loan depends on the job grade as well, but the difference from one job grade to another is not that great. A difference that can be found in MCC is that the company does not provide company cars for those in higher management. Instead, every five years, senior managers and above are given a grant to purchase a vehicle of their choice. After five years, they are allowed to keep the car as their own. But if they resign within the five years, they have to pay back or return the car to the company. On top of that, they are given a certain amount for vehicle maintenance and paid smart card for petrol. For the Managing Director/Chief Executive Officer, besides the grant, he is given a driver's allowance. It is a cash allowance. In general, the higher one is in the job grade, the higher the benefits. For example, those in higher

management are also eligible for utility allowances.

**(ddddd) Education Grant**

GMCC's education grant allows staff to sign up for certificate, diploma or degree programs. An application for study grant is normally approved if the study is within the job scope or future job scope of the employee. The company does not grant long-term study leave for staff to attend courses and therefore, staff has to go for part-time courses that are conducted outside their office hours. Though no study leave is given, the company permits its staff to take leave for examinations. Course fees will only be reimbursed to the employee on successful completion of the course. The company subsidizes 50% of the cost of the course up to a maximum of RM10,000. No bond is attached to the education grant and staff is free to leave the organization after finishing their studies. There is also no revision in pay on gaining an extra qualification. Upon graduation, one can discuss with management on a pay revision but this is rarely granted. Despite that, the executives do not seem deter and many pursue the courses for self-actualization rather than hoping for a promotion or pay revision.

In JCC, there is no study grant for its employees though the company encourages its staff to go for further studies. The company is still unclear as far as this policy is concerned. It is still at the drafting stage. The cost involved is high and the company is unsure of its returns. In the past, employees have been sent to Japan for training. Though there is a bond attached, some left after the bonding period. Because of this, the company is quite hesitant in implementing the study grant policy. No bonds are attached to local external training and bonds are only for mid- to long-term overseas training. As for BCC, financial assistance is given to employees to pursue Masters degree, Bachelor degrees, diplomas and special certificates. For example, those who sign up for the MBA course are provided 85% financial assistance for course fee and study materials. There is a two-year bond for the financial assistance taken which is interest free.

MCC also encourages its staff to go for self-development and sends its staff for further education. For example, four employees were sent for a Masters program – two abroad and two locally. Many more were sent for diploma programs conducted by local universities on a part time basis. The company pays for everything during the whole duration of the course. Employees who are sent for further education are selected based on their potential.<sup>8</sup> On completion of the course, they have to serve the bond set by the company.<sup>9</sup> If they breach the contract, they are required to reimburse the company. Most who do not serve the bond are normally given better offers elsewhere. For example, after serving two years, the employee may be offered a salary, which is double or triple that of what he/she is getting in the current company. So, it is better to leave and pay back the amount owed to the company.

**(eeeeee) Insurance**

One important benefit provided by JCC is the group insurance for all employees. Besides covering death and total permanent disability, the group insurance covers hospitalization fees as well.<sup>10</sup> Families of employees are not covered by this insurance but by other packages. There is the outpatient package where single non-executives are covered up to RM1,200 a year. Those with families are covered up to RM1,700. For executives, there is no limit for outpatient treatment. However, the company sets a limit for their families, that is up to a maximum of RM1,700 while for Assistant Managers and above there is no limit for their families. In BCC, all employees are also covered by the personal accident (PA) scheme for death and total permanent disability. The payment for death as a result of an accident at the plant is 72 times that of the employee's salary. For normal death, it is 36 times of the salary. In MCC, executives are covered by personal insurance of RM250,000 and for non-executives up to RM150,000.

**(ffffff) Outstation Allowances**

In all the companies surveyed, allowances are given for accommodation, food and traveling when they are out for official duties. In JCC, staff working outstation can either use the company car or claim for traveling allowance. For food allowance, the company pays the actual amount spent if it is for entertaining clients but if it is for personal expenses on official duties, the employee is paid the amount that he/she is eligible. As for accommodation, it is paid based on the actual amount spent or the maximum that the employee is eligible. In BCC, petrol allowance is only for heads of departments. Some staffs are also eligible for entertainment allowance but they claim based on the actual amount spent. As for traveling abroad, all executives in MCC can go for business class as long as the journey is more than six hours.

**(ggggg) Stock Option Scheme**

As far as GMCC is concerned, there is no stock option scheme and there are no plans to implement share option

scheme in the near future. Similarly, in JCC there are no stock option schemes as it is not a public listed company. Employees in BCC, however are allowed to participate in the stock option scheme known as “share match”. This scheme depends on the group performance and the average salary for the year. Every year the group performance will be compared with the performance of six other petrochemical groups. Results for the past three years will be compared and if the company ranks first or second globally, it is placed in the first tier, which is 5% of the average salary. For the second tier, it is 4% and for the third tier 3%. For every share bought by the employee, it will be matched by another share given by the company, that is, ‘buy one, free one’. In MCC, all permanent staffs are eligible for the stock option scheme.

**(hhhhh) External Training Allowances**

In all the companies surveyed, staffs that are sent for external training are eligible for official outstation allowances, such as traveling and accommodation allowances. The training package is paid for by the company and on completion of the course they are expected to conduct in-house training. No extra allowance is given to those who conduct such in-house courses. There is also no incentive to encourage them to share the knowledge with others. However, in MCC, employees who carry out non-routine tasks are given some credit during assessment.<sup>11</sup> In GMCC, for line managers who are called to conduct courses outside, they are given time off during office hours. For this, prior permission is necessary and the purpose for conducting a course outside has to be justified.

**(iiiiii) Other Benefits and Rewards**

Other benefits provided by GMCC include an annual Family Day for the employees and their family. There is also an annual dinner in October where all staff and their spouses are invited. There is also the long service award but so far none of the employees has achieved that, as it requires a minimum of 10 years of service. Other rewards include cash paid out when they successfully rectify whatever the cause of a plant’s shut down. There is also the low injury benefit whereby if there is no injury for a certain period of time; vouchers will be given out to the staff concerned. The emphasis is on safety in the organization. There is also the Employees’ Suggestion Scheme for ideas contributed by the employees.<sup>12</sup> The company has a special committee to sift through the suggestions and give the reward accordingly.

In JCC, loyal employees are given a certificate of long service and bank certificate premiums, which they can cash back later after their fifth and tenth year of service with the company. At the end of the year during the annual dinner, various awards will be given out including ‘Employee of the Year’ award. Family Day is carried out every year and every employee and their family are invited to join. It is normally held at some resort and the company pays for all the expenses. The main purpose is for the employees to mingle with each other but employees tend to stick to their own family. It has become so routine that employees are no longer more motivated after Family Day. The Japanese expatriates too do not mix much with the local staff.

Benefits provided by BCC are free golf membership and sports club membership for executives. The company rewards employees for outstanding performance in two ways. Firstly, is the annual pay increment, which is performance-based and determined by the ratings during the performance appraisal? Secondly, is the rewards and recognition program that rewards employees for outstanding work? A reward is also given for excellent suggestions. The company does not have the ‘Employee of the Month’ or ‘Employee of the Year’ award. To give recognition to those with long service in the company, a ‘Service Award’ is given for every 5 years of service.

In MCC, long service award is handed out to employees who are loyal.<sup>13</sup> Besides this, the company shows its appreciation in other ways, such as giving them dinners or tokens at the end of the year. Tokens are also given out to those who do not take any medical chits (MC) in the year. The company also rewards children of employees who have shown excellent results in public examinations. The company also allows maternity leave with full pay for up to 5 children. Paternity leave for every child is also given - one day for executives and three days for non-executives.

For senior managers and above, subscription for sports club are paid by the company. However, they must get approval from the company before joining the club. The company also carries out a lot of recreational activities to maintain industrial harmony - annual dinners, Family Day, Quality Day, Health, Safety and Environment Day, and so on. Besides that, free meals are given to those who break fast at the workplace during the fasting month. All these somehow have a positive impact on the company in the sense that employees accept the yearly increment given to them without much grouses. Besides, turnover is low.

## **The Impact of Benefits and Rewards Policies on Employee Satisfaction**

The following section analyzes the impact of benefits and rewards policies on employee satisfaction in the companies surveyed. The satisfaction level of the employees in each of the companies is first analyzed and a comparison is then made in an effort to determine the practices desired by the employees. HR practitioners could use the outcome of the findings to consider the most appropriate policies for their organization.

The respondents in GMCC are generally satisfied with the benefits and rewards policies of the organization. Most of the statements that are directly related to the benefit package of the organization have a mean of more than 3 except for respondents' satisfaction with the retirement plan, which has a mean of 2.87. The mean for respondents' satisfaction with the benefit package is 3.61 and a mode of 4. The average mean for respondents' satisfaction with the benefit policies based on the six questions related to the benefit package is 20.97.<sup>14</sup> Categorizing them according to their level of satisfaction, the analysis shows that more than half of the respondents (53.2%) said that they are satisfied while another 43.5% state that they are very satisfied with the benefit policies. Only 3.2% of the respondents are dissatisfied with their benefit package.

As far as recognition and rewards are concerned, most of the respondents in GMCC are satisfied with the company's policies. All the questions show a mode of 4 except for one on whether enough recognition was given for the amount of work they do, which has a mode of 3. Based on the analysis of the five questions, the average mean for the rewards policy of the organization is 16.53. Thus, respondents are generally satisfied with the reward policies of the organization.<sup>15</sup> Analyzing the level of the respondents' satisfaction with the reward policies, 87.1% of the respondents are satisfied with the reward policies. 27.4% of the respondents are very satisfied and 59.7% state that they are satisfied. 12.9% are dissatisfied with the reward policies. However, none of the respondents showed that they are very dissatisfied.

As in GMCC, the mean for most of the items used to measure the benefits policies of JCC is more than 3. However, respondents are not satisfied with the retirement plan (2.84) of the organization. Though the mean for 'I am satisfied with the benefit package' is 3.09, the average mean for all the items used to measure respondents' satisfaction with the benefits policies of the company is 18.59, indicating that respondents are not too satisfied with the benefits policies of the company. A mode of 3 was obtained for all the items except for the item where they could access information easily and have a good understanding of their benefits, which has a mode of 4. Categorizing them according to their level of satisfaction, the analysis shows that the majority of the respondents (71.4%) said that they are satisfied while another 14.4% state that they are very satisfied with the benefit policies. Though no one in the company is very dissatisfied, 14.3% of the respondents are dissatisfied with their benefit package.

Analyzing the reward system of the company, there is no clear-cut indication that the respondents are satisfied with the reward policies of the organization. Of the 5 items to test this, 2 have a mean of less than 3. As for the other three items, though a mean of more than 3 is obtained, it is rather low. Among the items with a mean of less than 3 is whether recognition, rewards and bonuses are given fairly, which has a mean of 2.96. Respondents also felt that they did not receive enough recognition for the work they do (2.95). Thus, the average mean for this part of the survey is 15.52, meaning that respondents are not too satisfied with the reward policies of the company. Analyzing each item individually, the highest mean recorded is 3.32, where respondents agreed that employees in the company are rewarded according to their job performance. While a mode of 4 for 'recognition employees received is appropriate for the level of accomplishment' was obtained, a mode of 3 was recorded for all the other items. The level of the respondents' satisfaction with the reward policies shows that 17.9% of the respondents are very satisfied and 69.6% are satisfied. 5.4% are dissatisfied with the reward policies and 7.1% of the respondents said that they are very dissatisfied.

Analysis on the satisfaction of the respondents in BCC with the benefits of the company showed a mean of more than 3 for all the statements that are directly related to the benefit package. The mean for respondents' satisfaction with the benefit package is 3.18 and a mode of 4. The average mean for respondents' satisfaction with the benefit policies based on the six questions related to the benefit package is 19.44. Categorizing them according to their level of satisfaction, more than half of the respondents (53.2%) are satisfied while another 25.8% are very

satisfied with the benefit policies. However, about a quarter of the respondents (21%) are dissatisfied with their benefit package.

As far as recognition and rewards are concerned, a mean of more than 3 was recorded for all of the five statements used to measure the level of the respondents' satisfaction with the reward systems of the company. This shows that most of the respondents are satisfied with the company's policies. Based on the analysis of the five questions, the average mean for the rewards policy of the organization is 16.19. Analyzing the level of the respondents' satisfaction with the reward policies, 90.3% of the respondents are satisfied with the reward policies. 25.8% of the respondents are very satisfied and 64.5% said that they are satisfied. None of the respondents showed that they are very dissatisfied while 9.7% are dissatisfied with the reward policies.

Similarly for MCC, the mean for all the items used to measure the benefits policies of the company is more than 3. The average mean for all the items used to measure respondents' satisfaction with the benefits policies of the company is 20.39, indicating that respondents are generally satisfied with the benefits policies of the company. A mode of 4 was obtained for four out of the six items indicating a relatively high level of satisfaction with the benefits policies. As to their level of satisfaction with the benefit policies, the analysis shows that half of the respondents (50%) said that they are satisfied while another 36.8% opined that they are very satisfied with the benefit policies. Though no one in the company is very dissatisfied, 13.2% of the respondents are dissatisfied with their benefit package.

Analyzing the reward system of the company, most of the items have a mean of more than 3, though rather low. Respondents felt that the company does not highly reward those who acquire skills for themselves and later teach their fellow workers (2.87) and that they do not receive enough recognition for the work they do (3.03). The overall average mean at 15.34 shows that respondents are not too satisfied with the reward policies of the company. The highest mean recorded is 3.21, where respondents agreed that recognition employees received is appropriate for the level of accomplishment. The level of the respondents' satisfaction with the reward policies shows that 79% of the respondents are satisfied, including 23.7% very satisfied. More than half of the respondents (55.3%) are satisfied while 10.5% are either dissatisfied or very dissatisfied with the reward policies. The findings of the impact of benefits and reward policies on employee satisfaction in the four companies are summarized in the Table 2 below.

(jjjjj)

(kkkkk)  
 (lllll)  
 (mmmmm)  
 (nnnnn)  
 (ooooo)  
 (ppppp)  
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 (rrrrr)  
 (sssss)  
 (ttttt)

(uuuuuu) TABLE 2: EMPLOYEES' SATISFACTION WITH THE BENEFIT AND REWARD POLICIES

(vvvvvv) Benefits	(wwwwww) MCC		(xxxxxx) CC		(yyyyyy) CC		(zzzzzz) MCC	
	(aaaaa) e a n	(bbbbb) e a n	(ccccc) e a n	(ddddd) e a n	(eeeee) e a n	(ffffff) e a n	(ggggg) e a n	(hhhhh) e a n
(iiiiii) I have a good understanding of my benefits at my company including retirement benefits and can access information easily	(jjjjj) .52	(kkkkk) .29	(lllll) .23	(mmmm) .29	(nnnnn) .60	(ooooo) .97	(ppppp) .50	(qqqqq) .55



(rrrrrr) I am satisfied with the benefit package	(ssssss) .61	(tttttt) .93	(uuuuuu) .09	(vvvvvv) .57	(wwww) .18	(xxxxxx) .28	(yyyyyy) .45	(zzzzzz) .26
(aaaaaaa) The employee benefits I received are attractive and competitive	(bbbbbb) .74	(cccccc) .90	(ddddd) .00	(eeeeee) .21	(ffffff) .19	(gggggg) .36	(hhhhh) .58	(iiiiiii) .79
(jjjjjjj) I am satisfied with my retirement plan	(kkkkkk) .87	(lllllll) .18	(mmmm) .84	(nnnnn) .61	(ooooo) .03	(ppppp) .75	(qqqqq) .39	(rrrrrr) .88
(sssssss) Overall, I think the amount of money I pay for my benefits is a good value	(ttttttt) .50	(uuuuuu) .20	(vvvvvv) .20	(wwww) .43	(xxxxxx) .31	(yyyyyy) .19	(zzzzzz) .29	(aaaaaa) .18
(bbbbbbbbb) Benefits available are appropriate for my needs and those of my family	(cccccc) .73	(ddddd) .58	(eeeeee) .23	(ffffff) .13	(gggggg) .13	(hhhhh) .36	(iiiiiii) .18	(jjjjjjj) .00
(kkkkkkkkk) Average Mean	(llllllll) .97	(mmmm) .09	(nnnnn) .59	(ooooo) .89	(ppppp) .44	(qqqqq) .44	(rrrrrr) .39	(ssssss) .09
(ttttttt) Very satisfied	(uuuuuu) .35	(vvvvvv) .54	(wwww) .44	(xxxxxx) .44	(yyyyyy) .88	(zzzzzz) .58	(aaaaaa) .88	(bbbbbb) .68
(ccccccccc) Satisfied	(ddddd) .22	(eeeeee) .32	(ffffff) .44	(gggggg) .14	(hhhhh) .22	(iiiiiii) .33	(jjjjjjj) .00	(kkkkkk) .00
(lllllllll) Total	(mmmm) .67	(nnnnn) .77	(ooooo) .88	(ppppp) .58	(qqqqq) .88	(rrrrrr) .99	(ssssss) .66	(ttttttt) .88
(uuuuuuuuuu) Dissatisfied	(vvvvvv) .22	(wwww) .22	(xxxxxx) .33	(yyyyyy) .44	(zzzzzz) .33	(aaaaaa) .11	(bbbbbb) .22	(cccccc) .22
(ddddddddddd) Very dissatisfied	(eeeeee) .22	(ffffff) .22	(gggggg) .33	(hhhhh) .44	(iiiiiii) .33	(jjjjjjj) .22	(kkkkkk) .22	(llllllll) .22
(mmmmmmmmmmm) Total	(nnnnn) .22	(ooooo) .22	(ppppp) .33	(qqqqq) .44	(rrrrrr) .33	(ssssss) .11	(ttttttt) .22	(uuuuuu) .22
(vvvvvvvvvv) Rewards	(wwww) .33	(xxxxxx) .33	(yyyyyy) .33	(zzzzzz) .33	(aaaaaa) .33	(bbbbbb) .33	(cccccc) .33	(ddddd) .33
(eeeeeeeeeee) Recognition employees received is	(ffffff) .33	(gggggg) .33	(hhhhh) .33	(iiiiiii) .33	(jjjjjjj) .33	(kkkkkk) .33	(llllllll) .33	(mmmm) .33

appropriate for the level of accomplishment	3 5	. 2	1 3	. 9	2 7	. 5	2 1	
(nnnnnnnnnnnn) Recognition, rewards and bonuses are given fairly where I work	(ooooo .3 7	(ppppp .4 8	(qqqqq .9 6	(rrrrrr .2 2	(ssssss .0 5	(tttttt .8 7	(uuuuu .1 3	(vvvvv .4 7
(wwwwwwwwwww) In this company people are rewarded according to their job performance	(xxxxx .5 5	(yyyyy .4 5	(zzzzz .3 2	(aaaaa .1 8	(bbbbb .5 2	(ccccc .3 2	(ddddd .1 1	(eeeeee .0 0
(ffffffffffff) My company highly rewards those who acquire skills for themselves and later teach their fellow workers	(ggggg .0 6	(hhhhh .0 3	(iiiiiii .1 6	(jjjjjjj .1 3	(kkkkk .2 3	(lllllll .7 1	(mmmm .8 7	(nnnn .1 6
(oooooooooooo)I receive enough recognition for the work that I do	(ppppp .1 9	(qqqqq .8 7	(rrrrrr .9 5	(ssssss .5 3	(tttttt .1 4	(uuuuu .5 3	(vvvvv .0 3	(wwww .4 2
(xxxxxxxxxxxxx)Average Mean	(yyyyy .6 5 3	(zzzzz .5 2	(aaaaa .5 2	(bbbbb .5 9	(ccccc .6 1 9	(ddddd .5 3 4	(eeeeee .5 3 4	(ffffff .5 3 4
(ggggggggggggg) Very satisfied	(hhhhh .7 4	(iiiiiii .7 4	(jjjjjjj .7 9	(kkkkk .7 9	(lllllll .7 8	(mmmm .5 8	(nnnn .5 7	(oooo .3 7
(ppppppppppppp) Satisfied	(qqqqq .9 7	(rrrrrr .9 7	(ssssss .9 6	(tttttt .9 6	(uuuuu .4 5	(vvvvv .4 5	(wwww .5 3	(xxxx .5 3
(yyyyyyyyyyyyy) Total	(zzzzz .7 1	(aaaaa .7 1	(bbbbb .7 5	(ccccc .7 5	(ddddd .0 3	(eeeeee .0 3	(ffffff .9 3	(ggggg .9 3
(hhhhhhhhhhhhh) Dissatisfied	(iiiiiii .2 9	(jjjjjjj .2 9	(kkkkk .4 9	(lllllll .4 9	(mmmm .7 9	(nnnn .7 9	(ooooo .0 9	(ppppp .0 9
(qqqqqqqqqqqqq) Very dissatisfied	(rrrrrr .1 5	(ssssss .1 5	(tttttt .1 5	(uuuuu .1 5	(vvvvv .1 5	(wwww .1 5	(xxxxx .1 5	(yyyyy .0 5
(zzzzzzzzzzzzz) Total	(aaaaa .2 9	(bbbbb .2 9	(ccccc .2 5	(ddddd .2 5	(eeeeee .7 5	(ffffff .7 5	(ggggg .1 5	(hhhhh .1 5
(iiiiiiiiiiiiii) Level of	(jjjjjjj (kkkkk (lllllll (mmmm (nnnn (ooooo (ppppp (qqqqq	(kkkkk (lllllll (mmmm (nnnn (ooooo (ppppp (qqqqq	(lllllll (mmmm (nnnn (ooooo (ppppp (qqqqq	(mmmm (nnnn (ooooo (ppppp (qqqqq	(nnnn (ooooo (ppppp (qqqqq	(ooooo (ppppp (qqqqq	(ppppp (qqqqq	

Satisfaction*									
(rrrrrrrrrrrrrrrrrr)	Benefit Policies	(sssssss	(ttttttttt	(uuuuuu	(vvvvvvv	(wwww	(xxxxxx	(yyyyyy	(zzzzzz
		.40	.00	.00	.05	.00	.00	.24	.00
(aaaaaaaaaaaaaaaaa)	Reward Policies	(bbbbbb	(cccccc	(ddddd	(eeeeee	(ffffff	(gggggg	(hhhhh	(iiiiiii
		.15	.09	.08	.00	.06	.00	.09	.02

\*A mean of more than 2 indicates satisfaction.

(jjjjjjjjjjjjjjjj)

Based on the above findings, respondents in GMCC seem most satisfied with the benefit and reward policies of the company. Respondents in MCC are satisfied with the benefit policies but not too satisfied with the reward policies. Among the four companies, the level of satisfaction of the respondents in MCC with the reward policies is the lowest. However, the level of satisfaction with the benefit policies in MCC is higher than that in BCC and JCC. The level of satisfaction of respondents in BCC with the benefit and reward policies is higher than that of JCC.

A conclusion that can be drawn from this is that foreign-owned MNCs in Malaysia may not be providing the best benefit and reward policies for their employees. Although more globalized and more exposed to the different policies are available, the benefit and reward policies of these organizations are not as motivating as those drawn up by companies with some Malaysian interests. Companies with some Malaysian interests seem to have better understanding of the benefits and rewards desire by the employees. In general, much depends on what the company can offer its employees. Lucrative offers would definitely enhance the satisfaction level of the employees with the benefit and reward policies.

### Implications for Human Resource Practitioners

As far as benefits are concerned, good and flexible benefits would not only entice potential recruits but also help in retention. Though the benefit packages in all the four companies differ from one another, they are generally lucrative enough to attract talent workers as well as retain current employees. This is rather encouraging as more long-term plans could be carried out to improve the competitiveness of the companies. As skills are so much in demand due to technological advancement, these companies can now embark on continuous human capital development programs to boost the capabilities of the employees. If returns on investment in employees are certain, companies are more willing to proceed with training and development. With more capable workers, companies would be confident in taking up challenges in the global market. Moreover, training and development improves employees' motivation and efficiency, as training adds variety to their jobs and enhanced skills expedite the work process.

The provision of education grant for employees supports the government's call for lifelong education. It encourages employees to constantly upgrade their skills making them more competent workers in the long run. It also promotes healthy competition and knowledge sharing among workers. Besides, some of the companies subsidized the cost of the course without any bond attach. As there is no increment or promotion on completion of the course, some employees may choose to leave. This is a setback for the company as there would be no returns for the investment made. Thus, companies should have clear and specific criteria in evaluation so that employees do not feel that it is useless going for self-development. For example, though an extra academic qualification may not warrant a promotion or increment in pay, skills transferred to the workplace may be taken into consideration. The reimbursement of fees on successful completion of the course ensures that employees are serious when they applied for the grant. If there is no such ruling, those who have signed up may drop out half way through the course, which would be a loss to the company.

A pre-requisite for some employees who attend external training is the need to conduct in-house training on

completion of the program. This promotes transferring of skills and knowledge gained from external programs which may be rather costly. Besides, it is also a form of evaluation of training and helps justify if indeed learning has taken place. Moreover, by conducting in-house training, the employee may improve on his training skills and in the long run a pool of qualified and experienced trainers may be created. Eventually, in-house trainers may run programs for other employees and thus help cut training costs. In addition, it boosts the employee's morale for the recognition given. Trainees, on the other hand may also feel more comfortable having an in-house trainer rather than an external trainer running the program. This will help them settle in faster and get on with the learning. The ice-breaking session could be minimized if both trainers and trainees are familiar with each other.

None of the companies have a golden parachute contract for their top executives. This would be really devastating for senior management if they were forced to leave in the event of a merger or acquisition. Being key players in the organization, they should be given the recognition, especially in their twilight years. During recession, a lot of uncertainty will set in and in recent years many major corporations in Malaysia have introduced the voluntary separation scheme (VSS) where employees are given an option to leave the company. Capable workers who are able to market themselves will not hesitate to leave. But senior management may find it difficult to adapt to a new work environment. Other problems may set in and the expertise of these personnel may not be fully utilized. However, with the golden parachute contract, top executives would be able to contribute to the organization without having to worry about their future if they were asked to leave. Companies should give this some consideration.

The policy to reward employees for rectifying a problem in the company is a positive move to encourage innovativeness. This should be encouraged to get workers involved in the affairs of the organization. Employee involvement and empowerment would enhance employees' commitment. Besides, it boosts employees' morale if the company adopts their suggestion, as they would feel that they have contributed to the betterment of the workplace. The acknowledgement of suggestions given by employees also encourages employees to help solve certain problems faced by the companies. In the process, a pool of ideas is generated. In some of the companies, employees' suggestions are reviewed quarterly and vouchers are given for outstanding suggestions. Besides this, incentive in the form of bank premium certificates is encouraging. Giving credit to employees who carry out non-routine tasks during assessment is also a positive move to enhance employees' motivation. Giving tokens to employees who do not take any medical chits would also encourage employees not to absent unnecessarily. Allowing employees paid leave to represent the company at national functions also improves patriotism among the employees.

Social programs seem to be in place for all the companies, as evidenced by Family Day, annual dinners, and other less formal gatherings. It helps promote harmony and encourages social interaction among staffs. Team working and knowledge would be enhanced and it encourages networking among staffs, especially if the functions are held jointly with other companies in the group. Recognition and rewards giving out during such functions also has a motivating effect on the employees.

Analyzing the satisfaction of employees in the four companies with the benefits and rewards policies, it can be concluded that the majority of the employees are satisfied. However, focus should be given to certain aspects that employees are not so satisfied so as to improve on the current policies. To improve retention rate, it is essential for management to look into these grouses and make the organization a more attractive place to work in. If the employees' discontentment were not noted, dissatisfied employees would not be totally committed to the organization and this will have a negative effect on the organization.

As far as benefits are concerned, employees in GMCC seem most satisfied with the benefits package and feel that the package is attractive and competitive. Many also opine that the benefits available are appropriate for their needs and those of their family. Employees in MCC are of the same opinion and are generally satisfied. However, less than half of the respondents in BCC and JCC are satisfied with the above policies. Employees in JCC have the lowest level of satisfaction with benefits package. Except for JCC, employees in all the other companies have a good understanding of their benefits including retirement benefits and can access information easily. However, only employees in GMCC think that overall, the amount of money they pay for the benefits is good value. As for retirement plans, less than half of the respondents in all the companies are satisfied with the retirement plans. This shows that the employees are concerned about life after retirement and are apprehensive about the current

retirement policies. Companies ignoring this will lose competent workers to competitors with more comprehensive retirement plans. The benefit programs offered by the companies should also be reviewed, as most of the employees feel that the money that they pay for the benefits is not good value. Continuing such programs would lead to further dissatisfaction if employees do not see the benefits that these programs could offer. This could have a spiraling effect, which may be detrimental to the company in general.

Most of the employees in all the companies are of the opinion that they are rewarded according to their job performance. However, they also opine that they do not receive enough recognition for work that they do and are not highly rewarded for acquiring skills and later teaching those skills to fellow workers. Among the four companies, only employees in GMCC feel that recognition, rewards and bonuses are given fairly. As to whether recognition employees received are appropriate for their level of accomplishment, about half of the respondents in GMCC and MCC thought so. The lack of recognition in these companies would affect the morale of employees and if measures are not taken to acknowledge the efforts of the employees, employees may not see the need to strive for the company. Besides, the companies need to tackle the problem of unfairness, especially when companies are dealing with a multi racial workforce. More objective measures should be introduced to ensure transparency in awarding recognition, rewards, and bonuses.

## **Conclusion**

Based on the findings of the research, it can be concluded that the benefit and reward policies of all the companies surveyed are relatively similarly in terms of variety. The difference is in the quality – some companies giving better terms and conditions as compared to others. However, companies offering better benefit and reward policies seem to have more satisfied employees. GMCC, for example, which has comparatively more lucrative benefit and reward policies record the highest level of satisfaction among the four companies. JCC, on the other hand, has relatively less competitive benefit and reward policies and therefore a lower level of satisfaction. As all four companies are located in the same industrial area and are of about the same size, employee dissatisfaction may set in if there is a vast difference in the benefit and reward policies among the companies.

In all the companies surveyed, the benefit and reward policies include both the standard and flexible plans. Standards plans are relatively the same for all companies except for share option schemes and pension plans. While MCC has both, BCC has a share option scheme, thereby creating employee ownership in the company. However, both these options are not available in GMCC and JCC. While all the other companies provide housing and vehicle loan interest subsidy, MCC gives out housing and vehicle loans to its employees. The former seems to be a better option for employees. Though maternity leave is quite common among the companies, MCC seems to be the only company that has introduced paternity leave as well. Rewarding those who do not take any medical chits is also something new, as most companies have not introduced this. Education grant too is relatively popular and helps promote employee development. JCC lacks behind in not having this option for its employees.

An attractive benefit and reward policy undertaken by all companies is the insurance coverage for its employees. Though medical benefits are relatively good in all the companies, the availability of an insurance scheme to cover excess expenditure is definitely a welcome move. Other insurance policies to cover death and injury at the workplace also help cushion unexpected trauma and relieve employees of unnecessary worry. Besides being highly subsidized by the companies, the benefits offered by the insurance coverage are relatively competitive. This is all the more important as it is rare for private companies in Malaysia to provide pension for their employees. Except for MCC, employees in all the other companies are not satisfied with the retirement plans but it is imperative that good retirement plans should be available if employees' satisfaction were to improve.

Other benefits and rewards vary widely from company to company though there are similarities in some. But in all the companies surveyed, allowances are not paid to those who acquired skills and transfer them to fellow workers. As there is no incentive to teach others, to a certain extent it will impede human resource development. If such an incentive is given, perhaps employees will take the initiative to learn, unlearn and relearn. Knowledge sharing would be enhanced.

As far as the satisfaction level of the employees with the benefit policies of their companies are concerned, the respondents in GMCC seemed most satisfied and JCC the least. Respondents in BCC are also not as satisfied as the respondents in MCC with the benefit policies of the company. Similarly, respondents in GMCC are most satisfied with the reward policies of the company. Respondents in MCC are least satisfied while respondents in BCC are more satisfied than respondents in JCC.

In conclusion, it cannot be said with much confidence that respondents in foreign-owned MNCs are more satisfied with the benefit and reward policies of their companies. As far as benefit policies are concerned, employee satisfaction seems to be higher in companies that have some Malaysian interests. On the other hand, respondents in MCC are least enthusiastic with the reward policies of the company. It is anticipated that foreign-owned MNCs being more globalized and contemporary in their approach would have a benefit and reward package that is not only globally consistent but at the same time competitive vis-à-vis the local market. However, the findings of the research have shown otherwise. A general conclusion that can be drawn is that ownership does not seem to have an effect on employees' satisfaction with the benefit and reward policies. Regardless of ownership, companies that offer attractive benefit and reward packages have more satisfied employees. As employee satisfaction has an impact on productivity, benefit and reward policies that meet employees' needs are crucial to the competitiveness of the company.

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## End Notes

<sup>1</sup> <http://www.vnunet.com>

<sup>2</sup> <http://www.vnunet.com>

<sup>3</sup> <http://www.vnunet.com>

<sup>4</sup> USD1 = MYR3.56947; \100 = MYR3.25631 (as at 15 May 2006).

<sup>5</sup> Job grades range from grade 1 for general workers to grade 20 for managing director. Senior managers are in grade 16, managers in grade 15, assistant managers in grade 14 and executives in grade 13. Non-executives are in grade 9 and below. Clerical staffs are classified as non-executives.

<sup>6</sup> The company will provide this subsidy for the entire duration of the loan as long as the employee is still in the company's payroll. Once the employee leaves the company, he/she loses the benefit. However, the company does not ask an employee who has left to pay back the subsidies given during his/her service with the company.

<sup>7</sup> An executive who owns a year old car was contemplating changing his car and a week later, he was on the road with a brand new car. Besides new cars, there are also a number of luxury cars in the compound.

<sup>8</sup> The ratings during performance appraisal carry much weight. It also depends on their interest in attending the course.

<sup>9</sup> For bachelor degree courses, the bond is 10 years for those enrolled in overseas universities and 7 years for those who studied in local universities. However, the company has not decided on the number of years that Masters scholars have to serve. Those who attend courses for 3 to 6 months have to fulfill a bond of two years.

<sup>10</sup> Non-executives and executives are covered up to RM30,000 in hospitalization fees a year and for grade Assistant Managers and above the coverage is RM60,000. This includes follow-up treatment for serious diseases.

<sup>11</sup> Such employees normally get a rating of at least 2 during the performance planning assessment at the end of the year, thus qualifying for the merit allowance.

<sup>12</sup> Every valid suggestion that is considered is paid RM10. A suggestion could be as simple as “It is too cold in here. Could we have a heater installed?” If a suggestion is implemented but incurred cost, then the reward is RM30. But, if it saves cost the reward is higher depending on how good the suggestion is. To date, the company has paid out as much as RM800 for a single suggestion.

<sup>13</sup> Employees who have served at least 15 years will be given a plaque and a token of RM1,000. Those with 20 years of service will get a plaque and a token of RM1,500. Similarly, those with 25 years (RM2,500) and 30 years of service will get a plaque and a token that is worth more. A brochure will be handed out to these employees to choose the product that they would like to have depending on the amount of the token. Gifts that were given out to these employees range from jewelries to pewter and household products.

<sup>14</sup> A mean of more than 15 shows that the respondents are satisfied with the benefit policies of the company.

<sup>15</sup> An average mean of more than 12.5 indicates satisfaction with the reward policies.

# Factors Affecting Motivation, Safety, Absenteeism & Turnover in Malaysian Construction Industry

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## Abstract

The research focuses on employment-related situations in the construction industry. This study investigated the qualitative factors affecting constructing industry in Malaysia. This research is concerned with findings factors affecting motivation, safety, absenteeism and workers turnover as perceived by the managers in the Malaysian construction industry. What makes this research a bit different is that it tries to look into factors affecting motivation, absenteeism, safety and workers turnover rather than looking on how these variables affect performance. By understanding the impact of these factors, managers can develop their interpersonal skills and apply such knowledge toward improving an organization's effectiveness. Largely all the managers involved, acknowledged the importance of these factors in enhancing the performance of workers in their companies but nevertheless no emphasis has been given to make them workable and be used as alternative to other performance factors.

## Literature Review

There are many different perspectives on factors that contribute to the increase in performance. In the construction industry, these factors are enormous and are a problem to the measurement of performance. Traditionally the measurement of performance in this industry has been grounded to the commonly used quantitative factors while ignoring the qualitative factors. Many studies had provided evidence on how factors such as motivation, employee turnover, absenteeism and safety affect performance in the construction industry. (Huges et al. (2004); Business Roundtable (1982); Borchherding et al. (1981) ; Hinze, J., and Parker, H. W. (1978); Oglesby et al. (1989))

### Motivation

Robbins (1993) defined motivation as the willingness to exert high levels of effort toward organizational goals, conditioned by the effort's ability to satisfy some individual need. For this research, motivation is operationally defined as the inner force that drives individual to accomplish personal and organizational goals.

Construction project is a labour intensive process which results in the performance of a construction task becoming a function of the motivation of the construction worker performing the task (Smithers and Walker, 2000). They labelled the construction process as largely a "people' management business within an industry which is complex, dynamic and uncertain and requires highly motivated workers. The importance of employee motivation has been substantiated by the Business Roundtable (1982) findings which indicated that a highly motivated workforce enhances productivity and project effectiveness while a lack of worker motivation appears to be a factor in reduced productivity, increased absenteeism and increased turnover. Rabey (2001, cited in Amaratunga and Baldry, 2002) quoted from various research into motivational theories showed the role of motivation in influencing performance, reduces absenteeism and turnover, influences commitment to the organisation, leads to job satisfaction and attracts people to the organisation. The role of worker motivation in improving productivity is very important in construction. Haliggan et al. (1994) alleged that worker motivation in conjunction with or in the absence of other factors can play a significant role in determining the productivity experienced on any particular project. He further reiterated it will often be insufficient to consider any one factor in determining productivity without also investigating the impact of worker motivation.

### Safety

The construction industry is considered one of the most dangerous industries on the basis of accident frequency (Kumar, 1991; Salminen, 1995). Haliggan et al. (1994) suggested that motivation and productivity can be further



reduced by unsafe working conditions. Based on the Business Roundtable (1983) report in the United States, it has been estimated that poor safety practices increase construction costs by roughly 6.5%. Industry professionals have recognized that safety performance can be the primary determinant of success on some project especially of the government construction market (Huges et al 2004). Safety in the construction industry is an important factor because injury and illness incidence rates for construction are historically higher compared to other industry. Safety considerations directly impact a company's performance through lost man hours and other related cost affect. A safe work environment and a display of management concern for the well being of their employees may increase their performance while unsafe conditions and unnecessary injuries can result in decreased worker morale and high absenteeism and turnover (Business Roundtable, 1983).

#### **Absenteeism and employee turnover**

Many factors play a role in influencing productivity. Absenteeism and turnover can have a major impact on performance in the construction industry. Absence is defined as employee non-availability for work when work is available. When employees are physically absent and not working, they do not contribute to the productivity of an organization. Employee turnover is the rate at which employees leave an organization. Employee turnover represents a costly disruption to an organization's work flow. The cost of employee turnover increases when employees are more specialized, more difficult to find and require more training. Many studies had indicated that the hidden costs of employee turnover can be significant. A high rate of absenteeism is also costly to an organization. Construction industry leaders agree that absenteeism and turnover contribute significantly to the decline. High rates of turnover and absenteeism add to the cost of construction (Business Roundtable, 1982).

## **The Malaysian Construction Industry**

From the late 1980s to the mid-90s the construction sector had played an important role in development of the Malaysian economy. The Malaysian construction industry is generally separated into two areas. One area is general construction, which consists of residential construction, non residential construction and civil engineering construction. The second area is special trade works, which comprises activities of metal works, electrical works, plumbing, sewerage and sanitary works, refrigeration and air-conditioning works, painting works, carpentry, tiling and flooring works and glass works.

The construction industry constitutes an important element of the Malaysian economy. Under the Seventh Malaysia Plan (1996 to 2000), besides the manufacturing sector, the government has also emphasised construction and tourism as the two other important sectors for SME ventures (Hashim and Wafa, 2002, p.66). Although it accounts for less than 5 per cent of GDP, the construction industry is a strong growth push because of its extensive linkages with the rest of the economy. In particular, the industry has extensive linkages with construction related manufacturing industries such as basic metal products and electrical machinery. In 2004, the industry shares 3.3 percent of the countries GDP and employs over 500,000 workers in some 54,500 local companies. 80 percent of these firms are small and medium sized companies. The industry's contribution to employment is about 8.0 percent of total employment in the country in the year 2003 (Malaysian Ministry of Finance, 2003).

According to CIDB Malaysia (Construction Industry Development Board), the Construction Sector is widely regarded as a catalyst for growth, where it often serves as an indicator of a nation's economic performance where brisk construction activities indicate a booming economy and sluggish construction activities inevitably pose indications of economic depression. Construction industry is a very segmented and fragmented where various players were implementing and carrying out their own programs and activities without proper direction and guidance. This situation has resulted in challenging issues that involved the significant decline in construction quality, acute shortage of skilled and unskilled labour, leading to an over-dependency on foreign labour and lack of pertinent statistics and information required for planning, monitoring and decision-making (CIDB, 2004).

Productivity in the Malaysian Construction Industry has been stagnant since the 1980's. The productivity figure has been about RM 7,000, and has remained constant whilst all other sectors have been showing increases in productivity during this period (CIDB, 2004). Even in Singapore, a neighbouring country to Malaysia, productivity in its construction industry lags behind that of most of the other economic sectors as in other countries (Business

Roundtable, 1989; Ofori, 1990 cited in Debrah and Ofori, 2001, p.191). In Malaysia, according to CIDB the contributing factor lies in within a situation where the construction industry is not optimizing the usage of resources, coupled with the fact that construction processes are not very efficient. The most pressing issue faced by the industry is the low level of productivity and contributing factors include heavy reliance on a large number of unskilled foreign workers, multi-layered subcontracting system involving many small firms and segregation of activities in the industry (CIDB, 2004).

Most of the issues are also being faced by the Singapore construction industry as summarized by the Task Force for Construction Productivity of Singapore (TFCP) (Debrah and Ofori, 2001). The construction productivity in Singapore is adversely affected by poor HRM, including lack of attention to HR planning, inadequate documentation of HR requirements or productivity, little attempt to coordinate the overall construction process, as much of the work is subcontracted, and delegation of direct supervision to subcontractors. These practices prevailed owing to the low cost and ready availability of foreign construction workers. (Chong et al. 1996 cited Debrah and Ofori, 2001, p.192)

As can be seen from the experience of the construction industry in Singapore, the problem that is being faced by the construction industry in Malaysia is likely to be in the same situation. With a majority of the construction firms in Malaysia consists of SMEs firms, there is a lack of training culture because of the firm size and it is not cost-effective for the firms to invest in their training and development. As for the problem of subcontracting, many of the labour subcontractors are individuals, who lack the expertise and resources to undertake HR planning and they also do not encourage skill development. On the other hand the main contractors do not consider these subcontractors workers as their employees. The poor social image of careers in construction also contributes to decline of interest especially among the locals in the construction industry. Due to the preference of locals to work in other sectors which is more comfortable, better paying job and socially better image has led to an acute shortage of workers. The industry has to acquire an increasing numbers of foreign workers to overcome this problem.

## **Performance**

Performance is broader indicator that can include productivity as well as quality, consistency and other factors. Performance measures can include results, behaviours, relative measures, education and training concepts and instruments, including management development and leadership training for building necessary skills and attitudes of performance management. Productivity is a ratio depicting the volume of work completed in a given amount of time. Productivity measures are typically considered in results oriented performance evaluation (Richard, 2002).

Nevertheless, there are a number of reasons why productivity has proven to be a popular indicator amongst researchers as a measure of organizational effectiveness. First, productivity is a crucial organizational outcome. The connections between human capital and productivity, especially labour productivity are relatively direct and the face validity for this measure of firm success is also relatively high (Dyer & Reeves, 1995). According to Boxall and Purcell (2003), it is better to focus on labour productivity as a measure of human resource management in the firm rather than profitability. Although profitability is inevitably critical to the shareholder, nevertheless, it can be affected by financial factors not connected to workforce management. Herbsman and Ellis (1990) stated that the most important application of accurate productivity rates in the construction industry is in the area of resource management. The construction industry is different from others such as manufacturing industry. One of the most important factors for increasing production in the construction industry is through labour motivation. It is highly difficult to measure motivation using a direct scale. However, this factor can be measured by using indicators such as the rate of turnover of employees, the rate of demand for new positions or some other indicator (Herbsman and Ellis, 1990).

## Research Problem

The construction industry has long been facing serious problem when productivity is concerned. During the past two decades productivity, quality, safety, employee morale and other common accepted performance measures have shown little or no improvement (Arditi and Mochtar, 2000). In assessing construction works performance, the construction sector adopts various performance indicators. Performance indicators are the methods management uses to evaluate employee performance of a particular task and can be defined by either the quantitative results of a construction process or by qualitative measures (Cox *et al.*, 2003). The most commonly accepted performance indicators or the traditional indicators are the quantitative units of measurement that can be physically measured such as completion time, cost and quality of construction projects (Belassi and Tukel, 1996; Hatush and Skitmore, 1997; and Atkinson, 1999).

Hughes *et al.* (2004) has indicated that there are more subjective considerations that, while being difficult to quantify, can have an important impact on perceptions of project success in the construction industry. Cox *et al.*, (2003) point out that although qualitative performance indicators are not commonly accepted as reliable performance and productivity evaluation tools due to their perceived difficulty or inability to be measured, nevertheless these indicators play an important role in practically every area of construction process and their impact on project costs are very real. Warren (1989) suggests that managers that do not incorporate these qualitative indicators may fail to recognize one important area that can have an impact on performance evaluation.

Although subjective productivity measures have been used actively in studies, not many of them have been conducted in the construction industry because the construction companies look first and foremost to areas which show a change in the amount of revenue generated. In other word, the most commonly accepted performance indicators are those that can be physically measured by dollars, units, or man-hours. There are only a few experiences regarding the use of subjective productivity measures and not many of them are from South East Asia in general and from Malaysia in particular. In view of the importance of looking into this dimension of factors as a relevant performance measurement which seems to be a neglected area, there appears to be opportunities to make valuable contributions in this area. There is therefore further need for more empirical studies in the construction industry to explore and establish the usage of qualitative indicators on performance apart from using the basic quantitative indicators. This research explored some qualitative factors that can be used by construction executive and project managers in enhancing construction performance at the project level. Empirical research on these areas would provide more empirical evidence on the impact of qualitative factors on construction firms in the Malaysian context.

## Aims

There are many different perspectives on factors that contribute to increase in performance. In the construction industry, these factors are enormous and are a problem to the measurement of performance. Traditionally the measurement of performance in this industry has been grounded to the commonly used quantitative factors while ignoring the qualitative factors. Qualitative performance factors such as safety, employee turnover, absenteeism and motivation as suggested by Cox *et al.*, (2003) and other considerable research have the potential to influence the behaviours of workers on the job site which, in turn will have an impact on performance. The main aim of this study is to investigate what are the factors affecting motivation, absenteeism, safety and employee turnover in the Malaysian construction industry. Utilizing a sample of construction companies, the study attempts to identify what are the factors affecting motivation, absenteeism, and safety and employee turnover and to encourage the usage from these findings to enhance the performance of the construction company. It is also hope that these findings can be a complement to the quantitative indicators traditionally used in the industry.

The effect of these qualitative performance factors will be investigated in the context of Malaysian construction industry. This industry is chosen based on several reasons. First, it is an important contributor to the general health of the economy as it acts as a catalyst for, and has strong linkages with a wide range of economic activities in the country. It complements other sectors in the economy by providing a basis for generating output,

income and employment, all necessary ingredients for promoting economic growth. Second, it is perceived as low productivity sector due to multi layered subcontracting system involving small firms and visible employment of a large number of foreign workers. Third, there is little or no empirical research being done on factors affecting motivation, absenteeism, and safety and employee turnover in the Malaysian construction industry.

## Objectives

This study is believed to be useful in the sense that it would be able to generate the following opportunities:

1. This study attempts to improve understanding of what are the factors affecting motivation, absenteeism, employee turnover and safety in construction firms, specifically in the Malaysian context.
2. The study could provide information concerning the current standing of factors affecting performance among construction firms in Malaysia.
3. It is hoped that this study will provide construction owners, managers and policy makers on the insight into the factors for improving their performance.

## Research Framework

Following the views presented in the literature, this study present a model which seek to identify of factors affecting motivation, safety, absenteeism and employee turnover in the Malaysian construction industry through the managers' and employees' perceptions. The information gathered from managers' and employees' will then be cross-analysis to gain some insights of the causes affecting the dependent variables. The following Fig.1 presents the research model of the study.

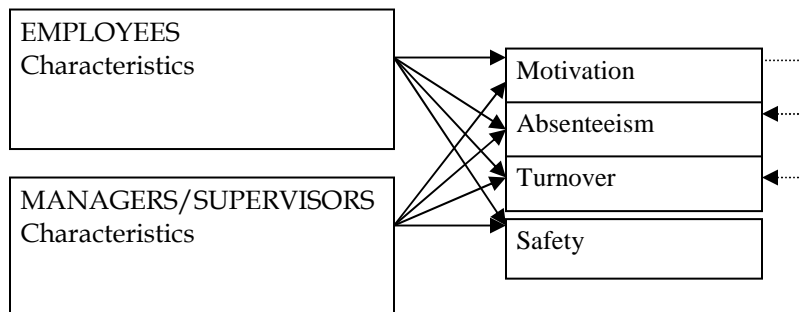


FIG. 1: FACTORS AFFECTING MOTIVATION, SAFETY, ABSENTEEISM & EMPLOYEE TURNOVER IN MALAYSIA CONSTRUCTION INDUSTRY

## Methodology

The aims of this stage of research were to collect information on factors affecting motivation, safety, absenteeism and employee turnover together with subjective views from managers' and employees' concerned. This study used a case study methodology. Questionnaires and structured interviews were used to get the data from the managers, supervisors and employees. Letters of intent had been sent to 16 construction firms based in the state of Perlis which comprise of 11 Grade G7 and 5 Grade G6. The listing of 16 companies of Grade 7 and Grade 6 are obtained from the CIDB 2003-2004 directory. All the construction firms are registered with the Construction Industry Development Board Malaysia (CIDB) and also with Contractors' Services Centre (CSC) for contractors who undertake to carry out and complete any construction work in the public sector.

This study used the classification provided by CIDB in which there are seventh grade of contractors. Small capacity contractors from Grade G1 to G3 undertake contracts valued below RM500,000. Intermediate or medium

capacity contractors from Grade G4 to G5 undertake contracts valued below RM5, 000,000 and bigger capacity contractors from Grade G6 to G7 undertake contracts valued over RM5, 000,000. This study focused on Grade G7 and Grade G6 as it is believed that only the larger construction firms have the right structure with adequate data and information to be investigated.

By using a structured questionnaire, the data were collected from 10 companies. The ten companies were the only ones which access to interviews were granted. Personal interviews were conducted with owners or managers, supervisors and workers in the construction firms. Although the sample size is small, the number of companies surveyed is considered a fair representation of the intended sample in the state.

On questions about motivation, the managers were asked about their understanding on motivation and also their views on motivation in their companies. For the workers and supervisors, they were asked to choose needs relating to their current status from a list and they were also asked to rank motivators they perceived could increase their job satisfaction. Factors influencing the motivation from these two groups were collected and then the perceptions will be compared. Comparing perceptions of the managers with the workers and their supervisors will be carried out to see factors that were significantly different or similar in perception.

For the questions on safety, the research questions try to investigate how the different levels of respondents in construction industry perceived safety at their workplace. This research investigated what the owners or managers, supervisors and the workers were doing for safety and what they thought about safety. Their views will be cross-analysis to find out the real safety condition faced by the workers and the managers on the job site. Incidence rates which are a safety performance indicator are used to measure workplace perceptions toward safety.

On absenteeism and employee turnover, this research tries to identify what causes employee absenteeism and turnover in these construction companies. Types of absence were investigated through ranking of factors most influential causes. Both the managers and workers were asked to rank their perception on factors most influential causing absenteeism using a likert scale from very influential to the least influential. These factors will then be compared to reveal the most influential factor as perceived by the parties involved. As for turnover, employee turnover are identified through their intention of turnover while the managers were asked on their perception of turnover in their companies in general.

## **Results**

This report presents the preliminary findings from the interviews with the managers and owners. The first part of this result is the subjective accounts from managers or owners perception on motivation, absenteeism, employee turnover and safety. There will be a further analysis on the employees' view of the factors affecting their performance. A fuller analysis of these results will then be combined to form a complete view on how and why these findings affect motivation, absenteeism, employee turnover and safety.

Ten firms participated in this research. In each firm, the owner or manager or equivalent is being interviewed. Each interview followed a similar format using a set of structured questions. The interviews were aimed at understanding the managers' perception on factors affecting their companies' performance. Factors such as motivation, safety, worker turnover and absenteeism were asked and their answers recorded.

Out of the ten interviewees, six are owners running the firm as general manager while the other four are project managers employed by the respective companies. The interviewees in this research consist of 9 males and 1 female. This proportion clearly shows that this industry is still being dominated mainly by male. Another reason that discourages women to venture into this sector is the 3Ds tag associated with the industry that is dirty, difficult and dangerous. Most of the respondents are in the middle age between 30 to 41 years old. Out of the 10 respondents, 4 are in their thirties while another 5 are in the forties. One of them is the oldest with the age of 76 years old. The current group which dominates the construction projects in the state are of middle age group which has good ties with ruling parties of the state.

The respondents are all of Malay's origin. Although Malaysia is a multi-racial state, the Malay's who is also indigenous people is the majority of the population. This research is being conducted in Perlis, one of the northern states in Malaysia. Here the Malay's are the dominant race totalling 79% of the state population followed

by Chinese with 5% and Indian of about 3%. Another interesting fact is that although there are no Chinese construction companies in this state as listed on the list provided by the CIDB and CSC, almost all the major construction tasks in the state are being done by Chinese sub-contractors. The Indians are not actively involved with the construction industry in this state. Another reason of the Malay's dominance in the construction industry in the state is because of the close rapport between the contractors and the ruling party, which control the distribution of contracts in the state.

Most of the interviewees, 7 of them have a higher degree qualification. Their academic degrees are mostly related to construction industry. Two of them only completed high school while one of them only completed his primary school. Most of the managers have been involved in the construction between five to sixteen years. There is one manager whose involvement in this sector span for about 40 years. Based on their academic qualification, the companies nowadays are being run by professional or white collar workers with wider knowledge about the industry. This is a different situation compares to the 1980's and 1990's where construction companies are usually being run by managers or owners whom do not possess higher academic qualification relevant to the construction industry.

As for the background of the companies, 7 companies operated in residential building, non-residential building and civil infrastructure while another 3 companies only operated in non residential building and civil infrastructure. On type of business, all the companies were main contractors. Eight of the companies employed between 5 to 12 non manual workers or administrative staff and have no manual workers of their own. All of the companies interviewed, used sub-contractors which has their own manual workers to complete the project tasks. The usage of sub-contractors is a common current practice in construction industry. Main contractors are moving away from employing large labour force themselves in order to reduce costs. The contractors in this research are not exceptional on this matter. Most of them have about a dozen administrative or technical and support staff. They are dependent to the sub-contractors on their workers to do the wet trades.

The dependency of foreign workers in the Malaysian construction industry is already acknowledged. A decade ago the influx of foreign construction workers is something rare in the industry. The invasion of foreign workers started in the mid 1990's where the economic growth was booming and the demands for construction projects were high. In addition, the prime minister at that time favoured many expensive infrastructure projects. Now the dependency of foreign workers in the Malaysian construction industry is so prevalent that any action taken by the government to eradicate illegal foreign workers will cause major disruption at the construction sites. Most of the companies in this study used the services of sub contractors whom had foreign workers in their workforce. These foreign workers usually come from Indonesia, Thailand, Myanmar, Bangladesh and Vietnam. The majority of foreign workers are from Indonesia which has similarities in language and culture. However the companies in this research were not totally dependable on foreign workers as there are lots of local workers around and the sizes of projects undertaken by these companies are moderate.

Currently there are two companies that are dominant in the state. Their dominance is based on numbers of government project being awarded for them to undertake. These two companies are a bit different from the rest as they have their own manual workers. One company has about 35 administrative staff and 150 local manual workers while the other company has about 12 administrative staff with 60 local manual workers. Some of the companies interviewed mentioned that they have not got any project for the past two years. The reduction in government projects since the new prime minister came into office in 2002, has dampened the industry. These Malay's contractors are being too dependent on government for projects instead of venturing into non-government project or the private sector.

When asked on the formal process of measuring company's performance, half of the interviewees said that they have some kind of performance evaluation. Their performance evaluations are based on the financial transaction such as cost of overheads and payment received. All of the respondents do agree that the most used indicator to gauge performance of work performed by their respective company is through work completion. This makes sense as work completion is closely related to the cost of overheads incurred and payment received. Table 1 shows the managers perception on the usefulness of indicators of performance. The managers are asked to rank the usefulness of performance indicator as they perceived. These scores were then averaged for each option and the final

score provides a guide to their overall usefulness based on the following likert scale: 1= most influential and 5= least influential.

TABLE 1: USEFULNESS OF INDICATORS OF PERFORMANCE

Indicators	Usefulness
Job cost	1.0
On time completion	1.6
Safety	3.1
Employee turnover	3.2
Absenteeism	3.2
Motivation	3.7

*n=10*

When asked about indicators of performance, the managers ranked job cost and on time completion as the two most useful indicators of performance out of the six indicators provided. This finding did not come as a surprise, as lots of research evidences do suggest these indicators as the most used indicators of performance (Belassi and Tukel, 1996; Hatush and Skitmore, 1997; and Atkinson, 1999). The rest of the indicators such as safety, employee turnover, absenteeism and motivation are being ranked as useful to less useful. Once again it is proven that qualitative or subjective indicators are not popular amongst the managers as their measurements are still being viewed as unreliable.

In terms of factors that might affect company's performance, the respondents gave varieties of answers such as cash flow, time completion, reliable workers, number of projects involved and also few exogenous factors like the weather and availability of materials. All these answers are exclusive and unique to the respective companies. One of the managers even cited political involvement as one of the factors that can have a bearing to the company's performance. When asked to rank the performance indicators that are relevant and useful in monitoring performance, all the managers agreed that cost and time completion are the two most useful indicators based on their experience and practice. Indicators such as safety, motivation, absenteeism, workers turnover are deemed to be insignificant as what matters the most to these managers is to complete the tasks within the time limit and not to incur additional overhead costs.

All the managers agreed that motivation is relevance and useful in the construction industry. Their overall perception on motivation is that it is a method to increase performance, productivity and morale among employees. Most of the respondent suggests internal motivation such as financial incentives are suitable and are the most appropriate form of incentive to initiate better performance among workers. This can be related to the fact that money is still the main motivator for the workers involved in the construction industry. These managers also, suggested that good management of cash flow is important for their companies' survival and would have an influence on workers motivation. Workers can judge the effectiveness of their companies through the punctuality in paying their wages on time. Factors such as financial problems for example late in paying salaries to the workers and mismanagement of fund are being seen as factors that could de-motivate workers.

Apart from the financial incentives, a few of the managers suggested that good management practices by the company administrators and empathy could also motivate employees. From the managers' point of view, they perceived that the ways the workers are being treated with contribute to workers motivation. Factors such as fairness, respect and friendly did matters to the workers motivation. The managers also perceived that benefits given to the workers such as free medical benefits could motivate the workers. As a conclusion, except for one of the managers, the rest of the interviewees claimed that motivation is good in their companies. Eight managers' admitted that their companies did not have specific method to motivate employees. Two of the managers' used motivational talk in the form of briefing and meeting as a technique to motivate workers.

All the managers advocated the importance of safety in the construction industry. Nevertheless, seven of the managers also mentioned that safety is not the most important indicator of performance. Another three managers however agreed that safety is an important indicator of performance in their companies. For these three managers, their remark is based on the fact that construction is considered as a dangerous work and the safety of the workers are crucial to the project and hence to the performance of the company. Four managers said that their companies have programs or activities to promote safety in the work place. The rest of the managers said that their companies



do not have any kind of programs or activities in promoting safety as they are not required by the law to have such programs. They further explained that workers working at the site had to undergo a safety program conducted by the relevant authorities such as CIDB before being granted access to the site. Most of the managers agreed that workplace safety is the responsibility of all the parties involved in the construction process.

On question about the effectiveness of inspection being carried out by the relevant authorities in monitoring workers safety on site, six managers claimed that it was effective while another four managers said that was not effective. The ineffectiveness of the inspection is based on the fact that the relevant authorities did not have the manpower to really implement the safety procedures throughout the whole project. Enforcement is a complementary component to regulation and government enforcement needs to be comprehensive in order to be effective.

The large number of construction companies in Malaysia that need to be overseen makes it nearly impossible, for the relevant authorities to regulate the entire construction industry. The managers perceived that a comprehensive enforcement will contribute greatly to the workers safety on site. The managers also claimed that lack of attention to personal safety by workers also affect their safety. According to the managers the ignorance of safety among construction workers occurred because the workers will perform their task in a manner that allows them to experience the least inconvenience. Unfortunately, to these workers, safety is seen as an inconvenience. The reasons for workers underestimation on the importance of safety can be linked to the lack of appropriate safety training, their low education level and also to their attitude.

Another reason given by the managers on factors affecting workers safety is the cost of implementing safety procedure to the contractor's budget. If the cost of safety procedure is included in the contract, the contractors will be more obliged to ascertain that workers follow the safety procedures. These managers also believed that lack of compliance to safety procedures by sub-contractors, which is common and widespread do affect the workers safety.

All the managers claimed that their companies have a very low accident record. When asked whether they are satisfied with the safety and health performance of their site, half of the managers felt neither satisfied nor dissatisfied. Two of the managers said they are very satisfied with the safety and health performance of their site while another two just feel satisfied. The result shows that the managers although feeling satisfied with the no accident cases, they themselves realized that the lack of safety awareness amongst the workers are prevalent.

On workers turnover, almost all the managers involved said that they are not facing any serious employee turnover. However, half of the managers said they do face a bit of problem regarding employee turnover with their administrative and non manual workers. The number of employee turnover in the companies that have this problem is not acute. The number of workers leaving is small, just between one to three workers annually. According to these managers; most of the workers left their respective companies for a better pay job. As for the manual workers, these people are not working directly under the company and it is the sub-contractors responsibility to make sure that shortages of workers do not ensue. As at present, all the companies do not face any shortages of manual workers. Six of the managers agreed that their company performance might be measured through the impact of change in employee turnover. They said that the higher the number of people leaving a company indicates that there is something not quite right with the company and hence have an impact on the company's performance. On the other hand, the rest of the managers did not agree that company performance may be measured through the impact of change in employee turnover simply because there are lots of other factors that might affect company performance. When asked on factors most associated with the cost of worker turnover, all the managers agreed that financial cost in terms of training new employees and delayed in work progress are the two main factors.

On the managers' perception on factors affecting their employees' turnover, most of them cited the availability of job as the main factor. The decreasing numbers of projects available have led to stiff competition among the construction companies. When these companies face difficulties in getting job contracts, this will have a direct impact on workers turnover. The way that these companies managed their financial also have an impact on workers turnover. If the companies faced prolong financial difficulties and the workers salary are affected then the workers turnover is inevitable. Another reason given by the managers as having an effect on workers turnover is on how the company's is being managed, in other word, how much do the workers trust the companies. If the workers have faith in the company, they are willing to compromise for the benefits of both parties.

Half of the managers interviewed said that the current absenteeism in their respective companies is decreasing while the rest of the managers said that absenteeism in their company is at a moderate level. Eight out of the ten managers said that their companies have an absence policy to deal with recurring and frequent absence while the remaining two managers said they used their own discretion to resolve recurring and frequent absence. All the managers realized the impact of absenteeism to their company. Most of them cited delayed in work progress as the main result caused by severe workers absenteeism.

Table 2 shows the managers perception on the most influential causes of absence among their workers. The managers are asked to rank the causes of absence as they perceived. These scores were then averaged for each option and the final score provides a guide to their overall usefulness based on the following likert scale: 1= most influential and 5= least influential.

TABLE 2: INFLUENTIAL OF DIFFERENT CAUSES OF ABSENCE

Causes	Influential
Health	1.9
Family needs	2.1
Proximity to weekend or holiday	2.1
Worker's attitude	2.2
Job condition	3.3
Location	3.6
Overtime	3.9
Volume of work	4.0

*n=10*

From table 2 above, the top three reasons for workers absence as perceived by the managers' are all related to worker's personal problems rather than the workplace problems. Causes such as health, family needs, proximity to weekend or holiday and worker's attitude are factors controllable by the workers. The managers' perception on reasons for absence given by workers over here is totally the opposite from the result of findings in the Business Roundtable (1983) report for absenteeism which the workers of the survey in United States cited the top five reasons for absence is related to the workplace rather than the personal reasons. Workers in the Business Roundtable survey rated personal or family illness as last in order of importance while the managers' perception in this research showed that illness is considered as the top reason given by workers for their absence. The reason perceived by the managers in this research is parallel with CIPD (2003) report stated that the most important cause of absence in the United Kingdom is minor illness.

Overall, the managers perceived that culture and attitude play important part in affecting workers absenteeism. On cultural and attitude issues, they said there are differences between the local and foreign workers. The most obvious difference between the local workers and the foreigners are their commitment to the family. Local workers are more attached to family ties compare to the foreigners who are more focus with their tasks. Generally, all the managers agreed that differences in cultural and attitude among local and foreign workers do have an impact on absenteeism in the company.

In the final section of the interview, the managers were asked on their opinion of the construction industry's image. When asked about the difficulties concerning the project that they have completed or currently undertaking, various exogenous factors crop out such as late payment by the project owner. In most cases, bureaucracy in government agencies are prevalent and been cited by these managers as the cause of delayed payment. Other factors such as shortages of materials, labour, relationship with suppliers, weather and government regulations are among the factors that can disrupt work progress. Although these factors are all unique to the respective companies, all the managers concerned agreed that good financial management in general and management of cash flow in particular is of utmost important to the running of a construction company. All the managers are associated with a least one or more association and the benefits for being a member of these

associations varies from attending seminars to getting support or recommendation for new projects. There are two managers who claimed that being a member of association do not bring them any benefits.

For overall opinion of the construction industry's image, three managers are confident of a bright future. Two managers are a bit pessimistic of the industry as some of them don't even have a project for the past two years. The rest of the managers still believe that this industry is viable but needs a lot of effort from all parties involved to make it more attractive and safe. One of the manager even suggested the non political involvement in tendering for project would make this industry healthy from politician who has the power in determining which contractor will get the projects. All things considered, four managers said that their overall satisfaction can be expressed as good, another four managers overall satisfaction is neutral and only one manager feel his overall satisfaction is bad.

## Conclusions

This report is completed with limitations. The limited sample sizes means that the result should be treated with caution. This research begins with a quest in findings factors affecting motivation, safety, absenteeism and workers turnover as perceived by the managers and workers in the Malaysian construction industry. What makes this research a bit different is that it tries to look into factors affecting motivation, absenteeism, safety and workers turnover rather than looking on how these variables affect performance. By understanding these factors it is hope that this study will provide construction owners, managers and policy makers on the insight into the factors that will increase workers performance. Largely all the managers involved, acknowledged the importance of these factors in enhancing the performance of workers in their companies.

Although all the managers recognized the importance of motivation, initial steps are not being taken to promote and develop motivation as significance tools in increasing workers performance. Most of these managers used financial incentives such as bonus as encouragement to the workers. The other forms of motivation techniques are not widely used. Overall most managers had taken motivation factors as granted and did not bother to exploit them to the utmost.

On safety all the managers generally agreed that it is very important considering the nature of the industry. Lack of enforcement by all parties concerned and ignorance of safety among construction workers are common on the worksite. There is a need for greater and more comprehensive enforcement by all the parties involved. There is also an urgent need to educate and train the workers to be aware of workplace safety. For absenteeism and workers turnover, the problems are not serious that need immediate attention from the managers. Although the managers admitted that they knew the impact of absenteeism and workers turnover, unfortunately they did not have policies that would tackle these problems when they occur. The ignorance on these matter could be related to the fact that there are abundance of cheap workers around.

Finally, all the managers agreed that these factors are important but nevertheless no emphasis has been given to make them workable and be used as alternative to other performance factors. Emphasis and effort should be concentrated towards proper management and governance in dealing with the construction industry.

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# **Patterns of Community Business Management: Aspect of Cooperative Women Group: Case Study in Thailand<sup>1</sup>**

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## **Abstract**

This research is to investigate the members of cooperative women group concerning of group status and their group demand; problems and opinions of the members through group operation and to examine the conditional factors influencing the development of pattern, structure, and cooperation of group management activities. This research is limited to Baan Ton pheung Cooperative Women Group as a case study in Thailand. Participatory Action Research (PAR) is used. It is found the main objective of the cooperative establishment is to cooperate and implement the transfiguring of agricultural products, such as longan, and honorable economized activities through carrying on and sharing benefit together. However, the members' role in-group management is rare. Consequently, many kinds of problems are raised, such as the lack of member's understanding in group and business operation: marketing, production, human resource management, finance and accounting. The cooperation of members in conducting research has created the suitable pattern, structure, product innovation and activities for community business; such as cooperating in group management, practicing leadership, demonstrating products, sharing skills, creativity and knowledge. It suggests that the community and the cooperative women group participate in management group via learning together to gain community strength and sustainability, implement the advantages of group management and community business management in the pattern of cooperative women group in global business.

**Keywords:** Business, Management, Cooperative Women Group

## **Background and Significance of Problems**

After facing economic crisis in 1997, community business has been crucial strategy of Thailand since it is formed by people in a community to cooperate in different forms such as women group, cooperative group, savings group, cooperative group, and cooperative women group. These groups operate their businesses based on community sufficiency economy. The purpose of group forming is to encourage people in their community to manage local resources for production, processing, and marketing while considering the appropriateness regarding the environment of the community. This can result in purchasing, trading, employing, and effectively using of resources, which are considered a foundation of stable economic mechanism development of the country.

Cooperative Women Group is formed by people in a community of which the members are women who join in a community cooperative. The cooperative members' offspring and relatives voluntarily gather to form a business to earn a living. Though community business contributes to the development in a community and the nation, certain problems can still be found. Currently, community business tends to be operated more commercially and there are still some weaknesses such as lack of significant factors: capital, leaders, effective business management system, proper technology, unawareness of roles and ethical aspect of helping each other, as well as, government policies that are not truly facilitating the development of community business. Apart from these problems, more can be found. Certain agencies that support community business tend to focus on their own goals and lack cooperation from other related government agencies. If Cooperative Women Group lacks effective management in terms of organization management, participation of group members and related authorities, and business management including marketing, finance and accounting, human resource and labor management, there might be some conflicts in the group and related agencies and it is likely to be difficult that products and service can compete in the market.

The problems mentioned above become a source of inspiration of this research, which aims to study status, problems, opinions of members regarding group operation, and methods, patterns, structure, and proper activities in developing group management. This study also includes factors affecting the development of patterns, structure, and

participatory activities in group management. An advantage of this research is that a community and Cooperative Women Group can participate in group management by exchanging and learning together in order to strengthen their community. The methods of group management and community business management can be applied for further effective and systematic management, which will be able to generate income, benefits, and opportunity for Cooperative Women Group and the community itself. As a result, Cooperative Women Group will truly be self-reliant in a sustainable manner in this globalization era.

## **Research Question**

With differences in group members, how can we create participation in management and direct the group operation through the participation process from every member, which will lead to effective and systematic business management and learning process and problem solving by community business members?

## **Literature Review**

### **Cooperative Women Group Concepts**

Cooperative Women Group has been formed to solve problems and create an option for people in a community. Indonesia, for instance, faced economic crisis since 1980s to the financial crisis in the mid of 1997. To overcome the economic problems and poverty, Indonesian government initiated community protection system, which is a form of cooperative that a person or group of people, or even business operators cooperated with each other. Cooperative Women is an effective cooperative in which women can access and are provided a chance to operate business activities as they desire. Through experiences and accumulated knowledge, successful Cooperative Women Groups were influenced by activities they participated such as Jimpitan and Tanggung Renteng. Jimpitan is a system based on participation from people in a community to support each other. Tanggung Renteng is communal responsibility on the basis of sincerity and trust among group members. These two concepts can be combined to develop a business to achieve its goal successfully and effectively (Johanna and Titing, 2001).

### **Concept of Community Business and Enterprise**

A community business is a generic term. There are a number of other similar terms used to describe this type of undertaking; social enterprise, community enterprise, community co-operative, community interest local company, community benefit corporation, and local development trust.

A community enterprise is a specialized form of community-based organization that has both commercial and social aims and objectives. The commercial objectives of a community enterprise mean that business methods and practices drive its organizational functions and determine its operating style. This sharply distinguishes a community enterprise from the predominantly representative and often informal operating pattern of most other forms of popular community-based organization. However there are some features which it shares in common with popular community-based organizations. In particular, it is owned and controlled by the people who live in a defined locality or who share other forms of common interest.

There are a range of particular functions (DTTR,1999) for which community enterprises are established some of which exist in combination while others are pursued on a single purpose basis; to own and administer community assets and resources such as land, buildings, equipment and machinery; to undertake business and trading activities in a commercially sustainable and socially responsible ways on behalf of the community; to act as a comprehensive focus for local economic development by providing ideas, information, training and consultancy services; and to provide financial services such as managing revolving loans within a community and attracting outside capital.

### **Community and Social enterprise Enterprise: an International and Local Experiences**

The impacts of community and social enterprise have received varying levels of attention in a number of different areas of the world in recent times. The following discussion focuses on the experiences in several nations. To the extent that social enterprise has been established in these countries as a form of local governance in the face of extreme disadvantage, their experiences are also a potentially important source of learning.

*Community and Social Enterprise in the United Kingdom.* The UK has a distinct historical tradition of social enterprise. The modern cooperative form was established by a group of weavers in the Rochdale area in 1844, and the British consumer cooperative movement subsequently went on to become a key driver behind the establishment of the International Cooperative Alliance, which remains active today. The 1970s saw a new wave of consumer cooperation in line with new social movements of the times. In the 1980's, worker cooperatives and other forms of community enterprise were initiated, sometimes with the support of local government, as a response to local employment creation (Pearce, 2003). More recently, social enterprise has played a significant role in the reform of public services in a number of policy areas. The most notable of these is social housing, where a major amount of public housing stock has been transferred to representative housing associations and cooperatives. There are also a growing number of social enterprises emerging, with government support, in areas of social welfare such as aged care, disability services and childcare

*Community and Social Enterprise in Europe.* Continental Europe comprises a range of countries with diverse cultural, political, and economic histories. While it is impossible to speak of a singular "European experience", regional governance institutions and the academic community have supported a sustained research and policy effort around European social and community enterprise for over a decade. From 1989 to 2000 a Social Economy Unit existed within the European commission "in recognition of the need to take account of co-operatives, mutual societies and associations in the internal market". The DG XII of the European Commission, as part of its Targeted Socio-Economic Research (TSER) program, has provided support for the initiation of the thematic network, EMES (L'urgence des entreprises sociales), which focuses on the emergence of social enterprises as a response to social exclusion in Europe (Simons, 2000). In July 2000, the responsibilities of the Social Economy Unit were integrated into Unit B3 of DG Enterprise "Crafts, Small Enterprises, Co-operatives and Mutuals" (Europa, 2007). The objectives of this unit include mainstreaming support for and recognition of social enterprise organizations into relevant EC policies and programs, establishing a supportive regulatory framework, and maintaining a research effort around the nature and scope of cooperative, mutual and associational activities in the region.

*Community and Social Enterprise in the United States.* The United States has a long cultural history of individualism, which provides a backdrop for valuing entrepreneurship and corporate and individual philanthropy. As Salamon (1999) has described, historical resistance to government intervention in the US has led to an intricate 'mixed economy' of welfare that involves public, corporate and third sector provision, with the third sector playing a relatively larger role in welfare provision than in many other developed countries. A mix of earned income, government funding and private philanthropy has traditionally characterized financing of third sector welfare and development efforts. Declining rates of government funding and the relative instability of philanthropic assets in the face of global economic activity have affected the operating environment of the US nonprofit sector. The growing interest in social entrepreneurial activity in the US since the early 1990s reflects some nonprofits' response to this changed operating environment, as well as academic and government interest in the importance of cross-sectoral partnerships in the mixed economy of welfare, and a renewed focus on revitalizing distressed urban and urban fringe communities. The US experience has involved a dual emphasis on developing individual social entrepreneurs with significant support from university business and management schools and building resilient nonprofit organizations with a focus on self-sufficiency through earned income and innovation. With regard to urban revitalization, regional nonprofit networks in areas such as Seattle and Pittsburgh have utilized social and community enterprise as a mechanism to stimulate local economies, generate employment and provide essential services. In the USA, there are some specific examples of government involvement in social enterprise activity, through partnership, funding provision, and service purchasing. The federal government and some state governments have initiated purchasing arrangements that give priority to purchasing certain products from social enterprises (Pomerantz, 2003). Direct local government involvement appears limited, although there are exceptions, such as the City of Seattle, which played a significant role in establishing the Seattle Social Investors Forum that has been instrumental in stimulating social enterprise in that region.

*Community and Social Enterprise in Canada.* Canada has a strong social history of collectively driven social and economic activity, although the nature of this activity has differed across provinces. The north American credit union movement was established in Quebec in 1900 and building cooperatives to establish housing were

popular in Canada from the 1930s to the 1960s. Worker cooperation has been a traditional form in the agricultural industry and, more recently, cooperatives have played a significant role local economic development, through the establishment of niche markets and value adding in areas where traditional primary industries are in decline (Barraket, 2001). The revival of social enterprise as a distinct feature of community strengthening occurred in the 1990s in Montreal, with the support of a range of civil society organizations and the Quebec Government. In the early 1990s, several third sector organizations were working with the communities of south-west Montreal, amongst other regions, to develop local economic development responses to significant loss of jobs in the manufacturing industry and a 30% decline in local population (Richard, 2004: 21). In 1996, the Quebec Government called a Summit on the Economy and Employment in the province, and consequently established the Chantier de l'économie sociale (taskforce on the social economy), which is led by civil society organizations, including local economic development, community service, and social movement groups (Neamtan, 2004). In the past seven years, more than 4000 social and community enterprises employing 65,000 people across a range of essential and non-essential services have been established in the Quebec province (Lewis, 2004: 10). Public policy support for social enterprise has included the integration of local and regional development policies to support collective enterprise, equal access to the development incentives available to for-profit enterprise, establishment of new training and funding tools and changes to the regulatory environment. At the regional level, local government has been involved as a partner in activities and governance systems essentially led by the third sector. Recent reforms to the Quebec government have seen responsibility for local and regional development devolved to local government. It is not yet to be seen what effect this will have on regional development efforts.

*Community and Social Enterprise in Australia.* The nature and scope of social enterprise in Australia has yet to be extensively mapped. However, there has been an emerging public discussion about social entrepreneurship and social enterprise in this country since the late 1990s. This discussion reflects a number of different priorities and perspectives, including: interest from some parts of the third sector in social enterprise as a mechanism for sector innovation and financial sustainability; interest from across sectors in the role of social entrepreneurs in establishing partnerships to respond to complex social, environmental and economic challenges; renewed interest in cooperative and collective forms as vehicles for local development and employment creation; and calls for a renegotiation of the nature and scope of welfare delivery. In broad terms, there is a division within this general discussion between those who view social enterprise as a strategy for large charitable organizations to mobilize resources through entrepreneurial activity, and those who see social entrepreneurship as a new way of organizing to address social and economic need using the venture capital model (Lyons, 2004). The debate has also attracted critics of the notion of social entrepreneurship, who argue that it is neither an adequate nor an appropriate replacement for government provision of welfare services and promotion of social justice (Cook et al, 2003). Fairly broad cross-sectoral interest in the notion of social entrepreneurship in Australia led to the establishment of the Social Entrepreneurs Network (SEN) in 2001. In 2002, Australia's first venture philanthropy organization, Social Ventures Australia, was established by the Benevolent Society, the Smith Family, Work Ventures and AMP Foundation, with the aim of using the venture capital model to "integrate the Australian public, corporate and social sectors to create entrepreneurial, innovative and results-driven solutions to Australia's social problems" (SVA, 2007). Further, specific initiatives such as the Cape York Partnerships described earlier are, in part, modeled on principles of social entrepreneurship and have been identified by practitioners and policy makers as innovative approaches to intractable social, economic and environmental problems. For a number of reasons, including the broad conceptual division about social enterprise discussed above, SEN was wound up in 2003. Some people involved in SEN have recently established Social Enterprise Partnerships as an alternative organization.

*Community and Social Enterprise in Thailand.* For Thailand, forming of people in a community to operate business has been done for many years. Since there is no governing law to certify the group forming, many groups face problems in terms of operation in various activities, which concern rules, regulations, and law. Communities at the same time might not receive support and promotion from the governmental sector that can respond their demands since governmental organizations participate by considering their readiness. This process affects community business and forming of members in a community. As a result, community business is not strengthened and sustainable. Community networks nationwide then discuss with Ministry of Agriculture and Cooperatives so that the Ministry is informed of problems in community, and that leads to law drafting and issuance of Act of



Community Enterprise Promotion 2005. This Act is stipulated by genuine demands of people in community. The community enterprise will be promoted to establish and provide knowledge concerning proper use of village fund and cooperation of people in community so that community becomes stronger and self-reliant. The community will also be supported to develop products, maintain quality, and conduct research on technology and marketing. The community will learn how to create creditability in business, safety for consumers, and how to coordinate and manage fund sources in order to become small and medium entrepreneurs. Community enterprise and its networks that need those supports will have to register with Department of Agriculture Promotion, Ministry of Agriculture and Cooperatives. Currently, there are 38,267 cases and 87 networks of community estate with 626,549 members. (OSBECPT, 2007)

#### **Concept of Community Business Management of Cooperative Women Group**

The study of community business management of Cooperative Women Group emphasizes methods and activities related to community business operation in different aspects:

Management is the process of coordination between personnel and other resources to achieve an organization's goals. (Pride, Hughes and Kapoor, 1996) In managing community business of Cooperative Women Group, the responsibilities include planning, organizing, commanding, coordination, and controlling.

Human Resources Management is a process of managing human resource to perform and achieve the purposes of organization. There are 6 functions, which are human resource planning, human resource recruitment and selecting, human resource development, compensation and benefits, health and safety, and research on human resources. (Mandy and Noe, 1996) Therefore, effective human resource management is a way to support the community business to operate successfully.

Marketing Management requires the application of 4 marketing mixed proportions, which are product, price, place (channels), and promotion to serve the products of community business. (Kotler, 2001) This could result in expanding sales, market shares, and potential to market competition. When products reach the maturity stage and become saturated, community business has to present new products to respond and increase the purchasing demand. However, developing new products is considered a risk for business. Developing new products then requires research on consumer behavior and marketing.

Production Management is a process of transforming manufacturing factors including raw material, capital, and labor to products through manufacturing process by adding value in them to achieve the desired products. (Meredith, 1992) Production management includes operation plan, material requirement planning, location selecting, transportation, and quality management. If community business can effectively manage the production, quality products will be launched and satisfy customers as well as services provided. This can lower the operational capital and increase more profit.

Financial and Accounting Management. Financial report that must be done is a balance sheet, (Lawrence, 1997) which is profit and loss, and cash flow, to show the financial status and operational result of the business. Budgeting is also a tool in making a short-term financial plan. Financial responsibility includes revolving asset management; capital management, cash management, liability management, and inventory management. Business community can seek for short-term capital from commercial credits. Short-term loan can come from Saving Group for Production and from the village funds. Long term capital can be loans from commercial Banks or owners.

#### **Concept of Communal Participation**

Participation from a community means the participation in decision making along with the process of implementation that concerns benefits and evaluation in developing activities. (Cohen and Uphoff, 1977) Components of participation from people should consist of decision-making; identify problems, making decision, and implementing. Implementation can be done through resources support, administration, and efforts. People can participate in sharing benefits, which can be material, social benefits, or personal benefits. They can participate in the evaluation process to control and monitor the whole activities.

## Research Methodology

This qualitative research is based on Participatory Action Research (PAR) principle, which emphasizes the cooperation from researcher, assistants, and members to find out problems and obstacles in doing research, setting objectives, collecting data, analyze data, selecting alternatives in group management, and organizing proper activities, which will lead to mutual learning process and finding solutions. (Kemmis and McTaggart, 1988)

This research is divided into 3 stages. The first stage studies condition of groups and members, status of group demand, problems and opinions of members towards the operation. The second stage studies methods, patterns, structures, and suitable activities for developing the administration of participatory management. The third stage studies conditions and factors affecting the development of patterns, structures, and activities, which concern participatory management. This study focuses on Baan Ton Phueng Cooperative Women Group, Muang Nga Sub-District, Muang District, Lamphun Province, Thailand as a case study.

The population in this research is members of Baan Ton Phueng Cooperative Women Group, professional groups, organizational community groups, related government agencies that support the operation in the area such as Sub-District Administration Organization, Provincial Public Health, Provincial Agriculture Office, Provincial Cooperative Office, and Provincial Community Development Office.

Primary data is obtained by both formal and informal inquiry and interviews with group members, observations of relevant people who manage businesses effectively in the current context. Activities that are set up include training activities to find out proper business management approach in the current context, field trips that bring advantages and disadvantages from each area to adjust and apply with a community, workshops that demonstrate group administration and suitable business management that can solve the group's problems, and creating models of group administration and analysis of factors affecting the development of group administration. Secondary data is obtained from journals, researches, and related academic textbooks.

Data is collected and analyzed in different aspects. Data is categorized in area conditions, population, group operation, organizing activities, and application of data. The collected data will be interpreted, compiled, and summarized.

## Research Findings

### **Finding in the First Stage: Condition of Group and Members, Demands of Members Concerning Problems and Opinions about Cooperative Women Group's Operation**

There are currently 368 members of Baan Ton Phueng Cooperative Women Group. Most of them are over 50 years old and work as employees. The group was formed to support the operation in a self-reliant manner, to help members in their careers, to increase family incomes under the group's principle, which focuses on mutual helps, to generate just benefits, and to promote social activities. The project can become a model for youths in the community. The group's activities can be divided into 2 types; deposit money as savings, and process agricultural products such as dried longan, ginger instant drink, black galingale instant drink, bel fruit drink, chamomile drink, instant powdered soy bean milk, and instant powdered longan drink.

When studying group administration and management, it is found that the group committee consists of chairman, vice chairman, secretary, and treasurer, who were chosen by members to manage the group. The members proposed the names and voted for the committees with the 4 years term. Since only one meeting will be held annually, members have different understandings about the operation and they do not understand roles and duties of being members. This causes communication problems between members and committees. The members do not know about problems of the operation. Committee meeting lacks clear agendas. Almost all of people who are responsible for different positions are old. Other committees do not show clear performances, as they should. The structure of the previous administration is redundant and not associated. Business management and administration including organization management, production management, finance and accounting management, and human resources and labor management are not effective yet. This problem results from a lack of participation from

members, supporting agencies, and local organizations causing slow development despite the fact that potential and products are still greatly wanted by consumers.

**The finding in the Second Stage: Methods, Structure, and Suitable Activities for Participatory Group Management of Cooperative Women Group shows that:**

*Group Administration and Management.* Status of Cooperative Women Group as an organization has not yet been accepted by governmental or non-governmental organizations. As a result, the group was not well protected and supported. The operation then has a slow growth since there is not relevant governing law. From the meeting of committees and members, there is a resolution to change the status by registering as Baan Ton Phueng Community Enterprise, which will enable it to obtain support and legalize the group status. Administrative structures are changed and the responsibilities are divided into different sections suitable for current operation. The same board of committee still functions and is well accepted resulting in more effective administration.

From at least 2 meetings a year as the group members requested, they learn about the operation and activities that the group has done or will be doing in the future. The members also have an opportunity to suggest their opinions about the operation, which strengthens understanding among group members and committees.

Apart from looking for methods of management in a sustainable manner, continuous learning process can be enhanced by additional knowledge about management skills through various activities such as drafting plan and modern projects. The members can submit a proposal for sponsors from governmental and non-governmental organizations. Some activities can serve as a forum for exchanging opinions and participatory group management between Cooperative Women Group and sponsoring organizations. Through these activities, the group members can exchange knowledge and opinions concerning directions of management, problems and obstacles occurred from various means of support from governmental and non-governmental organizations including money, materials, equipment, or related seminars. They can review roles of supporting organizations so that they respond to the group's demand.

Computer training activities enable members to learn about modern business management and how to keep data of members, products, finance and accounting, as well as local wisdom in a much more effective way. Teamwork and team management provide a chance for members to learn about management systems and team working, which will enhance efficiency. Leader development training helps the members to understand that without good leaders their operation will never be smooth and successful. Systematic thinking activity will enhance the operational process, as the members know how to plan and operate schedule. This helps them to find out what appropriate solutions they need when facing with problems. The research also finds that strengthening members potential can be done by exchanging experiences among group members, assigning responsibilities, and participation that everyone can share and learn together. This will be advantageous for assignments and participatory management, which will create trusts.

*Financial and Accounting Management.* The group is still facing the insolvency of capital at a certain period and more revolving capital is needed for developing and improving standard of products. Another problem is the accounting. Committee or responsible people still do not understand accounting, resulting improper account. Only one person who makes mistake can cause inaccurate data.

Financial and accounting training activities help group members to learn how to solve problems about revolving capital and insolvency. From these activities, the group can obtain necessary financial and accounting plans including members working statistics, income-expense notebook, individual liability record, and check record that all members can prepare themselves and show to the group members. The members also understand the principles of simple recording and examining financial and accounting. This can save 50% of the time they used to do. The remained time can then be used for other works. Another important advantage is that regular accounting update can be used for decision making and planning.

*Human Resource and Labor Management.* The members took field trip activities in successful community businesses and learnt that having determined leaders, skilled teamwork, and effective management can generate income to group members in all statuses. Elders can support the group by participating in activities that do not require high skill of craftsmanship to generate income such as weaving carpets and making artificial bouquets. They can do these works in their free time in the evening, or after their regular orchard works. With this strategy, the group members will earn more income.

Learning Center is established to maintain valuable local wisdom since most of laborers in this group are elders. This activity supports the members to create network and teach their skills to younger generations in different forms such as training children of the by members themselves and students in the village or its vicinity. The learning center can be a model project that visitors in the country and abroad can come to observe.

*Marketing and Public Relation Management.* Marketing training activities provide the group with suitable marketing patterns to respond the demand of customers. The group also has a participatory marketing concept to improve products, set prices, calculate costs to find out suitable prices, categorize groups of customers into 3 different levels of their income, which helps them offer products needed by customers. The first group is lower level (income less than 5,000 Baht) which has the ratio of 20%. Suitable products are instant soy bean milk, shrimp paste. The second group is the middle level (income between 5,000-15,000 Baht), estimated around 60%. Suitable products are instant drinks such as ginger, longan, bel fruit, and chamomile. The last group is the high level (income more than 15,000 Baht), 20% of the customers. Selected products for this group are dried longan and black galingale instant drink.

In addition, when initiating participatory research, an obvious change found is that the sales of each products increase and dried longan won the first prize in the provincial longan festival of OTOP Thailand 2005.

Product development and packaging of pioneering products such as instant ginger drink are also in high standard and modern style. The products are then distributed domestically and internationally. The patterns of packaging are from marketing survey. The group has surveyed similar patterns, sizes, and prices so they can design suitable packages and set the price close to the market price.

Demonstrating Center and product exhibition help the members learn about how to exhibit products in an attractive style and create trust in products in terms of safety and quality. It is also found that Demonstrating Center will even serve as a trading network that can expand marketing channels.

*Production Management.* Production training activities improve the production system of the group. Producers are changed every day to respond the quantity demand. Daily wages can be increased. The group members learn how to increase products from hiring laborers and how to assign works that are suitable for different fields of expertise.

Training about using technology for production enables the group members to learn about techniques in boosting products by using related technology. They can learn how to prioritize production processes, which can remove unemployment or bottom neck. They obtain technological principles that the group adopted for making decision and that can support the operation. They become aware of selecting technology by considering experiences of group members as well as skills in assigning people by their potential.

#### **The Findings from the Third Stage: Conditional Factors affecting the Development of Patterns, Structures, and Participatory Management Activities**

Suitable patterns are drawn from participatory business management, and patterns that are suitable for each product are: in terms of organization management, the group restructures the organization and realizes different duties. Committee members including Chairman, responsible for general management; vice chairman, manage, control, and monitor in case the chairman is absent, purchasers, responsible for purchasing and finding quality raw material as well as maintaining instruments and equipment in good condition. Finance and Accounting prepares income-expense account. Marketing is responsible in finding markets, test markets, and promote the group's products. Production is mainly about manufacturing products and processing. Quality Control includes control of manufacturing process started from purchasing raw material, manufacturing, packaging, and coordinating with people who control quality of products. Personnel in different sections are selected from approval of the group members and are assessed their performances to increase the capability of work. It is also important to consider the supporting agencies in terms of budget, equipment, machinery, and equipment. All of these factors must be considered to move the group in the same direction.

In terms of member management, the group considers the significance of participation of members in terms of fund raising, production, and selling products or becoming consumers themselves. The participation also includes sharing annual benefits, holding meeting when needed, presenting the demands of members which helps reducing conflicts among members, and organizing training to increase skills and ability in management by providing supporting careers such as basketry, weaving carpets, which will increase income for the group members.

In terms of finance and accounting, the group prepares accounting system which is convenient for presenting and being examined by the members such as balance and profit and loss balance. Financial and accounting data can be used for ordering raw material every month. Data can serve for designing short-term plan. The group makes balances including sales budget, production budget, laborer budget, expenses for production, management expenses. It also realized the significance of revolving asset by providing enough cash, managing debtor cases by considering their credits, managing products by manufacturing as being ordered and pending for sell. The management in different aspects mentioned above contributes to the solvency of the group.

In terms of human resource and labor management, the group attempts to create an opportunity for members to learn production skills by job rotation such as changing from production to quality control. The roles are also changed so the members can learn about other responsibilities, assignment, and empowerment by becoming heads of each section. The heads should be selected from their expertise and abilities and should be provided with fair compensation and welfares such as free lunch for members who participated in production, health-up, training about quality control and production technology.

In terms of marketing management, the group considers the mixed proportion markets to respond the demands of customers. For products, most of the products are instant dried herb drinks, which are produced from local materials. The products must be in good quality, packed in standard and modern packages, and approved by Food and Drug Association. Selling information should be used as guidance for production and promotion. For price, the group considered the products' prices from the costs or season or festival. For place, products are sold in the community and to outside customers both retail and wholesale. The group considers delivery, discount, and commission for members (middle person) who sell the products. For promotion, the group has advertisements and promotes products by members through words of mouth. Local administrative organizations also support the group by advertising through leaflets and flyers. Exhibitions organized by governmental or non-governmental organizations aim to introduce and sell products domestically. Those events include OTOP Thailand and exhibitions in Vietnam, China and others countries.

In terms of production management, the group selects raw materials from the low cost source. Those materials include longan, ginger, black galingale. The group also monitors quality production and manages hygiene in a factory. The members must wear protective gloves and hats and check all instruments and machinery. After the manufacturing process is completed, the products must be examined for the quality before bringing to sell. Consequently, the group is certified by Food and Drug Association, GMP, Community Product Standard for all products. This can create trust for consumers.

To analyze the factors that affect the group management, from workshops, it found that members of Cooperative Women Group participate in different aspects including economic system development by changing production. The group selects local raw materials such as longan to produce longan candy and chilly longan paste. In terms of natural resources and environment conserving, the group manufacture products that are environmentally friendly such as basketry made from used papers. Body and mind improvement activities include providing health check-up for laborers and members, hygienic working environment, and health information. Society and community development activities consist of religious and local cultural activities such as fund raising for constructing religious buildings, teaching knowledge and local wisdom to people, teaching professional skills for students in community, and strengthening the network cooperation in community. These mentioned factors must be considered and harmoniously operated. If one of these factors is inefficient, it might affect the living condition and understanding or perception of members, and conflicts might be inevitable.

## **Discussion**

Although there are differences among members in terms of age, education, and occupation, they are able to create efficient and suitable participation in management and direction of the group. In order to solve problems occurred in the group, they must have participatory management, which responds to their products. The management has to include organization administration by adjusting appropriate structures. Committee board is important and responsibilities must be from members' approval. The group also pays attention to organizations which support

finance, tools and machinery, and equipment. Member management must consider participation from members in terms of investment, production, selling, and sharing fair benefits. (Cohen & Uphoff, 1977) The annual or bi-annual meeting should be or as appropriate to report the result and progress of operation, and to present the demands of members. This can reduce problems, conflicts, and misunderstandings of the members. Regarding financial and accounting management, the group must have accounting system that is convenient for presentation and auditing and those accounts include balance sheet, profit and loss, and cash flow balance. (Lawrence, 1997) Financial and accounting information is used to consider the purchasing of raw material and as tools for the group in making financial short term plan. The information is also important for managing assets, cash, liability and stock, which will enhance the solvency of the business. In terms of human resource and laborer management, providing knowledge and skills about production, job rotation, roles adjusting, duties and responsibilities assignment, empowerment, and provision of proper wages and welfares, will reduce problems regarding lack of laborers. For marketing management, marketing mixed must be suitable and must respond to the demands of customers. (Kotler, 2001) Products should be in high quality and produced from local materials. Packaging should be attractive, modern, and should show the certification of Food and Drug Association. Products must be priced by considering the costs or seasons or festivals. The group should create and expand distributing channels by selling to customers in the community and to outside customers either in retail or wholesale equipped with delivery services. Members who work as middle people are given discount and commissions. The members and related organizations should promote products. The promotion can be done by participating in exhibitions or product display organized by governmental and non-governmental organizations. For production management, it can be done by selecting low cost raw material and produced by adding value method. (Meredith, 1992) It is crucial to look into standard manufacturing process and products must be examined before selling and also approved by Food and Drug Association, GMP, and Community Product Standard to create consumers trust. This can lead to effective and systematic business management and the members can learn how to solve problems themselves.

Apart from suitable business management pattern mentioned above, factors that affect participatory management pattern of Cooperative Women Group consist of economic development activities including selection of local raw materials for agricultural products, cooperation in selling and purchasing products manufactured by the group, and support supplementary career to generate income. Natural resources and environmental conservation activities include improvement for water supply in community and environmental friendly production. Body and mind improvement activities include health check-up, provision of health knowledge, and support for sports. For social and community development activities, the group emphasizes on responsibilities and trust among members, which include fund raising for building stadium for youths and the elders, provision of local wisdom and knowledge by creating an environment that facilitates professional learning process for school children in community, and promotion of network in community through participation by members in community. These factors can lead to effectiveness and sustainability of Cooperative Women Group. (Johanna and Titing, 2001)

## **Conclusion and Recommendation**

Forming of people in a community to operate business in different forms to produce and provide products is considered a fundamental mechanism to develop economic system of the country. With high competition in commerce affected by globalization, community business has to be able to adjust and be prepared for such competition. People need to learn together to solve problems in terms of capital, leaders, business management system and technology. All members in a community must participate and understand their roles and duties. It requires effective cooperation with related organizations and policies of government that promote community business to respond people's demands. If these factors are considered and implemented in a dynamic way, they will strengthen community business in terms of operation and capability of competition in a sustainable manner.

Suggestion in terms of policy, this research shows effectiveness and potential of business management in a community. It requires cooperation from related organizations to support and push the business forward. Community business management is foundation to strengthen economy of the nation and to create sustainability. The related organizations must realize the significance and constantly monitor the operation.

Recommendation: Cooperative Women Group and related organizations should take a serious role in doing research on participatory management in order to be able to effectively tackle problems. Furthermore, activities should be created on the basis of demands from people in a community. Constant support for different fields of knowledge about community business is also crucial that the community can gain ultimate benefits.

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## End Notes

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# Diluting the Cache? Employment Experiences of Minority Migrant Women

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## Abstract

Embraced permanently by their ethnicity many minority women have succeeded in negotiating their own spaces in the host country. Yet, their journey to success has been marked by challenging experiences in the world of work as nations struggle to deal with issues emerging from the perceptions and politicisation of ethnicity. This paper highlights the perceptions of University Business students with reference to ethnic minority women and employment. Through a study of various databases and the construction of parables on ethnic minority women in New Zealand, the experiences of recruitment, selection, diversity management and career progression emerge as themes in the perceived experiences of these women. The paper argues for the need to highlight narratives of ethnic minority women in order to sensitize business students and future managers to the consequences of migration and the intelligent utilization of human resources in a world that is increasingly multicultural.

## Introduction

Women in the workforce have been increasing over the last few decades with part-time and contractual work, flexible timings and dual career households. In a similar fashion the numbers of ethnic minority women in the workforce have soared, yet their employment experiences are frequently quite different from those of white women or women of the majority culture. Many ethnic minority women face the prospect of being differentiated on the basis of their visible diversity discriminators such as skin colour and physiological appearance and find it a challenge to secure work in line with their skills and qualifications. With growing numbers of ethnic minority migrants globally, both for higher education as well as job prospects there is a continuing need to understand the perceptions of these women as well as the complexities encountered by them in employment. Carr (2004) graphically notes that the zone of work through which migrants realize their aspirations in the host country is likely to be the place where migration promises are most likely to be broken.

A number of countries, such as New Zealand (NZ) for example, actively seek migrants in order to reduce skills shortages. Some of the long term skill shortage occupations listed are: early childhood education teacher, secondary teachers, social worker, general practitioner for rural areas, anaesthetics technicians, nurses, midwives, pharmacist, electricians, plumbers, orchard managers, system analysts, programmers, film animators, management and project management staff, and chef (Immigration NZ, 2007). Besides migrants, NZ also takes in refugees as part of its international policy and humanitarian ethos. In the last two decades the number of migrants from non-traditional source countries or non-European countries has increased dramatically in NZ with changes in the immigration act of 1987. Many of the new migrants are from Asia, with a number of refugees from Africa, Iraq and Iran. Historically NZ is a country of immigrants though these were primarily from the Anglo-Saxon countries and were Caucasian. However there were a small number of migrants from India and from China who came to NZ as manual workers in the gold mines of Otago, as scrub cutters, fruit and vegetable hawkers and servants of wealthy British settlers.

Employment is the site where individuals encounter the wider society and its impact on their lives. This is particularly relevant for ethnic minority migrants who experience host country individuals and the opportunity to utilize their qualifications, skills and experiences through their employment experiences. This article engages with the perceptions of national and international Master of Business Administration (MBA) students in a NZ University through the construction of parables on ethnic minority women and their employment experiences in NZ. While there is an abundance of literature on ethnic minority women in countries such as the USA and UK, there is a dearth of research on the employment experiences of ethnic minority migrant women in NZ. This article seeks to add a



multifaceted layer to the burgeoning interest in ethnic minorities and the intelligent use of their skills globally. To this end, the conceptual background and theory on ethnic minority women and employment will be presented followed by the context of this study. Next the research approach is discussed along with the research findings. The article concludes with implications for research, pedagogy and HRM.

## **Conceptual Background and Theory**

Numerous studies relate to how the careers of ethnic minority women are affected by their ethnic categorization, as well as various forms of discrimination (Greenhaus, Parasuraman and Wormley, 1990; Ross, 2004; Goldman, Gutek, Stein and Lewis, 2006). For example, in the UK ethnic minority women tend to face higher unemployment rates than white women with Black African women and Pakistani women experiencing the highest rates of unemployment (Kelly, 2004). While countries tend to have legislation to prevent discrimination on various grounds including in employment, regulation alone does not necessarily ensure fair opportunity (Barnum, Liden and Ditomaso, 1995), and ethnic minority women tend to be disadvantaged not only by gender but also by race (Bagilhole and Stephens, 1999). Moreover whether ethnic minority women are born in the host country as well as the timing of their settlement are also influential factors in their employment patterns as well as demographic and family structures of different ethnic groups (Lindley, Dale and Dex, 2004).

A number of studies focus on the cognitive barriers ethnic minority women face in their careers primarily due to their lower self-efficacy which is recurrently due to the messages they receive and take-into their systems as part of their employment experiences (Hackett and Byars, 1996; Betz, 2000; Luzzo and McWhirter, 2001). Thus ethnic minorities “may internalize the racist beliefs of the dominant culture which might then lead to a lowered sense of self-efficacy, or their confidence in their ability to perform the tasks necessary to attain a satisfying career” (Flores and Heppner, 2002, p. 198). In fact prejudices and stereotypes of ethnic minorities can principally be seen as emanating “from the environments within which the organizations are embedded rather than from the organizations themselves” (Brief, Butz and Deitch, 2005; p. 133).

Career detrimental stereotypes still prevail for ethnic minority women in organizations as they struggle to fit into white Western organizations (Kamenou and Fearfull, 2006), where there is a stalling of women and minorities in management (Corsun and Costen, 2001). And despite the model minority image, Asian immigrants in the USA “have severe labour market disadvantages compared to white Americans” (Min and Kim, 2000, p. 739). In the UK even with higher-level qualifications, women from Pakistan and Bangladesh have high levels of unemployment and face considerable barriers (Dale, Shaheen, Fieldhouse and Kalra, 2002). Research indicates that in the area of recruitment and selection, adequate minority representation can be achieved by carefully choosing the message and the media to attract sufficient numbers which can include the presence of successful minority employees to create positive organizational images among minorities (Arthur and Doverspike, 2005; Ng and Burke, 2005). It is also important to alter the behaviour of majority group employees, including the conduct or the interview, which could functionally operate “like an orally administered and scored objective test” and “organizations should strive to maximize the perceived fairness and validity of selection systems” (Arthur and Doverspike, 2005, pp. 313-314).

Cox (1993) writes that careers as well as job involvement can be affected when individuals feel that they are not valued due to their race or gender. Women of colour are habitually underemployed and overused by departments and institutions and they are often assigned services to meet institutional needs but for which there is no institutional reward system (Turner, 2002). Moreover, retention of women of colour is positively related to the kind of supportive behaviour experienced from their supervisors, but they are at a disadvantage as they have to negotiate stereotypes in their work environments and have less access to influential others or mentors and hence are less optimistic about advancement prospects (Giscombe and Mattis, 2002; Cocchiara, Bell & Berry, 2006; Fearfull & Kamenou, 2006).

Dipboye and Colella (2005) suggest that “discrimination results from the interrelationships among many factors in a dynamic, complex system, which can become self-perpetuating and in which the victim can become an unwitting contributor to his or her own plight” (p. 426). They write that while open bigotry is hardly seen, other

subtle forms of discrimination exist and they raise the following question: “Laws and rules can deal with blatant racism and sexism, but what can be done to deal with exclusion from informal networks, ambivalent feelings, joking, and negative nonverbal behaviour?” (p. 426). In some instances, minority women benefit from their double jeopardy or status but this is strongly linked to their higher performance evaluations (Hurley and Giannantonio, 1999), and the way they access their bicultural life structure to develop strategies to maintain successful careers (Alfred, 2001). It is important in managing diversity and career progression to provide training programs as well as reduce the within-occupation earnings discrimination for ethnic minority women who experience increasing inequality in workplace power in different degrees and through different mechanisms (Howland and Sakellariou, 1993; Elliott and Smith, 2004; Konrad, Prasad and Pringle, 2006).

Research by Pio (2005, 2006, 2007a) on ethnic minority women in New Zealand indicates that they take approximately 18-24 months to find work somewhat equivalent to their skills and qualifications. She notes that in their initial job search they go through frustration in being repeatedly rejected and thus take entry level jobs in order to contribute to the family income. Research from The Department of Labour (DOL) shows that while migrants’ employment rates improved between 6-18 months after arrival, people from the UK, South Africa and North America did better in the job market than those from Asia (Dunstan, Boyd & Crichton, 2004).

## **Context of the Study**

NZ is the geographical site of this study which delves into and investigates the ethnic minority women in NZ and their employment experiences. The NZ Federation of Ethnic Council’s 2001 Conference declaration “accepts that employment is the key to successful integration into, and participation in all aspects of NZ life...and acknowledges the significance of business community commitment to recognising the skills of migrants and providing meaningful work for them” (Carter, 2002, p. 40). NZ is also party to all the major international human rights instruments through which the Government is obliged to ensure that the rights of individuals are safeguarded through gender, colour, race, ethnic and national origin blindness, through for example New Zealand’s Race Relations Act 1971, Bill of Rights Act 1990 and the Human Rights Act 1993. In entering the labour market, ethnic minority women present challenges of ethnicity and power in the host society as they compete for employment.

The DOL observes that as a nation NZ is getting older and more ethnically diverse and a critical challenge for NZ businesses will be to find good staff (DOL, 2004). In fact one in five people in NZ are overseas born and NZ has one of the highest overseas born populations in the OECD (DOL, 2006a). The Pacific peoples arrived in large numbers in the 1960s and 1970s due to severe labour shortages in NZ and in the last two decades migration from the following countries has increased: Afghanistan, China, India, Iran, Iraq, Japan, Korea, Singapore, Somalia, South America, Taiwan and Zimbabwe (Pio, 2007). The NZ population clock records 4,179,437 people as on 8<sup>th</sup> April 2007 (Statistics New Zealand, 2007). Although 80% of New Zealanders (2,868,000 people) identify with European ethnicity, this group has grown only slowly over the past decade. 14.7% of the population identified as Māori (526,300), 6.5% as Pacific peoples (231,800) and 6.6% as Asian (237,500) in 2001 (Statistics NZ, 2006). The Asian population has more than doubled since 1991 and while less than 1% of New Zealanders (24,900 people) identify with the ‘Other’ ethnic group category; this group has increased by almost 300% over the decade (Statistics NZ, 2006). Despite immigration, NZ will continue to have a small population and with approximately 600 New Zealanders going overseas every week for long term work, the future of the country will be determined in large part by the quality and level of workforce and the strategic decisions made with reference to employment (Future of Work, 2006; Pio, 2007b).

While NZ was the first country in the world to give women suffrage in 1893, currently women receive incomes equivalent to 82% of their male counterparts (Focusing on Women 2005). In NZ, the lowest median annual income is for Asian women (\$8900), followed by Pacific women<sup>1</sup> (\$13,000), Maori women<sup>2</sup> (\$13,200) and for European women<sup>3</sup> (\$15,000) (Focusing on Women, 2005). Regarding unemployment, Europeans have the lowest rate at 6%, Asians 13%, 18% for Maori and Pacific women, and for those from other ethnic groups it is 21% (Focusing on Women, 2005). Jayne (2005) writes that while there is sense of dynamism and a breath of fresh air with ethnic minority women entering the management ranks, yet many talented new migrants are clobbered with the

need to have the Kiwi<sup>4</sup> experience, despite the fact that they have just entered the country and very few minority women have broken through both the racial roof and glass ceiling. However, younger ethnic minority women tend to fare better than their mothers in the employment market (Pio, 2004).

In view of the above context within which ethnic minority migrant women's employment experiences are embedded the author-researcher choose to explore the work experiences of such women through the construction of parables in an HRM paper by MBA University students in a NZ University. The educational philosophy of the university focuses on the belief that knowledge and understanding are constructed by the learner, and there is need to foster excellence, equity an ethics in learning, teaching, research and scholarship, and in so doing serve our regional, national and international communities.

The MBA is a generalist post graduate degree, providing a tool box of models and techniques for all the core functions of management. The target group for the MBA are students aspiring to general or divisional management or CEO positions – with University/Graduate degree, or graduate diploma, or professional qualification in a relevant discipline. In particular, the MBA seeks to provide a link to professional practice, to enable the development of people wanting to gain advanced management knowledge and capability. The MBA is a 180 point programme consisting of 24 (7.5 point) papers normally completed within 18 months of full time study. Each paper involves 18 hours of class time spread over six weeks and typically requires an additional 60 hours of personal study time.

Parables as an assessment form were used as part of the HRM course at the MBA and followed the work done by Pio and Haigh (2007) on the use of parables as an assessment form. They write that parables are characterized by layers of meanings are similar to short stories about human beings and their behaviour but with an ethnical dimension and a searching interpretive process. HRM is a mandatory/core papers for MBA and the paper gives an overview of theory and practice at strategic and operational level. Topics include recruitment and selection, retention, managing performance, developing human wealth, contemporary issues with HRM.

The next section describes the research approach utilized for this study.

## **Research Approach**

The research approach is qualitative and the core building block is that reality is socially constructed and hence requires various forms of inquiry that could involve a micro or macro analysis to explore the lived-in and lived-through employment experiences of ethnic minority migrant women. Furthermore, “it is the array of epistemological, theoretical, and methodological choices made by qualitative researchers that sets qualitative research apart as a particular and fruitful way of understanding social phenomena” (Hesse-Biber and Leavy, 2004, p.1). Hence in an attempt to engage students in a thought provoking assignment in the area of HRM and diversity, the author-researcher who is a scholar of colour and sees herself as a passionate engaged and committed agent for change, formulated an assessment which required students to construct parables based on their academic database research and their own experiences. The assignment was a group assignment and students formed their own groups. The task instructions were the following:

Your group will develop a booklet of inspirational parables on ethnic minority women in the NZ workplace. The booklet (approximately 2500 words) will contain the following:

- Two parables constructed by your group based on your research
- The reason for your choice of parables in the context of an HR Manager who seeks to understand diversity management in NZ. This must include at least 10 references which are sourced from scholarly peer reviewed articles and academic / research oriented publications.
- You are welcome to display your creativity in the size, layout and formatting of your booklet.
- Due date: The booklet is to be submitted in Week 4 in the first 10 minutes of your HRM class.
- Each group will make a presentation of ten minutes during which they will narrate their two parables to the class. Your creativity will be welcomed in this presentation.

- Group presentations will be scheduled in Week 4, during the break midway between the 3 hour HRM classes. However depending on the number of groups, it may be necessary to have some presentations in Week 5, again scheduled during the break.
- It is important that all group members participate in the presentation.
- The booklet will have a weighting of 25% and the group presentations 5%, hence a total of 30%
- All students in a particular group will receive the same mark

The Marking guide in Table 1 gave students an indication of how their assignment would be assessed.

TABLE 1: MARKING SCHEDULE

MARKING SCHEDULE		Marks Awarded	MAX MARKS
1	Content of the parables <ul style="list-style-type: none"> <li>• Relevance to New Zealand</li> <li>• Focus on diversity</li> <li>• Inspirational</li> </ul>		15
2	References <ul style="list-style-type: none"> <li>• Relevant</li> <li>• Academic / scholarly</li> <li>• Current</li> <li>• APA format</li> </ul>		5
3	Format and presentation of booklet <ul style="list-style-type: none"> <li>• Creative</li> <li>• Spelling and grammar</li> <li>• Cohesion and logical flow</li> </ul>		5
4	General organisation of the presentation <ul style="list-style-type: none"> <li>• Time management (10 minutes)</li> <li>• Clarity of speech</li> <li>• Minimal use of notes</li> <li>• Creativity</li> <li>• Interest and enthusiasm</li> <li>• Use of presentation media</li> </ul>		5
	TOTAL		30

The participants in this study consisted of 30 students from seven countries who were registered at the MBA paper in HRM in a university in NZ. Please see Table 2 for participant profile.

TABLE 2: STUDENT PROFILE

Numbers n=30	Gender		Country of Origin
	Males	Females	
5	3	2	China
14	8	6	India
2	2	0	Malaysia
5	2	3	New Zealand
2	2	0	Pakistan
1	0	1	Taiwan
1	0	1	Thailand

Sixteen parables pertaining to women from nine countries were constructed by eight groups of students. The group size varied from two to five students. The data were analyzed by searching for themes (Denzin, 2004) pertaining to employment in each parable. The coding categories used in this instance related to recruitment, selection, diversity management and career progression. Next a comparison between the sixteen parables was made in order to surface emergent themes and the lessons learned from each parable. The analysis, interpretation and writing of the data from this study involved an “immersion in the text until themes, concepts, or dimensions of concepts emerged from the data” (Hesse-Biber and Leavy, 2004, p. 411). Such data analysis facilitated careful interpretation and served as a passageway for the message that each of the parables sought to articulate in the voices of the ethnic minority migrant women. Thus parable pedagogy (Pio and Haigh, 2007) functioned as a methodology to explore the employment experiences of minority individuals through the eyes of a group of international students many of whom were ethnic minority individuals themselves.

## Research Findings

The parables constructed by the groups of students revealed the various intricacies that are a part and parcel of the employment experiences of ethnic minority women in NZ. It is pertinent to mention here that while all the students had to ensure that they went through academic databases based on which they created their parables, a number of students shared their own personal experiences, or those of their family members and close friends. The research findings are presented with relevant extracts from the parables in order to illustrate the research findings. Appendix 1 consists of two parables selected as exemplars. Table 3 displays the parable data.

TABLE 3: PARABLE DATA

<b>Student Ethnicity/Country of Origin</b>	<b>Parable Title</b>	<b>Country of origin/ethnicity of woman in Parable</b>	<b>Take away Lesson</b>
3 Chinese 1 NZ (European)	Dragon and the Phoenix	Chinese	Break stereotypes.
	The journey of 1000 miles	Chinese	Overcame fears and reach out/step out.
2 Indian	Keeping the hopes high	India	Keep hoping.
	The un-responsive ladder to success	India	Change perception and focus on this within one's span of control.
5 Indian	The Parable of Sheela Sharma	India	Uphold EEO. Equality is a right, but is it a fact?
	The Parable of Sandra Nasa	Jordan	The first impression is the last impression.
1 Chinese 1 NZ (from the Pacific Islands)	Lillian's Story	Samoan	Work hard, be professional and ethical
	Susan's Story	Chinese (born NZ)	Work hard, be professional and ethical.
2 Indian 1 Chinese 1 NZ (Maori)	Mirage	India (Muslim)	Proactive hard work. Manager's support for cultural beliefs.
	Searching for solutions	Ethiopia (Christian)	Migrants can misjudge the host country's perception of them.
2 Pakistani 1 Indian	Tania	Morocco (Muslim)	Re-qualify, keep your self respect.
	Sushma	Indian	Post-immigration training and linkages between various departments in NZ such as immigration, department of labour, business and industry.
4 Indian 1 Malaysian	Nikki	Indian	Agonising to find contracts breached despite good faith and fairness.
	The preferred candidate	Indian (Muslim)	Anglo-Saxon name helps to get an interview for Muslim woman of traditional garb. Importance of the HR Manager.
1 Malaysian 1 NZ (European) 1 Taiwan 1 Thailand	Providing the courage	Indian	Importance of the HR Manager. Enlist help and development relationships among co-workers.
	Sticks and Stones	Venezuela	Learn the language and reach your goals.

Interestingly and tellingly 80% of the parables constructed noted that the women did not walk directly into a job suitable to their skills and qualifications. Rather these parables have examples of challenges that the women encountered. As 'The parable of Sheela Sharma' succinctly notes: "When you belong to a minority, you have to be better in order to have the right to be equal". For example: Victoria from Venezuela is married to a New Zealander whom she met when he was on business in her country. She found it difficult to get a job and "although she has not been directly subjected to racism or sexism, she has been told that her qualifications is not up to standard – even though it is recognized by the NZ Qualifications Authority, and that her English ability is not good enough...Victoria found this situation made her feel as though she was in some way unworthy and that she is being viewed as an ethnic woman who is a housewife and who therefore could not possibly cope in a fast paced commercial environment". Victoria enrolls in an English language course and "knows that her task will not be easy but she is determined that it will not be long before she has that dream job".

Another parable is about a doctor who could not get work for after listening to her accent they said the position was filled or that she was overqualified. But finally she managed to get employment as a security officer in a hospital. One day she tried to stop a Maori woman from entering the ward after visiting hours and was told by the Maori woman "you are the visitor, I am not and I belong to this soil and this is our country". This made her ponder about her sense of deprivation and her self respect and she re-qualified and is now employed as a doctor in the same hospital where she initially was a security officer. These parable extracts point to the challenges faced by ethnic minority women in employment, similar to the issues of discrimination in recruitment and selection raised by previous studies (Corsun and Costen, 2001; Dale et al., 2002; Kamenou and Fearfull, 2006; Pio, 2006)

In the area of recruitment some of the parables noted that "sometimes the dress code gives mental agony" and this would frequently be the case when the women chose to wear ethnic clothing. The parable of 'The preferred candidate' illustrates how the best candidate based on a telephonic interview and CV was called for a face-to-face interview, and the organization was rather surprised that she was an ethnic minority woman. A number of the women struggled because of language skills. Others had the requisite language skills and qualifications, but "despite being praised and appreciated during the interview she would not hear from them." For a number of women in the parables not being able to get work after repeatedly trying lead to conflict at home and a deterioration of personal relationships with the family as they were under stress and on edge.

In many instances both recruitment and selection were interwoven in the employment experiences as for example: Sushma who had a job but was disturbed as her earnings did not match her qualifications and despite applying to many places could not get work that appropriately recognized her skills and qualifications, though in many instances she was offered volunteer work with no paid wages. Many employers were not willing to take risks and give minorities a chance, despite legislation to prevent discrimination (Barnum et al., 1995; Bagilhole and Stephens, 1999; Ng and Burke, 2005).

With regard to diversity management, the parable on 'Providing the Courage' is about an Indian girl Yasmin who felt "felt uncomfortable and unworthy through racial remarks and sexist jokes", demonstrates the situation faced by ethnic minority women and their HRM managers. Yasmin was wrongly accused of stealing and though found innocent became fearful about going to work. However through the good offices of the HRM manager who organized a mediation session, "new workplace ground rules have been established stating the company's policy against racial discrimination, sexual and verbal abuse". Another example is that of Fatima a Muslim woman from India whose manager Steve "was compassionate and understanding" and who complimented her for "her excellent team work attitude and love for work". This extract underscores the significance of access to influential others and the need for supportive behaviour from superiors (Cox, 1993; Giscombe and Mattis, 2002; Cocchiara et al., 2006; Fearfull and Kamenou, 2006).

In 'Searching for Solutions' the parable shows how Mariam a Christian Ethiopian Refugee woman had misjudged her superior who was actually quite understanding about different religious and cultural customs and how Mariam was relieved by her superior's compassionate approach. A number of the parables which portrayed Muslim woman described the problems encountered by these woman from their colleagues particularly due to the effect of the 9/11 bombings in New York. However, some of the women were delighted in their more or less equal treatment

as women in New Zealand which was unlike their experiences in their country of origin, though their ethnicity continued to be a challenge. Some women choose to “replace the *burkha*<sup>5</sup> with exclusive business suits” and cover their hair with a scarf, while still retaining their values and roots. In some parables the colleagues of the ethnic minority woman support her and this usually leads to a rethinking by management of their treatment of the ethnic minority woman. Other women stayed in the job despite problems with co-workers because they wanted their families to be proud of them as in the parable ‘Lilian’s Story’ and ‘Susan’s Story’. Here it is probable that the women sought to derive strength from their families as well as their own sense of self (Alfred, 2001).

In the area of career progression it is the sheer grit and determination of the women who manage to get over their tears, depression and lowered self-esteem which makes them gradually advance in their careers. Many women went back to study, and pursued language classes, university or professional qualifications and this helped them to progress in their careers. In some of the parables the persistent belief of the ethnic minority woman that she cannot let herself be beaten down ensures that she slowly but surely climbs up some of the rungs of the career ladder. Some of the women after their employment experiences chose to give up work and started their own business. In ‘The unresponsive ladder to success’ the parable graphically illustrates how the woman stood out because of her skin colour and accent and despite being proud of her achievements and well qualified, she had “the stress of being ostracised and ignored on a personal and professional level” and her hard work and accomplishments were not recognized, and though “she got some of the things she aspired for, but they came with a terrible price”. She gradually decides to closely examine herself and learnt to make some changes for “she couldn’t change the world and what happened in it, but she could change how it affected her or how she perceived it. This did not make the problems go away, but gave her a way to cope and change situations to her benefit...and so began the climb up the next rung of the ladder”. This extract elucidates the ambivalent feelings, the exclusion from networks and the ongoing subtle discrimination (Hurley and Giannantonio, 1999; Dipboye and Colella, 2005; Konrad et al., 2006), which makes ethnic minority women go through much reflection and as in this parable change in perceptions and abilities to cope over a period of time (Dunstan et al., 2004; Pio, 2005, 2007).

In more than 90% of the parables, it was the HRM Manager or a superior who was crucial in facilitating the acceptance and career progression of the ethnic minority woman. Where neither the HRM Manager nor superior were helpful, it was the co-workers who made a difference by supporting the ethnic minority woman. However, where none of these three constituencies choose to support the ethnic minority woman, she felt quite alone and despite her hard work, skills and qualifications found work in NZ extremely challenging and a consequence of these challenges, in a number of instances, led to conflicts within their home.

## Conclusion

In seeking to engage students with aspects of diversity management in an HRM paper in NZ University, parables as an assessment form were used to uncover and surface issues pertaining to employment in the lived-in and lived-through experiences of ethnic minority women in NZ. Student groups shared their own life experiences and accessed academic databases in order to research the literature on ethnic minority women and employment to facilitate the construction of their parables. From the parable perspective on ethnic minority women the conclusions might read as follows:

1. Acceptance of skills, qualifications and experiences, irrespective of visible diversity discriminators – this will facilitate recruitment and selection procedures and policies.
2. Inclusion in workplace activities and appreciation of hard work and contribution where relevant with programs on diversity management for adaptation and change among both ethnic minority women and host country members.
3. Provision for feedback, mentors, networking and support for career progression – acknowledging that ethnic minority women want career opportunities and learning.
4. The HRM Manager is a crucial resource and plays a vital role in the employment experiences of ethnic minority women.



Parable construction was a novel way of approaching the issue of diversity in an HRM paper. The pedagogical implications for educators would be to seek to approach relevant but sensitive issues through the many layers inherent in parable construction. Parable pedagogy also tend to give students the choice to explore various levels of depth in the issues involved (Pio and Haigh, 2007).

Another implication pertains to the area of HRM whereby relevant parables can be used for training programs in order to sensitize HRM personnel to issues faced by ethnic minority women and solutions for the same. These implications encompass recruitment and selection, diversity and career management. Such parables may also serve to make participants in a training program aware of their own mindsets and possible prejudices when encountering ethnic minority women. The other side of the coin would be to facilitate ethnic minority women to explore their perceptions of the majority ethnic group within their own organization.

Research implications involve the comparison of parables constructed by HRM personnel and those constructed by ethnic minority women in organizations and the possibility of making procedural changes in organizations based on some of the learning emerging from such parables. Individuals from the majority host culture could also share their own encounters with ethnic minority women and the advantages and disadvantages of employing such women. Further research can explore the extent to which the organizational environment sustains the advantages of employing ethnic minority women and for the disadvantages, it is possible to explore what creates such disadvantages and how they can be remedied.

Limitations of this research include the fact that the parables were constructed by students and hence some of situations and conclusions in them are likely to be fictional despite the fact that students were requested to construct the parables based on their academic research. A further limitation could be that the instructor was an ethnic minority woman herself and it is possible that parables constructed when the instructor was from a majority group may provide a different picture.

A recent study by DOL (2006b) on employer perspectives on skilled migrants brought into NZ through the Skilled Migrant category and the long term skill shortage list and talent work to residence policies indicates that these migrants positively benefit employees. These migrants according to their employers contribute to the organizational knowledge; possess skills that NZ residents did not have, raised their organization's level of expertise, contributed to organizational growth and innovative practices. 26% of the migrants under study came from Asia and 9% from the Pacific countries. Such reports hold promise and need wide publicity to urgently change the implementation of HR policies and practices for ethnic minority women. Furthermore over one-third of NZ's foreign trade is with Asia, Asian visitors generate one-third of all tourism revenues and Asian students account for 80% of the international education sector in NZ, and significantly, one in fifteen New Zealanders is of Asian descent (Asia NZ, 2004). In a very real sense, considering NZ's population and skills shortages it would be foolhardy not to appropriately utilize the skills, experiences and qualifications of ethnic minority migrants and there is a compelling need to ask: Can NZ afford to dilute its cache of migrants? There is no easy answer. Yet innovative educators, employers and HRM Managers can be the front runners in implementing changes to enhance the employment experiences of ethnic minority women and thus ensuring that the cache of migrants remains undiluted.

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*Note:* Contact authors for the full list of references.

## **Appendix**

### **Parable Examples**

#### **Parable One: Parable of Sandra Nasa**

(by M. Chugh, B. Gujarathi, H. Patel, A. Prabhu and R. Rodrigues)

Shaherira Nassaier was disillusioned. It had been three weeks since she came to New Zealand from Jordan in early September, 2001. She had migrated to New Zealand after a lot of thought and soul searching. This 23-year-old girl was trapped in the regimented, conservative and male dominated society of her native Amman. She had read at the university library that New Zealand was a land of opportunity. God Zone or God's Own, depending on which books you read. Women were the majority of the population, women were great politicians, women were treated equally, women got the vote for the first time there, and women could do basically anything they liked in this land. It sounded good and it was mostly all true, except for the same old "Sorry ... how do you say your name my dear?" She got to wear short pants in public, play sports, and most exciting of all, talk to men freely. It was good. Equality of the sexes, equal opportunity and access to the power of the law of the land. Allured, she probed further.

Shaherira had a bachelor's degree with honours from Amman University. She had two years of work experience in her field. She spent a lot of time searching for jobs in Auckland. To her delight, there were a lot of advertisements in the *New Zealand Herald*, for job vacancies in her field. She met with the criteria required to obtain most of the jobs advertised. Finding a job would not be a problem she felt, with her adventurous spirit and

determination. It was after all these same qualities that had led and enabled her to migrate to New Zealand. With a clear focus, she sent out her curriculum vitae to a lot of companies. She waited anxiously. And then she waited some more. To her dismay, all she got back was letters of rejection. Undeterred, she still pursued her goal. At last, came an interview call. She was ecstatic. She chose an exclusive “Burkha” and prepared for the interview.

Unfortunately for Shaheera, the World Trade Centre and the Pentagon terrorist attacks had just taken place in the United States of America. In the aftermath of these horrific attacks, the world’s perception of the Middle East had changed dramatically. There was a lot of anger directed at all persons originating from that part of the world.

The interview lasted all of five minutes. She was rejected, again, Why was she being rejected? She introspected. She replayed her interaction with the prospective employers. What emerged was the familiar, “Sorry... how do you say your name my dear?” Did her name, accent, nationality or attire influence her prospects for a job?

The more she dwelt on it, the more convinced she was that she stuck out as a sore thumb in New Zealand. When in Rome, do as Romans do. She decided to assimilate into the place she now considered home. She legally changed her name to Sandra Nasa, replaced her “burkha” with exclusive business suits, covered her hair in a blue scarf and started working on her accent. Her accent changed and her views on life slowly leant towards the Kiwi mindset. Despite her new look, she retained her values, her roots. “You can take a girl out of Jordan, but you can’t take Jordan out of the girl!”

With grit and determination, she began her job search again. A minor change in the name section of her CV and a different accent got her interviews with 5 companies within a week. Not surprisingly, she managed to get herself a job in her field of work. Co-incidence or not, she did not ponder much more. She had arrived.

A migrant woman, in spite of coming from such a conservative background and who was forced to deal with overwhelming change, and derision, made of someone else’s fault, was able to adapt and integrate into a culture so different from her own while at the same time maintaining the basic vestiges of her culture.

“The first impression is the last impression.”

#### **Parable Two: The Dragon and the Phoenix**

(by C. Crisan, X. Guo, A. Wong and Y. Xing)

John Price sighed when he reviewed the latest applicant’s details. Not only was the applicant a female, she was Chinese. John, as the Project Manager of one of New Zealand’s power line companies, knew that the high-tension cable business is still very much a man’s world. But Melanie An Ziao Lian’s qualifications were impeccable, having graduated with high marks from a local university in the electrical field. Company protocol states that he at least interviews her based on that alone. However, he has very serious doubts about her ability to fit into the company’s culture, particularly amongst the more rough and tumble linesmen.

His first impression of Melanie An only deepened his doubts. To say that the young Chinese woman was petite is an understatement. She could not be more than 5 feet tall, and probably weighed only ninety pounds soaking wet. John simply could not envision her climbing a pylon with the full gear needed to repair and maintain the power-lines. When she spoke however, John Price was handed his first surprise of the day. Melanie An spoke flawless English, with only a hint of an accent from her native China. As the interview continued, John Price asked her point blank about her views on her ability to do the job and to fit into the culture of the company. He explained his reservations about her capacity to do either. Melanie was silent for a while and then said, “There is an ancient Chinese story of a master swordsman named Hsien Tjen who fell in love with the daughter of a Japanese envoy to the Chinese Emperor’s court. They were married and for a while, their lives were happy. Then, as was usual in those days, conflict loomed, a rebellion against the Emperor. Tsien Tjen, being the Emperor’s champion, was sent to put down that rebellion.”

“As he was getting ready to go to war, his wife, Tomiko, requested that she accompany him. In ancient China, this was not a done thing, and so he refused. They quarrelled, but he prevailed. He left her with ill-feelings between them. It was something that he felt could be patched up later, when things were more peaceful.”

“But things did not go as planned. The rebellion was larger than they had realised and the small force the Emperor assigned to him was not enough. What was supposed to be a quick victory turned into a long retreat for the Emperor’s forces? On this retreat, Tsien Tjen was cut off from his troops and had to take refuge in an abandoned farmhouse. There, despite all his skill, he was eventually by a group of rebels.”

“As one of the rebels raised his spear for the deathblow, he stiffened and fell to one side. The man was obviously dead. Another and then a third dropped, and the superstitious rebels fled, crying out about foul magic and evil spirits. Tsien Tjen examined the first rebel and found a needle in the man’s neck. When he looked up again, a familiar figure was standing quietly by his side.”

“In your society, women do not fight,” Tomiko said quietly. “But in my society women are as deadly as men.”

John Price sat in his office after Melanie had departed. The young woman had given him a lot to think about.

### **End Notes**

- <sup>1</sup>. Pacific women or those from the islands around NZ such as Samoa and Tonga.
- <sup>2</sup>. Maori women or the indigenous peoples.
- <sup>3</sup>. European women or those NZers of European descent also referred to as Pakeha and NZ European.
- <sup>4</sup>. Kiwi is a term that is synonymous with New Zealand
- <sup>5</sup>. Burkha or the traditional head scarf and long gown worn by some Islamic/Muslim women

# Postcolonial Careers: Ethnic Minority Women in New Zealand

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## Abstract

Diverse demographic components internationally have resulted in an emerging awareness and urgency in the management of ethnic minorities. In New Zealand, Indians, an ethnic minority, constitute 1.7% of the population. Based on qualitative research methodology and a post-colonial framework, this research study explores the careers of Indian women in New Zealand through in-depth interviews with fifty participants. Noble prize winner Amartya Sen writes about the British colonial rulers and three categories through which they viewed people: the magisterial or the exercise of imperial power on the colonized subject, exoticist or the exotic aspects of the colony and the curatorial approach which focused on the diversity in the territory and sought to be free from preconceived notions of the subjects. This study seeks to promote dialogue and expand the literature on careers by focusing on ethnic minority women in a postcolonial context who have had to deal with soft-wares of colonialism.

## Introduction

Population mobility has increased tremendously over the last few decades with individuals moving country in search of a better life including job prospects as well as fleeing from famine and wars. With its sizeable population of over two billion, Asia is a storehouse of potential migrants. Asians in New Zealand (NZ) arrived in the late eighteenth century and worked in the gold fields in NZ's south island, and in NZ's north island in work such as scrub cutting, drain digging, hawkers of fruits and vegetables and as servants of the wealthy. Indians in NZ account for 1.7% of the population and both Indian and NZ have had a colonial legacy from the British. While the colonists have departed both geographically and politically, their legacy has an amazing tenacity and is evident in structures and behaviours reminiscent of the mother country Britain. While there is voluminous work in the area of post colonial (PC) studies which is interdisciplinary in nature, it is only more recently that research with a PC slant is evident in management, organizations and the world of work. For example Prasad (2005, 2006) writes about the jewel in the crown and the linkage of diversity practices and the perseverance of a system of hierarchical binaries and closely linked to issues of power. Frenkl and Shenhav (2003) draw upon postcolonial studies and the close ties between Americanization and colonialism and the similar logic that both processes follow in the case of Israel and stress the need for management studies to examine postcolonial thought.

In the current context of Indians in NZ, there is both a political and ethical engagement involved in writing about the work experiences of ethnic minority women and viewing their experiences as embedded within the societies within which they have migrated, or the host country. This is in keeping with the call of various scholars for example Mir and Mir (2002) write about the need for both a political and intellectual purpose in the work of scholars and Turner (2002) argues for the need to bring the worlds of ethnic minority women into the foreground of scholarship. It is pertinent to note here that the researcher in the context of the current work is an ethnic minority migrant woman, who to paraphrase Spivak (1988) seeks to write so that scholars and practitioners will listen and act. Careers are embedded within the societies in which they seek operationalization and manifestation and this study highlights the tenacity of PC and its expression in employment and organizational life. To this end the theoretical prisms of both post colonial theory and the work experiences of ethnic minorities are utilized to provide a review of literature. This is followed by a description of NZ's colonial context and Indians in NZ. Next the methodology of this study is explained. The final section presents the findings and discussion and ends with concluding comments. This study adds an important thread to the literature on careers by contextualizing the experiences of ethnic minority migrant women in New Zealand through a PC framework.

## **Theoretical Prism**

The theoretical review supporting this study encapsulate two interlocking areas: firstly post colonialism (PC) and secondly the careers of ethnic minority women. The first prism within which this study is embedded is that PC and the tenacity of its manifestation in employment and organizational life. To this end, six themes follow which have relevance to PC careers.

### **Organizations and Societies are Intertwined with their Histories**

Prasad (2003) and Prasad (2005, 2006) write about the relevance of alternative historical explanations to management and organization through studying business practices which may have their roots in colonial structures. In this context, Said (1978) notes that history needs to be understood in terms of the forces and configurations of power that precede it. Moreover, it may only be through an informed critique of imperialism that the subaltern can be heard (Spivak, 1988, 1991). Hence, it is crucial to understand the history of societies in order to contextualize the behaviours of organizations and hence the responses to ethnic minority women and their careers in a post colonial society such as New Zealand.

### **Strands of Domination and Resistance along with other Behavioural Manifestations may be perceived in Organizational Life through Recognition of the Colonial Imprint**

Ahluwalia (2001) suggests that other narratives need to be recovered besides that of the colonial masters. It is in this vein that strands of domination and resistance can be viewed in organizations through the realisation of the stamp of the historical colonizer. Prasad (2005, p. 280) writes that "...the PC tradition compels recognition of global (frequently imperialist) dynamics into management and organization studies, thus contextualizing contemporary workplaces within wider political situations...restores a stronger sense of historical cultural awareness to our understanding of contemporary organizations and is useful in identifying patterns of hierarchical reproduction that are grounded in colonial dynamics".

### **Colonialism has had Varied Encounters in different Geographical Regions hence it is not a Monolithic Process despite Commonalities in a Eurocentric View**

While colonialism was rampant between the 16<sup>th</sup> and 20<sup>th</sup> century, it was expressed differently based on the particular royal charters and rules as well as their influence in various terrains and on peoples with varying histories. Young (2001) proposes that different geographical regions have had varied encounters with the colonial rulers and this has accordingly influenced countries differently in terms of their systems as well as their images of the other. Hence Prasad (2005) writes that "One of the many problems of Eurocentrism lies in its blindness about the flaws and limitations of Western culture, while simultaneously being unable to recognize the strengths and contributions of non-Western cultures". Yet the imperial masters were unable to see the natives or the other as cultural equals with themselves. Thus while colonies were inferior their specific inferiority varied (Ahmed, 1992) as did the exclusionary practices of white settlers (Ahluwalia, 2001; Mishra and Hodge, 1994). Thus Desai and Nair (2005) note the importance of the historical parameters of colonialism and its multiple legacies and common genealogies. This superiority of the colonial masters needs to be situated not as an unreflective consciousness towards the West, but rather as a studied and situated contextual exploration and understanding of the legacy and reflections of colonialism in post colonial times.

### **Patterns of Thinking and Imagining have been institutionalized in representing the other or the Colonial Native**

Said (1978, 1994) discusses how the views on the orient are a result of institutions – administrative, cultural and scholarly - which have operated through colonialism and the resultant stereotypes in imagining and representing the orient. To put it slightly differently, someone else defines how a certain people should be viewed and that is held up as a mirror image of these people are supposed to be. This ideological hegemony was based on an imperial agenda (Beverley, 1999) and such patterns were and continue to be pervasive in this century's thinking and conversations (Chakrabarty, 2000). Sen (2005, 2006) writes of three distinct categories through which Western approaches sought to understand India. He calls the first of these the magisterial or the exercise of imperial power on the colonized subject, the second is the exoticist or the exotic aspects of the colony and finally the third is the curatorial approach which focused on the diversity in the territory and sought to be free from preconceived notions of the subjects. Sen maintains (2005) that these ideas and images of India "have quite distinct roles in the Western understanding of the country and also in influencing the self-perceptions of Indians" (p. 141).

### **Colonialism is more than Political and Geographical Domination but also Involves Psychological and Cultural Effects**

Based on the notion that patterns of thinking and imagining have been institutionalized, it flows on that colonialism also involves effects which are psychological and cultural. Hence Prasad (2005) writes about the “continued presence of Western imperialism in global institutions and relationships today” (p. 262). Thus PC has an amazing psychological tenacity even years after its political and geographical demise (Gandhi, 1998) and sometimes results in a nexus which creates and yet obliterates the oriental (Said, 1978). Thus the baggage of imperialism still resonates along with power dynamics (Desai and Nair, 2005). The reformulation of the landscape of languages, cultures and imaginations through European imperialism often involved subjugation of the other (Smith, 1999). This is clearly illustrated in the large numbers of English speaking Indians who are the inheritors of Maculay’s minute on Indian Education in 1835, which encouraged the education of the native to serve as interpreters between the rulers and the ruled, with English made the official language in India (Maculay, 1972). In this instance, and today’s e business, this has almost two centuries later resulted in Indian as a powerhouse for back office services and software.

### **Hybridity implies Fusion, Deculturation, Mimicry and Assimilation of the Dominant Culture with the Other**

Migration of various kinds whether through refugee or immigrant status, through colonial domination or through expatriation and multinational organizations tends to create hybridity and often reaffirms cultural differences. Such hybridity helps to disrupt the imperial dictates (Appadurai, 1996; Bhabha, 1984, 1990). As Bhabha (1984) succinctly observes that one can be almost the same but not quite and almost the same but not white. Yet differences are more than binaries (Hall, 1999) and identity formation is complex and hybridity foregrounds these complexities (Ahluwalia, 2001). This hybridity involved identity transformation between the conquerors and conquered. In a number of cases there was and exists a sense of agency united by the colonial yoke as both parties sought to survive and thrive in changed environments. In other words the “cultural and psychic factors of identity formation can never fully be separated from the material and historical realities” (Desai and Nair, 2005, p. 252).

The theoretical prism for the second area spans the careers of ethnic minority women. In the literature on career theory, early research focused almost exclusively on white males, followed by scholarship on women where one finds emphasis not only on white women but gradually also on minority women. In this context see for example the work of Super (1957), Erikson (1968), Arthur and Rousseau (1996), Levinson and Levinson (1996), Arthur, Inkson and Pringle (1999), Marvin (2001) and Pringle and Dixon (2003).

In focusing exclusively on the careers of ethnic minorities and more specifically the work experiences of ethnic minority women, six themes are of importance in the context of this study.

### **Ethnic Saliency over Gender**

Being categorized as an ethnic minority can hinder an individual’s career in personnel (Ross, 2004), though ethnicity can also function as a resource, particularly if the organization wishes to employ and develop ethnic minority individuals. However in her study on personnel departments in British organizations, Ross (2004) also found that other criteria such as past experience, gender, age, qualifications, and “being known to the person with power over personnel careers” (p. 477), impacted the career of ethnic minority individuals. In a UK based study (Dale, Fieldhouse, Shaheen and Kalra, 2002), findings suggest that “Pakistani and Bangladeshi women with UK qualifications on a par with white women are experiencing much greater difficulty in finding jobs” and “respondents raised many instances where they felt that they had been treated differently because of their race or ethnic identity” (p. 22). Being a minority and a female for women academics hampers career success due to the interlocking effects of race and gender bias and the domination of Western European notions (Turner, 2002). Yet in some cases access discrimination may work in favour of the individual being recruited though this appears to be limited and does not extend into later career moves (Ross, 2004).

### **Experiencing Stereotypes, Prejudice and Discrimination**

Discrimination occurs at the point of entry into a job in the recruitment process and then further into selection or access discrimination, as well as treatment discrimination which takes place after one has entered the organization (Greenhaus, Parsuraman and Wormley, 1990; Min and Kim, 2000). In fact overt, covert and subtle forms of discrimination are often the experience of ethnic minority individuals (Ross, 2004). Lack of credibility based on stereotypes of ethnic minorities which create career barriers as well as exclusion from challenging tasks and retaining group exclusivity are further challenges which confront ethnic minorities (Greenhaus et al., 1990; Ross, 2004). Flores and Heppner (2002) in the context of career counsellors write of the importance of being “aware of the

host of barriers that exist for racial and ethnic minority clients who are seeking to find a place in the world of work. Many of these barriers are external or environmental and include racial harassment and racial discrimination...which might then lead to a lowered sense of self-efficacy, or their confidence in their ability to perform the tasks necessary to attain a satisfying career” (p. 197-198).

Brief, Butz and Deitch (2005, p.133) note that “negative stereotypes of Blacks and prejudice toward them principally were seen as arising from the environments in which organizations are embedded rather than from the organizations themselves.” These authors write that while racism has declined racial prejudice in a mutated form as a residue from early histories and learning continues to be displayed in covert forms that are subtle and rationalized and may affect personnel decisions. Hence workplace discrimination continues particularly since “organizations are reflections of the environments in which they are embedded” (p. 119). Dipboye and Colella (2005) argue that today’s workplace discrimination is more subtle and complex than that of past years, for in its proximal form it occurs in recruitment, selections, performance management, compensation and day-to-day interactions and in its distal form it occurs through the systems, policies, practices and structures which may perpetuate discrimination. They further add that “the victim can become an unwitting contributor to his or her own plight” (p. 426). Due to our human nature these authors reason that all humans discriminate, since the “dynamics associated with discrimination are deeply ingrained in how people construe their social world, how they view themselves as individuals, and how they deal with one another... (yet) the basis for discrimination is historically bound...with the passing of time and laws...discrimination...will decline” (p. 456).

In a study on the interactive effects of age, gender and race in the USA (Hurley and Giannantonio, 1999), women and minorities experienced lower career attainment than white males, but age was not related to career attainment, and older Asian-Americans achieved greater career attainment, perhaps because they had proved themselves in the company and were thus rewarded. In a study on women of colour which included the unique experiences of African-American, Hispanic and Asian-American women, it was found that such women experience ‘double marginalization’ for they have to negotiate both negative stereotypes regarding their gender as well as their ethnic group (Giscombe and Mattis, 2002). Women of colour tend to be both underemployed and overused, hence while there is little opportunity for valued work, there is much demand for work that is not rewarded despite the fact that service may be assigned to meet institutional needs, resulting in emotional drain (Turner, 2002).

As Fearfull and Kamenou (2006) note in the context of the UK and the career experiences of ethnic minority women, that “despite three decades during which legislation has been in place to outlaw unfair discrimination, and when organisations have policies purporting to support and serve that legislative framework, ethnic minority women continue to struggle for corporate acceptance and progression” (p. 883). Selvarajah (2004) writes about the frustrations of overseas-trained immigrant medical professionals who were subject to structural discriminator practices in New Zealand.

#### **Identity Challenges**

Scholars in the area of identity have varying points of view including the concept of multiple identities which facilitate the adoption of appropriate identities for a given circumstance (Banton, 2000; Kamenou and Fearfull, 2006; Min and Kim, 2000; Pilkington, 2003; Pio, 2005a). Alfred (2001) writes of the problems that black women experience in white institutions since “their values and ethnic group cultural orientations are not recognized as significant and they are forced to deny their own culture and adopt the majority culture” (p. 110). She notes that such experiences often result in living with two world views, a double consciousness and a bicultural life. Creating positive images of self and rejecting stereotypical images, through “implicit and explicit messages about Black self-worth” increase the chances of ethnic minority women’s career success, as well as “finding a safe space where they could reaffirm themselves as Black women” (Alfred, 2001, p. 117). Alfred’s study shows that “the bicultural life structure is the nucleus from which people of colour evoke the power to contest the terrain of differences that contribute to their marginal positions in White-dominated organizations. Because of the fluidity of life structure...people of colour develop the ability to navigate environments of cultural dominance and build successful careers” (p. 123).

#### **Migrant Expectations**

In ‘living with multiple marginality’ Turner, a scholar of colour (2002) writes that she “was so easily ‘defined out’ rather than ‘defined in’” (p. 74), and she writes how faculty women of colour have their energy drained in



confronting situations controlled by discourses which do not address their lived realities and the ambiguous empowerment that such women experience. Carr (2004) writes that skilled migrants suffer from broken promises as their potential may not be fully realized as “they are not always accepted as bona fide candidates for the jobs that suit their talents, and for the jobs that were promised in the first place” (p. 156). Pio (2005b, 2007) in her interpretation of diversity in NZ maintains that ethnic minority migrant women find it very difficult to enter into the workforce particularly if they do not have Kiwi<sup>1</sup> experience and a Kiwi accent.

#### **Access to Mentors/Role Models and Developing/Utilizing Networking**

Giscombe and Mattis (2002) note that the retention of ethnic minority women was positively correlated with supportive behaviour of supervisors, but that such women are at a disadvantage in accessing influential others and having mentors, and are “less optimistic than white women about advancement opportunities” (p. 117). Homosocial reproduction or the subconscious comfort of having similar others in one’s surroundings tend to limit the networks and power of minorities and women (Corsun and Costen, 2001).

## **New Zealand’s Colonial Context**

New Zealand was the last habitable land mass in the world to be discovered around the 13<sup>th</sup> century by the Maori (Wilson, 2007a). Its rediscovery by the Dutch captain Abel Tasman in 1642 and by the British captain James Cook in 1769, led to it being an economic and cultural outpost of Australia’s New South Wales and whalers and sealers settled in this country (Wilson, 2007a). Samuel Marsden, a Sydney chaplain founded the first Christian mission station in New Zealand. Due to increasing lawlessness, as well as the possible ascendance of the French in this country, the British government decided to send James Busby as the British Resident in 1833 and in 1840 William Hobson the country’s first Governor, invited the Maori chiefs to sign the Treaty of Waitangi resulting in British sovereignty.

British settlers had been sent to NZ before the signing of the Treaty through the New Zealand Company promoted by Edward Wakefield. The New Zealand Constitution Act was passed by the British Parliament in 1852 but the colonial office in London through the Governor kept control of policy. In the 1870s the colonial treasurer Julius Vogel’s program of assisted immigration increased the number of white settlers in NZ. Most immigrants came primarily from Europe with the majority from England, Scotland or Ireland though there was a smattering of people from Scandinavia, Italy, India and China in the 19<sup>th</sup> century (Wilson, 2007b). NZ census statistics (2006) indicate that the country has a population of four million, with 69% New Zealand Europeans, Maori or indigenous people 15%, Pacific peoples 7%, Asians (inclusive of Indians) 7% and 1% which includes individuals from countries like Afghanistan, Iran and Iraq.

## **Indians in New Zealand**

Indians form 1.7% of the population of NZ. The majority of early settlers came from rural areas in India’s Gujarat (Navsari and Surat) and Punjab (Jalandhar and Hoshiarpur) regions and while they were not noted in the census, their presence was recorded. While it was the Australian Gabriel Reed who is credited with the discovery of gold in Otago, it was an Indian Peter Edward known as Black Peter who arrived around 1853, who told where it could be found (Swarbrick, 2007). The early settlers worked as servants of wealthy settlers who had probably lived in India, as well as working as flax and scrub cutters, bottle collectors, drain diggers, brick layers and hawked fruits and vegetables. The 1881 census records six Indian men, and by 1896 there were 46. In 1916 there were 181 Indians including 14 women (Swarbrick, 2007).

There was racism and official opposition to the early settlers as evidenced by the NZ Immigration Restriction Amendment Act of 1920 which required subjects of British colonies to have British birth if they choose to come to NZ. However, resident Indians were allowed to bring their sons and a number of Indian males came to NZ under this category. With the establishment of the White New Zealand League, Indian market growers in the 1920s were subjected to racist campaigns as they were seen as a threat to the racial integrity and economic prosperity of the European settlers. In fact until the late 1950s, Indians in Pukekoe - where there were many Indian

vegetable growers – were excluded from barbers, balcony seats in cinemas, private bars and could not join the local growers association. In the 1930s Indians moved into dairy farming and market gardens. The 1951 census records 2425 Indians, and with changes in the immigration policy, the 1980s onwards saw a surge of Indians. Indians are known for their dairies or convenience stores and keep them open for extended hours and this tends to be the image that many New Zealanders have of Indians. In 2001 Indians numbered 62,646. Indians in NZ are employed in various professions including medicine, information technology, advertising and education.

Research on Indian women in work and enterprise in NZ indicates that those women over 40 years take approximately 18 to 24 months to find work that is somewhat appropriate to their skills and qualifications though this is usually at the bottom of the organization (Pio, 2005a, 2005b). A number of such women migrants start their own small businesses as they prefer to avoid the discrimination which they perceive and experience within organizations (Pio, 2006, 2007). However, younger women particularly those who have studied in NZ rarely find that ethnicity is an issue in entering the workforce (Pio, 2004).

## **Methodology**

In the tradition of the interpretive approach, the individual's lived experience forms their reality. Mir and Mir (2002) write of the necessity "to make linkages between history, structures, and individual lives in the service of an intellectual and political purpose" (p. 121), and that intellectuals have an obligation to connect scholarship, struggle, analysis and transformation. Our analysis of the participant interviews is interpretive keeping in mind that the context is defined by the researcher and the context can be defined at varying levels of comprehensiveness (Prasad, 2002) and that the "act of critical unveiling" (Prasad, 2002, p. 25) is informed by PC.

It is pertinent to mention that the researcher is of the same ethnicity and gender of the sample in this study and this similarity facilitated access to participants, while at the same time the researcher has been consciously critical of her research as a site of struggle. Turner (2002), a woman scholar of colour writes: "Acknowledging who we are and how that affects our approaches to research as well as what we find of scholarly interest may result in a more viable work environment ...by bringing ourselves through the door and supporting others in doing so as well, we can define ourselves in and claim unambiguous empowerment, creating discourses that address our realities, affirm our intellectual contributions and seriously examine our worlds" (p. 89).

### **Aim of the Research**

The research falls within the qualitative genre and utilized semi-structured in-depth face-to-face interviews with participants. The primary aim of the research was to explore the lived-through and lived-in experiences of these ethnic minority Indian women with reference to their careers in NZ. Of significance was the concern with how these women perceived their career trajectory in the host country New Zealand. To explore these perceptions, the participants were asked a number of open ended questions pertaining to the nature of their employment experiences when they joined the organization and their subsequent career movement. The research questions shaping this inquiry were:

1. How do ethnic minority migrant Indian women enter the world of work in NZ?
2. What is the challenging and facilitating processes experienced within the world of work?
3. How do the women see their career growth in NZ?

A central focus of this exploration was to view the historical context within which the reality of the women was experienced and to move beyond their words to an interpretive analysis to account for their career experiences.

### **Participant Profile**

A total of 50 women of Indian ethnicity participated in this study. Information-rich cases were sought through snow-ball sampling as well as the researcher's contacts with the Indian community in NZ. All the women were legally resident in New Zealand and none came in as refugees. Please see Table 1 for participant details.

TABLE 1: DETAILS OF PARTICIPANT PROFILE

Age in years	Number (total 50)	Number of participants and the Nature of Employment
16-30	15	2 Administration 2 Creative/Advertisement 9 Fast food service/shop sales 1 Legal
31-45	20	8 Administration 3 Banks 1 Beauty services 1 Doctor 7 Nurses
46-60	15	9 Administration 2 Counselling/Psychology 4 Teaching profession

All the participants were overseas born with the majority being born in India, one in the Middle East and one in South Africa. While the range of years that participants had lived in NZ varied between 30 years and one year at the time they were interviewed, 80% of the participants had lived in NZ for between 5 and 7 years. The majority of participants in this sample or 38% were employed in administrative work (n=19), 18% were employed in Fast food and sales services (n=9) and 14% were employed as nurses (n=7). See Table 2 for nature of employment.

TABLE 2: NATURE OF EMPLOYMENT IN TOTAL SAMPLE

Number (total 50)	Nature of Employment	Description
19	Administration	Personal assistant, secretary, receptionist, executive assistant, data entry operator
1	Beauty profession	Providing beauty services
3	Banks	Tellers
2	Creative/Advertising	Creative/copy department in advertising
2	Counselling/Psychologist	Mental health matters
1	Doctor	Medical profession
9	Fast food/Shop sales	Waitress/Casher/Manager in fast food, sales assistant
2	Legal services	Legal aid
7	Nurses	Medical profession
4	Teachers	Teaching aide, Teacher in school, Lecturer in University

All the participants were fluent in spoken and written English having had their education in the English language with English as the medium of instruction particularly for their post-school qualifications. See Table 3 for country of education.

TABLE 3: COUNTRY OF EDUCATION

Age	Number	Country
16-30	12	New Zealand (secondary schooling)
	3	India (secondary schooling with further sc in NZ)
31-45	19	India
	1	Middle East
45-60	13	India
	1	South Africa
	1	Kenya, UK

### Conduct of the Interviews

The interviews were conducted at a mutually convenient time and place. The venue was usually the participant's home; sometimes the venue was the university where the researcher worked or her home. An interview guide was used to facilitate the process of information gathering, and consisted of open-ended questions constructed to address the following issues: a) entry into the world of work; b) experiences and qualifications before and after entering the host country; c) experiences in the world of work that were facilitating; d) experiences in the world of work that were challenging; and d) perceptions on careers.

The interviews varied from 100 minutes to 40 minutes with an average of 55 minutes for each interview. The interviews were tape recorded along with extensive note taking. Notes were also made immediately after the interviews to record the researchers own comments and personal observations. All the participants were happy to be interviewed and were very interested in sharing their work experiences. There was a high level of openness in the sharing of their experiences and for some women it served as a catalyst to their emotional experiences at work where as for others the important aspect was that the people of NZ should be aware of the work experiences of Indian ethnic minority migrant women. The women often commented that the researcher was one of them and hence they could share their experiences knowing that they would be understood. This resonates with Rhodes (1994) who observes that shared ethnicity results in enhanced information during data collection.

### Data Analysis and Interpretation

Transcriptions were done either immediately after the interviews or within one week of the interview in order to ensure that the ambience of the interviews was documented. The notes made immediately after the interview were incorporated into the final transcripts, along with a summary of each participant's work experiences. The next step involved an in-depth analysis of the transcripts in order to locate themes. This was followed by searching for patterns and variances in the transcripts across the fifty participants. The patterns and themes formed the building blocks for the interpretation. Member checks through participant contact were initiated to ensure that the data was appropriately interpreted.

## Findings and Discussion

The findings emerging from this study are grouped according to the three research questions shaping this inquiry on ethnic minority women and their careers, namely entry into the world of work, challenging and facilitating processes within work and finally the perceptions of these women on their career growth in NZ.

### Entry into the World of Work

The women in this study all came to NZ with the expectation of a better quality of life. This was echoed even by the younger women whose parents were the primary applicants in the migration process. While getting exactly the same kind of work or exactly the same level in the hierarchy was not an expectation, there was definitely an expectation to get work somewhat appropriate to their skills, qualifications and experience. As one participant pointed out: "Being told that Kiwi experience was essential was a catch 22 situation...I am new to the country how can I have this so called Kiwi experience...tell me is being a data entry operator in one country and doing this as part of my administrative job so different from another country..." (Age 46-60, Administration)

Drawing from the interview data the participants in this study subscribed to the view that it was their ethnicity which overshadowed their gender. All the women in this study acknowledged the tremendous influence of their ethnicity in their career, though this saliency could function as both a positive and negative factor in their careers. The following three extracts are indicative of this saliency:

“As soon as they see me, and realise that I am an Indian, the job that was available is suddenly filled, despite having spoken to the agency that same morning and being told to come in for an interview...no doubt my name is not a typically Indian one and it is difficult to place my accent over the telephone...” (Age 46-60, Administration).

A teacher with ten years experience in India stated: “I was always told that my experience in India was not relevant...the authorities did not even want to explore my capabilities or talk about them...in the initial years my ethnicity was treated by employers as a major disadvantage...” (Age 46-60, Teacher).

“I find it so strange that while the rest of the world realises the potential and skills of Indians, here in this country, they think that we are sort of second class...we struggle to get appropriate jobs...yes its tough...but it’s a better life for my children...” (Age 46-60, Psychologist).

These three women are representative of the sample over 45 years as also those above 31 years who had similar experiences. Such access discrimination supports previous research (Dale et al., 2002; Greenhaus et al., 1990, Pio, 2005a, Turner, 2002). Moreover the women seem to be the subjects of institutionalized ways of thinking and perceiving about Indians, which tends to fall into Sen’s (2005) magisterial category. This translates as seeing the colonial native, in this case the Indian woman as ‘inferior’ (Ahmed, 1992) resulting in a continuity of the psychological and cultural effects of colonialism (Prasad, 2005).

An exception was the nurses in this cohort of women aged 31-45 years who found that their ethnicity was an advantage. As one nurse explained: “...this patient told me that she was happy to be cared for by an Indian because we respect elders and have more patience than others...so being Indian in this care facility meant that the authorities and patients knew that we are very competent in our work and will go that extra mile...” This was echoed by all the nurses who were proud of their ‘Indianess’ and their training and hence found that their ethnicity was a positive indicator of competence. These findings, though on nurses, are different from Selvarajah (2004) who found that doctors in New Zealand had to face discrimination.

Those younger women (aged between 16 and 30 years) who were educated in New Zealand found that ethnicity was less of an issue as compared to the remaining women in this cohort aged between 31 and 60 years. A young woman participant stated: “I think it’s great to be both Indian and Kiwi ...yes I am Indian and this is evident from my colour, but then I have been educated here in New Zealand...which means I know the ‘Kiwispeak’...so really I don’t think ethnicity is a big factor in my work.” (Age 16-30, Legal). It is highly likely that the younger women with NZ education found it easier to adapt accept and display behaviours which were more in keeping with the NZ Europeans. Such fusion, deculturation or hybridity (Appadurai, 1996; Bhabha, 1984, 1990) resulted in a disruption of how an Indian is viewed. The consequence was an easier acceptance of skills and qualifications as well as an endorsement of behaviour required to enter work. Viewed as ‘interestingly different’ they would fall into Sen’s (2005) exoticist category.

#### **Challenging and Facilitating Experiences within the World of Work**

Organizations and societies are intertwined with their histories and in the case of NZ as shown by this study; it is conceivable that the colonial imprint is still alive. Thus a participant, in reminiscing about the challenging experiences at work said: “I was badly treated and despite the fact that the evidence showed that I was doing a good job...I have had to work twice as hard as the others...but it still boils down to the fact that I am different...and when push comes to shove, well then being Indian is not an advantage in this country” (Age 46-60, Teacher).

It appears that all participants experienced various forms of discrimination, however “we just accept that we are different and that other will also see us as different...it is we who have to make the changes...after all we are the migrants...we choose to come here...once we accept that we will be treated differently at least initially, this gives us the strength to move on and focus on our work and our settling into this new life style...” (Age 16-30, Creative). And a participant had this to say: “Yes, I am different, but then we all are...I just enjoy myself at work...” (Age 46-60, Administration).

Strands of domination are clear in these two excerpts as well as being underused and disrespected: “There was no one to go to for guidance...who do you talk to...after all they are there to point fingers at you and I have had to face ridicule...so how can I bare my heart and talk about my areas of problems...they could then just throw these things in my face” (Age 31-45, Administration); and the second excerpt: “They bring us here and make us pay for our qualification to be certified ...I mean we do not just walk into this country without going through an application process with the immigration department...and then when I am a qualified teacher, I am told to get this Kiwi experience by working in a fast food joint...it just appalling...but this was more than seven years ago...today things have changed for the better...but its still not easy and I wonder if we will ever be treated on par...(Age 46-60, Teacher). Thus experiences of stereotypes, prejudice and discrimination are evident in the lives of these women, and can be seen as residues of the past colonial times. These extracts are in line with the research of Brief et. al (2005) and Dipboye and Colella (2005) who note that today’s workplace discrimination is less blatant than in the past though it continues to be expressed through both proximal and distal forms.

Facilitating experiences are generally when the women were confident in themselves, as in this excerpt: “I had my own strength and confidence and some of the women were so helpful and we have become such good friends...I serve as a mentor for my students and some of them tell me that they feel they can do it, because they see me as a sort of role model” (Age 46-60, Teacher).

#### **Perceptions of Career Growth in New Zealand**

For the women 31+ years, their career growth seemed to be dominated by their ethnicity which in general was not seen as an advantage based on their work experiences. “I have so much of experience and have dealt with over a hundred patients in India...but being Indian is sort of something negative in the eyes of Kiwis...it takes ages and so much of emotional turmoil to keep on proving oneself...(Age 31-45, Doctor). And regarding promotions, this is what one woman had to say: “Sure I get passed over for promotion, despite my loyalty to the organization and being given work that is not strictly in my job description...but then I have a job...and at my age and being Indian in this country...I just count my blessings” (Age 46-60, Administration).

Some women found solace in their ethnicity, particularly when they had decided that they were not going to get anywhere in terms of their careers: “Yes I am proud to be Indian, this is who I am...you can take India away from me, but you can’t take India out of me.” (Age 46-60, Teacher). Some found that having the capacity to take on more than one identity helped the process of career growth, for example: “I think my strength is my capacity to negotiate the worldviews of both Pakeha and Indian...so dependent on the circumstance I can choose how I want to be...so I see this as a big benefit in my work” (Age 31-45, Administration). Another woman shows her resistance to the imperial imprint by saying: “It’s their problem if they want to slot me into a category... I am more than only an Indian woman...and they just have to learn to get beyond my non-white skin” (Age 36-60, Teacher).

Overall the women in this study perceived the benefits of residing in NZ, particularly because their gender was not an issue: “Oh yes, it has been very tough...but here there is no discrimination based on me being a woman...I can do so many things which I could not do back home in India and there is more respect for women...the only thing of course is that being Indian means I have to take lower sort of jobs.” (Age 31-45, Bank).

When women were able to access mentors this proved to be a source of much learning and facilitated their career growth (Kamenou and Fearful, 2006). For example one woman’s positive experience is explained thus: “She liked me and was so helpful and kept insisting that I could do it and could overcome the obstacles necessary to get my certification...I felt I could go and talk to her whenever I needed to and she sort of took me under her wing...I would have had to struggle much more otherwise” (Age 46-60, Counsellor). Such women were the exception rather than the rule in this cohort. Thus another woman displays the tentative nature of her approach in saying: “Are there places we can go to for help...who knows us...here we are nobody and initially know no one...I mean besides Indians...I think we need to develop networks with the Pakeha<sup>2</sup>, because in that way we can learn exactly where we are deficient...I mean what we thought was appropriate is now no longer so (Age 31-45, Beauty services). This shows how the impact of being unequal is reinforced for it is perhaps the belief in the superiority of the colonial masters or the employers in this instance, which is still deeply entrenched and continues to be exhibited in organizational life. Yet over 60% of the women in this study, over a period of between 5 to 7 years had moved up in their careers from the initial entry level positions when they first came to New Zealand.

## Concluding Comments

In this study the career experiences of ethnic minority migrant Indian women in New Zealand have been presented utilizing a post colonial framework for their challenging experiences including access and treatment discrimination within organizations. Six themes from a PC lens were applied to add a new thread to the work on careers of ethnic minority women and to explain why these women were defined out, with the exception of nurses who were helping a particularly vulnerable group and younger women who had fused their Indian and Kiwi lives through behaviours considered appropriate in organizations and hence for their careers. It is a distressing comment on society that the colonial imprint continues to be so strong and displays itself in road blocks for ethnic minority women and their careers. But all is not lost for the younger women continue to do well and the determination and grit of the women 31+ continues to ensure that they too make an impact on the society of their host country. It is plausible that future research on ethnic minority Indian women who have been born in New Zealand may show that they have more positive experiences than the majority of women in this study, as also the fact that over time and with experience of ethnic minority women, employers will start viewing them not just as the other, but also as individuals in their own right who can contribute both economically and socially to this island nation, and in the process blur the boundaries between the colonizer and the colonized.

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## **End Notes**

- <sup>1</sup>. Kiwi the common way of referring to a person from New Zealand
- <sup>2</sup>. Pakeha or NZ European, or those of European ancestry



# Linking Mentoring Experience to Organisational Commitment and Intention to Stay: The Mediating Role of Perceived Organisational Support

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## Abstract

Building on social exchange perspective and organizational support theory, this study examined the relationships among employees' received mentoring, perceived organizational support (POS), organizational commitment (OC) and intention to leave. Using hierarchical regression analyses on a sample of 100 employees in 5-star hotel chain in Malaysia, it was found that, consistent with past research, POS and career mentoring are highly interrelated and yet have unique behavioural outcomes. POS has significant relationships with all the variables in this study. However, POS did not mediate the effects of career mentoring, OC and intention to leave. While career mentoring has a medium correlation with intention to leave, it did not significantly predict intention to leave. Career mentoring predicts two of the three dimensions of OC. These findings have implications on how organizations might change different outcomes. They also indicate that organizational efforts (POS) may be further emphasized to influence employees' intention to leave.

## Introduction

Human behaviours have been considered as a vital issue that is quite difficult to deal with due to the extremely complicated human attitudes, behaviours and relationships. Numerous studies have been conducted to test the significance of human resource efforts to organizational effectiveness that may lead to demonstration of behavioural outcomes desirable to employers (Becker & Gerhart, 1996; Wayne, Shore, Bommer & Tetrick, 2002; Takeuchi, Wakabayashi & Chen, 2003; Scandura & Williams, 2004).

One of the most investigated areas of research on behavioural outcomes is organisational commitment. In general terms, organisational commitment can be defined as the level of attachment felt toward the organisation in which one is employed. A large number of studies have found that employees who are emotionally committed to the organisation demonstrate improved productivity, reduced absenteeism, a less likelihood to quit their job and enhanced extra-role performance (Mathieu & Zajac, 1990; Meyer & Allen, 1997; Mowday, Porter & Steers, 1982). Some researchers believe that by providing employee with meaning and purpose, aiding employee development and providing training opportunities, are keys to gaining commitment from the organization's workforce (Hall & Mirvis, 1996; Bartlett, 2001; Rhoades, Eisenberger & Armeli, 2001; Scandura & Williams, 2004). Such efforts by organisations may be perceived by employees as indicative of the organisations' care and concern.

Much of the research into organisational commitment and POS has focused on perception of justice, pay policies, job condition and leader-member exchange as antecedents (Wayne, Shore & Liden, 1997; Rhoades & Eisenberger, 2002; Loi, Ngo & Foley, 2006). Surprisingly, few studies in the current literature have empirically examined what forms of human resource (HR) activities create a sense of obligation or indebtedness in employee-organisation relationships (Shore & Shore, 1995). In particular, training and career mentoring activities (Scott & Meyer, 1991; Bartlett, 2001) which has importance in affecting work attitudes and behaviours as well as contribution to competitive advantage (Snell & Dean, 1992; Delery & Doty, 1996; Rush, 1996; Becker & Huselid, 1998; Guthrie, 2001; Takeuchi, Wakabayashi & Chen, 2003).

To fill the gap in research, this study build on a social exchange perspective and organisational support theory to develop a model to first, examine how career mentoring is related to the creation of a sense of obligation in employee-organisation relationship, and second, how both career mentoring and POS may influence organisational commitment and intention to leave. Another purpose of the study is to examine the unique moderating effects of

POS on the relation between career mentoring and organisational commitment and intention to leave, controlling for the difference in age and tenure. Finally, we attempt to address the generalisability of a Western theoretical framework in a non-Western context.

## **Literature Review**

### **Social Exchange Theory and Organisational Support Theory**

Social exchange theory (Blau, 1964) has recently been applied extensively in the organisation settings to demonstrate how organisation's efforts may create employee obligation and desirable performance. Such exchange ideologies stem from the norm of reciprocity that holds people should help those who have helped them (Gouldner, 1960). The favourable treatment received by either exchange partner is reciprocated and leads to beneficial outcomes. Unlike economic exchange, social exchange involves less tangible or symbolic resources. Both time frame and nature of the expected future returns are not specified and hence the exchange parties conform to the norm of the reciprocity to discharge their obligations in future (Loi, Ngo & Foley, 2006).

Social exchange theory describes that resources received from others are more highly valued if they are based on discretionary choice rather than circumstances beyond the donor's control. Such voluntary aid is welcomed as an indication that the donor genuinely values and respects the recipient (e.g., Blau, 1964; Eisenberger & Speicher, 1992). Thus HR activities and organisational rewards contribute more to POS.

Most organisations have considerable discretion and control concerning training policies and practices that affect the importance of training. Some multinationals would arrange for formal career mentoring. According to organisational support theory, such discretionary actions should make a major contribution to employees' assessment of the organisation's benevolent or malevolent orientation toward them. Employers' emphasis on training and career mentoring will have a trickle-down effect that may influence supervisors' commitment to career mentoring junior employees. Given that supervisors act as an agent of the organisation (Levinson, 1965), supervisors are a source for indication of organisational support. Thus training and career mentoring contribute more to POS.

In the context of social exchange theory (Blau, 1964), such organisational efforts may lead to a desirable psychological contract of which are powerful determinants of organisational behaviours (Schein, 1980). Psychological contracts describe individual beliefs about their employment relationship and guide employee beliefs about what they think they are entitled to receive owing to real or perceived promises from their employers (Robinson, Kraatz & Rousseau, 1994). HR practices are some of those that affect the psychological contract (Lucero & Allen, 1994).

Eisenberger, et al (1986) assert that organisational support theory may help explain employees' emotional commitment to their organisation. This theory assumes that in order to meet socioemotional needs and to assess the organisation's readiness to reward increased efforts, employees form general beliefs concerning the level of appreciation of employee contribution by their organisations as well as the level of care and concern by their organisations. Being valued by the organisation can yield such benefits as approval, pay and promotion and access to selective training. Eisenberger et al (1986) asserted that employees develop POS because people tend to ascribe traits or qualities to organisations through a process of "personification" (Levinson, 1965). This personification of an employer by an employee represents an accumulation of rewards and punishments the employee has received from other, more powerful organisation members.

On the basis of the norm of reciprocity, employees who are treated favourably by others feels a sense of indebtedness to the exchange partner and are motivated to repay the partners (Blau, 1964; Greenberg, 1980). In other words, POS would create an obliged feeling to care about the organisation's welfare and help the organisation reach its objectives. Hence, the demonstration of care and concern for employees may influence exchanges (Liden et al., 1997) such as organisational commitment, intention to leave, job satisfaction and performance rating (Wayne, Shore & Liden, 1997; Bartlett, 2001).

As highlighted earlier, most organisations have considerable discretion and control concerning training policies. According to organisational support theory, such discretionary actions should make a major contribution to

employees' assessment of the organisational support by their employers. Training and career mentoring as part of the HR activities that can be controlled or managed to elicit a desired set of unwritten, reciprocal attitudes and behaviours.

#### **Career Mentoring**

Training has been identified as one of the human resource practice that contributes to gains in competitive advantage (Schuler & MacMillan, 1984). Scott and Meyer (1991) suggested that training improve productivity and organisational performance. Others found that training and such satisfaction have influence on organisational commitment, perception of organisational justice, in-role and extra-role performance (Leong, Randall & Cote, 1994; Bartlett, 2001; Bartlett & Kang, 2004; Chew & Takeuchi, 2006). Studies examining training as participation in a highly structured programme for new members to an organisation found similar results that participation in training increase organisational commitment (Tannenbaum, Mathieu, Salas & Cannon-Bowers, 1991; Saks, 1995). These literatures seem to suggest that training is related to development and maintenance of organisational commitment.

Extending from human resource management and training literature, there has been increasing literatures in the area of career mentoring. Prior research has suggested that reduced employee turnover intentions can be an outcome of formal communications through advices of undergraduate students and counselling of employees (Rhode et al, 1977; Gregson, 1990). Scandura and Viator (1994) highlighted that in addition to the formal channel of communication, nonformal communication networks such as mentoring of lower-level employees is as crucial in enhancing behavioural outcomes that benefit organisations. Mentor enhances the career development of younger and relatively inexperienced employees. Researchers suggest that employees who have a mentor experience greater job success and have a better chance of being promoted. Scandura and Viator (1994) summarised literature review and found that there are three functions of mentors, namely coaching protégés on career development, providing social support, and serving as a role model. Other findings were consistent, stating that mentoring include career development function and a psychosocial function (Kram 1985; Kram & Isabella, 1985). These two functions serve different purposes. The former nurtures protégé for career advancement, while the latter operate to clarify the protégé's sense of identity and develop greater sense of competence (Noe, 1988).

In the context of social exchange theory (Blau, 1964), such organisational efforts may lead to a desirable psychological contract of which are powerful determinants of organisational behaviours (Schein, 1980). HR practices such as training and career mentoring as part of the HR activities can be managed to elicit a desired set of unwritten, reciprocal attitudes and behaviours.

Some researchers believe that by providing employee with meaning and purpose, aiding employee development, providing training opportunities, and providing a supportive environment are keys to gaining commitment from the organization's workforce (Hall & Mirvis, 1996; Bartlett, 2001; Rhoades, Eisenberger & Armeli, 2001; Scandura & Williams, 2004). Such efforts by organisations may be perceived by employees as indicative of the organisations' care and concern. In the service industry, in particular that of the hotel, mentoring exists as part of the on-the-job training given a large degree of the work-related skills are enhanced through the frequent interaction between service provider and hotel guests. Hence, training and career mentoring are crucial. Most organisations have considerable discretion and control concerning training policies that affect the importance of training and the commitment to training among supervisors. According to organisational support theory, such discretionary actions should make a major contribution to employees' assessment of the organisation's benevolent or malevolent orientation toward them. POS is enhanced by the positive and discretionary treatment by the organisation which leads to employees' perception of the organisation's commitment to them (Shore & Wayne, 1993). Employees can fulfil this reciprocal obligation through enhanced organisational commitment (Rhoades, Eisenberger & Armeli, 2001) and reduced intention to leave.

Hypothesis 1: Career mentoring will be positively related to POS.

#### **Organisational Commitment**

Organisational commitment has been one of the most researched areas in the organisation theories. Meyer and Allen (1997) described employees with high level of organisational commitment is one who will stay with the organisation through thick and thin, attends work regularly, puts in a full day, protects company assets, and who shares company goals. Early researchers treated organisational commitment as a unidimensional construct (Mowday, Steers & Porter, 1979). However, it is more widely accepted now as a multidimensional construct.

Meyer and Allen (1990) define the three constructs of organisational commitment as: (i) affective commitment, (ii) normative commitment, and (iii) continuance commitment which refers to the costs associated with leaving the organisation. Affective commitment refers to the psychological or emotional attachment to the organisation. Employees that are strongly committed identify with, is involved in, and enjoy membership in, the organisation. Normative commitment refers to a perceived obligation to remain with the organisation. It reflects individual's personal values and belief about one's responsibility to the organisation. Continuance commitment which refers to the costs associated with leaving the organisation. This dimension of commitment is viewed as a tendency to engage in consistent lines of activity (Becker, 1960, p.33) based on the individual's recognition of the costs associated with discontinuing the activity (Farrell & Rusbult, 1981; Allen & Meyer, 1990).

A large number of studies have found that employees who are emotionally committed to the organisation demonstrate improved productivity, reduced absenteeism, a less likelihood to quit their job and enhanced extra-role performance (Mathieu & Zajac, 1990; Meyer & Allen, 1997; Mowday, Porter & Steers, 1982). Some researchers believe that by providing employee with meaning and purpose, aiding employee development and providing training opportunities, are keys to gaining commitment from the organization's workforce (Hall & Mirvis, 1996; Bartlett, 2001; Rhoades, Eisenberger & Armeli, 2001; Scandura & Williams, 2004). Meyer and Allen (1997) highlighted that organisational commitment is accepted as an influence on the training process which demonstrates that training's positive effect on organisational commitment can be enhanced. Such efforts by organisations may be perceived by employees as indicative of the organisations' care and concern.

Hypothesis 2: Career mentoring will be positively related to organisational commitment: (a) affective commitment, (b) normative commitment, and (c) continuance commitment.

Hypothesis 3: POS will mediate the positive relationship between career mentoring and organisational commitment

#### **Intention to Leave**

POS meets the employees' socio-emotional needs including approval, affiliation and self-esteem (Eisenberger et al, 1990). It encourages employees' incorporation of organisational membership and role status into their self-identity. Employees with high level of POS tend to express stronger feelings of affiliation and loyalty to their organisation and to interpret the organisation's gains and losses as their own (Loi, Ngo & Foley, 2006). When employees are emotionally attached to the organisation, they are less likely to intend to leave the organisation. Empirically, POS was found to be negatively related to intention to leave (Masterson et al, 2000; Wayne et al, 1997). Moreover, considerable past research has accepted organisational commitment as a major antecedent of intention to leave, having a significant negative relationships (Griffeth et al, 2000).

Hypothesis 4: Organisational commitment is negatively related to intention to leave.

## **Method**

#### **Sample and Procedure**

The sample for this study was composed of 100 lower-level employees in five hotels that are ranked four and five stars. Survey questionnaire were administered in December 2006. These participants have experienced formal mentoring. The reason for selecting this group was to capture individuals who were with basic education. With the limited education background, this group of employees may tend to rely more on mentor-mentee relationship to gain career mentoring that may enhance their career advancement.

Data collection involved a number of personal trips by the co-author to each collection site. Well-established scales previously reported in the literature were adopted for the design of the survey questionnaire. The survey questionnaires were distributed to a few lower-level employees with the aim of determining the appropriateness of the contents and use of words. The ease of understanding by the subjects was also considered. The co-author was present to collect the questionnaire in order to gain more support and participation from subjects.

The survey questionnaires were prepared in English. All items were modified to fit into the seven-point Likert-scale format (i.e. 1= strongly disagree and 7 = strongly agree). Of those responding to the demographic questions, the average age is 27. Slightly less than half of the participants possessed high school or diploma

qualification. The participants have an average of 7.2 years of work experience and 3.9 years of tenure with the current organisation at the point of survey.

### Measures

**Career mentoring:** A seven-item measure of career mentoring (Scandura, 1992) was employed to assess the experience of career mentoring of lower-level employees. A sample item from the career mentoring scale is “My mentor takes a personal interest in my career.” The coefficient alpha reliability estimate for this measure was .88. This result is consistent with past results. Previous research has supported the construct validity of this instrument (Scandura, 1992; Scandura & Schriesheim, 1991).

**Perceived organisational support:** The nine-item, shorten version of the Survey of Perceived Organisational Support was adopted (Eisenberger et al, 1990). A sample item from the measure is “My organisation strongly considers my goals and values.” The coefficient alpha reliability estimate for this measure was .79. Although the coefficient alpha reliability estimate is lower than past results (Wayne et al, 2002), it is acceptable (Nunnally, 1978).

**Organisational commitment, affective commitment:** Eight items from the affective commitment scale (Allen & Meyer, 1990) were used to measure the employees’ psychological or emotional attachment to the organisation in this study. A sample item from the measure is “I would be very happy to spend the rest of my career with this organisation.” The coefficient alpha reliability estimate for this measure was .62. Given the low reliability of the scale, factor analysis with varimax was used to reduce data. One of the items was reduced to produce a coefficient alpha reliability estimate of .81.

**Normative commitment:** Eight items from the normative commitment scale (Allen & Meyer, 1990) were used to measure the employees’ perceived obligation to remain with the organisation. It reflects individual’s personal values and belief about one’s responsibility to the organisation. A sample item from the measure is “I think that people these days move from company to company too often.” The coefficient alpha reliability estimate for this measure was .43. A criterion cutoff point of .70 for accepting items was used, as suggested by Nunnally (1978). Given the low reliability of the scale, factor analysis with varimax was used to reduce data. Two of the items were dropped owing to low or ambiguous factor loading to produce a coefficient alpha reliability estimate of .71.

**Continuance commitment:** Eight items from the continuance commitment scale (Allen & Meyer, 1990) were used to measure the employees’ perceived costs associated with leaving the organisation. A sample item from the measure is “It would be very hard for me to leave my organisation right now, even if I wanted to.” The coefficient alpha reliability estimate for this measure was .65. A criterion cutoff point of .70 for accepting items was used, as suggested by Nunnally (1978). Given the low reliability of the scale, factor analysis with varimax was used to reduce data. One of the items was dropped owing to low or ambiguous factor loading to produce a coefficient alpha reliability estimate of .83.

**Intention to leave:** Carson and Bedeian’s (1994) measure of intention to leave was adapted for use in the study. A sample item from the measure is “I frequently think about leaving my current employer.” The coefficient alpha reliability estimate for this measure was .89.

## Results and Hypotheses Testing

The correlation matrix for the study variables is shown in Table 1. In this table, reliabilities are represented along the diagonal, and all were within the acceptable range (Nunnally, 1978). To test Hypotheses 1 – 5, we conducted multiple regression analysis.

Hypothesis 1 stated that career mentoring will be positively related to POS. Hypothesis 1 was supported ( $B = .56, p < .01$ ). This is self-explanatory given the high correlation between the two variables ( $r = .43, p < .01$ ). Hypothesis 2 stated career mentoring will be positively related to organisational commitment: (a) affective commitment, (b) normative commitment, and (c) continuance commitment. Hypothesis 2 was partially supported. Career mentoring is positively related to only affective ( $B = .34, p < .01$ ) and normative commitment ( $B = .24, p < .01$ ). These results are further supported by the strong correlation between the career mentoring with the two commitment dimensions ( $r = .61, p < .01; r = .53, p < .01$ ).

Hypothesis 3 stated POS will mediate the positive relationship between career mentoring and organisational commitment.

TABLE 1: MEANS, STANDARD DEVIATIONS, AND INTERCORRELATIONS

	Variable	1	2	3	4	5	6
1.	Career mentoring	-					
2.	POS	.43**	-				
3.	Affective commitment	.61**	.57**	-			
4.	Normative commitment	.53**	.23*	.51**	-		
5.	Continuance commitment	.39**	.22*	.52**	.62**	-	
6.	Intention to leave	-.33**	-.59**	-.50**	-.34**	-.27**	-
	<i>M</i>	5.38	4.72	4.21	4.47	4.25	3.93
	<i>SD</i>	0.71	0.69	0.91	1.21	0.95	1.64
<i>Note.</i> ** $p \leq .01$ , * $p \leq .05$							

## Discussion and Conclusion

As mentioned earlier, training and career mentoring can be viewed as part of HR activities that can be managed to elicit desirable reciprocal attitudes and behaviours. To reciprocate for the organisational investment on them, employees may exhibit organisational commitment and loyalty. However, there are also cases in which employees may alter their view of what they feel is “owed” to them in return for their labour. Many employees have come to view training and career mentoring as an entitlement and as a benefit of employment (Bartlett, 2001). This could be more obvious in an employment relationship that emphasises economic exchange.

## References

Contact the author for the full list of references.

# **The Relationship between HR Management Practices, Perceived Organizational Support and Affective Organizational Commitment: The Evidence from Malaysia**

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## **Abstract**

This study was conducted to examine the mechanism between existence, relatedness and growth (ERG) based human resource management practices (HRMP) and organizational commitment. A survey involved 329 Malaysian knowledge workers from four industries investigated (a) family-friendly policy, pay satisfaction, internal promotion, supervisory support, and career development opportunities, (b) perceived organizational support (POS), with (c) organizational affective as work outcome. Structural equations modeling analysis reveals that relations between employees' self evaluation of HRMP and their commitments to organizations are mediated by POS. These findings support previous research claims that the effect of organizational commitment could be enhanced through organizational support theory while making effective career-oriented HR policies.

## **Introduction**

Organizational commitment (OC) has been regarded as global evaluation of the linkage between the individual employee and organization while perceived organizational support (POS) is viewed as global beliefs concerning the extent to which the organization values their contributions and cares about their well-being. (Eisenberger, Huntington, Hutchison & Sowa, 1986).

Myriad research done mostly in the West on linking POS and OC (Tansky & Cohen, 2001; Meyer & Smith, 2000) and other work outcomes such as job satisfaction (Allen, Shore & Griffeth, 2003), and turnover intention (Eisenberger, Stinglhamber, Vandenberghe, Sucharski, & Rhoades, 2002) to understand the motivation behind individual behaviors and attitudes. With these findings, the notion of POS and OC are found to be correlated and accepted as having significant role in enhancing organizational effectiveness.

Such inferences prompt to the allusion of utilizing effective practices that nurture human capital towards positive relations with POS. Combining social exchange theory (Blau, 1964) and norm of reciprocity (Gouldner, 1960), POS claims the perceptions of employees that organization appreciates their contributions and well-being would lead them reciprocate with loyalty and extended self dedication to the organization. This deserves further attention to research to prolong organization-employee relationship, especially for Malaysian organizations that face high turnover.

Eisenberger and colleagues (1986, 2002) suppose organization would only receive favorable responses from employees if employees believe their socioemotional needs are fulfilled. Human behaviors driven by motivation and needs are then come into consideration. Alderfer's ERG theory (1972) classifies existence, relatedness, and growth needs to describe human needs. Existence needs refer to physical well-being and job security located in the lower hierarchy, followed by relatedness needs such as satisfactory relations with others in the workplace (love and self-esteem) in the middle hierarchy, topped by growth needs which refer to the development of competent skills and the realization of one's potential.

With underlying context of ERG theory, this research applies perceptions of supportive human resource management practices (HRMP) that satisfy socioemotional needs for employees. HRMP play a role in developing and maintaining the inferential exchange relationship between employees and organization (Ogilvie, 1986). This is proven by various theoretical and empirical human resource management literatures (Ulrich, 1997). Gaertner & Nollen (1989) empirically reported employees' commitment was related to both actual and perceived HRMP, including career related developments and opportunities. Paul & Anantharaman (2004) reported total approach to compensation, career development and work environment activities strongly associated to affective commitment

(AC). Thus, researchers have recognized the strength of HRMP towards positive attitudinal and behavioral outcome.

Extended studies reported strong positive correlations with AC for desirable work behaviors and performance (e.g. performance, attendance, and turnover) (Jaros, 1997; Meyer, Allen & Smith, 1993; Paul & Anantharaman, 2004). Allen and Meyer (1990) classify AC as emotional attachment to, identification with, and involvement in the organization. This study adapts AC as the final work outcome for the proposed research model in relation to examine the effects of HRMP and POS because of its impact on loyalty and organizational effectiveness (Mowday, 1998).

Although these studies suggest that HRMP are related to OC, there are queries to examine whether these relations are direct or unconditional. Organizational support theory regards OC as one of its important favorable outcomes, inviting researchers examine their relationship. Meyer & Smith (2000) adopted a broad aspect of HRMP with overall organizational commitment to examine the mediating effect of POS and procedural justice. Rhoades, Eisenberger & Armeli (2001) suggest rewards, procedural justice, and perceived supervisory support and AC are mediated by POS.

It brings question on which HRMP are deemed to be suitable to be examined to understand the mechanism. Considering POS emphasizes two important factors: employees' contribution and organization caring, this points to the consideration of understanding how to recognize employees' efforts and extended parental role by organizations. Shore & Shore (1995) identified two types of key HRMP to nurture POS: (1) discretionary practices that imply organizational caring but are not mandated by company policy or union contract, (2) HRMP that symbolize organizational recognition of the employees' contributions.

Accordingly, HRMP associated with ERG needs and work appreciations are invited to the studies of antecedents for POS, namely: family-friendly policies, pay satisfaction, supervisory support, internal promotion, and career development opportunities.

There are tremendous studies conducted in the Western context, while research on POS in Asian countries is yet to be explored. This study wishes to fulfill the following objectives: (a) to probe for and identify effective antecedents of POS and, (b) the mediating role of POS between HRMP that fulfill socioemotional needs of Malaysian employees. Targeting knowledge workers, this study wishes to fill the gap of HRMP to AC by ascertaining the applicability of POS in collectivistic cultures by undergoing a survey in medium enterprises in Malaysia.

## **Literature Review and Hypotheses**

Rhoades, Eisenberger, and Armeli (2001) emphasize the relevance of fulfilling needs for esteem, approval, and affiliation to the incorporation of organizational goals and membership, and extending voluntary self effort. This provides support to the recognition of motivational theory found in Alderfer in explaining the needs for existence, relatedness and growth to the bond of employees and organization.

As such, this research agrees overall satisfaction on rewards is pivotal to satisfy employees' physiological needs. Reward often reflects distinct tangible support on how organization considers support and care to their employees to live comfortably. Using different approach on rewards satisfaction, this study examines the overall pay, benefit package provided by the company, pay raises and structures to assess organizational support. This is considered important as pay has been regarded as multidimensional (Heneman & Schwab, 1985), and deserved a wider aspect in relation to support and recognition by organization.

Apart from monetary reward, this research regards intangible reward such as career development opportunities, supervisory support, and family friendly policy at work are relevant to fulfill relatedness needs. Employees believe an organization is committed to them by investing in training and providing welfare to employees. As an agent of organization (Levinson, 1965), favorable supervisory support also indicates preference from the senior management and organization. These factors could be easily related to employees thirst for needs in fulfilling social and external esteem. Lastly, this paper suggests internal promotion is related to the fulfillment of self-actualization located in the highest hierarchy of need. Through formal promotion, employees' performance is recognized and actually rewarded, indicating the company's commitment to its human resources.



Three studies on HRMP are found to be related to employees' commitment. Ogilvie (1986) found promotion, merit-system accuracy and fairness of promotions have influences on commitment. Gaertner & Nollen (1989) reported perceptions of internal promotion, training opportunities, and employment security are related to commitment. Recently, Paul and Anantharaman (2004) suggested employee-friendly work environment, career development, total approach to compensation, development-oriented appraisal, and comprehensive training had very high positive relationship with affective organizational commitment to IT workers in India. The above investigations support these selected HRMP fulfill the needs of today's knowledge workers in exchange with strong identification to organizational values and goals, and more willingness to extend extra effort, and continued membership with the organization. Hence the following hypothesis is mentioned:

**Hypothesis 1: ERG Related HRMP are Positively Related to AC**

Organizational support theory (Eisenberger, Huntington, Hutchison & Sowa, 1986) postulates POS is heightened when employees believe they benefit from organizational rewards and favorable job conditions that are free from organizational policies external constraints such as union negotiations and governmental regulation. Given the underlying concept, HRMP pertinent to ERG theory could be inferred to relate to POS as to AC.

Mutual reciprocity begins when one party receives support or assistance from other party. An implicit psychological bond connects employees and organization together on what they ought to repay to the other party when one receives favorable backups. This mutual gratification exchange maintains a stable social system, arguably, leads to durable employers-employees relationship. Armeli, Eisenberger, Fasolo, and Lynch (1998) reported the association between POS and performance was greater among employees with high socioemotional needs. While ERG theory helps clarify employees' need in an organization, it further assists in exploring the possibility for organization to enhance POS.

A review of more than seventy POS studies (Rhoades & Eisenberger, 2002) reported supervisory support, pay and promotions, and training found as antecedents to POS. These factors are in line with ERG theory acting pertinent factors to the antecedents of POS. In light of activities for organizational support, this research uses employees' perceptions of ERG related HRMP to explore the effectiveness of POS towards AC.

In light of existence, relatedness and growth needs, this research regards family-friendly policies, pay satisfaction, supervisory support, internal promotion, and career development opportunities are catered specifically to individuals without external legal influence. Hence, the second hypothesis is:

**Hypothesis 2: ERG Related HRMP are Antecedents of POS**

Voluminous studies reported that POS and AC are strongly associated yet empirically distinct (Shore & Tetrick, 1991; Wayne, Shore and Liden, 1997; Meyer & Smith, 2000; Allen, Shore & Griffeth, 2003). AC and POS also found to have similar antecedents. But little evidence has been given to why POS and AC have similar antecedents and consequences.

Further investigation in antecedents for AC suggests the nature and strength of HRMP might not be as effective as how employees perceive such practices. Gaertner and Nollen (1989) reported variance explained by perceived employment practices (61 percent) expressed better than actual employment experiences (53 percent) on OC. This suggests perceptions on HRMP have stronger effect on AC. Relatively, Paul & Anantharaman's (2004) overall HR package predicted 41 percent variance on OC.

Ogilvie (1986) distinguishes employees' perceptions of HRMP reflect a sense of reciprocity and the level of concern that the organization appears to distribute to employees, while HRMP are concrete, tangible programs. He found that employees' perceptions of HRMP explained 48 percent of OC. Even after controlled for personal and work characteristics, evidence showed the predictability of merit rating system and promotions to OC. This provides suggestion that the relationship of HRMP and AC are not unidirectional. The underlying psychological and exchange approaches enhance the possibility of placing POS as the mediator in this research.

The variance explained to AC recorded in previous studies, together with Ogilvie's findings strongly demands the needs investigate the mechanism that could better explain the mediating role of POS between HRMP and AC. Departing from cognitive perspective, this research concerns the mechanism of employees' socioemotional needs in connection to AC. The existence, relatedness, and growth needs are deemed important for today's knowledge workers, who are sufficient in academic training with given autonomy to handle challenges at work. Associating the above mentioned factors, this study further examines the mediating role of POS in the following

hypothesis:

**H3: POS Mediates the Relationship Between ERG Related HRMP and AC**

## **Method**

### **Sample and Procedures**

Knowledge workers are generally defined as those work for a living at the tasks of developing or using knowledge (Drucker, 1993). It is believed that through a certain level of academic or vocational training, such workers are capable at the tasks of planning, acquiring, searching, analyzing, organizing knowledge and contributing new ideas at work. Giving such definition, the sample is limited to workers that are professionally, academically or vocationally trained, able to utilize their knowledge to achieve goals for their department and organization. Hence, AC is critical to this group of workers as affectively committed workers are willing to extend their extra effort, stay with their organizations, believing and embedding their own values and goals to the organizations'. In return, they are also thirst for personal growth and development for relatedness needs.

Survey was carried out in September to early December 2006. A cover letter attached with survey forms in English was delivered to HR managers through the database of a professional publishing company to acquire consent for the survey. Since previous studies used English language for Malaysian samples (Lim & Itakura, 2003; Sheppard, 2001; Westwood and Everett, 1995) and English is an accepted medium used in public and private sector for Malaysia, this survey was prepared in English.

Four HR managers from financial services, information technology, manufacturing, and education were invited to participate. 1021 employees from the four companies approached. 329 out of 367 replied surveys were found usable for analysis. A respond rate of 36 percent is considered good as Malaysians are not keen on such cooperation (Westwood & Everett, 1995). Of all, 17.5 percent Malays, 68.7 percent Chinese, 10.3 percent Indians, 2.1 percent expatriates, and 1.5 percent of other ethnics participated in the study.

Due to the definitions of knowledge workers, respondents are strictly categorized by work experience, education background, job position, and industry type. Financial service company topped the list with 28 percent respondents, IT with 25 percent, manufacturing contributed 24 percent and 23 percent by education institution. In total, 58 percent female, average age reported at 31 (SD = 6.8) and average organizational tenure was 4.2 years (SD = 4.8). Respondents have average 8.1 years working experience (SD = 6.4). 46 percent are graduated in bachelors, 41 percent trained with professional or vocational qualifications while 13 percent completed post graduate program. 60 percent of the employees reported single. Sample organizations are locally set-up, ranged from 100 to 300 employees, which are considered as medium enterprises.

## **Measures**

Questions were designed to measure employees' feelings at individual level. All the measures were measured using 7-point Likert-type scale (1 = strongly satisfied/disagree; 7 = strongly dissatisfied/disagree).

### **ERG Related Human Resource Management Practices.**

Five ERG theory related HRMP selected for investigation in this hypothesis: pay satisfaction, family-friendly policy, internal promotion, supervisory support, and career development opportunities.

1. *Pay Satisfaction.* Six items reworded from Heneman & Schwab (1985) were used to ask to what extent the satisfaction with employee's pay conditions. To better understand which level is most preferred, this study included four elements of pay include pay level, pay benefits, pay raise, and pay structure/administration.
2. *Family-friendly Policy.* Five items were adopted from Judge, Boudrea, & Bretz (1994) to measure the degree of organizations supporting balance work and family demands for knowledge workers. It portrays the level of organizations care about their employees' welfare and support from family.
3. *Internal Promotion.* This study adopted three items from Gaertner & Nollen's measure (1989). Questions included preferences to promote within, placing people to new jobs rather than hiring from outside.
4. *Supervisory Support.* Eight items taken from London (1993) to ask the empowerment, trust and respect, and

career and performance feedbacks given by their immediate supervisor. Questions such as “your supervisory jointly sets performance objectives with you”, “your supervisor helps you develop career plans”, and “your supervisor gives you the authority you need to do the job” are used to examine level of support and recognition from supervisors. A study of Korean hospital employees showed noticeably difference on supervisory support as organizational support. Under the umbrella of Asian culture, this study expects to see high correlations between supervisory support and POS to the importance of social integration.

5. *Career Development Opportunities*. Four items adopted from PhD thesis developed by Liu Wei (2004) to measure long-term career development and career goals. Examples are ‘in the long run, my organization will facilitate me accomplishing my goals’ and ‘my organization takes steps to insure that I maximize my career potential’.

**Perceived Organizational Support (POS).**

Previous studies surveyed different occupations and organizations provide high reliability and unidimensionality of the survey of POS (Eisenberger, Huntington, Hutchison, & Sowa, 1986; Rhoades & Eisenberger, 2002; Shore & Tetrick, 1991). To assess employees’ perceptions about their contributions and well-being, ten items with highest loadings were selected equally in regards of the two sections (employees’ well-being and contribution).

**Affective Organizational Commitment (AC).**

The attitudinal approach is considered appropriate for today’s knowledge workers. Utilizing the constructs developed by Allen & Meyer (1990), this study adopted five items to explore employees’ commitment. “I would be very happy to spend the rest of my career with this organization”, “I do not feel emotionally attached to this organization (reverse scored)” and “I really feel as if this organization’s problems are my own” were included in the survey.

*Control variables.* Age and marital status are added to AC as control variables, as these two variables would affect AC according to previous literatures. Following Rhoades and colleagues’ study (2001), this study also controls tenure for both POS and AC in the structural equation.

**Results**

Means, standard deviations, Cronbach’s alphas and correlations are shown in Table 1. The correlations are based on the maximum sample available for each combination of variables. Samples were tested separately using structural equation modeling (SEM). The similarity among samples resulted into combined report presented in Fig. 1 using maximum likelihood parameter estimates with AMOS.

Table 1 showed support for hypothesis 1. All the HRMP are positively related to affective organizational commitment and significant at .01 level. Results for Hypothesis 2 are presented in Fig. 1. Fig 1 also prepares the first stage to test the mediating effect for POS. Family-friendly policy is found not related to POS, resulting partial support for hypothesis 2.

TABLE 1: MEANS, STANDARD DEVIATIONS AND CORRELATIONS

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1 Paysatisfaction	22.97	7.37	<b>[.89]</b>						
2 Family-friendly policy	18.34	5.81	.51	<b>[.87]</b>					
3 Internal promotion	12.06	3.45	.55	.53	<b>[.78]</b>				
4 Supervisory support	35.34	9.84	.44	.42	.55	<b>[.94]</b>			
5 Career development opportunities	16.06	5.30	.54	.48	.61	.61	<b>[.94]</b>		
6 Perceived organizational support	42.99	8.43	.43	.44	.54	.61	.64	<b>[.85]</b>	
7 Affective organizational commitment	20.13	5.39	.41	.45	.43	.42	.56	.55	<b>[.79]</b>
All correlations are significant at the 0.01 level									
N = 329. Figures in parentheses are alpha reliabilities									

In testing the mediation effect, this study applied techniques recommended by Baron and Kenny (1986).

Four conditions need to be met in testing the mediator: (a) the independent variable must be related to the dependent variable; (b) the independent variable must be related to the mediator; (c) the mediator must be related to the dependent variable; and (d) the independent variable must have no effect on the dependent variable when the mediator is held constant (full mediation) or should become significantly smaller (partial mediation).

Following Anderson and Gerbing's (1988) approach, this analysis proceeded with comparison of hypothesized model to a series of nested models through chi-square difference tests (Bentler & Bonett, 1980) and goodness-of-fit indices. Goodness-of-fit measures were examined such as: the Tucker Lewis Index (TLI; Tucker & Lewis, 1973), the comparative fit index (CFI; Bentler, 1990), the goodness-of-fit index (GFI; Jöreskog & Sörbom, 1993), and Root Mean Squared Error of Approximation (RMSEA; Steigner, 1990; Browne & Cudeck, 1989). GFI were all above the recommended .90 criterion (Medsker, Williams, & Holahan, 1994); TLI that is greater than or equal to .96, CFI that is greater than or equal to .96, and RMSEA is less than or equal to .06 (Hu & Bentler, 1999) to show the parsimony adjusted fit indices for the overall model fit. Table 3 showed the hypothesized model 1 as complete mediated effect by POS at acceptable scores [ $\chi^2(18)=66.556$ ,  $p<.001$ , TLI=.0910; CFI=.955; GFI=.960; RMSEA=.091].

The hypothesized model was then compared with other nested models with constrained or unconstrained paths. Unconstrained path is to set free the parameter(s) or a path is estimated. Under these conditions, a comparison of any two sequential models serves as a test of the importance of the restricted parameters. The sequence of model comparisons continued until one rejects the hypothesized model, at which point the alternative model with the constrained or unconstrained parameters was tentatively accepted. The chi-square differences are compared. The significant in chi-square differences suggest that the added paths compare to the hypothesized model are meaningful. If the change of chi-square provides significant in an unconstrained model compared to the hypothesized model, the unconstrained model is superior over the hypothesized model because it suggests the added path(s) are meaningful to the model. If the change is not significant, the hypothesized model is a better fit because of parsimonious (Anderson & Gerbing, 1988).

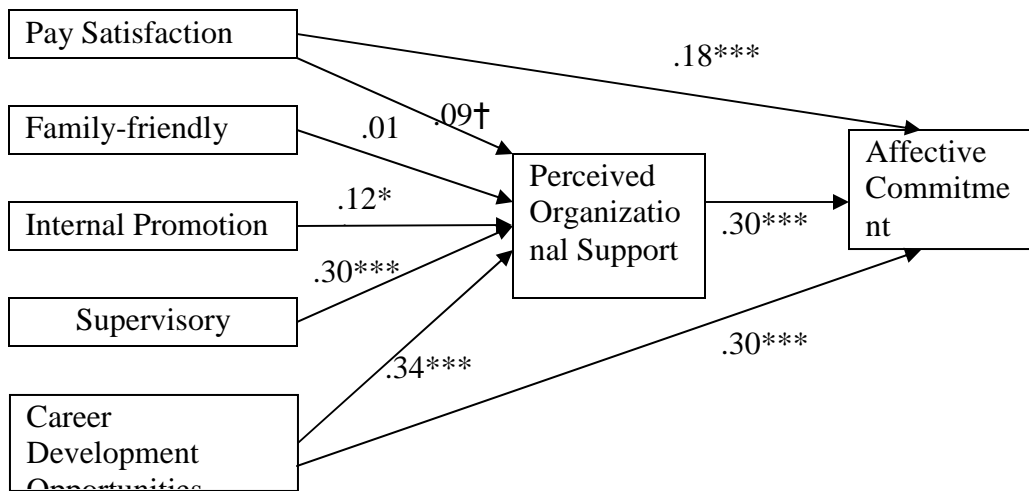


FIG. 1: FINAL MODEL AND RESULTS OF AMOS ANALYSIS

† $p<.1$ , \*\* $p<.05$ , \*\*\* $p<.001$

Fig. 1 shows support for second and third conditions for mediating effect for POS to AC. All the HRMP except for family-friendly policy are serving antecedents to POS, and POS is significantly predicting AC in a positive direction.

To examine the fourth condition, Table 2 shows the result for each model comparison. Model 2 to 5 tested the partial mediating effect for overall pay satisfaction, internal promotion, supervisory support and career development opportunities. The parameter for Family-friendly policy was constrained to zero in all the nested

models because of its poor regression results to POS. All the paths from antecedents to AC were added to compare with Model 1.

Model 6 scored [ $\chi^2(14)=17.881$  ( $p>.05$ )] suggesting a better initial model fit compared to Model 1. To assess whether Model 6 was the best depiction of the data, a chi-square difference test procedure was carried out with other alternative models. As can be seen in Table 2, Model 6 showed significant improvement compared to rest of the nested models. Thus, Model 6 is retained as the best fitting model. Standardized parameters are shown in Fig 1.

Results of Model 6 showed POS fully mediates internal promotion and supervisory support with AC, while partially mediates pay satisfaction and career development opportunities with AC. Hypothesis 3 is partially supported.

TABLE 2: RESULTS OF MODEL COMPARISONS

Models	$\chi^2$	df	$\Delta \chi^2$	$\Delta df$	TLI	CFI	GFI	RMSEA
Model 1 (Hypothesized fully mediated model)	66.556 ***	18	48.678 ***	4	0.910	0.955	0.960	0.091
Model 2 (Partially mediated for PS)	42.270 ***	17	24.388 ***	3	0.950	0.976	0.973	0.067
Model 3 (Partially mediated for IP)	54.861 ***	17	36.98 ***	3	0.925	0.965	0.966	0.082
Model 4 (Partially mediated for SS)	62.245 ***	17	44.363 ***	3	0.911	0.958	0.962	0.090
Model 5 (Partially mediated for CD)	30.820 **	17	12.939 **	3	0.973	0.987	0.980	0.050
Model 6 (Partially mediated model)	17.881	14	-	--	0.991	0.996	0.988	0.029
Note. N = 326. *** p < 0.001; ** p < 0.05								
TLI, Tucker-Lewis Index; CFI, comparative fit index; GFI, goodness of fit index; and RMSEA, root mean square error of approximation.								
FFP= Family Friendly Policy; PS= Pay Satisfaction; IP=Internal Promotion; SS=Supervisory Support; CD=Career Development Opportunities; POS=Perceived Organizational Support;								
AFC=Affective Organizational Commitment								
Model 1: All HRMPs to POS, POS to AFC								
Model 2: Add path from PS to AFC								
Model 3: Add path from IP to AFC								
Model 4: Add path from SS to AFC								
Model 5: Add path from CD to AFC								
Model 6: Add paths from HRMPs to AFC								

## Discussion

The full mediating effect on internal promotion and supervisory support by POS to AC indicated three different perspectives: 1) knowledge workers are looking for the highest hierarchical needs, the urge of self improvement and self actualization; 2) employees regard supervisory actions as personified message of favorable and unfavorable orientation towards employees, resulting employees' affectionate actions with their serving organization; 3) internal promotion strongly indicates discretionary, fair evaluation, and recognition from organization on individual efforts and performance. The results further support Rhoades & Eisenberger's (2002) and Wayne, Shore, & Liden's (1997) evidence of promotion as part of organizational rewards acts as antecedents of POS, in turn, foster stronger reciprocal attachment and identification to the organization.

As supervisors are responsible for performance feedback and appraisal to employees and report these feedbacks to senior management, they can be viewed as important middle person to reflect and influence organizational views on employees. Similarly, supervisor plays an important role in providing career related opportunities such as career related advice, extending career related network, providing training or promotion opportunities to employees. Social exchange's approach to commitment (Hrebiniak & Alutto, 1972) postulates that

the more favorable the rewards and experience of an employee, the more employee becomes willing to offer in return. Thus, supervisor's positive influence combined with organizational decisions reveals more personal, discretionary form of decision to cater employees, in return, invoke stronger social exchange and reciprocity from individuals back to organization.

Extending previous studies found in Yoon & Lim (1999) and Ogilvie (1986), this study fills the gap between supervisory support and commitment with POS. The result corroborates in the consistent prediction of supervisory support as one of the salient organizational support in the literature, with empirical studies by four industries in Malaysia (Rhoades, Eisenberger, & Armeli, 2001, Rhoades, & Eisenberger, 2002).

POS acts as partial mediating effect for pay satisfaction and career development opportunities to predict affective commitment. Malaysian knowledge workers are not likely to consider pay as a critical role to influence their perceptions of organization. This is shown by marginal significant overall pay satisfaction towards POS ( $b=.09$ ,  $p<.1$ ) and AC ( $b=.18$ ,  $p<.001$ ). From the hierarchy needs point of view, pay is viewed as fundamental support to employees' physiological needs, and will certainly reveal certain form of reciprocal commitment with calculative comparison to work with other organization. However, organization needs to go beyond remuneration package to show further recognition and appreciation to employees.

Partial mediation effect for career development opportunities ( $b=.30$ ,  $p<.001$ ) may suggest organizations need to provide strategic, intensive and result-oriented program that could effectively raise employees' performance and lead them to another level of responsibility and challenge at work. Knowledge workers are in the urge to handle complexity of tasks with strong analytical skills to creativity and problem solving. Organizations that equipped with fair, reliable assessment procedure to select qualified workers for result-oriented training would be deemed as extending concern by foster employees' ability at work.

Overall, this study contributes to the literature in a few ways. Employee perceptions of HRMP evidently enhance POS towards identification and affective attachment to their organization. Four HRMP explained 51 percent variance of POS, indicating the ERG related HRMP are deemed important tools for HR practitioners to portray care and support to organizational members. Consequently, variance explained by POS alone towards AC recorded 41 percent in this study, suggesting the strength of POS in elevating AC is justifiable to combined HRMP in other OC related studies (Ogilvie, 1986; Gaertner & Nollen, 1989; Paul & Anantharaman, 2004). This study invokes the importance of individual confidence and trust with the management actions against employees.

Secondly, this study systematically selected HRMP that satisfy employees' needs based on three levels of motivation, namely physiological (existence), relatedness, and growth needs that apply to knowledge workers across four Malaysian industries. Employees reciprocate organizational aid and benefits when their needs are satisfied with stronger emotional attachment to organization. When such attachment is formed, employees would repay their well treatment by internalizing organizational goals as theirs, extending extra effort, and resuming membership with the organization. Corroborating to Gaertner & Nollen's (1989) study, perception of organizational inherence relates to career-oriented employment practices, further increase employees' commitment to organization. The results indicated the importance to staffs retention to first understand and satisfy their internal orientation needs. Giving four HRMP closely link to career development, HR practitioners in Malaysia need to tailor specific goal-oriented HRMP to different career stages for ambitious knowledge workers to maintain and develop active form of commitments.

On the social context, Malaysian workers with its multicultural conformity across industries tend to show strong collective and relationship orientation. They preferentially seek career success from building good (harmony) relationship with colleagues and supervisors, forming "in-group" with trust and loyalty (Hofstede, 2001; Abdullah, 2001). Smaller firms with less hierarchical levels enable employees identify their supervisors with organizational characteristics. Supervisory support enhances the natural tendency of integration of organization members into organizational authority, ensuring loyalty to the organization (Abdullah, 2001).

Results demonstrated supervisory support has important implications for the affective emotional attachment of subordinates bring into their organization. Apart from collectivist society, Malaysian professional workers regard supervisory support as an integral part of social relationship, followed by economic exchange. This is rather different from western views of economic exchange surpass social exchange (Becker, 1960; Yoon & Lim, 1999)

## Limitations and Future Research

The inconsistency result for family-friendly policy in relation to POS deserves further investigation to understand reasons and mechanisms that is necessary to extend organizational support and care. Although family-friendly policy is regarded as one of the important element to meet emotional support with provision of care, it does not bring much effect to the increasing dual-working Malaysian knowledge workers. Family-friendly policy might not be as important as other needs as compared to self actualization needs that aid career progress.

Second, this study was assessed using self-report measures. It might raise the possibility that the variables reflect shared response biases. However, the result has considerable variability across HRMP with POS and AC in the inter-correlations values. Such measures are then convinced that the respondents were making clear discriminations when they are answering the survey.

Third, the data on human resource practices were recorded by one source. The reliability and validity of one person's perceptions could not be verified. However as the data collected from different industries, such bias could be minimized. It is hoped that future studies incorporated company records and managerial responses to have clearer comparison between HRMP that deal with comparison of perceptive and actual pay, promotion, career development opportunities, and supervisory support.

Fourth, the respondents are relatively young ( $M=31$ ,  $SD=6.8$ ) and single (60 percent). While they are young and ambitious with their career, it is not surprising to regard career related supervisory support that link to growth opportunities and promotion as important organizational support than other related HRMP. A study involving respondents with more experienced workers would be able to examine the validity of supervisory support as important organizational support, apart from cultural reason.

Finally, in spite of considerations of all hierarchical needs covering existence, relatedness, and growth needs, the other HRMP are yet to be distinguished to fully explain the variance for POS and AC. Although the four HRMP explained 51 percent of POS, there are some other important human resource practices that could confide employees as support and hence foster stronger bond to the organization. While other work outcomes are far to be reached in this study, future research should include performance record and actual turnover record that show the benefits of strategic, goal-oriented organizational supportive activities. This could elevate employer-employees relations from purely psychological dimensions to a practical, results-oriented approach.

## Conclusion

The salient role of POS as mediator for human resource management practices and affective commitment is a practical insight for the HR practitioners in Malaysia. For young knowledge workers, they are looking for higher needs such as self-esteem and self actualization rather than physiological needs. Organizational support could be best portrayed when employees feel that their socioemotional needs are fulfilled, thus, reciprocate with loyalty and extension of work effort to the organization. The findings revealed the importance of implementing goal oriented policies that first satisfy employees' internal needs. To the best of the author's knowledge, this is the first study that examines the association between internal needs, perceived organizational support and affective commitment using four industries from Malaysia. Through more research, the role of supervisory support can be examined in detailed form to better understand the connection between social support in a multicultural working environment and variety of organizational settings. This study explores the first step, but leaves further questions for HR practitioners and future research.

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Contact author for the list of references.



# Some Antecedents of Organizational Commitment: A Study on Employees of the Technical and Non-Technical Sector

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## Abstract

The main objective of the study was to develop an understanding of the major antecedents that contribute to the variance in employees' commitment to an organization. It was significant to establish the relationships in order to ascertain whether the three dimensions of organizational commitment was desirable, and which of the three dimensions can be strengthened. The study was conducted on 136 employees of a power utility in Malaysia—both the technical and non-technical groups of employees. Statistical analyses were utilized to establish whether there were significant relationships between the selected antecedents and the three dimensions of organizational commitment—*affective, continuous, and normative commitment*. Organization implications were then identified, and recommendations were suggested for appropriate human resource management policies and practices. **Keywords:** *Organizational commitment, affective, continuous, and normative commitment, antecedents.*

## Introduction

This paper examines some of the antecedents of organizational commitment among employees in two different job classifications—the technical and non-technical employees working for a power utility company. It examines the three dimensions of organizational commitment—*affective, continuance, and normative commitment*, identifying which, among the three components could be further strengthened for the purpose of enhancing employees' performance. Not much has been mentioned in the literature with regard to studies that examined the relationship of organizational commitment and job classification as its antecedents, although some has included job characteristic as an antecedent to organizational commitment (e.g., Allen & Meyer, 1990; Steers, 1977). Examining job classification as an antecedent therefore, will be able to add and update most, if not all the antecedents in its relationship to organizational commitment.

Organizations are concerned on employees' loyalty and commitment, when employees can be expected to change their behaviors at the workplace, especially in a situation when incentive of security is no longer available from the organization. Handy (1989) expresses this concern when predicting the secure and long-term employment to become a less significant aspect of future careers—and for many employees, it is already an unrealistic objective (Hartmann & Bambacas, 2000). In this context, Hirsch (1987) predicts a lesser level of commitment due to the uncertainty in employment for individuals that result in the need for self interest and career management. The prediction is concurred by the suggestion that employees who remain with the organization after downsizing indicate strong organizational commitment (Long, 1995).

Organizational commitment has been regarded as one of the important construct in the organizational behavior literature because of its impact on employees' performance. Employees' with low commitment is regarded to be costly that deserves the attention of the management (Ward & Davis, 1995). The importance of organizational commitment for an organizational study is also concurred by Benkhoff (1997) citing the reason for its importance to be one of the most popular research subjects—i.e., the assumed impact on performance, in which effective employee performance is the ultimate outcome of and purpose of commitment (Maxwell & Steele, 2003).

Although there were several studies examining organizational commitment in its relationships with many other factors—e.g., job satisfaction, turnover, organizational performance, and productivity, yet the effect of commitment on performance is still largely assumed and not conclusive. As Benkhoff (1997, p.702) has pointed out, “researchers have not been able to come up with evidence that commitment and performance go hand in hand”. Apart from various examinations on organizational commitment relationships with other attitudinal constructs, organizational commitment has been also been examined in terms of its relationships with its antecedents (e.g., Stallworth, 2004). Varied antecedents of organizational commitment have been examined in various classifications—personal, job, and organizational (Allen & Meyer, 1996; Mathieu & Zajac, 1990), and structural characteristics (Mowday et al., 1982) because they were quite diverse in their nature and origins (Steers, 1977, p.53). Among these researches, many focused on factors that employees felt the organization was supportive and employees were valued (Meyer & Allen 1997), which were labeled as ‘employee-focused’ (Bridges & Harrison, 2003). The present study however, concentrates on job classification which belongs to the job characteristics classification, because of two reasons: Firstly, because of dearth in research to examine job classification as the antecedent, and secondly, because of the organization that segregated technical from non-technical employees when dealing with compensation. Technical employees need to have technical skill and competencies to perform specific duties compared to those of the non-technical employees who perform simple, day-to-day routine work. Technical employees were perceived to have a mechanistic-type of attitude compared to those the non-technical employees that were perceived to be more humanistic. Based on the premise that these two categories of employees differ in nature of job role and attitude, therefore we believed that this job-related characteristic is significantly predictive to organizational commitment and influenced the variance of commitment between job classification.

## Literature Review

The study adopts Meyer and Allen’s (1991) model of organizational commitment that consists of the three organizational commitment dimensions—*affective*, *continuance*, and *normative*. *Affective* commitment refers to the employees’ emotional attachment to the organization, and in essence, with affective commitment, employees stay with the organization because they want to. *Affective* commitment means that employees have emotional attachment with the organization, and in order to achieve this attachment, organization has to help employees to value participation. Recognition, special rewards, and respects demonstrated by managers and supervisors are some of the factors that contribute to greater affective commitment. If employees look at themselves as part of the organization, and the more employees value themselves being part of the organization, the more likely they tend to remain with the organization, such as job satisfaction and negatively related to intention to quit, burnout, and lower self-esteem (Sethivikram, Kingrking, & Sethiavsethi, 1996).

The second dimension of organizational commitment is the *continuance* commitment, which is based on the costs that employees are associated with leaving the organization, i.e., employees stay because of comfort and because they have to. *Continuance* commitment is linked with employees’ obligation to remain with the organization because of benefits and perks they receive. This type of commitment helps to reduce turnover and not to increase their affective commitment, but just because they cannot afford to do so.

The other dimension of organizational commitment is the *normative* commitment, which refers to employees’ feelings of obligation to remain with the organization—i.e., employees stay because they feel that they have to do so. Employees in this type of organizational commitment remain with the organization because of their beliefs in that it is the right and moral thing to do (Weiner, 1982, p.429).

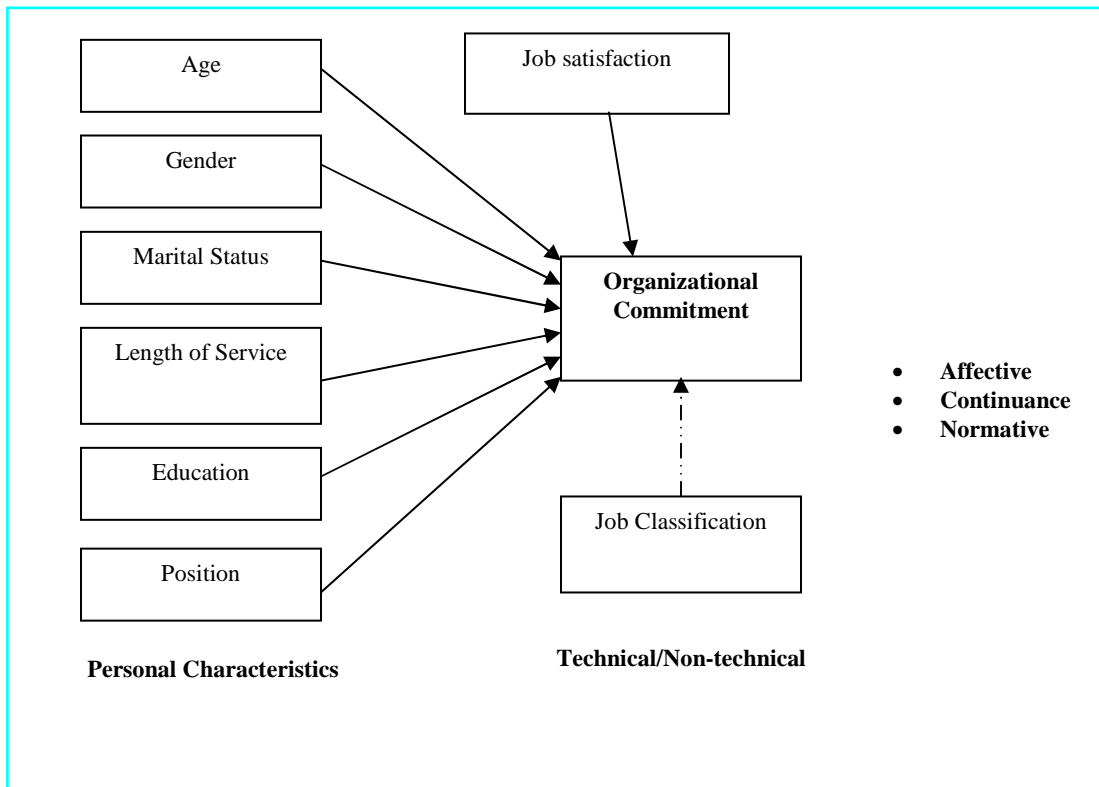
Review of literature indicates that organizational commitment is linked to various antecedents ranging from the personal to the organizational characteristics. The organizational commitment construct is important because it relates to the organizational success in terms of employees’ performance, absenteeism, and turnover. Although there seems to be a little consensus concerning the way it is defined, most researchers conceive organizational commitment as involving some form of psychological bond between people and organization (Camilleri, 2002). Allen and Meyer (1990) conceptualize organizational commitment as multidimensional that is made up of three components or dimensions—*affective*, *continuance*, and *normative*.

Several studies over the years have linked organizational commitment with performance, identifying factors that distinguish specifically between the three dimensions of organizational commitment that would shed greater light for the management to focus. Given the issues around the need to retain employees especially those with respective job competencies, this study is expected to put some recommendations on which aspects of employees' attachment could be strengthened. Organization needs to retain good and competent employees because finding new employees of equal ability and job experience is difficult, especially those the organization had trained with relevant job-competencies and skills. According to Steers (1977, p. 47), the nature and quality of work experience that employees gathered during their tenure in the organization influences employees' commitment to the organization. Personal characteristics, job-related characteristics, work experiences (Steers, 1977), and structural characteristics (Mowday et al., 1982) were four of the organizational commitment categories that were argued as influential.

Camilleri (2002) summarized the findings from the literature review regarding the relationships between organizational commitment and antecedents to include position tenure, age, gender, education level, family life cycle, individual character, and role states. In line with the study, this present study attempts to examine the relationships of some of the employee's personal characteristics that were considered in previous research as the antecedents—i.e., employees age, gender, marital status, length of service, education, and position (e.g., Beck & Wilson, 2000; Karrasch, 2003; Lok & Crawford, 2001), besides job satisfaction that has been cited in previous literature as the antecedent to organizational commitment. It has been contended that employees with a broad job scope tend to have a higher commitment because of the wider range of duties and responsibilities assigned to them (Allen & Meyer, 1990; Steers, 1977; Stevens et al., 1978). When employees experience more challenges in the organization, they become more committed.

Based on the review of the literature, this study examines the employees' personal characteristics and job satisfaction as antecedents to organizational commitment—examining a group of employees from two different job classifications, with the assumption that there is a mean difference of organizational commitment between the two classifications of employees. Figure 1 illustrates the research framework from which the following hypotheses are developed:

1. **Age:** *Older employees have higher degree of affective commitment.* This is based on the premise that older people tend to have a stronger sense of belonging to the organization they work.
2. **Gender:** *Females tend to have lower degree of organizational commitment.* In many studies, it was shown as women to place a greater emphasis on family role than men. Along the same premise, we also hypothesize that women are less committed than men.
3. **Marital Status:** *Married employees have a higher degree of organizational commitment.* Being bread winners for the family, married employees tend to be more engaged with the organization.
4. **Education:** *Employees education background affects variance in organizational commitment.* This is based on the premise that employees with lower education level will stick to the organization while those with higher educational background will look forward for better opportunity.
5. **Length of service:** *Employees with longer services have higher degree of affective commitment.*
6. **Position:** *Employee's position affects variance of organizational commitment.* This is based on the premise that employees who are satisfied with their job position tend to stay while those who do not will look to quit.
7. **Job classification:** *There is a significant mean difference in organizational commitment for employees of different job classifications.*
8. **Job satisfaction:** *Job satisfaction influences employees' commitment to the organization.*



**FIG 1: THEORETICAL FRAMEWORK OF STUDY**

## Methodology

### Samples

More than 200 questionnaires were sent out to respective stations either through postal or through representatives of the stations where survey was to be conducted. Respondents were staff and employees of a power utility operating its business throughout the peninsular. Respondents were classified into two job classifications—technical and non-technical. The technical group consisting employees with technical competencies and performing technical duties (e.g., technician, electrician, mechanics), and they are members of the technical service union, whereas the non-technical group consists employees of the support services, working mostly in the administration department, and members of the junior officers' union. Respondents work at various levels and having different education and cultural background. However, 151 questionnaires duly completed were returned, and 136 of them were found to be valid for further analysis. The mean age of samples is 40 years, and the average length of service is between 1 to 10 years. Length of service ranges from less than 1 year (18.4%) to more than 20 years (31.6%). Of the 136 respondents, 54 percent reported to have passed the secondary school examination, 7 percent has higher school certificate, and 5 percent with college or polytechnic background. 31 percent of the respondents have passed primary school education only. Table 1 shows respondents' personal profiles.

TABLE1: RESPONDENT PROFILES

<b>Gender</b>	<b>Nos. (Percentage)</b>	<b>Marital Status</b>	<b>Nos. (Percentage)</b>
Male	104 (76.5%)	Single	18 (13.3%)
Female	32 (23.5%)	Married	118 (86.8%)
<b>Age</b>			
19-24	6 (4%)	<b>Ethnic</b>	
25-29	20 (15%)	Malay	125 (91.9%)
30-34	17 (12%)	Chinese	6 (4.4%)
35-39	15 (11%)	Indian	5 (3.7%)
40-44	19 (14%)	Others	0
45-49	24 (18%)		
50-56	35 (26%)		
<b>Education</b>		<b>Work Station</b>	
Primary School	42 (31%)	North	23 (17%)
Secondary School	73 (54%)	East	1 (1%)
School Certificate	9 (7%)	Perak	1 (1%)
High School Cert.	7(5%)	Selangor/Wilayah	14 (10%)
Polytechnics	2 (1%)	Melaka/NS	29 (21%)
College Diploma	3 (2%)	Johor	3 (2%)
Degree		Pahang	65 (48%)
<b>Length of Service</b>		<b>Job Classification</b>	
<1 year	25 (18.4%)	Technical	50 (36.8%)
1-10 years	51 (37.5%)	Non-technical	86 (63.2%)
11-20 years	17 (12.5%)		
20 years	43 (31.6%)		

## Measures

### Organizational Commitment

Apart from the demographic data, the instruments utilized were based upon proven questionnaires conducted from previous studies. The three dimensional instrument developed by Allen and Meyer (1990) was adapted to measure organizational commitment. It uses a seven point Likert scale, the response categories for each item ranged from strongly disagree to strongly agree. Each item was given a score ranging from one to seven, depending on whether the respective question has positive or negative impact on organizational commitment. The responses for each item were then summed up, and the average was calculated to produce organizational commitment score. Organizational commitment was measured on the three dimensions— affective, continuance, and normative.

## Results

Means, standard deviations and reliability coefficients of job satisfaction and organizational commitment variables are as in Table 2. All variables are in the range between .84 and .96 to indicate respective variables degree of reliability as acceptable. Means for job satisfaction is 5.30, while affective, continuance, and normative commitment are 5.36, 5.54, and 5.35 respectively indicating their level of commitment.

TABLE 2: MEANS, STANDARD DEVIATIONS, AND RELIABILITY COEFFICIENTS OF JOB SATISFACTION AND ORGANIZATIONAL COMMITMENT VARIABLES

Variable	Cronbach's Alpha	N item	N	Means	SD
Job satisfaction	.96	30	136	5.30	.90
Affective commitment	.84	8	136	5.36	.77
Continuance commitment	.89	8	136	5.54	.84
Normative commitment	.89	7	136	5.35	.83
Organizational commitment	.93	23	136	5.42	.71

TABLE 3: CORRELATIONS OF PERSONAL CHARACTERISTICS, JOB CLASSIFICATION, JOB SATISFACTION, AND ORGANIZATIONAL COMMITMENT

	1	2	3	4	5	6	7	8	9	10
Age	-									
Gender	.19*	-								
Education	-.22**	-.16	-							
Length of service	.51**	-.16	.12	-						
Position	-.13	-.13	-	-	-					
Job Class.	.08	-	.30**	.56**	-	-				
Job Satisfaction	.04	.31**	.27**	.38**	.44**	.46**	-	-		
Affective commitment		.23**	.28**			.39**				
Continuance commitment	.28**	.10	-.09	.01	.148	.07	.50**	-		
Normative commitment	.07	.00	-.07	-.13	.17*	-.10	.49**	.61**	-	
Organizational Commitment	.06	.03	-.11	-.18*	.23**	-.13	.54**	.65**	.63**	-
	.15	-.03	-.10	-.12	.20*	-.06	.59**	.86**	.86**	.88**

Notes. \* $p < .05$ ; \*\* $p < .01$

Table 3 shows the result of correlations between the selected antecedents, i.e., the personal characteristics and job satisfaction and the three dimensions of organizational commitment— affective, continuance, and normative commitment. Affective commitment is significantly correlated to age ( $p < .00$ ), position ( $p < .05$ ), and job satisfaction ( $p < .00$ ), while continuance commitment is significantly correlated to position and job satisfaction only. Normative commitment is significantly correlated to tenure ( $p < .05$ ), position ( $p < .00$ ), and job satisfaction ( $p < .00$ ). organizational commitment, as a whole is significantly correlated to position and job satisfaction.

Analysis of variance was performed to examine the associations between the selected antecedents and the three dimensions of organizational commitment— affective, continuance, and normative to demonstrate the significant effect of each antecedent on the respective organizational commitment dimensions. Table 4 shows the

results of the analysis indicating the significant of respective constructs. Age was found significant ( $F=3.39$ ,  $p<.01$ ) for affective commitment, while gender, marital status, and tenure did not reveal to affect all the three dimensions of organizational commitment. Employees' educational background however showed its significant effect on continuance commitment, while employees' job position in the organization was found significant to affect normative commitment. As expected, job satisfaction, the attitudinal factor which was found significant in most researches was also found significant in this study. The additional antecedent for the study, i.e., job classification revealed high significant result in all the three dimensions of organizational commitment to denote job classification factor did contribute as a significant antecedent to organizational commitment. Table 5 shows the levels of organizational commitment for the two classifications of employees.

TABLE 4: ANALYSIS OF VARIANCE (ANOVA)

Variable	Affective commitment (F-Value)	Continuance commitment (F-Value)	Normative commitment (F-Value)	Organizational commitment (F-Value)
Age	3.39**	.99	.78	1.58
Gender	1.35	.00	.09	.75
Marital status	1.61	.01	.15	.08
Tenure	.21	2.08	2.20	1.42
Education	1.76	2.05	1.47	1.92
Position	2.04	2.25	2.90*	2.72*
Job classification	4.19*	6.78**	7.16**	7.37**
Job satisfaction	5.70**	12.90**	62.21**	13.84**

Notes. \* $p < .05$ ; \*\* $p < .01$

TABLE 5: LEVEL OF ORGANIZATIONAL COMMITMENT BY JOB CLASSIFICATION

Job Classification	Affective Commitment		Continuance Commitment		Normative Commitment		Organizational Commitment	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Technical	5.63	.82	5.68	.85	5.43	1.03	5.61	.81
N-Technical	5.15	.78	5.24	.96	5.05	.78	5.14	.54

## Discussion

The study examines some of the selected antecedents of organizational commitment on employees of different job classifications with the assumption that there was a significant mean difference between employees of the technical and non-technical professions. The three dimensions of organizational commitment— affective, continuance, and normative commitment were examined to contribute an understanding, which among the three was the most significant as it could enlighten the management for further improvisation.

Age was found significant for affective commitment denoting the importance of age factor to play a significant role in influencing the creation of emotional attachment to the organization. The older employees were perceived as being more sentimental to their organization than the younger ones. The finding contradicts to the study of Camilleri (2002) which found age as not the influencing factor towards organizational commitment. The finding also contradicts to study of Beck and Wilson (2000) indicating tenure as more valid antecedent of commitment than age.

Gender, marital status, and length of service did not reveal any significance to the three dimensions of organizational commitment, although other research did show the significant of gender (Grusky, 1966), where women were posited as more committed than men because of more barriers they had to overcome. Although there were previous research that focus more on continuance commitment argued that women were more committed than men (e.g., Grusky, 1966; Hrebiniak & Alutto, 1972), this study did not however reveal any significance, which may be attributed by the job classification factor—i.e., technical employees that were mostly dominated by men. However, support to this study came from Mathiew and Zajac's (1990) meta-analysis of antecedents, correlates, and

consequences of organizational commitment when results from more than twenty studies showed no gender differences in organizational commitment.

Education was found to be influencing continuance commitment, to support the finding of study conducted by Camilleri (2002). Being technical in nature, qualification is an important factor for the organization to consider in determining employees future career path. Employees with qualification that is highly technical and specialized may have higher expectation for the organization to consider.

Job position was found significant to organizational commitment that is consistent with the finding of study conducted by Lok and Crawford (2001) indicating position to be positively associated with organizational commitment. Job satisfaction, the job attitude that is related to employees' job scope, duties, and responsibilities was found significant.

The last construct examined in the study was the job classification. The study was conducted mainly on employees from two different job classifications—technical and non-technical, with the assumption that different background and nature of job scope did affect the levels of employees' commitment. Technical employees work in high technological and structured environment where automation and workflow integration influence people's behavior at work. Grayson (1993) for example, examined the relationship among skill, autonomy, and technological change, and found that those who characterized their jobs as skilled were more likely to report on technology to influence their work.

Results of this study too, showed quite highly significant for job classification as an antecedent to organizational commitment. Technical employees seem to demonstrate higher level of commitment compared to those of the non-technical employees. Technical employees are skilled, competent, and trained to perform their job, while non-technical employees such as the clerical officers and support staff are not really required to have specific training to perform their routine office duties. Knowledge, training and clear career path experienced by technical employees through services in the organization, besides other factors such as higher pay and rewards were some of the contributing factor for exchanging to commitment for this type of job classification, i.e., technical employees. The result concurs my previous study conducted on employees at power plants (Ibrahim, 2003), in which the study that examined the interaction effects of technology and structure on affective commitment which revealed high affective commitment to derive from the interaction of high level of structure and high level of technology employed by the organization. What the study indicated was that technical workers involved with high automation and workflow integration—i.e., technology factor, were found to be more committed than those involved with low automation and workflow integration.

The study thus had accomplished its objective in examining job classification— technical and non-technical as an antecedent of organizational commitment—examined from the job-related perspective, besides the personal characteristics (Steers, 1977). There were two major implications that the organization has to consider. One is the age factor whereby older employees were found to have higher affective commitment than the younger while different job classifications influenced the levels of commitment. Compensation packages, training programs, and job enrichment were among the human resource management factors the organization has to consider. The organization has to consider the role of employees from the non-technical sector as well as equally important to the technical—serving as support staff in the administration and management process towards achieving organizational goals—organizational performance. Based on the finding, organization has also to consider employees' age. Age and job performance relationship had been an issue of importance on the premise that older employees brought with them positive qualities—specifically experience, judgment, strong work ethic, and commitment to quality. In a study that was based on age-turnover relationship, it was concluded that older workers were less likely to quit their jobs (Rhodes, 1983). Therefore, organization has to consider whether it is necessary to increase the age limit for optimizing performance. Reichheld (1996) who was concerned on loyalty suggested it—age as one of the great engines of business success. As expected job satisfaction is significant to antecedent of organizational commitment.



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## **Career Development and Related Factors in Moving Communities Based on Indian Knowledge Workers in Tokyo**

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### **Abstract**

**Knowledge workers have increasing international mobility and flexibility on their career development. Fieldwork on the Indian community and interviews with 14 Indians who have extended their career through local contracts in the IT-Finance Industry in Tokyo were conducted to find the related factors that enabled such career development in a foreign country. Three main factors were found: (1) Changing companies for more challenging offers is common, but limited mostly among foreign and English-speaking Japanese firms; (2) Business networks which increase their growth possibilities inside the industry; (3) Good adjustment because of a safe, convenient, and friendly environment, regardless of their Japanese ability. Through the influence of these three factors, working in Tokyo, for which most interviewees had no special readiness, became a major turning point. It is hypothesized that those on engineering jobs will be more influenced by factor (1) and that those with managerial positions by factor (2).**

### **Introduction**

The concept of knowledge worker refers to the group of workers “whose expertise, valued by organizations as a source of competitive advantage, offers them access to rewarding jobs and careers” (Peiperl, Arthur, Goffee Morris, 2000). Industries such as information technology (IT), whose main management resource is people, compete to have the most qualified workers (Oki, 2003). Given that technology degrees include a fair amount of information technologies and that the demand in the IT industry is so high that the biggest companies in the industry have large in-house training for new recruits, knowledge workers don't necessarily have their academic background limited to computer science (Oki, 2003).

The world-wide competition for the most talented (The Economist, 2006) and the universality of computer standards makes IT knowledge workers one of the most mobile and sought-after segments of the workforce. Having much fewer migration restrictions than less-skilled counterparts, knowledge workers from India, but also from many other developing countries have been going to the USA in large numbers since 1965 (Helweg and Helweg, 1990; Lessinger, 2003). In a lower rate, such migration has been directed to other English-speaking countries, namely UK, Australia, New Zealand and Canada (Docquier and Rapoport, 2004; Khadria, 2002; Voigt-Graf, 2003).

There is yet no major study specifically on the careers of Indian knowledge workers abroad, but one of the most paradigmatic images of Indian knowledge workers abroad is that in Silicon Valley, where at least 300.000 of them work (Dhalman and Utz, 2005). Since the place is famous too for the mobility of the work force (Saxeninan, 1996), It is thus, plausible to think that careers abroad might be much more complex than that of corporate expatriates who transfer national borders but remain inside the organizational boundaries.

Research on careers of Indian knowledge In Japan is non-existent; nonetheless they are sort of a new phenomenon (Asahi Shimbun, July 5<sup>th</sup>, 2006). The Indian community in Japan was no more than 5,169 in 1994. However, by 2004 it had tripled to 15,480, of which 6,380 are registered in the Tokyo metropolitan area<sup>1</sup>. In 2001 Indians displaced Filipinos for the first time as the third largest group of foreign workers in IT in a survey of the Japanese Information Technology Services Industry Association (JISA), though the number is still way behind the Chinese (Saitoh, 2006). This expansion of Indian IT companies into the Japanese market seems partly motivated in turn by the tighter migration policy of the USA and economic downturn after September 11, 2001<sup>2</sup> rather than an ease in the migration policies, since in Japan the number of Indian knowledge workers under the visa status of

“engineer” hasn’t been limited by any yearly quota and their stay can be unlimitedly extendable by periods of three years. Since April 2001, an accreditation system for information technology engineers and 5-year terms for each visa extension were introduced in order to further encourage the migration of Indian knowledge workers to Japan<sup>3</sup>.

## **Purpose**

The purpose of this paper is to contribute and deepen the understanding of career development abroad and its related factors. In contrast with extensive research that has already been done on corporate expatriates (Takeuchi, Marinova, Lepak, and Liu, 2005; Bonache, Brewster, and Suutari, 2001; Suutari and Brewster, 2000), we focus on the relatively small group of Indian knowledge workers who have extended or plan to extend their stay in Japan through local contracts inside the IT-Finance industry. By doing this, and following an increase on the attention migration and cultural issues in careers (Lin, 1995; Pringle and Mallon, 2003), we seek to enlarge the scope of career research by focusing on the career development of migrants, and among these, knowledge workers, who enjoy one of the highest mobilities internationally (Docquier and Rapoport, 2004) and organizationally (Saxenian, 1996).

## **Subjects and Method**

### **Subjects**

Focus was placed on those subjects who fulfilled three requirements: (1) have Indian nationality, (2) work in the IT-Finance industry, and (3) have three years of experience working in Japan. These requirements were set to guarantee that all subjects are under the same legal framework and environmental factors. The third restriction was set after initial contact with the field and seeing that is very common to change companies before 3 years. One subject with just two years of experience was included as he had already changed jobs after one year in the country.

### **Method**

The methodology used to present paper is qualitative. This choice of methodology responds to the need to reduce the unit of analysis to the individual, for both migration (Brettell and Hollifield, 2000) and careers (Arthur, Inkson, and Pringle, 1999; Alvarez, 2000). After initial fieldwork identifying the Indian community in the Tokyo metropolitan area and its representative social networks, interviews were conducted with 14 Indian knowledge workers from business, educational and leisure networks: Two business networks could be reached, namely, a network aiming “to promote economic relations between India and Japan” (5 subjects) and a networking platform for the Indian IT industry backed by the Indian embassy (2 subjects). On the educational domain 2 different networks could be contacted. One is based on a top university in India (4 subjects) and the other based around a top Japanese university (2 subjects). Finally looking at leisure networks a cricket team formed mainly by Indian IT engineers could be found (1 subject). As many as 5 subjects were met in more than one network, signaling that there are substantial overlaps. The interviews were scheduled by subjects’ convenience and lasted about 1 hour. The interviews were intentionally flexible and the questions were open-ended. With subjects’ consent they were recorded and, as in Arthur et al. (1999), the analysis was done from a fieldwork perspective, rather than statistically. The general structure and several questions were adapted from the protocol used by Arthur et al. (1999) but more emphasis on cultural aspects and the development and use of networks was added. The interview protocol included 9 sections, detailed in table 1.

TABLE 1: INTERVIEW PROTOCOL SECTIONS

(1) Basic personal information	Age, civil status, children
(2) Experience in India	Academic background and jobs in India
(3) Arrival to Japan	Reasons and initial plans
(4) Jobs in Japan	Experiences in each company and reasons behind each change
(5) Points of no-change	Moments in which they thought seriously about changing jobs but didn't
(6) Future planning	Eventual return, remigration
(7) General questions on career	Subjective view about ones career
(8) General questions on Japan	Perceptions on the country
(9) Networks	How they got to know people in Japan and how they extended their social circles

## Results

### Subject Characteristics

In this section subjects are described regarding: demographic data, academic background, migration mechanisms, and reasons to come to Japan, as well as initial intentions on arrival. We shall refer to each of the 14 subjects by the labels Case 1 to Case 14, by decreasing order of age. Appendix 1 and Appendix 2 provide an overview of the 14 subjects' profile and career progression.

#### *Demographic data*

Subjects are all male and arrived in Japan with an age ranging from 22 to 32 years (av. = 25, SD = 3). On arrival, only one was married but now 10 of them are (in all but one case, with an Indian woman). Their stay in Japan ranges from 2 to 15 years (av. = 9, SD = 4) with ages ranging from 25 to 46 (av. = 34, SD = 6).

#### *Academic background*

They all have a scientific or engineering academic background, with the exception of Case 5 (Economics) and Case 12 (Sociology). However, only Cases 6, 10, 11, and 14 studied computer science as a degree. The qualification level on arrival in Japan was of master in Cases 1, 2, 5 and 14 and bachelors in the other eleven cases. While in Japan, Case 5 did a Ph.D. and Case 13 an MBA, full time. Cases 7 and 8 acquired qualifications related to finance simultaneously with their work in Japan.

#### *Migration mechanisms*

From 14 subjects, five of them arrived to Japan through a job offer in India (Cases 4, 5, 6, 8 and 9), while the other nine were sent to Japan by their companies, with the exception of Case 2, directly from India.

#### *Reasons to come to Japan*

While going to work abroad is a very common aspiration in the subjects' environments, only 4 of the 14 subjects had some preference to come to Japan: (Case 3) the Japanese quality systems; (Case 5) the Japanese rapid economic development after World War II; (Case 6) interest on doing something outside the major trends (namely working in

IT in the US); (Case 11) Japan's leading technology. The other 11 subjects rather thought about going to the US and had no special connection with Japan before the opportunity was presented.

*Initial vs. present intentions*

On arrival, only Case 3 and 5 had the intention to stay for 3 or more years in Japan. Cases 4, 6, 8, 10 and 12 didn't have any clear plans regarding migration. Eight of the subjects regarded their experience in Japan as a two year experience or less, five of them (Cases 1, 2, 7, 13 and 14) were working on concrete projects with a definite end. However, plans changed. One illustrative example is Case 7, who came for a six-month project and has been staying already 10 years in the country: *"Japan is a very special place. People don't know much about it until they come here, that's how it was when I was in India, I just came here by coincidence, and I was amazed by how things are."* *"[The future is] not decided yet. Definitely it is whether settling in Japan or in India. One of these two places", "we don't know... that's the dilemma that we have. We like this place so much!"* Thus, even though intentions regarding migration do change over time, at the time of the interview we can broadly classify them into 4 groups: those who plan to return to India, those who plan to remain in Japan, those who doubt between one or the other, and those who want to migrate to another country (Table 2).

TABLE 2: FUTURE INTENTIONS

India	Japan	3 <sup>rd</sup> Country
11, 12	1, 2, 4, 5, 6, 14	3, 10, 13
7, 8, 9		

**Career Development**

The academic background in India is a strong determinant of the social status, and possibilities in the labor market (Oki, 2003). The educational system of India is clearly stratified in three categories. In the first category there are Indian Institutes of Technology, Science, Information Technology, and Management (15 institutions). In the second category there are 17 Regional Engineering Colleges and the 33 general Universities and some private institutions. In the third category there are other 200 public institutions and 550 private ones (Oki, 2003).

7 subjects (Cases 1, 2, 7, 8, 9, 13, and 14) who graduated from institutions in the first category, entered the labor market through what is called a "campus placement" by which companies go to the universities to attract the best students. Students may join several selection processes, but once they are offered a job by one company they have to either accept or decline at that moment. Since only major or rapidly growing companies do this kind of selection process, at least among the subjects, it is quite common to take the first firm offer.

The seven subjects who graduated from institutions in category 2, (Cases 4, 5, 6, 7, 11, 12, and 13) applied themselves for their first jobs in India. It is worth to mention that all the 4 subjects who studied Japanese in India, either self-motivated (Case 3) or as part of the company training (Case 6, 10, and 11), are in this group.

The shift of 10 subjects who don't hold a degree in the computer science to IT is a reflection of abundant opportunities in the industry. Thus, their career development is not troubled by fears of loss of employment, but rather on materializing their potential, always keeping an eye on the best opportunities. These opportunities are what brought them to Japan, however what factors lead them to extend their stay in the country shall be now considered.

**Factors**

Three main factors have been identified to be especially relevant to their decision to extend their stay in Japan: (1) changing companies for more challenging offers, mainly among English-speaking firms, (2) business networks developed inside the country, which increased their opportunities inside the industry and (3) a good adjustment to life in Japan.

**Changing Companies for More Challenging Offers, Mainly Among English-speaking Firms**

In order to understand the process by which the subjects started their career development in Japan we separate 15 subjects according to their initial employment situation in the country and analyze immediately their career developments thereafter. Five different groups can be distinguished:

- (a) *Engineer working in an Indian IT company for a project (5 subjects)*

Cases 7, 13 and 14 switched for jobs in investment banks, Case 7 even before completing the 6-month project, and Case 13 after doing an MBA in Japan. Case 6 left Japan to gain experience in the US (only to find that was assigned to projects for customers in Japan and two years later returned), Case 1 received two extensions of the contract and eventually was promoted to management of the operations in Japan.

*(b) Engineer working in a Japanese IT company leveraging Indian HR: (2 subjects)*

Engineers in this group, Case 10 and Case 11, received intensive Japanese language training in India before being sent to Japan<sup>6</sup>. In less than two years Case 10 accepted the offer of the investment bank where he was working in a project while Case 11 continued working in the same company, eventually being promoted to business development.

*(c) Engineer working in an English-speaking Japanese company: (3 subjects)*

These three subjects applied and got the jobs in Japan while they were in India. Two of them, Case 8 and Case 9 (after being introduced by Case 8) joined a research firm and the other, Case 4 an IT company. In both companies the workforce included a wide variety of nationalities and was smaller than 50 employees. After 2 years in the country, all three subjects had already switched companies. Case 8 joined an investment bank, Case 9 to an IT company owned by foreigners and Case 4 joined a one-year project for an investment bank.

*(d) Engineer working in an American investment bank: (1 subject)*

Case 2 joined the investment bank in India, and after a year and a half was transferred to Hong Kong. Then, after two years commuting between Hong-Kong and Tokyo, he accepted a local position in Tokyo, where allowing for internal changes, has remained for fourteen years. He acknowledges that his behavior is very particular, motivated for his search of flexibility in the workplace. All the colleagues with whom he arrived accepted better-paying offers from head-hunters but he rejected them.

*(e) Manager for IT companies leveraging Indian HR: (3 subjects)*

Two of the subjects, Cases 3 and 12, were hired and sent by their companies in order to develop business in the Japanese market. Case 3 stayed four years before changing companies in order to focus on banking, Case 12 changed after one year for a higher responsibility in another company who also wanted to establish operations in Japan, where he has stayed until today. The third subject, Case 5, came to Japan to join a Japanese company run by an Indian, where he stayed 3.5 years before switching for a foreign IT consultancy.

Combining groups (a), (b) and (c) (10 subjects), we see that jobs in investment banks are a popular career move among the Indian knowledge workers who extend their stay in Japan (six subjects changing directly, one more did after the second company). Subjects explain their change not only because of a much higher salary, but also in order to see a new industry with a wide variety of job roles. Working on projects for financial institutions instead of a development center in India opens a new range of possibilities:

*(Case 10) "Even before I decided to change, I liked [Investment Bank X], it's like a cool company to be working with, and in Japan... it's good here, and I don't want to be with [IT services company Y] anymore. The way I do it, I don't go to the IT manager and say 'hire me'. What I do is to raise my productivity to an extent that it gets noticed, so that he says, 'you are a very good guy, I want you in my company, why don't you join us?'"*

Joining an investment bank, or any other company in Japan, though, doesn't put an end in career changes. Altogether, only two of the subjects have stayed until today in their initial company in Japan and as many as nine subjects in 3 companies or more. From the 25 company changes in Japan of all 14 subjects combined, only 4 of them have been forced by the loss of employment. The other 21 moves respond to strategic moves to improve one's career.

Looking at all the companies where they have worked while in Japan a clear trend towards employment in foreign companies and English speaking environment is observed. From the 42 companies (counting repetitions) where they have worked, only 12 are Japanese (29%). This number is further reduced to 7 (17%) if we only count those Japanese companies with Japanese as main language for work. Indian knowledge workers who extend their stay in Japan do it by changing companies and mainly foreign ones.

**Business Networks Increase their Opportunities inside the Industry**

Having business contacts in Japan, and especially knowing how to develop new ones played an important role in the extension of the stay in Japan for 6 of the subjects. They can be classified in three different groups:

*(a) Rejecting to go back to India when called back to the head quarters (2 subjects)*

Case 1 and Case 3 decided to leave their companies when they were asked to return to the head quarters after 9 years

(6.5 in management) and 5 years in Japan respectively. From their perspective, a return to India would not recognize their efforts in developing trust with Japanese clients. Case 1 joined an IT company while Case 3 joined another company starting business in Japan: *“the management asked me to come back after 5 years of being here and establish a Japanese focused office, the Japan help-desk sort of thing; [would that be the case] I’d be losing all my contacts that I had here, so I decided to move on at that time”*

*(b) Switching to other companies who want to expand operations in Japan (3 Subjects)*

The trend of expansion of Indian IT companies into the Japanese market is the reason why those with the expertise on the market may receive offers from other companies who want to enter the Japanese market. Cases 5, 6, and 12, working in management positions accepted offers to switch to other companies entering the market.

*(c) Starting own company in Japan (1 Subject)*

One of the subjects, Case 4, after working 9 years in Japan as IT engineer for 3 different companies, established his own IT company in Japan. The contacts he had were instrumental in this decision: *“by this time I had enough contacts in the industry, so I decided to do something in my own”*. After three years as CEO of his company he thinks that *“hopefully”* this will be his last position. .

**Adjustment to Life in Japan**

Contrasting with the low readiness to come to Japan and Japanese language ability before going to Japan common among the subjects, adjustment to life in Japan is stressed as one of the reasons to extend their stay. Such adjustment is based broadly on 2 aspects about the environment: (a) the safety and convenience, (b) the wide range of options in Tokyo, and 2 aspects about themselves: (c) the experience of diversity inside India and (d) the personal long term projects they have developed in the country.

*(a) Safety and convenience of life in Tokyo*

This aspect is valued by all of the subjects from the beginning; enabling the progressive extension of their stay: (Case 9) *“I didn’t feel in need to look around, life was most comfortable”*. It is especially relevant among those married with children. Case 6, who has lived 2 years in the US puts it this way: *“I leave my family and I go to India for two weeks, other than the natural calamities such as earthquakes I don’t bother much about my family staying here, but I think that if I’m going the other way, leaving my family in India, I will be much worried. Or even in the US. So comparing with any other place, I feel here the safest.”*

*(b) Wide range of options in Tokyo*

As Case 8 puts it, *“The basic necessities are taken care of, it’s about how you spend your time, how can you be creative in your life. Those things, you can always be selective, that’s when your friends come in, that’s when associations come in, so you chose, where you want to belong to, so life is fun as well. It’s not a general part of the society, but you can always choose.”* Thus, it’s not just how they can adjust themselves to the environment, but also how they adjust the environment to them.

*(c) The experience of diversity inside India*

Relocating to environments where they don’t comprehend the main language for daily life is not regarded as a problem, since it’s experienced inside India when moving for job or university: (Case 9) *“...language and cultural differences, don’t come [as something new]. When I moved to Bombay, it was almost a new country. When I was in Chennai, in south India, it was totally different again. In Bombay they speak Hindi, but in Chennai they don’t, the buses are written like that. Only moving through India you find all sorts of changes.”*

*(d) Long term personal projects connected to Japan*

While during the first years the work absorbs nearly all of their time, increasingly some start personal projects that leverage their experience and networks in Japan, most often contributing to the development of India. These projects may be their actual work, like Cases 4 and 6, who run companies leveraging Indian human resources, or activities they undertake on their free time. Cases 2 and 8 are core organizers of non-profit initiatives to promote the economic and cultural exchange between India and Japan.

While all subjects affirm they enjoy life in Japan, Cases 11 and 12 are planning to go back to India, and Cases 3, 10 and 13 to re-migrate to another country. Reasons for returning are to spend time with family members and settle down. Both cases are married but with no kids. As for those who want to re-migrate, Cases 3 and 10 put children’s education as one of the main reasons (the training of personal skills in the American education system is greatly valued) as well as for the interest of experiencing life in a different country. In other 9 cases Japan has made itself a

place in the subjects' future.

## Discussion

### Changing Companies, Mainly Among English-speaking Firms

The ease by which the subjects consider strategically organizational changes, regardless of their university category or educational level goes in line with tendencies pointed out by the protean career (Hall, D., 2002) and the unlimited career (Arthur and Rousseau, 1996). By seeking to maximize their learning, utilization of skills and rewards, their careers revolve inside the IT-Finance industry is a trend observed as well in other settings where opportunities concentrate (Hall, D.T., 2002; Gunz, Evans, and Jalland, 2000; DeFillipi and Arthur, 1996).

Regarding the preference for foreign companies, it may not be limited to the Indians, but a more general phenomenon of foreigners in Japan (Kajita, 1994). In contrast, finishing developing career abroad is found to be employed mainly in organizations from the host society (Suutari and Brewster, 2000).

By using head-hunters and referrals, foreign companies go after not just their technical skills, but also their cultural background and language skills (initially English, but years later Japanese as well). In other words, the career metacompetency of "*knowing-how*" (DePhilippi and Arthur, 1996) plays a major role in enabling them to switch companies, further learn, and, as their knowledge is increasingly suited to further develop their career in Japan, ultimately contributing to the extension of their stay. A similar pattern is observed in some international assignees (Forster, 1997; Takeuchi et al., 2005).

### The Business Networks Developed Inside the Country

For three subjects who arrived as managers and who later moved into such positions, rather than specific know how, *who* they knew, and more crucially, their capacity to get to know and be trusted by more people, that is, their *knowing-whom* career competency (DeFillipi and Arthur, 1996), influenced their extension of their career development in Japan. In the sense that business network utility is lost or greatly diminished when leaving the country, the development of such networks contributes to the extension of the stay in Japan.

At this point it is important to say, that while in some contexts, such as Silicon Valley (Saxenian, 1996) or the film industry (Jones, 1996), contacts are a basic tool to find jobs even for technical positions, in observed cases referrals are greatly limited to managerial positions only. In technical positions head-hunters and personal applications fulfill the role.

### The Good Adjustment to Life in Japan

The fact that their adjustment to life in Japan was an important factor in their career development certainly doesn't go in line with person-environment career theories, such as Holland's theory of vocational personalities and environments (Spokane and Cruza-Guet, 2005), or the theory of work adjustment (Dawis, 2005), where only the adjustment to the work environment is considered and the adjustment to the non-work environment is taken for granted. Also the protean career and the boundless career, limit their scope to the work-related experiences. More suitable for the careers observed, the division of work and non-work is rendered irrelevant in postmodernist approaches such as the conceptualistic explanation of career of Young, Vallach, and Collin (2002). For them career is understood as a "super ordinate" construction that allows people to construct connections between their actions and such actions as "goal-directed and embedded in a network of meaning in the social level." However, it still lacks emphasis on the mobility and adjustment to this undivided work-life environment.

One of the fields with the most interest in the interaction between work and adjustment in a foreign country is certainly human resource management. While their view of adjustment<sup>7</sup> is basically to be able to cope with cultural differences and complete the assignment, such adjustment does take into account also their activities outside the workplace, and the adjustment of accompanying family members (Bennett, Aston, and Colquhoun, 2000; Porter and Tansky, 2004; Harvey, Novicevic and Speieer, 2000). However, the subjects of study are almost invariably managers from multinational corporations from developed countries with several years of experience in the company. The situation for young Indian knowledge workers might differ in several counts. For once, the readiness to go to work abroad is very high, although the country of choice is mainly the US. Secondly, and more importantly, a good adjustment hasn't been just to complete a company's assignment, but rather to enable to extend way into the



future and for others constitute an important stage of one's life, followed by return to India or remigration. If we separate the subjects according to their future intentions, namely, returning to India, remaining in Japan or re-migrate to a third country, and whether or not they had some special reason to come to work to Japan, six possible groups are formed, and even with such a small sample all groups have at least one subject (Table 3).

TABLE 3: MIGRATION TYPOLOGIES

Future intentions →		Japan	India	Third Country
		Special reason to come to Japan	5, 6	11
With	Without	1, 2, 4, (7, 8, 9), 14	(7, 8, 9), 12	10, 13

Thus, even though the convenience and safety of Japan has enabled them to develop their career in the country, their past and future plans differ. From all six groups, those who came to Japan without a special reason, but who plan to remain for the long term, are both the most numerous and surprising. These subjects, even though their arrival in Japan was largely by chance and with a limited horizon, have found a meaning to their stay in Japan that reduces both their need to go back to India or to re-migrate. As defined in the theory of career construction, where life themes explain the “why of vocational behavior” (Savickas, 2005) we can say that Japan has become a crucial part of their life themes. A similar concept is the knowing-why career competency, that “answers the question ‘why?’ as it relates to career motivation, personal meaning and identification” (DePhilippi and Arthur, 1996, p.117). We emphasize here that the environment (e.g. country, society) where a career develops, can play too a major role in the development of life themes. We hypothesize that the more their life themes are entwined with their experiences in the country, the better is their adjustment, and vice-versa, providing a deeper meaning to their stay.

However, good adjustment as it is conceptualized here may not be desirable for companies expecting their workers back from projects abroad. Especially for technical assignments that don't require a deep understanding of the local culture, companies may prefer employees who leave “their heart at home” (Black, Gregersen, Mendenhall and Stroh, 1999).

### Limitations and Further Research

The complexity of even a small sample like the one of this study requires a larger sample with the same conditions in order to confirm trends and factors, especially regarding the patterns of adjustment to the life in the host society and the reasons leading to different future plans. Thus, ideally, not just those Indian knowledge workers that remain in Japan, but also those who return to India or leave to a third country should also be included. In order to explore for other influences from the environment, similar subjects in different places should be compared. Inside Japan, Indian knowledge workers in Osaka and Kobe are an obvious target for comparison, and results can be contrasted with samples in English-speaking countries. Further, since the adjustment has been found to depend on the experience of diversity in the own country, comparisons with other foreign knowledge workers in Japan from more culturally homogeneous countries are also warranted. Korean and the Philippine knowledge workers seem to be the most obvious candidates.

### Conclusion

The expansion of Indian IT companies together with Japanese and other countries interest in leveraging Indian knowledge resources, provide opportunities for Indian knowledge workers to go to work abroad. Once abroad, a part of them extend their stay, based on three factors: (1) changing jobs for more challenging offers, mostly among English-speaking companies, (2) the business networks that increase the which increase their growth possibilities

inside the industry; (3) Good adjustment because of a safe, convenient, and friendly environment, regardless of their Japanese ability. While both the employment possibilities and business networks contribute to the extension of career development in Japan of Indian knowledge workers, we hypothesize that the employment possibilities are a more relevant factor for career actors in technical positions and the business networks are a more relevant factor for career actors in management positions. The adjustment and emotional attachment to life in Japan should be taken into account in career theories since it enables and even motivates further development in the country.

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## Appendix

APPENDIX 1: CASE OVERVIEW

Subject	Age	Years in Japan	Age on arrival	Academic Background	Ed. Level	Arrival to Japan	First company in Japan	Job descr	Companies in Japan	Previous companies *
Case 1	46	15	31	Eng.	Master	Sent from India	IT comp	Soft. Eng	3	2
Case 2	41	14	27	Eng.	Master	Sent from Other countries	Inv. Bank	Soft. Eng	1	0
Case 3	40	8	32	Eng.	Bach.	Sent from India	IT comp	Biz. Dev	3	3
Case 4	39	12	27	Comp. Sc	Bach.	Self-application	IT comp	Soft. Eng	4	1
Case 5	36	9.5	25	Econ.	PhD. <sup>1</sup>	Self-application	IT comp	Biz. Dev	2	2
Case 6	35	13	22	Comp. Sc.	Bach.	Self-application	IT comp	Soft. Eng	6	1
Case 7	34	10	24	Eng.	Bach. <sup>2</sup>	Sent from India	IT comp	Soft. Eng	3	0
Case 8	33	10	23	Scient.	Bach. <sup>2</sup>	Self-application	Research comp	Soft. Eng	5	1
Case 9	33	9.5	23.5	Eng.	Bach.	Self-application	Research comp.	Soft. Eng	4	1
Case 10	31	7	24	Comp. Sc.	Bach.	Sent from India	IT comp	Soft. Eng	4	1
Case 11	30	7	23	Eng.	Bach.	Sent from India	IT comp	Soft. Eng	1	1
Case 12	29	5	24	Sociol.	Bach.	Sent from India	IT comp	Biz. Dev	2	1
Case 13	28	3.5	23	Eng.	Master <sup>1</sup>	Sent from India	IT comp	Soft. Eng	2	0
Case 14	25	2	23	Comp. Sc.	Master	Sent from India	IT comp	Soft. Eng	2	0
Av. SD	34 5.7	9 3.9	25.1 3.1			<sup>1</sup> In Japan (full time) <sup>2</sup> Add extra qualif. in Japan (part time)				* not including the company sending them to Japan

Case 1	<b>Trade. Co.</b> 'Int. trader' 2 years	<b>Hardw. Co</b> 'dom. Sales' 1 year	<b>IT Con. A (I)</b> 'Soft. Eng' 3.5 years	'Soft. Prog.' 2.5 years	'Region Mngr' 6.5 years	<b>DB cons. (F)</b> 'Consultant' 3 years	<b>IT Con. B (F)</b> 'strategic sales' 2 years	'Country Mngr' 1 year
Case 2	<b>Inv. Bank A (F)</b> 'Soft. Prog' 1.5 years	'Syst. Develop' 2 years	'Op. & Tech' 14 years					
Case 3	<b>Manuf. Co. A</b> 'Co-founder' 5 years	<b>Manuf. Co. B</b> 'Quality Sys' 5 years	<b>Manuf. Co. C (J)</b> 'Internship' 0.5years	<b>Manuf. Co. B (I)</b> 'Quality Sys' 0.3 years	<b>Manuf. Co. D (J)</b> 'Ind. Sales' 2.5 years	<b>IT Con. C (I)</b> 'Biz. Dev.' 4 years	<b>Soft Co. A (I)</b> 'Biz. Dev.' 2 years	<b>IT Con. D(F)</b> 'Cons.' 2 years
Case 4	<b>Soft. Co. B (I)</b> 'Soft. Eng' 7 years	<b>Soft. Co. C(F)</b> 'Soft. Eng' 2 years	<b>Inv. Bank B (F)</b> 'IT Proj. Eng' 1 year	<b>Inv. Bank C (F)</b> 'IT maintenance' 6 years	<b>IT Con. E(F)</b> 'CEO' 3 years			
Case 5	<b>PhD Course</b> 'Student' 5 years	<b>Think Tank</b> 'Analist' 1 year	<b>IT Con. F (F)</b> 'Market An.' 1.5 years	<b>IT Con. G (J)</b> 'Biz. Dev.' 3.5 years	<b>IT Con. B (F)</b> 'Biz. Dev.' 1 year			
Case 6	<b>IT Con. H (I-J)</b> 'Soft. Eng.' 0.5 years	<b>IT Con. I (I)</b> 'Soft. Eng.' 1 year	<b>IT Con. C (I)</b> 'Soft. Eng.' 3.5 years	<b>IT Con. J (F)</b> 'Soft. Eng.' 2 years	<b>IT Con. K(J)</b> 'CTO' 3 years	<b>IT Con. L (J)</b> 'CEO' 3 years	<b>IT Con. M (J)</b> 'CEO' 2.5 years	
Case 7	<b>IT Con. N (I)</b> 'Soft. Eng.' 2 years	'Soft Eng.' 0.5 years	<b>Inv. Bank D (F)</b> 'Soft. Eng' 7.5 years	<b>Inv. Bank E (F)</b> 'Soft. Eng.' 2 years	'Trader' 1 year			
Case 8	<b>Manuf.Co. E(I)</b> 'Soft. Eng' 0.5 years	<b>R&amp;D Comp (J)</b> 'sys. Eng.' 2 years	<b>Inv. Bank F(F)</b> 'Analist' 2 years	<b>Inv. Bank G (F)</b> 'Analist' 1 years	'Analist' 1 years		<b>Inv. Bank H (J)</b> 'Intl. Mngmt.' 3 years	<b>Inv. Bank E(F)</b> 'Risk Mngmt' 2 years
Case 9	<b>Manuf.Co. E (I)</b> 'Soft. Eng' 1.5 years	<b>R&amp;D Comp (J)</b> 'Soft. Eng' 1.5 years	<b>IT Con. O (F)</b> 'Soft. Eng' 2 years	<b>Inv. Bank I (F)</b> 'Soft. Eng' 4 years	<b>Inv. Bank H (J)</b> 'Soft. Eng.' 2 years			
Case 10	<b>Marketing Co.</b> 'Analist' 1 year	<b>IT Con. P (J)</b> 'Soft. Eng' 0.5years	'Soft. Eng' 1.5 years	<b>Inv. Bank A(F)</b> 'Soft. Eng.' 4 years	<b>Audit. (F)</b> 'Auditor' 0.5 year	<b>Inv. Bank D (F)</b> 'Int. Aud' 1 years		
Case 11	<b>IT Con. P(J)</b> 'Soft. Eng' 0.5years	'Soft. Eng' 6 years	'Biz. Dev' 1 year					
Case 12	<b>Real Est. (I)</b> 'Sales' 2 years	<b>IT. Con. Q (I)</b> 'Biz. Dev' 1.5 years	<b>Soft. Co. D (I)</b> 'Biz. Dev' 4.5 years					
Case 13	<b>IT Con. R (I)</b> 'Soft. Eng.' 1 years	'Soft. Eng.' 1.5 years	<b>MBA course(J)</b> 'Student' 1.5 years	<b>Inv. Bank J (F)</b> 'Analist' 1 years				
Case 14	<b>Soft. Co. A (I)</b> 'Soft. Eng.' 1 year	'Soft. Eng.' 1 year	<b>Inv. Bank L (F)</b> 'Analist' 1 year					

## End Notes

1. Immigration Bureau of Japan
2. The cap on H1-B Visas, the most common for Indian knowledge workers migrating to the US was limited to 65,000, up from a peak of 195,000
3. International Cooperation and Collaboration in Respect of Information and Communications Technology, Ministry of Foreign Affairs of Japan, 2001.
4. Immigration Bureau of Japan
5. According to a worker of Wipro around 500 Indians are now in Japan, while Infosys website explains that 250 Indian employees are now in Japan.
6. To leverage the investment that the company makes on its employees, in the contract there's a bond to remain in the company for five years after finishing the training. Otherwise they have to pay a fee, which decreases every year they remain in the company.
7. In most papers of HRM the terms adaptation and adjustment are used interchangeably, however while adaptation refers to the cultural value changes in the individuals facing a value conflict in foreign culture, adjustment refers to the psychological process whereby "an individual enters into a harmonious or healthy relationship with the environment" (Bushman, 2002).

# Human Resource Management: Emerging Roles and Challenges for the HR Managers In Oman

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## Abstract

Human Resource Management as a function has established itself as a proactive and strategic function and its new role seems promising for organizations in achieving the competitive advantage through a higher degree of flexibility and employee commitment. In context of Oman, this approach of HRM has not been fully harnessed and traditional personnel management is still in practice. Omanization policy and other inherent cultural and regional factors are some of the reasons for this pitfall. HR managers in Oman lack the requisite skill and competency to play a catalyst role in transforming the Omani organization. There is an urgent need to address this imbalance and government must adopt flexible employment policy in regard to the hiring of expatriate HR manager which is fully capped as of now. This can help HR manager in acquiring required knowledge and competence and they can be better equipped to contribute to the organizational goals.

## Introduction

Global competition, fast changing development in information technology and manufacturing technologies, shorter product life cycle, rising expectation of customers and a need for flexibility, responsiveness and new learning are some of those challenges which are being faced by the organizations worldwide. Oman is no exception. After signing the WTO treaty in 2000 and US-Oman Free Trade Agreement (FTA) in 2006, the pace of change in business and economic scenario has further accentuated in Oman very recently. Omani firms depend heavily on the expatriate workforce and they comprise 54 percent of the total workforce. Though, their proportion is least in Oman in comparison to other Gulf Cooperation Council (GCC) countries as expatriate workforce exceeds 10 million and constitutes upto 70 percent of the GCC labor force. It accounts for 88 percent in UAE, 83 percent in Qatar, 81 percent in Kuwait, 72 percent in Saudi Arabia and 55 percent in Bahrain. (Oman Economic Review, March 2006). This percentage is much higher in the private sector firms in Oman and other GCC countries. The Government of Oman has taken many steps to strategically cut down its reliance on expatriate workers in a phase-wise manner and Omanization (the training and development of Omani nationals resulting into their employment) has become an important issue posing greater challenge for the people management function in Oman. It is also believed by many that it limits firms' ability to compete and impacts the value chain of their competitive advantage. The job of even human resource (HR) manager is Omanized by the Government order in Oman and firms sometime find difficulty in employing a competent HR manager.

In this background, acquiring, utilizing, developing and retaining of committed and motivated workforce becomes a Herculean task for human resource managers in Oman. Developing and implementing a human resource policy which addresses the regional, cultural, legal and economic issues vis-à-vis a strategic human resource management needs knowledge, skills and competency of HR field as well as knowledge of the business premises and business realities in which businesses are being run in Oman. What is the relevance and utility of strategic HRM function in a country like Oman? How it can help to equip HR managers to deal with the dilemma they are facing. As we know human resource management function is viewed as proactive and strategic in nature which is well integrated with the business strategy of the firm. Its new role worldwide seems promising to help organizations in achieving the competitive advantage through a higher degree of flexibility, employee commitment, and adaptability. This changed stance of people management function becomes highly relevant for firms in Oman also. The present paper addresses the emerging challenges being faced by the human resource function in general and human resource managers in particular. The paper is divided into four parts. The first part deals with the business and economic

environment of Oman in which firms compete and adopt their people management policies and framework. The second part talks about the human resource management function in Oman and evaluates its present status and stance. The third part delineates with the challenges being faced by the Omani human resource managers. The last part concludes the overall discussion of the paper.

## **Omani Economic and Business Environment**

Oman with a population of 2.416 million (Ministry of National Economy, 2005) is the third largest country in Arabia with a total land area of 309,500 sq. kilometers. bordering Yemen, Saudi Arabia and the United Arab Emirates lying on the southeast corner of the Arabian Peninsula. The commercial export of oil began in 1967 in Oman. Since then, oil has been the major contributor to the GDP. The fourth five year plan (1991-1995) for the first time emphasized the need to diversify the production base other than oil and Government paid special attention to the sectoral and regional development process in Oman (Ministry of Information, 2002).

The Government of Oman identified the role of privatization and liberalization of its policies to accelerate the rate of economic growth. Government encouraged men and women equally to participate in the process of economic development of the Sultanate. In 1995, visualizing the changes in the global economy, a new vision of Oman's economic future was drawn for 25 years. "Vision Oman 2020" proposed a policy for the Sultanate's development. It took into account the far-reaching changes in the world economy and the revolution in telecommunications and information technology that has transformed the world."Vision Oman 2020" stipulated to cut down the contribution of crude oil to GDP to around 9 percent in 2020, compared to 41 percent in 1996. Gas is expected to generate 10 percent of GDP in 2020, compared to less than 1 percent in 1996. The industrial sector is proposed to increase its contribution from 7.5 percent in 1996 to 29 percent in 2020 (Ministry of Information, 2003). Consequently, the fifth five year plan (1996-2000) emphasized on the diversification of the national income resources encouraging the domestic and foreign private investments and increasing the share of the private sector in the total investments. It emphasized the role of human resources and participation of Omani men and women in the private sector development and diversification process (Ministry of National Economy, 2002). The Omani Centre for Investment Promotion and Exports Development (OCIPED) was launched in 1997 to encourage foreign investment and Omani exports serving as a one-stop shop for foreign investors and entrepreneurs to expedite the investment process.

Lately, sixth five year plan (2001-2005) emphasized on three core goals, i.e., developing human resources and basic structures, economic diversification, and encouraging the private sector growth. The key aims of the plan were to:

- guarantee stable personal incomes
- increase the number of secondary school students enrolling in higher education and technical colleges
- create more jobs for Omanis
- adopt sustainable financial policies
- promote economic diversification
- develop the private sector.

The performance of the economy has been good in the recent past as the sixth five year plan envisaged to grow the national economy by an annual average rate of 4 percent (Ministry of National Economy, 2002) and the economy grew to a higher level than what was envisaged in the plan due to the increased contribution of the non-oil sectors and higher oil prices (Ministry of Information, 2003).

Oman joined the WTO in November 2000 which provided significant challenge for the country to liberalize its policy without compromising its objective of Omanisation in ownership and employment. It is expected that with the accession to WTO, the efficiency of service sectors especially finance and telecommunication and also the tourism and manufacturing sector will increase and Oman manufactured products will penetrate into the markets of both developed and developing countries (The Oman Daily Observer, 2004:13). Oman has come a long way in last few years in attracting foreign direct investment and the Second Arab Business Intelligence Report ranks Oman as

third Arab nation (after Saudi Arabia and Qatar) that inspire most economic confidence (Oman Economic Review, Feb. 2007).

Oman adopted its seventh five year plan (2006-2010) based on the presumption that the oil price is going to stick to an average of US\$30 per barrel in the next five years. The market foresees the oil price going higher than US\$30, which implies that Oman's GDP growth (relying heavily on oil revenues) is going to be higher than the planned rate. As Oman's economy is expected to be based predominantly on oil and gas production in the near future (69 per cent government revenue to come from oil in the Seventh Plan), the government has envisaged a staggering RO 4,474 million (34 per cent of the total investments) for investment in this sector. To boost the non-oil sector, the government expects natural gas-based industries to grow at an annual growth rate of 14.5 per cent. The main hub for natural gas-based industries is going to be Sohar Industrial Area where a number of such projects, including Sohar Aluminum Smelter project, Polyethylene project and Oman Aromatics project (at a total cost of RO 2.8 billion) are coming up (Oman Economic Review, Feb. 2006).

#### **Omanization of the Workforce: Emerging Issues**

Omanization (the training and development of Omani nationals) was and still is the most crucial issue regarding HR planning in Oman (Al-Hamadi and Budhwar, 2006) and providing employment to local people by replacing expatriate worker has been a very complex and difficult task as it has a double-edge effect and it should be dealt carefully. Oman's economic Vision 2020 provided a very explicit policy framework in that regard. It aimed at developing human resources through expansion of education among nationals, providing blueprint for educational and vocational training initiatives and advocated development of labor market mechanism aimed at increasing the level of workforce participation in the economy. Consequently, government has adopted certain Omanization measures for private sectors from time to time but the Omanization drive seems to become more intensive in recent past especially between the years 2003-2006. Government identified sector-wise Omanization plan in the year 2003 and envisaged the target to be achieved by the end of the year 2007 for each sector for different skill and category of jobs.

Though, there is a visible tendency among Omanis to look for government sector jobs. The absence of a comparable remuneration package and quality and conditions of work in the private sector has led to a work preference for the government jobs (Al-Lamki, 1998, 2005; Al-Maskery, 1992; Sajwani, 2001). Government sector also offers convenient working hours, generous holidays and annual leave, lifelong employment, favorable labour laws provisions regarding maternity and bereavement leave, pension fund scheme and attractive retirement policies (Al-Lamki, 1998, 2005; Al-Maskery, 1992; Sajwani, 2001). It also reflects in the statistics as out of the total Omani employment in Oman (118,720), 61.1 percent (72,549) of employed Omani work for Government sector (Statistical Year Book, 1999). But the government sector has its limitation in providing employment though it absorbs the maximum number of Omani workforce it can as there is a limit to which the civil service can grow; and despite an acknowledged need to curb the growth of the civil service, more than 6000 Omanis were employed by government in 2002 and the size of the workforce grew to about 87000 (Oman Economic Review, Sept 2003).

In Oman, 68 per cent of the population is up to or below the age of 24 years and there is urgent need to address the unemployment of young people in that regard. The Seventh Plan has accorded special attention to employment generation scheme and with an investment of more than RO 13 billion, thousands of new jobs will be created, especially for the Omanis. The government has placed greater emphasis on making private sector improve on its Omanisation level. In 2005, Omanisation in the private sector was merely 25 percent whereas in the government civil service, it was 81.80 percent. The government intends to fasten this process. The government is contemplating to focus on those areas where the local talent needs to be trained and developed to reduce dependence on expatriates (Oman Economic Review, Feb. 2006).

To encourage the process of Omanization, Oman Society for Petroleum Services (OPAL) was created in October 2001 by a Ministerial Decree. It aims to provide a single umbrella body to promote standards of work competence and professionalism with a view to make Oman's oil and gas industry internationally competitive. OPAL is striving hard to promote Omanization initiative by fostering training and development among Omani nationals. OPAL not only facilitates training but identifies the requirement of the prospective employers and helps the training providers in tailoring their program to the industry requirement. It aims at taking the Omanization index in oil and gas sector to 70 percent by 2007 (Oman Economic Review, Sept 2003). OPAL adopted a mindset change



strategy in their second HRD Workshop which was attended by 60 HR professionals in March 2006. OPAL feels that the perceived mindset in employment environment regarding Omani employees needs to be changed as current attitudes of some companies are that:

- They Omanise because of the Government drive on the minimization and in order to meet the minimum target to obtain labor clearance rather than as a good employment policy.
- They adopt salary structure to a minimum statutory one and it doesn't match the competencies of the individuals. Moreover, they don't look for retaining local skills or encouraging their self development.
- They consider the local human resources as a financial liability that affects the bottom line and not as a valid asset that could increase profitability. Therefore, investment in their training and development becomes the sole responsibility of the government and not the employers.
- Appropriate budget for the development of nationals is rarely set aside and investment in people is rarely reflects in companies' vision.

OPAL also exhorts the job seekers and employees to change their mindset and prescribes that the competency-based strategy rather than the certificate-based approach will help them. They must strive to improve their skills & competencies and productivity and getting employed is not the end rather they must pursue continuous learning and development for their self development which will increase their employability in the long run (OPAL, 2006).

#### **Changes in the Omani Labor Law and Onset of the Trade Union Movement in Oman**

Though, the clout of the trade union movement is on a decline worldwide and the unilateral HRM practices have further pushed this phenomenon. Studies have also shown that employees espouse a more unitarist view of employment relation (Storey, 1992; Goss, 1997). Several factors have contributed to the steep decline, important among them are: shrinking employment opportunities, changing technology leading to increasing employment of white-collar workers who are reluctant to unionize, the general decline of liberal politics and pursuit of hard HRM policies by employer (Saini, 2000).

But it is true that trade union acts as a countervailing power and minimizes the exploitation of the workers. Employees must have freedom to associate and bargain their employment rights. In GCC countries, trade union phenomenon is new and Oman is the only second country after Bahrain to allow the formation and functioning of the trade unions. This has resulted as a consequence to the US-Oman Free Trade Agreement (FTA) signed on 19<sup>th</sup> January 2006. Oman is the second country in the GCC region after Bahrain to sign the FTA. The Omani labor law was adopted in 1973 to protect and administer the employment practices in the private sector which was amended extensively in 2003. The important provisions were:

- Allowing the creation of worker representative committees for the first time.
- Adopted procedures for dispute resolution and removed a 1973 prohibition on strikes.
- The provisions of the new labor law apply equally to women and prohibit the dismissal of women during pregnancy or maternity leave.
- Significantly, the protections of the labor law apply equally to foreign workers. Foreign workers must be at least 21 years of age to obtain a work permit in Oman.
- Both nationals and non-nationals may belong to the worker representative committees and participate in the leadership.
- Regarding collective bargaining, the new law allows the committees to represent workers in "all matters that relate to their affairs" and for workers and employers to "enter into agreements.
- The law also provides for the settlement of labor disputes through bargaining and consultation between workers and employers.
- The new law provides that representatives of the workers' committees shall form a "main" representative committee, which is a national organization, and may represent workers in local, regional, and international conferences.
- In April 2003, the Government raised the minimum age of employment from 13 to 15 years to conform to international standards.

- 2003 law permits workers in any establishment to form a representational committee through a secret ballot election, with the goal of taking care of their employment interests and defending their workplace rights and to date, 24 worker representative committees have been established in Oman (Office of the United States Trade Representative, 2006).

The radical change in regard to formation of trade union came on July 9, 2006 in the Omani industrial relation history when a Royal Decree as a response to the commitment to the US-Oman FTA came into force. This decree cancels or supersedes all earlier provisions of the labor law that contravene or contradict its provisions. Among these important reforms was changing the terms of reference for workers' organizations to "unions" (formerly "representative committee") and "federations" (formerly "main representative committee."). The new decree:

- Directs the Minister of Labor to issue regulations to allow for collective bargaining.
- Prohibits dismissal of workers for union activity.
- Amends the law to allow for more than one union per workplace.
- Prohibits dismissal for union activity and established tougher penalties for employers who engage in anti-union activity.
- Guarantees right to strike.
- Guarantees unions and federations the rights to practice their activities freely and without interference from outside parties.
- Prohibits dismissal for union activity and establishes penalties, including fines and imprisonment for depriving workers of their rights to carry out lawful union activities.
- Raises penalties for child labor violations, including fines and imprisonment (Office of the United States Trade Representative, 2006).

Therefore, the recent changes in the labor law in response to the US-Oman FTA will have long lasting impact on the labor scene and consequent employment relationship in Oman in time to come. Though, it is difficult to predict that making such provisions will result into the emergence of the strong trade union movement in Oman. Cultural factors, encouragement of the government, institutional support and presence of the strong union leadership will be the most important factors in this regard. But the recent changes in labor law will surely strengthen and protect workers' interest and they will find an avenue to raise their voice in case of an eventuality. This may pave the way of the industrial democracy in Oman at workplace. The Omanization process coupled with workers' right to bargain and form union will surely have an impact on the dynamics of the labor market and it will be an issue to be dealt with by HR managers in the complex and turbulent business scenario. But the time will tell how far these provisions have been successful in equipping employees with the countervailing power and changed employment relationship equation.

## **Human Resource Management in Oman**

Organizations worldwide are using people competency as a strategic resource and striving to create an ambience of trust, empowerment and transparency to help their employees to come out with their best to serve the strategic goal of the firm. These organizations are not bound by the bureaucratic structure, inflexible rules and hard-defined procedures, rather flexibility, diversity and employee empowerment are highly acknowledged here. Organizations that are responding to these concerns are adopting more initiatives towards team working, quality, flexibility and commitment of the employees. The plethora of consultancy and excellence literature emerged during last twenty years also endorses this viewpoint which laments on creating ambience to achieve the requisite excellence in organization (Khan, 2007). Eichinger and Ulrich (See Kochan, 1997) identify seven most significant areas in which organizations have to focus to build its competitive advantage for a survival. They have:

- to build and operate in an effective customer responsive organization,
- to gear up for becoming an effective global competitor. There is no choice left now for them,
- to compete profitably with low cost products and services to remain in the scene,

- to reposition from a profit through cost cutting to a revenue growth environment,
- to effectively take advantage of new information technology,
- to attract, develop, and retain top talent , and
- to operate internationally with the lack of a competitive, pro-business industrial policy matching those of foreign competitors.

Consequently, the challenge before Omani organizations lies in responding to these issues and adopting their structure which rely more on their work processes, results and outcomes. Very few Omani organizations are run professionally and they are found to have strategic focus. Most of them seem to be inflexible and bound by structure and hard-defined procedures. Few of them empower their employees to help in building customer responsive organization. As the OPAL HR practitioners debate that there is a need to change the mindset of Omani companies and they adopted OPAL future HRD Strategy towards 2010 which exhorts Omani companies to change their mindset to look at people as important resource and to investment in their training and development (OPAL, 2006). The employees must have freedom to act and show their concern for learning and participation. There is no room for bureaucracy and procrastination, and flexibility and diversity should be highly acknowledged which can make Omani organizations more proactive and result oriented.

#### **Strategic HRM and Its Relevance for Oman**

It appears that in last 10-15 years, the human resource management function in Oman has gathered better stature and focus. There is a widespread use of term HRM, HRD and personnel administration/ administrative affairs interchangeably in Oman. It is a very common practice among the most developing countries. In fact, the use of word human resource development (HRD) becomes more fashionable and accepted by the firms in Oman. Reliance on foreign workers and needs to develop Omani nationals may have created this attraction. Though, there seems to be an absence of linkages of HRD strategies with organizational strategies and national development policies made no attempt in that regard (Al-Ansi, 1994). Budhwar, Al-Yahmadi and Debrah conducted a study on the human resource development scenario in state owned enterprises (SOEs) in Oman and they approached 40 such organizations. It was found that three nomenclatures were used by them, which were: HRD department, the Personnel department, and Administrative Affairs department. Even good numbers of HRD departments (around 46%) were having subunits of coordination and legal procedures in addition to training. The job titles being used by HR managers were found to be HRD Manager, HRD Head of section, Personnel Administrator, and General Director of Administrative Development & Training (Budhwar, Al-Yahmadi and Debrah, 2002).

The new stance of HRM has emerged as a response to understand the demands of the various stakeholders of the firm and to do value addition to help organization in sustaining the wave of change. It requires more understanding of the business strategies of the firm and designing HR strategies which add value to the value-chain of the business. This has transformed the people management abilities of the organization which remains equally relevant for a country like Oman. The people management function has been transformed to suit the demand of the exigencies of the workplace. The traditional personnel management (TPM) was inadequate to face the challenges of the new business reality, and human resource management (HRM) emerged to respond to these new challenges (See also Khan, 2007; 2000; Saini, 2000).

Khan (2007) is of the view that the plethora of literature emerged since mid 1980s are witnesses to the changed stance of HRM. Critics call it an “old wine in new bottle” but it has been well accepted by HR constituency that this wine tastes differently and have better taste. The proponents of HRM advocate that the human resource management is an approach which is more integrated with business strategy of the firm and takes care of the value addition by establishing work systems which leads to superior performance. It shows high degree of workforce flexibility and commitment of workforce which results into greater quality concern and continuous learning having a strategic focus (See also Guest, 1987; 1996; Beaumont, 1996; Storey (ed.) 1995; Tyson, 1995; Towers (ed.), 1996; Mabey, Salaman and Storey, 1998; Mabey, Skinner and Clark (ed.), 1998; Khan, 1998; 1999; 2000; Saini, 1999; 2000).

The HRM function which emerged as a proactive and strategic function appears to be a departure from reactive people management function being well integrated with the business strategy of the firm. In case of Oman, it appears that most of the firms barring few multinational and government firms use more of a reactive personnel

management as a people management function. There is absolute need for them to adopt proactive and effective human resource strategies which can help Omani companies in achieving the competitive advantage through a high degree of workforce flexibility, and greater concern for employees' learning and growth. The human resource management function has to add value to the business activities in the organization. Its contribution in integrating the chain of activities for transforming inputs into outputs that customer values becomes key for achieving the desired competitive advantage. The HR function being strategic and aligned with the business strategy results into superior efficiency, quality, innovation and customer responsiveness which result into competitive advantage<sup>1</sup> (Khan, 2007) and it has equal relevance for Omani companies.

Budhwar, Al-Yahmadi and Debrah found in their study of 40 Omani SOEs that in 28% of cases HR/HRD manager participate in the development of the corporate strategy from the very outset. This observation is based on the perception of HR managers who responded to the questionnaire used by the researchers. Whereas 30 percent of HR/HRD managers respond that they participate at the consultative level and 28% say that they are involved only at the implementation stage. It was also found in the same study that more than half of the HR/HRD managers (51 %) feel that the contribution of HRD is very little in the management of change in state owned enterprises in Oman (Budhwar, Al-Yahmadi and Debrah, 2002). Thus it appears that there is absence of linkages between the business strategy and the HR strategy in good number of firms in Oman. In fact, the above data only reflects the perceptions of HR/HRD managers about their own departments and there is need for more realist evaluation of the integration of HR strategy with the overall business strategy. The coherence between different HR interventions and programs is also a matter of concern as one HR program must reinforce the other HR programs adopted in the organization. Pursuing a strategy must keep in mind the availability and utilization of its people and the performance and reward strategy being adopted in that regard. Omanization concern and training and development need must be integrated with overall business strategy in Omani companies and companies must focus on HR deliverables in that context

#### **Developing HR Programs in Omani Companies: Problems and Challenges**

Becker, Huselid, Pickus and Spratt (1997) present a model for HR-shareholder value relationship. They advocate that the design of HRM system should be aligned with business and strategic initiatives resulting into improved operating performance and consequently the higher market value. They refer HR system as High Performance Work Systems (HPWS) which include rigorous recruitment and selection procedures, performance-contingent incentive compensation systems and management development and training activities linked to the needs of the business. Anderson (1997) prescribes that a complete business strategy has three key components: an operating strategy, a financial strategy and people strategy and HR and the corporation's management group must engage in a strategic management process which links business strategy, organizational capabilities AND people strategies. A good business strategy identifies the need for specific organizational capabilities and reinforces the building of these capabilities in organization as the primary strategy. At the heart of executing the business strategy lies the HR becoming more of a value-added player. In this role, HR's central responsibility becomes aligning its HR "tool kit" to deliver the behavior needed in organization to realize the business strategy. HR tool kit consists of designing work and organization, measuring performance, selecting, developing and rewarding employees as well as communicating and clarifying strategic objective to its people. The different primary strategic choice determines how the HR tool kit should be designed, aligned or integrated and implemented in the organization (Beatty and Scheneier, 1997).

Gomez-Mejia, Balkin and Cardy (2004) examine the strategic HR choices available in firms which provide the real test for managers in making appropriate HR decisions. These choices are going to be equally relevant for Omani companies provided they are evaluated and adopted in a coherent manner. HR choices are examined briefly in context of Omani companies which provide a basic framework to understand the HR processes in Omani companies. The choices are:

- Work Flow(Efficiency or Innovation; Control or Flexibility; Explicit job description or broad band job classes; and Detailed work planning or loose work planning): Most of the Omani companies seems to be on the other side of the fence where efficiency and control is rated high. There is absence of detailed job description process and loose work planning is the norm in Omani companies which appears to be a mismatch with inflexible work environment.
- Staffing (Internal Recruitment or External Recruitment; supervisor making hiring decision or HR department makes hiring decision; and informal hiring or formal hiring): Referral system and words of

month is an effective means of recruitment but lack of skill forces organization to go for external sources in most of Omani companies. Though, involvement of supervisors is seen important but HR managers have their clout in hiring process in large Omani companies. Formals and informal systems both are used and it depends on the type and size of the company. Small and medium enterprises frequently use informal system. But in last 10 years or so this function has become more organized and rigorous.

- Employee Separations (Voluntary inducements to retire or layoffs; hiring freeze or recruit as needed): Omani laws doesn't encourage layoff and it is difficult to downsize or retrench large number of employees in Omani companies though they adopt their silent policy in this regard which may be firing people after giving appropriate notice as specified under the Omani labor law, minimum one month notice in advance is required in private sector.
- Performance Appraisal (Customized appraisals or uniform appraisal procedures; developmental appraisal or control-oriented appraisal; multipurpose appraisals or narrow focus appraisal; and multiple inputs for appraisal or supervisor input only): Performance appraisal is very traditional in most of the Omani companies and government sector it is rarely linked to training intervention. It is more of a supervisor's evaluation and in most of the cases no feedback process exists and it is seen as confidential.
- Training and Development (Individual training or team-based training; on-the-job training or external training; job specific training or generic training; and "buy" skills by hiring experienced workers at a higher wage or "make" skills by providing training to less experienced workers hired at a lower wage): This is one activity which is pursued by most Omani companies regularly though most of the time it appears to be cosmetic one and most of the participants are also found to be interested in procuring certificates rather than competency. OPAL has very strong views in this regard and exhorts employees and employers to acquire competencies which can be used at workplace.
- Compensation (Fixed pay or variable pay; job-based pay or individual-based pay; seniority-based pay or performance-based pay; and centralized pay decisions or decentralized pay decisions): Most of the Omani companies pursue a fixed pay policy which is highly centralized and for very few job categories in private sector performance-based pay specially in sales and marketing.
- Employee Relations and Labour Relations (Top-down communication or bottom-up communication and feedback; union suppression or union acceptance; and adversarial approach or enlightenment management): Top-down approach is commonplace though employees can air their grievances but culturally Omani society encourages collective approach and respect for authority. Trade union is new phenomena in Oman after the amendment of labor law in July 2006 and at present union is non-existent. Though, there have been few cases which are unreported where people have unionized to protect their interest in recent past.
- Employee Rights (Emphasis on discipline to reduce mistakes or emphasis on preventive action to reduce mistakes; and informal ethical standards or explicit ethical codes and enforcement procedures): Employees rights are protected by Omani labor law in private sector and most of the company attempt to make basic provisions regarding discipline. Long absenteeism is the perennial problem in good number of companies.
- International management (Create global company culture or adapt to local culture; rely on expatriates or rely on country national; and universal company policies or country-specific company policies): Most of the multinational companies rely on adapting local culture but don't want to loose the ambience of seriousness and professionalism. Most of them customize their policies to make it country-specific.

The description provided above is very generic to indicate the popular work environment in relation to HR practices in Omani companies and one size doesn't fit all. The primary strategic choice of the firm becomes paramount which determines the desired HR interventions and programs which suit the organizational requirement for developing the requisite people competency and organizational capability. Omani companies vary at great length in terms of their strategic positioning and choices available to them whereas some of them may strive for operational excellence or product leadership whereas some may look for cost containment. It depends on the circumstances they are in and what they have created over a period of time as their legacy. The cultural and regional factors also become highly relevant while designing HR interventions and programs. It must gel well the culture milieu and the workplace environment. Namazie and Tayeb (2006) quote Budhwar and others (Budhwar and Debrah, 2001;

Budhwar and Sparrow, 1998, 2002) who feel that the HRM is in infancy in developing countries and they identify three important factors which influence HRM policies and practices:

- National factors, including national culture, national institutions, business sectors, and dynamic business environment;
- Contingent variables including age, size, nature, ownership, lifecycle stage of organization, presence of trade union and the HR strategies and interests of different stakeholders,;
- Organizational strategies of the companies.

Al-Hamadi and Budhwar (2006:55) opines that “HRM is very much a new phenomenon in Oman. There are many organizations both in the public and private sectors with no HRM departments. Omani organizations are practicing more personnel management than HRM”. The situation becomes more complex in the absence of qualified and experienced HR managers or professional in Oman. Budhwar, Al-Yahmadi and Debrah found in the study mentioned earlier in this paper that the proportion of the total HRD staff to the total number of employees was 0.18 percent and the proportion of the professional HRD staff to the total employees was 0.07 percent in the selected state owned enterprises in Oman and more than 38% of the senior HRD personnel were selected from other than HRD or personnel departments (Budhwar, Al-Yahmadi and Debrah, 2002). This means that these senior HRD personnel were not having prior HR experience or learning which will surely make the job of HR department highly deficient and ineffective. The inadequate ratio of HR managers or professionals to workforce size is another issue which needs to be rectified in most of the Omani companies. There is an urgent need to address these issues to make HR strategy work in Omani companies. Developing high performance work system and an array of HR programs which are consistent with the business strategy and creates organizational capability needs the HR job to be delivered by qualified HR professional and the absence of qualified HR professional makes the job impossible in most of the Omani companies.

The fourth five year plan in Oman put a cap on the employment of expatriate labor in HRM/personnel department in the private sector. It also envisaged to minimize the use of expatriate labor in management functions in the private sector and recommended filling of such job by Omanis (Al-Hamadi and Budhwar, 2006). The strict cap on the employment of expatriate labor in HRM/ personnel department at times creates handicaps for private companies to compete and adopt strategic HR policies and programs. There is dearth of trained Omani HR professionals in Oman and sometime company employs the expatriate labor to do the professional HR work under the guise of other job category which is not fully omanised. There is absolute need to have flexibility in employing HR professionals rather than having a complete ceiling on the job as the labor market is tight for HR professional and there is dearth of qualified and talented Omani HR professionals who can design and deliver the HR programs. Once we have good number of trained and qualified Omani HR professionals, the cap can be reverted back. The above discussed reasons are important reasons which hamper the HRM role to get appreciated and fully utilized in true sense. Resultantly, most of the HR practices become piecemeal and reactive personnel activities. Good number of times it caters to hiring, training and development function, adhering to Omanization target, paying salaries, performance evaluation without any integrative framework, record keeping and other traditional routine personnel functions. Budhwar, Al-Yahmadi and Debrah, (2002) in their study also found that HRD objectives of the state owned enterprises were reflective of a routine and typical personnel activity of an Omani firm. The activities found were following:

- Building up the employees’ knowledge and skills in their field of work,
- Achieving Omanization plan,
- Increasing the overall performance and productivity of the unit,
- Upgrading the qualification of employees to higher education and higher degree levels, and
- Implementing the training programs according to the unit needs.

To have a true HRM in Omani companies which will promote the organizational capability and people competencies by adopting credible and coherent HR programs, we need to equip our HR departments with competent and talented HR professional and creating an environment where HR is seen as an important partner and stakeholder of the firm and asked to contribute in that regard which is not the case as of now in most of the companies barring few multinational and joint sector companies.

There is also need to change the work culture and mindset of the employees and employers as well. Wilkins (2002) in his evaluation of the implementation of national vocational qualifications (NVQs) in Oman finds that many candidates in their NVQ training do fail because of their poor attitude and a lack of interest and commitment and with their low ability in English and the NVQ methodology which in their view require too much effort to understand and consequently they are tempted to drop out from the training program. This kind of attitude needs to be changed where ignorance and complacency have no place and perseverance is practiced. Mellahi and Budhwar (2006) commenting on the HRM in the Middle East comments that there is widespread adoption of some HRM practices that are not compatible with Islamic values, such as the use of nepotism in recruitment and compensation known as *wasta* in GCC countries and *piston* in North African countries. They feel that there is urgent need to move away from the inequitable relationship-based HRM policies such as *wasta* and *piston* towards a more competence- or merit-based approach and the survival of a large number of Middle Eastern organizations will depend upon unlearning old inefficient or outdated HRM practices and learning new one.

### **Challenges for the HR Managers in Oman**

The challenges are huge before HR managers in Oman to suit the exigencies of the workplace and business environment. In good number of cases, HR managers employed in Omani companies lack requisite skills and competency to deliver the desired outcomes in the organization. Budhwar, Al-Yahmadi and Debrah, (2002) find that HR managers were having the educational level varying from the sixth elementary school certificate (those recruited in 1970 or around that time) to Masters in HRD. It is ironical to observe that the HR development role which warrants high level of professionalism and competence is being manned by very low qualified people. This needs to be rectified at the earliest. It becomes antithesis to what Ulrich (1997) recommends for HR managers. Ulrich recommends four common clusters of competencies required for HR professional in the present business scenario. These are:

- Business knowledge: HR professional must know the business which includes a mastery of finance, strategy, marketing and operation.
- HR state of the art: HR professional must know the theory and leading edge practices for HR tools.
- Change and process: HR professionals need a change and the ability to apply the model to a specific situation.
- Credibility: HR professionals must become personally credible through the accuracy of their work and the intimacy of their relationship.

The new role of HR managers seems to be challenging as they have to strive hard to help organizations in achieving their competitive advantage. The role and status of human resource functionaries are going to be reevaluated and redefined in the new situation and the line between the primary and secondary functional activities of the value creation (in organization) or the distinction between the line and staff status of the function is blurring in good number of the organizations worldwide (Khan, 2007). Consequently, there will be significant change in the role and status of HR managers. Some of them are:

- i) HR function has to come out of the cocoon and to think proactively and strategically to serve the business strategy in enhancing the competitive advantage of the firm;
- ii) HR policies and procedures are part of the organizational transformational process, and are required to be coherent, credible and result-oriented. They are also required to contribute to the tangible goals of the organization, more importantly, profits; and
- iii) HR has attracted the attention of CEOs and line managers and they are going to be more indulged in designing and implementing HR strategies. This phenomenon is likely to dilute the ownership of HR prerogatives by the HR functionaries as line managers will be highly involved in the time to come (Khan, 1999)

Burke (1997) further exhorts HR managers to learn more about these nine needs. The knowledge about the organizational design and structure, leadership, and the changing nature of psychological contract are worth mentioning here. He is of the view that HR practitioner is not supposed to have the specialization in each of these

areas but should strive to broaden his repertoire. HR generalist inside the organization is more valuable and his enhanced understanding increases the HR practitioner's value as an adviser and as a staff executive in the organization (Khan, 2007).

The previous discussion throws a lot of challenges for HR managers in context of Oman which can be summarized as follows:

- a. HR management function is becoming more strategic and needs HR managers having the requisite skills, competency and attitude to contribute to the value addition chain of the firm.
- b. The cap on employment of expatriate HR manager by the government limits the chance of sharing and learning of HR competency and skills for Omani HR managers in Omani firms. They have alternatives which can fill this gap.
- c. HR professional in general supposed to show professionalism in their transaction and delivery of outcomes. They are supposed to be more networked and looking for new knowledge and learning emerging in the field of HRM.
- d. Knowing the dynamics of business they are operating into. For example, a HR manager working for oil and petroleum company must know the dynamics of that business.
- e. HRM as a strategic function is in its infancy stage in Oman and very few benchmarks and learning is available locally which serves all types of firms.
- f. Strategic HRM is not a kind of approach where "one size fits all" and warrants Omani HR managers to understand and evaluate the value chain of the business they are in and organizational capability they want to create through people competency.
- g. How to create productive work environment which fosters learning and growth of individuals in line with organizational requirement.
- h. How to manage change and processes in the organization.
- i. How to face the dilemma of Omanization process i.e., employing Omani national without losing the competitiveness and productive work culture.
- j. How to put in place a performance management system where performers are rewarded. Adopting feedback process in performance management system and adopting relevant mechanism for that.
- k. Adopting ethical work practices which encourage commitment and motivation of employee. How to deal with *wasta* (nepotism) (especially in recruitment, promotion and compensation processes) highly prevalent in Omani culture.
- l. How to enhance the image of HR constituency and being more visible in the organization.
- m. How to deal with the emerging challenges of trade union movement which often results into strained employee relations.
- n. How to adopt human resource information system to become more efficient and for improving HR decision making process.

The list may become long. But it can be said that the new age HR managers in Oman needs to understand the importance of the roles played by them. They are catalyst and change agent for bringing excellence in organization and they must know the dynamics behind developing organizational capabilities and competencies. They have to understand to contribute towards the core competencies of the firm and they must master the HR competencies which can provide HR deliverables not a reactive HR intervention. They must equip themselves with the right knowledge and learning required in that regard. The basic knowledge regarding developing HR policies and programs will remain relevant to them. Omanization process remains a challenge and seizing this opportunity in developing national workforce may be an endeavor which coming generation will devour. How to make a balance between inconsistent business realities existing in Omani workplace and do the tight rope walking is a lesson must learned by every HR manager.



## Conclusion

Oman has liberalized its economic policies in recent past and it signed the WTO treaty in 2000 and US-Oman Free Trade Agreement (FTA) in 2006 which is going to provide a lot of opportunities and challenges to its businesses. Businesses are supposed to seize this opportunity by bringing requisite change in their approach and mindset and they must meet the rising expectation of customers providing quality products and services. This warrants organization to become proactive, flexible, responsive and adaptive to the desired changes in their system, structure and processes. Consequently it must use people competency as a strategic resource and strive to create an ambience of trust, empowerment and transparency to help their employees to contribute. The HRM function has emerged as a proactive and strategic function well integrated with the business strategy of the firm. Though, in case of Oman, this definition doesn't apply as most of the firms barring few multinational and government firms use more of a reactive personnel management as a people management function and they need to adopt proactive and effective human resource strategies which can help them in achieving the competitive advantage through a high degree of workforce flexibility, and greater concern for employees' learning and growth.

There is absolute dearth of trained Omani HR professionals in Oman and sometime company employs the HR specialist without having the requisite skill and competency. Government must provide some flexibility in employing HR professionals rather than having a complete ceiling on the employment of expatriate worker. The HRM role is not getting fully appreciated and utilized in true sense in Omani companies and most of the HR practices adopted are piecemeal and reactive one.

The HR managers in Oman have to prepare themselves to suit the exigencies of the workplace and business environment. It has been found they lack requisite skills and competency to deliver the desired outcomes in the organization. Some HR managers don't have the bare minimal qualification to man the HR function, this kind of imbalances needs to be addressed by training and enhancing their competency to the requisite level. It appears that HR management role in Oman have to go a long journey which warrants high level of professionalism and competence. Lastly, there is a strong need for attitudinal change among the various stakeholders of HRM. The HRM practices which are not compatible with Islamic values, such as the use of nepotism in recruitment and compensation practices known as *wasta* in GCC countries needs to be addressed earnestly. It will bring more seriousness and professionalism at the workplace and it will give message to employees that merit and performance is rewarded.

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# The Effects of Individual and Group Levels of Fairness on Employee Outcomes: A Scenario Study

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## Abstract

While the traditional research on organizational justice focuses on the individual-level fairness (i.e., the degree to which individuals are treated fairly in the organizational context), this study examines the concept of group-level fairness, defined as the degree to which a group as a whole is treated fairly within the organization, and empirically examined the role of the group-level fairness as well as individual-level fairness on various employee outcomes. A scenario study was conducted using a sample of university students in Japan. Our results suggest that group-level fairness is as an important and useful construct as individual-level fairness to predict key employee outcomes (e.g. organizational commitment, social identity, job satisfaction and intent to quit). The research limitation and future research directions are discussed.

## Introduction

The field of organizational justice has developed rapidly in recent decades and considerable theoretical and empirical research has accumulated to better understand human life in business and organizations. However, the majority of the research on organizational justice has been conducted within the North American context (Brockner, et al. 2001; Chen, Meindl, and Hui, 1998). Because the culture in North America is characterized as relatively individualistic, the dominant perspective on organizational justice has been on an individual level. That is, the field of organizational justice has been focusing on how individuals feel or judge whether they are treated fairly in organizations, and how such justice perceptions affect important individual outcomes (e.g., job satisfaction, organizational commitment, performance, deviant behaviors, and turnover). However, it seems natural that people may also consider whether their own group as a whole is treated fairly within the organization. We call this kind of perception collective justice perception (CJP). In this paper, we examine this new concept that focuses on the group level cognition.

Recently, some researchers have started to consider a similar group-level justice construct called procedural justice climate (Colquitte, Noe, and James, 2002; Mossholder, Bennett, and Martin, 1998; Naumann and Bennett, 2000). Procedural justice climate is influenced by the recent trend of multilevel theorizing (Chan, 1998; Kozlowski and Klein, 2000; House, Rousseau, and Thomas-hunt, 1995; Rousseau, 1985) which suggests that management researchers should explore organizational phenomena in terms of different levels including individual, team, and organization and so on. However, we believe that the way to conceptualize and operationalize procedural justice climate is different from our proposed collective justice perceptions.

In the following section, we make a brief review on the procedural justice climate and in turn discuss the difference between procedural justice climate and our new conceptualization, collective justice perception. In the end part, we suggest several hypotheses based on justice at collective level.

## Theory and Hypotheses

### Procedural Justice Climate

Based on the evidence that individuals observe how members of a group in an organization are treated by other groups and incorporate their (in) justice experience into their own justice assessment (Kray and Lind, 2002; Lind, Kray, and Thompson, 1998; Tyler and Lind, 1992), Naumann, Ben nett and their colleagues proposed the construct

of procedural justice climate as a distinct group-level cognition (Mossholder, Bennet, and Martin, 1998; Naumann and Bennett, 2000). They apply the notion of organizational climate to understanding the group-level cognition of procedural justice. Organizational climate refers to a set of shared perceptions about organizational policies, practices, and procedures that are developed through group interaction (James, Joyce, and Slocum, 1988; Schneider and Reichers, 1983). That is, climate perceptions represent meaning derived from the organizational context, which form the basis for individual and collective responses. Accordingly, procedural justice climate is defined as distinct group-level cognition about how a group as a whole is treated procedurally (Colquitt, Noe and Jackson, 2002; Naumann and Bennett, 2000).

Mossholder et al. (1998) found that procedural justice climate explained unique variance in employee job satisfaction beyond that accounted for by individual perceptions of procedural justice. Naumann and Bennett (2000) indicated that work group perceptions of cohesion and supervisor visibility were associated with the development of procedural justice climate, and which in turn was positively associated with helping behaviors after the effects of individual procedural justice perceptions were controlled for. Colquitt et al. (2002) measured procedural justice climate strength (i.e., consensus or dispersion about the procedural justice perceptions among team members) as well as procedural justice climate level (i.e., the average procedural justice perceptions within a team) and found that climate level was significantly related to both team performance and team absenteeism. Moreover the effects of climate level were moderated by climate strength such that the relationship was more visible in stronger climates. Specifically, the research showed that the positive effect of procedural justice perceptions on the team performance were more pronounced for those groups with stronger consensus about the justice. In addition, team size and team collectivism were significant antecedents of climate level, in that team size and team demographic diversity predicted climate strength.

Research on procedural justice climate has demonstrated that these contextual variables influence work attitudes and behaviors beyond the contributions of individual justice perceptions. For example, Naumann and Bennett (2000) manifested that PJC accounted for the unique variance of the helping behaviors, even after the control for the effect of procedural justice at individual level. These studies are of particular value in that they shed light on the group-level cognition while most of the past research on organizational justice focused on individual-level perceptions.

On the other hand, the concept of procedural justice climate has several limitations in understanding group-level cognition regarding organizational justice, especially in group-oriented cultures. Firstly, the notion of procedural justice climate is basically the perceptions about how individual members are treated fairly by the group, and thus does not consider the other groups as referents in judging fairness. It is important to note that people in group-oriented cultures typically distinguish in-group from out-group (Clayton and Opatow, 2003; Triandis, 1995). Thus, they might compare their own group with other groups in making justice judgment about how their own group is treated by the higher-level authority within the organization (e.g., top management teams, head quarters) or by the organization as a whole. For example, employees in an accounting department may sometimes compare their own department with other departments in the same organization (e.g., marketing and production departments) regarding whether the company's financial budget is allocated fairly or whether members of their department are treated fairly by top management, general managers and other group members.

The concept of procedural justice climate does not appear to include the above-mentioned inter-group comparison process. Therefore, it appears that the conceptualization is influenced by the individualistic cultures in which people are not inclined to distinguish between in-group and out-group in judging fairness in daily life. In other words, there may be a greater focus on within-group treatment rather than between-group comparisons in the concept of procedural justice climate. That is, people in individualistic culture may tend to compare themselves with other in-group members to judge whether they are treated fairly by the group. Therefore, although procedural justice climate is assumed to be a group-level construct, the basis for judging procedural fairness originates at the individual level (i.e., how individual members are treated within the group). The construct of collective justice that is also applicable in group-oriented cultures should include between-group comparisons as well as within-group comparisons.

#### **Hypotheses**

The mechanism in which perceptions of justice influence attitudes and behaviors may be different depending on

whether the justice perception is individual- or group-level. For individual-level justice perceptions, the perception of fairness influences individual attitudes and behaviors directly. For group-level justice perceptions, the development of shared perceptions (e.g., agreement, consensus) about whether the group is treated fairly may lead to group contexts (e.g., group behavioral norms), which in turn influence individual behaviors. This may be especially true when individual behavior represents group interests, which can be interpreted as “group behaviors.” For example, based on shared attitude and cognition toward other groups and organization as a whole, groups may decide whether they cooperate or compete with other groups within the organization. If the shared and homogenous attitude toward other groups is negative or hostile, the individual members’ behavior might be somewhat constrained by such group context even if some members may privately hold positive attitudes toward such groups. Thus, the resultant behaviors of the group members toward other groups may converge on negative or incorporative ones.

The above arguments suggest that collective justice perceptions are assumed to have independent effects on group outcomes such as group attitude and group behaviors. This also means that the effects of collective justice perceptions go beyond the effect of individual-level justice perceptions.

*Hypothesis 1a: Group-level fairness perceptions will influence group-level outcomes (commitment to the organization as whole and social identity based on the organization as a whole) even after controlling for individual-level fairness perceptions.*

*Hypothesis 1b: Group-level fairness perceptions are more likely to influence group-level outcomes (commitment to the organization as whole and social identity based on the organization as a whole) than individual-level fairness perceptions.*

While the effects of collective justice perceptions on group-level outcomes may be stronger than the effects of individual-level justice perceptions, collective justice perceptions may also influence individual attitudes and behaviors. Compared with group-level attitudes and behaviors (e.g., group OCBs; Schnake, Michael and Dumler, 2003), individual attitudes and behaviors may be less constrained by group contexts. Nonetheless, prior evidence indicates that group contexts influence individual attitudes and behaviors. For example, research on procedural justice climate has demonstrated that it had significant effects on individual attitudes and behaviors (Mossholder et al, 1998; Nauman and Bennett, 2000). Research also shows that group affective tone, which means the consistent and homogenous reactions within a group, affects individual reactions and individual absenteeism behavior. In particular, when the group has a high positive group affective tone, people are absent less (George, 1990; 1996). Thus, collective justice perceptions as well as individual level justice perceptions may influence individual-level outcomes such as satisfaction, commitment, and citizenship behaviors.

*Hypothesis 2: Group-level fairness perceptions will influence individual-level outcomes (job satisfaction and intent to quit) even after controlling for individual-level fairness perceptions.*

Research on organizational justice has both theoretically and empirically demonstrated that distributive justice (outcome favorability) and procedural justice interact with one another to affect people’s reactions to organizational decisions (Brockner, 2002; Brockner, DeWitt, Grover, and Reed , 1990; Daly and Geyer, 1994; Folger’s ,1986; 1987). The interactive effect of these studies manifested that the tendency for people to respond more positively when outcomes are fair was less likely when procedural fairness is high rather than unfair. To put it another way, the tendency for people to respond more positively when procedures are fair was less pronounced when outcome is fair rather than unfair. Brockner and Wisenfeld (1986) demonstrated the robustness of interactive relationship between procedural justice and distributive justice in their meta-analysis study.

Given these research findings, we consider it reasonable to predict the different dimensions of justice at a group-level interact with one another. That is, there may be interaction effects between different dimensions of collective justice perceptions on various individual and group-level outcomes.

*Hypothesis 3: There will be interactions between individual-level and group-level fairness perceptions (job satisfaction and intent to quit).*

## Method

### Sample

Participants were recruited from management classes in two public and private universities located in Osaka, Japan for extra credits in return for the participation in this study. All participants were told that the participation in this study was voluntary and anonymous. Over 90 percent of the attended students were agreed to participate in this study, resulting 417 of the sample size. Our sample included 80.1% males and 19.9% females with average age of 20.78 years old ( $SD = 1.92$ ). Over 90 percent of the participants have experienced the part-time work. Because we collected data from two universities, we explored whether significant differences existed in the mean levels of variables central to our hypotheses. Independent-samples *t* tests for each variable revealed that there was no significant difference between the two samples. Given the both samples were derived from the same population (i.e., undergraduate students), we combined the two samples into one to test our hypotheses.

### Design

We used written scenarios to manipulate a situation that could occur in the workplace that should cause perceptions of justice/injustice. Greenberg and Eskew (1993) suggested that using written scenarios is an effective method for gauging how someone would react to a similar situation in an organization. In addition, Wiseman and Levin (1996) found that individuals often make the same decisions in hypothetical situations as in real life.

We created scenarios of a hypothetical region-wide large restaurant chain for this study. Several pilot studies were conducted to develop the scenarios. First, eighteen undergraduate students in a management class were asked to provide information about the working situations they personally perceived individual level justice/injustice as well as group level justice/injustice. They were also asked to provide the part-time jobs they had experienced. Next, in another pilot study, about one hundred students provided their work experience, most of which were part-time work. Results from these pilot studies revealed that a part-time job at a restaurant was the most frequently mentioned work experience. Therefore, we concluded that a restaurant is suitable for the development of the realistic scenarios for undergraduate students as research participants.

In the scenarios of hypothetical restaurant chain, participants were to play a role of its part-time employees of one branch restaurant. Participants are randomly assigned to a 2 (justice at individual level: fair, unfair)  $\times$  2 (justice at collective level: fair and unfair) between subjects factorial design. In addition, the order in which individual and collective justice situations are presented also varied such that the half of the surveys present individual level justice situation first, and group level justice situation second, and another half of the surveys present them in reverse order. As a result, the total 8 versions of different scenarios were created, and participants were to be randomly assigned to one of these 8 different scenarios. Finally, a pilot study was conducted in which 18 undergraduate students checked the realism of the scenarios and appropriateness of the manipulations.

### Procedure

During the class, one of the authors gave each participant a survey containing one of eight different hypothetical vignettes followed by a series of questions. Participants were asked to imagine themselves in the scenario depicted and to indicate their likelihood of engaging in several different behaviors as well as their attitudes toward the hypothetical organization (company as a whole) and group (branch restaurant). The participants' individual differences as well as their demographic information were also measured in the survey questionnaires. Debriefing was made after participants returned their surveys.

TABLE 1: DESCRIPTIVE STATISTICS AND CORRELATION MATRIX

Table1

Descriptive statistics and correlation matrix.

Variables name	M	SD	1	2	3	4	5	6	7	8	9
1 Sex	0.84	0.41	-								
2 Age	20.78	1.92	0.02	-							
3 Job experience	0.96	0.28	0.09	0.09	-						
4 CJP	0.50	0.50	0.00	0.00	0.03	-					
5 IJP	0.51	0.50	-0.01	0.03	0.02	0.03	-				
6 Commitment	3.31	1.15	-0.02	0.09	0.09	0.18**	0.18**	-			
7 Social identity	3.26	1.05	0.06	0.07	0.03	0.33**	0.27**	0.71**	-		
8 Satisfaction	3.66	1.17	0.03	0.07	0.05	0.12*	0.48**	0.54**	0.58**	-	
9 Intent to quit	4.19	1.21	-0.07	0.00	-0.09	0.13*	-0.33**	-0.32**	-0.39**	-0.61**	-

Note: Total N participants 417.

\*  $p < 0.05$ .

\*\*  $p < 0.01$ .

### Measures

*Commitment to organization:* To measure organizational commitment, we used 4 items from the affective commitment scale, developed by Allen and Meyer (1990). Four items were chosen from the original version of eight items. A sample item is “I really feel as if this organization’s problems are my own” The Alpha coefficient for this scale was .76 in our sample.

*Social identity based on the organization:* Social identity measures were adapted from Tyler & Blader (2000). Six items were used to assess to which participants perceived the degree to which the participants feel proud of working at the hypothetical company. The sample items are “I feel proud of working at this company” and “My values are very similar to the company’s one. The Alpha coefficient for this scale was .87 in our sample.

*Satisfaction:* Job satisfaction was measured with 5 items from the Job in General (JIG) scale (Ironson, Smith., Brannick, Gibson, & Paul, 1989). Original version was eighteen items. The items ask employees to evaluate their current job in term of several aspects. For example, we asked participants to answer the extent to which the job is pleasant, better, good and worthwhile. This scale has an alpha coefficient .87 for our sample.

*Intent to quit:* Three items from Wayne et al. (1997) were used to measure participant’s intention to quit. An example of items is “I want to quit this job”.

### Results

#### Manipulation checks

To ensure that the justice manipulations were perceived in the expected way, we contrasted the manipulation check scales across the conditions. Based on Moorman (1991), six organizational justice scales were created to evaluate the manipulations of the two forms of justice using a scale from 1 (strongly disagree) to 7 (strongly agree). Half of them were justice at individual level and assess the degree to which participants perceived fair the pay raise criteria within the branch. The rest of items concerned justice at collective level and assess the degree to which participants perceived fair the company’s system to rank every branch as fair. In addition, using 7-point scale (1 = strongly disagree, 7 = strongly agree), participants indicated their extent of agreement with statements such as “I am pretty familiar with that kind of situation,” with a mean response of 3.97 and standard deviation of 1.22.

The results of one-way ANOVA indicated that the justice conditions were successfully manipulated in the expected way. The participants who read individually fair scenario ( $M = 4.66, SD = 1.24$ ) showed higher level of fairness than did those who read individually unfair scenario ( $M = 2.78, SD = 1.02$ ) [ $F(1, 424) = 292.86, p < .01$ ]. Similarly, the participants who read collectively fair scenario ( $M = 4.49, SD = 1.14$ ) showed higher level of fairness than did those who read individually unfair scenario ( $M = 2.51, SD = 1.01$ ) [ $F(1, 424) = 359.14, p < .01$ ].

### **The Effects of Justice at Individual- and Collective Level on Outcomes**

We conducted a series of hierarchical regression analysis to test the validity of the study hypotheses. The scale means, standard deviations, and intercorrelations among study variables are reported in Table 1. Hypothesis 1 predicted that the collective justice perceptions would affect outcomes at collective level (e.g. commitment to the organization as whole and social identity based on the organization as a whole) even after controlling for individual-level fairness perceptions and that there should be stronger relationship between justice at collective level and two outcomes. As shown in table 2, justice at collective level was associated ( $p < 0.01$ ) with each of two dependent variables and accounted for unique variance ( $p < .001$ ) in these variables over and above that explained by the control variables even when both type of justice was entered simultaneously (Step 2). These results supported the hypothesis 1a. In addition, we compare the difference of predictive power to dependent variables between justice at collective level and at individual level. That is, after entering the three control variables, we entered justice at collective level or justice at individual level in step 2. When justice at individual level and collective level were entered in step 2 respectively, each of them accounted for an additional 5% of the variance in commitment to the organization over and above that accounted for by the control variables. Thus, hypothesis 1b was not supported. When justice at individual level was entered in step 2, justice at individual level predicted an additional 8% of the variance in social identity based on the organization. On the other hand, when justice at collective level was entered in step 2, this variable explained additional 12% of the variance in social identity. This result confirmed hypothesis 1b.

Table 2. Hierarchical regression analysis for outcomes at individual level

variable	Commitment to the organization	Social identity based on the organization
	$\beta$	$\beta$
step1		
sex	- 0.03	0.06
age	0.08	0.06
experience of part-time job	0.08	0.01
$\Delta R^2$ after step1	0.02	0.01
step2		
Justice at individual level	0.17**	0.26**
Justice at collective level	0.17**	0.32**
$\Delta R^2$ after step2	0.08**	0.18**
step2		
Justice at individual level	0.18**	0.27**
$\Delta R^2$ after step2	0.05**	0.08**
step2		
Justice at collective level	0.18**	0.33**
$\Delta R^2$ after step2	0.05**	0.12**
Overall $R^2$	0.08**	0.18**
Overall adjusted $R^2$	0.06**	0.17**

Note: Total  $N$  participants.417;  $\beta$  is the standardized regression coefficient. All  $\beta$  s represent the weight for that step of the model.

\*  $n < 0.05$ :

\*\*  $n < 0.01$ :



Table 3. Hierarchical regression analysis for collective outcomes

Variable	Job satisfaction $\beta$	Intent to quit $\beta$
step1		
sex	0.03	-0.06
age	0.06	0.01
experience of part-time job	0.04	-0.09
$\Delta R^2$ after step1	0.01	0.01
step2		
IJP	0.48**	0.33**
CJP	0.12**	0.12**
$\Delta R^2$ after step2	0.25**	0.14**
step3		
IJPxCJP	0.01	0.08
Overall $R^2$	0.25**	0.14**
Overall adjusted $R^2$	0.24**	0.13**

Note: Total  $N$  participants:417;  $\beta$  is the standardized regression coefficient. All  $\beta$  s represent the weight for that step of the model.

\*  $n < 0.05$ :

\*\*  $n < 0.01$ :

The results of the analyses for hypothesis 2 and 3 are also shown in Table 3. Justice at collective level was associated ( $p < 0.01$ ) with each of two dependent variables (e.g. job satisfaction and intent to quit) and accounted for unique variance ( $p < .001$ ) in these variables over and above that explained by the control variables even when both type of justice was entered simultaneously (Step 2). These results supported the hypothesis 2. However, there existed no interactive effect of two types of justice on dependent variables and thus hypothesis 2 was not supported.

## Discussion

The present study firstly proposed the justice perceptions at collective level as a distinct concept from individual level justice and estimated the unique predictive power toward the important organizational outcomes. Our results provided some support for these predictions. The individual in the organization might not only attend “how fairly am I treated by the organization”, but also attend “how fairly my team is treated by the organization” in forming the attitudes toward the organization.

Given that justice at collective level might be new area, this study includes some limitations. Firstly, justice

at collective level did not account for more variance in collective outcome (e.g. commitment to the organization) than did justice at individual level. This indicated that although it targeted the entire organization commitment to the organization might be improper concept at collective level. It appears to be required to precisely define the collective concept as a consequence in the future study. Secondly, interactional effect of justice at individual level and at collective level on dependent variables could not be found in this study. We did not assume the dimensionality of justice (ex. procedural justice and distributive justice in differentiating the two types of justice). The lack of dimensionality of justice might eliminate the interactive effect of justice at individual and collective level. The future research should consider the dimensionality of justice in varying the fairness conditions. Thirdly, the scenario-based study might make it difficult for participants to feel their team and group as a real entity, which might attenuate the impact of justice at collective level on organizational outcomes. Fourthly, justice at collective level is likely to be related with the sense of belongingness to the team or group. In the present study, we did not measure this aspect and investigate the influence of belongingness on justice at collective level. Social identity theory and self-categorization theory may provide more insight to develop this new concept – justice at collective level. Further investigation should be needed to elaborate this new concept. Fourthly, all participants in this study were university students. Therefore, it is unclear whether these results can generalize to business settings. The study using employees can be expected.

In summary, this study is the first attempt to empirically conceptualize justice at collective level and estimate the impact of this. The results basically showed that participants perceived the justice at collective level independent of justice at individual level and attend the quality of justice at collective level as well as individual level in deciding how to react to the organization. Therefore, it should be promising to accumulate the theoretical and empirical study regarding collective justice and direct new avenues of organizational justice research.

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## Ecopreneurship as CSR: the Human Face of Development

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### Abstract

The 21<sup>st</sup> century is witnessing the fastest ever changes and even faster developments in leaps and bounds. In the mad race of ruthless development, its like an oasis in the desert that many corporates are coming of age for Corporate Social Responsibility (CSR) as their cup of tea. Where corporates are heartily taking up socio – culture heritage cum environmental issues much more seriously then ever. “Ecopreneurship” is a word which symbolizes normally eco-friendly corporates but we take it definitely in bolder expression to call here that any Corporate which is sensitive towards human development with human cause and concern for nurturing environment and not only just concern for environment protection. The authors here are presenting a Case Study of Hindustan Zinc Limited, A Vedanta Group of company which is setting neoteric trends in Human Resource Development as the challenging task of Corporate Social responsibility has been a taken up under the umbrella of HRD. The Combo HR+CSR is making waves of development which is worthwhile, meaningful, soulful and eco-sensitive as well as human sensitive. It is the question of knowledge driven path for sustainable development with a concern for GEN NEXT, to leave a saga of Development which has a human face.

### Introduction

The turn of the millennium has witnessed loads of changes in the corporate policies, vision & mission across the globe. All the more concern and sensitivity towards Sustainable development, eco-sensibility, and bio friendly products have once again taken the key driving position in any corporate vision and mission.

Seldom organizations have taken certain measures to achieve a sensible development but rarely few strive from corporate soul to work for the larger benefits to be transferred to those people never are part of main stream development consciously or unconsciously as they are normally left to the mercy of government plans and projects particularly in Asian countries & more specifically India where still a big chunk of population is facing a dark fate due to obvious reason of poverty, illiteracy and rural background.

The chairman’s philosophy “social vision must form a part of business vision” clearly is embossed and reflected in every corporate activity and can be felt across organization, outside organization & all the places surrounding the units of HZL, through serious CSR efforts & its impact on people, environment and HDI . HZL believes in sharing its benefits to rural & poverty struck communities, living in the vicinity of mines and smelters such as Zavar, Dariba, Debari, Agucha, Vizag, Chanderiya etc.

A fairly determined team of CSR professionals and grassroots’ level functionaries implement the various projects of CSR aimed of transforming the poverty struck villages into the self sustainable, self reliant and model villages of development.

### Hindustan Zinc at a Glance

#### Vision

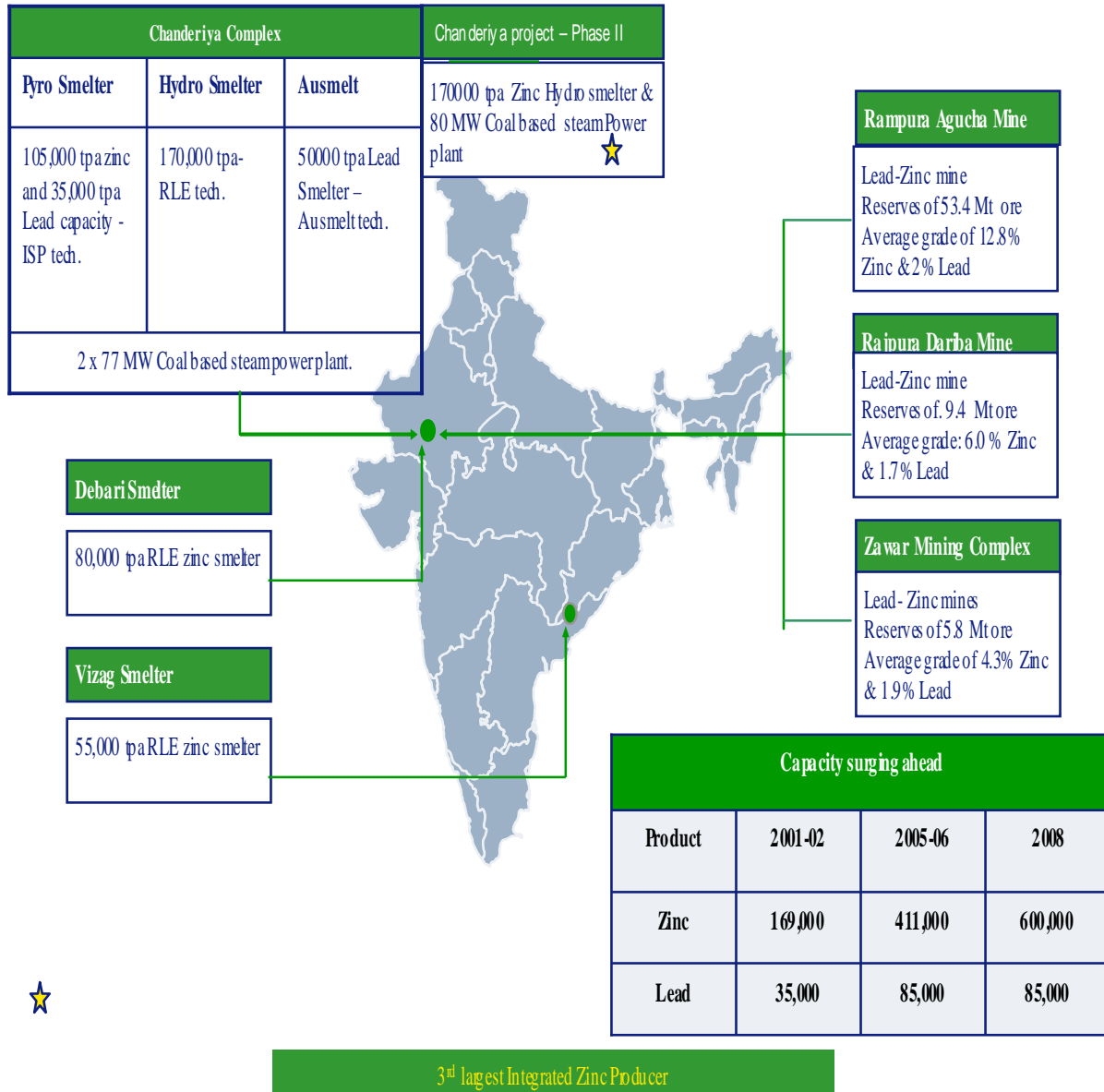
Be a world-class company, creating value, leveraging mineral resources and related core competencies.

#### Mission

- Be a globally lowest cost zinc producer, maintaining market leadership
- One million tonne Zinc-Lead metal capacity by 2010
- Be innovative, customer oriented, and eco-friendly maximizing stake-holder value.

To be counted among Best Zinc People in the World.

### High Quality Asset Base



Top Ten Zinc Producers of the World-2006

Mining Company Top 10			Smelting Company Top 10		
	Company	Prodn - kt		Company	Prodn - kt
1	Teck Cominco Limited	659	1	Korea Zinc Group	853
2	Zinifex	600	2	Xstrata AG	658
3	Glencore	599	3	Zinifex	635
4	Hindustan Zinc	498	4	Umicore	483
5	Xstrata AG	476	5	New Boliden	451
6	Anglo American plc	427	6	Hindustan Zinc Limited	420
7	Falconbridge	362	7	Votorantim	411
8	New Boliden	349	8	Glencore	396
9	Minera Volcan	287	9	Huludao Zinc Co	305
10	Industrias Penoles	221	10	Teck Cominco Limited	290

Total World Zinc Mining Production- 10,656 kt  
 Total World Zinc Smelting Production – 10,842 kt

HZL is the 3<sup>rd</sup> largest Integrated Zinc Producer

## Corporate Social Responsibility of HZL:

While keeping its focus on performance, HZL has never deterred from its commitment to society. HZL constantly reviews pollution control and environment safety monitoring systems at all its mining and smelting units. Dust emission control, plants, tailing ponds for solid waste disposal and secure containments, water reclamation systems, effluent treatment plants, gas cleaning, treatment units, afforestation efforts, management of solid waste and much more to keep its operations eco-friendly.



In 2003 HZL, along with others in the zinc industry has committed to an environmental charter with the Indian Central Pollution Control Board and the Ministry of Environment and Forests, establishing levels of environmental performance beyond legal compliance. Some of the major actions under CREP (Corporate Responsibility for Environment Protection) are:

- Reducing sulphur dioxide (SO<sub>2</sub>) emissions by half by 2006.
- Achieving zero waste water discharge through 100% recycling by December 2004. (Already achieved by HZL sites).
- The recycling of intermediate and waste materials.
- Reducing fugitive dust emissions from vehicles.
- Developing greenbelt around the plant and accommodation areas.
- HZL has prepared action plans and has planned investment of Rs 380 million over the next 2-3 years.

## Initiatives taken by HZL in Corporate Social Responsibility:

HZL believes in good corporate governance and sustainable development and is committed to raise the quality of life and social well being of communities where it operates.



HZL respects its obligation to its society and strives to minimize pollution to the environment. The Corporate Social Responsibility is accorded as much importance as to its business goals. Thus, HZL's social vision forms an integral part of the business function and covers the following community development initiatives:

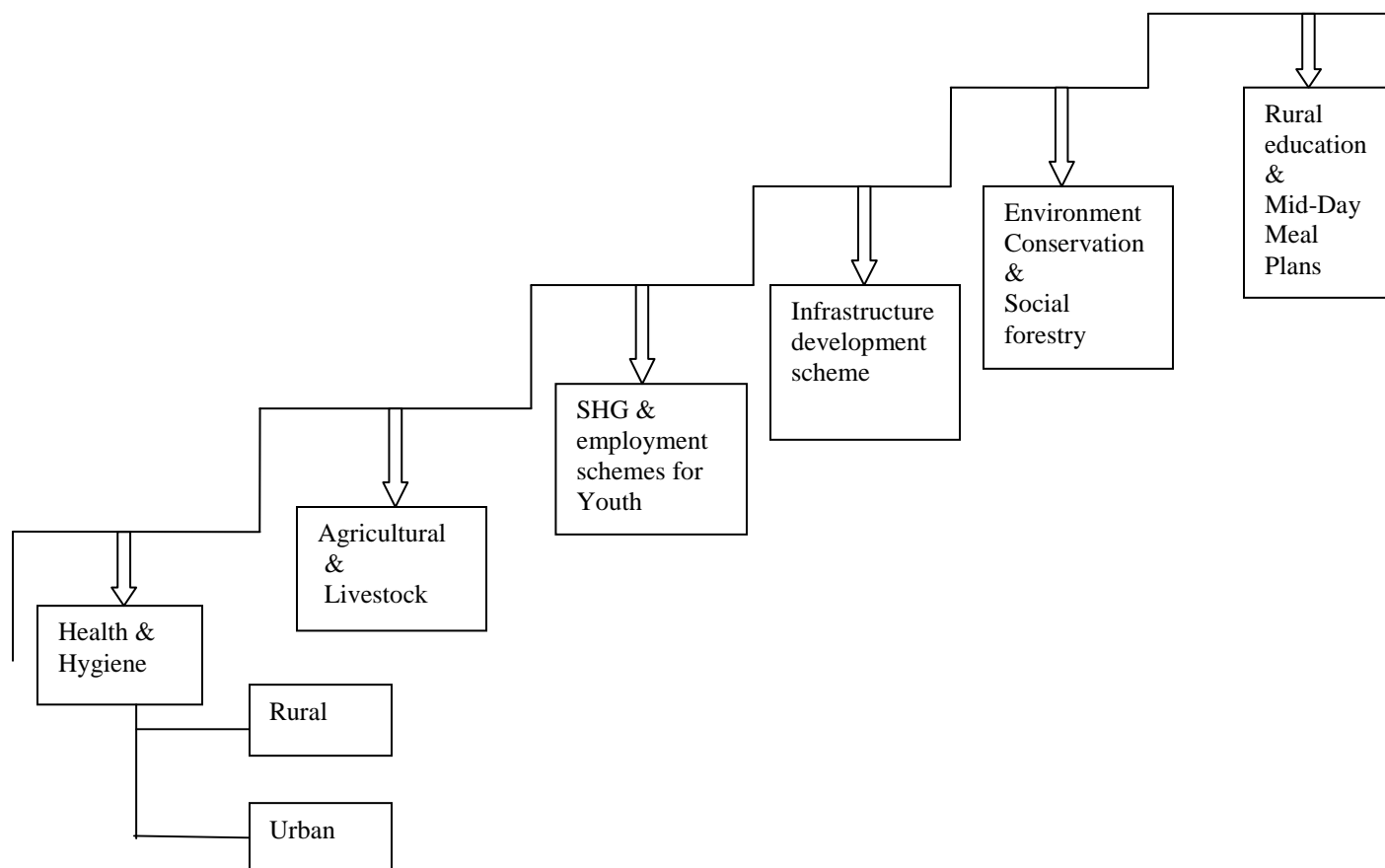
- Social Investment - Health, Education & Livelihood
- Bio-Investment - Water Harvesting, Agriculture and Social Forestry
- Environment Conservation



HZL is implementing a meaningful need based sustainable development initiative in a number of operational villages at its six different locations. Through its CSR initiatives HZL is impacting the lives of more than 1, 05,000 rural masses belonging to over 22,000 families.

HZL has donated Rs. 11 million towards the Mid-Day Meal Scheme of Govt. of Rajasthan for construction of kitchens at Chittorgarh, Bhilwara and Udaipur districts for catering to about 2,00,000 rural school children.

## Six focus areas



## Health And Hygiene

### Rural Area

- Vaccination like BCG, OPV, and DPT provided to infants. Due to which it has achieved “Reduced infant mortality rate and water borne diseases like malaria, typhoid, jaundice, viral fever, naaru (tape worm infestation) etc.
- Regular check ups are conducted for pregnant women, their vaccination and Nutrition is also taken care of.
- Eye care camps: Qualified medical practitioners and staff thoroughly work upon eye care result in RTI's and STI's cases going from 18% to 6% and further lowering of such cases may go down considerably in a year.
- Regular health check-ups : regular health check-ups are taken up for all people living in HZL vicinity encompassing checkups for Diabetes, Blood pressures, Blood tests, heart and Kidney related awareness and checkups.Papsmeat tests and mammography for women are also conducted

by medical team to trace early cancer detection, allergies, sanitation, prevention of communicable diseases, potable water and so on.... Scores of programs are conducted to keep one and all informed about health and hygiene.

#### **Urban Area**

Whereas Maharana Bhopal Govt. hospital of Udaipur now boasts of an exclusively Cardiology Centre set up by HZ to make available 24 hours emergency services to heart patient around Udaipur and adjoining rural areas Rupees six crore have been spent by HZL to establish a high tech cardiology fully functional department.

#### **Agricultural and Livestock**

The second volume of works relates to agriculture and livestock in collaboration with “Krishi Vigyan Kendra (Center for Agriculture Science)”.

- HZ has been providing training on seed, soil and watershed management for the best agricultural practices to ensure a highly productive and disease free livestock. Due to this activity 65% of target farmers are cultivating 2-3 crops in a year.
- Cattle’s Vaccination camps are also held regularly. Due this activity Morbidity rate reduced from 45% to 18%.

#### **Programs for Women and Unemployed Youth**

**Self Helps Groups** have been assembled to help them “Manage the Savings” and to impart them a new sense of purpose and self assurance through various income generation projects. Women are target groups as women are the axis of family. Hence involving them into small savings, financial management of the family budgets, talks by eminent & learned women to motivate them is another landmark which makes rural women to come forward for generating income for the families through learning some small skills and vocational experiences. This has enhanced 71% of target families’ monthly income from Rs 1700 to Rs 3000.

**Employment schemes** the village youth have started to get benefit from innumerable employment schemes made available to them in small scale business sectors like:

- Cycle repairing
- Grocery
- Carpentry
- Tailoring
- Dairy & Poultry
- Blacksmithing

**Hindustan Zinc has been mobilizing and implementing various infrastructure development schemes (in result 70% resources mobilized from Zila-Parishad & Panchayat) like:**

- Link Roads
- School Buildings
- Converts
- Check Dams
- Toilets
- Drains
- And Over Head Tanks.

#### **Environment Conservation**

One of the basic concerns of Hindustan Zinc is Environment Conservation:

- To maintain the critical ecological balance and boasts of a sizeable green belt.
- Mass Tree Plantation are being undertaken on regular basis.

## **Rural Education and Mid-Day Meal Plan**

- HZ planned to cover entire district under mid-day meal program. Most note worthy achievement has been, the public private partnership of the state govt. with HZ, establishing high tech kitchen in Chittorgarh. Fresh and Nutritional food from these kitchen is being provided to **two lakh** primary school children. Due to this activity school attendance has improved from 55% to 90%. This exemplary model has been recognized by ministry of HRD, Govt. of India.
- Games and Sports are regular activities in tune with HZ commitment towards recognizing & endorsing talents of local, rural and tribal communities.
- HZ has distributed two hundred computers to fifty government schools in and around Udaipur and also taken up to train and teach one-one teachers of these schools in order to make them the champions of computers education who would be responsible to impart this knowledge to the school children. This project would be extended to many more such schools in the years to come.
- Through various rural entertainment features, rural communities are being sensitized towards social evils, building awareness for literacy, health, sanitation and family planning.
- The Mansi Wakal water project undertaken in collaboration with state govt., ensures that the areas around udaipur gets an unbroken water supply for the domestic and agricultural purpose throughout the year.
- And a final and more consolidated process in place in Rajpura Village of Dariba Mines & Punchedevla Village (Chittorgarh) Chanderia Lead-Zinc Smelter. These two villages have found a proud place on the map of state as ideal villages.
- Simultaneously a three year rolling plan for all the 61 villages has been undertaken in a phased manner.

## **Commitment to Higher Education**

The Vedanta group is heading for a break through in higher education by presenting a world class, hi-tech university. The proposed Vedanta University will be a world class, multi-disciplinary university with students from across India and around the world. The university will nurture generations of global leaders who will make significant contributions to society through their chosen disciplines. Vedanta University will integrate teaching, learning, and research into a holistic learning environment that encourages leading scholarship.

Vedanta University will span more than 8,000 acres on the Puri-Konark marine drive in Orissa and will be home to more than 100,000 talented students from around the world. With an estimated investment of more than 15,000 corers, supported by a thriving ecosystem of knowledge in a breathtaking physical environment, the University will transform Orissa into a primary centre for knowledge in India; the institution will join the ranks of the world's greatest Universities such as Harvard, Stanford, and Oxford.

The best educational centers in the world, without exception, have highlighted one critical element in achieving genuine all-round academic excellence- that these centers need to be fundamentally 'not for profit' institutes. This concept will be one of the most fundamental philosophies of the Vedanta University. It is founded on a commitment to the passionate pursuit of academic excellence. Opening its doors to the very best and brightest by following a 'needs- blind' admissions policy, the University's guiding tenet will be to nurture and mould talent. It will be initially developed and endowed by a \$1 Billion philanthropic grant from the Anil Agarwal Foundation.

Built on a foundation to promote greater access to quality higher education, cutting-edge research, and contribution to society, Vedanta University will produce tomorrow's Nobel Laureates, Olympic Champions and community leaders. Vedanta University will strive to provide generic skills together with flexibility, adaptability and a passion for life-long learning, while simultaneously equipping young people with the best basis for a career in any

area, including industry, and for the unforeseen needs of the future. Students of the University will be its ambassadors to the world and a testament to all that it stands for- intellectual acumen and perception of issues, a genuine commitment to social change and development and the necessary skills, passion and leadership to solve them with honor and integrity.

All these projects have been evaluated by the Operation Research Group (ORG), New Delhi.  
HZ through its continuing efforts tried to bring smile on the faces of villages by touching their lives.  
Each mile covered is a joy but Sustainable Development is all about milestones.

## **References**

Contact authors for the list of references



## **Section 5: International Marketing & Management of Global Brands**

# International Marketing Communications in the Business-to-Business Market

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## Abstract

This paper focuses on the business-to-business marketing communication of industrial firms in the Slovenian, Croatian, Bosnian, Serbian, and Montenegro markets. Marketing communications tools used to communicate offerings to consumers differ from those used to communicate offerings to business customers. A study explored the issues from a customer's perspective and surveyed industrial customers of logistical services regarding appropriate communication tools. It was found that logistics services are subject to several existing differences across the Former Yugoslavia and indicated a need to use different marketing communications tools for different logistics providers in these markets. The paper concludes with a discussion of results, implications, and directions for future research.

## Introduction

The development of marketing communication in Former Yugoslavia countries is faced today with new opportunities and challenges. This process of transformation from underdeveloped to international competition resulted in overall economic liberalization and intensive growth of the logistics sector in these newly formed countries. Until 1991, Slovenia was part of Socialist Yugoslavia, together with the other republics of Bosnia and Herzegovina, Croatia, Macedonia and Serbia and Montenegro. The European Union marketplace has also driven companies in Balkan countries to look for new ways to be competitive. Stressing the competitive advantages offered by the suppliers of logistics is becoming increasingly important worldwide and also to Slovenia, Croatia, Bosnia and Herzegovina, Serbia and Montenegro, where a large number of logistics services currently operate. Strengthening the competitive position for companies in existing markets and entering new markets in the European Union and in South-Eastern Europe - these are the key strategies that characterized not only Slovenian companies, but also Croatian, Bosnian, Serbian, and Montenegro companies. These components are also the main levers that will balance out the changes expected when other transition countries join the European Union.

Operating conditions in the logistics industry upon a country's accession to European Union changed considerably. Slovenia has already joined to European Union, and other transition countries i.e. Croatia, Bosnia and Herzegovina and Serbia and Montenegro will face their time of accession to the European common market as well. For companies operating in those markets, the primary goal is to prepare extensively for the new business environment. They need to react to the strong competition in the logistics industry by becoming more involved in the supplier selection process and by becoming more critical, detailed, and comparative in their supplier evaluation.

Logistics companies in the Former Yugoslavia countries are adapting to development guidelines at various levels. Like Mentzer, Myers, and Cheung (2004) also argued that logistics offerings are subject to differences across countries. Logistics service expectations differ across national and cultural boundaries, enhanced personal interaction frequently occurs in service settings, and service use patterns frequently differ across countries as well as differences in more traditional influences, such as timeliness and responsiveness. These differences increase the difficulty for a unified marketing communication strategy across those different market segments. The fact is that different marketing communications tools are required for those markets.

Like most areas of marketing, business-to-business communication is undergoing new challenges and evolving through the development of emerging opportunities. In the domain of communication practices, industrial customers in particular must rely more heavily and more intensively on an accurate marketing communication to influence the buyer decision.

Business-to-business marketing communications are an important marketing communications topic. However, there are a number of important differences between communications in a consumer environment and in a business environment. As a result, marketing communications will have to be adapted to these different circumstances, not only in terms of the communications strategies and tactics, but also regarding the instruments that are used or at least the relative emphasis that is put on some instruments at the expense of others. And also, the increasing rate of the globalization of markets makes business-to-business marketing communications an important issue in today's uncertain and challenging economic environments. Company may rely on personal selling and other sales promotion tools to inform customers. These represent the worldwide basis for informing the customers.

While several studies of marketing communications have selectively focused on consumer market, we restrict our research on business-to-business markets of the logistical services. Today, managing effective communications requires more skills in business-to-business marketing communications. Notwithstanding the apparent importance of marketing communication in today's environment, surprisingly few empirical studies have been concerned about marketing communications in the business-to-business market (Gilliland and Johnston, 1997; Garber and Dotson, 2002; Borghini and Rinallo, 2003). We have examined logistical services particularly in terms of business-to-business services marketing communications.

Green (1998) observed that business consumers have been characterized as being more technical and more information-seeking than the mass consumer; therefore, the business-to-business marketing communications generally places a higher level of importance on utilitarian factors like price, productivity, reliability of delivery, and superior quality. While these utilitarian factors have been considered important to business customers, there has been no empirical research examining how marketers of logistical services are communicating these factors to the segment of business customers. Thus, a gap exists in service marketers' understanding of a particularly important business-to-business marketing communications.

The paper consists of two parts: the theoretical foundation for the analysis of the business-to-business marketing communications and the empirical analysis, based on the primary data collected. An empirical investigation of respondents from four countries reveals the different attitudes of respondents towards various marketing communications tools.

## **Literature Review**

From the review of the pertinent literature is clear that, although some research attempts have started to appear regarding the role and features of different marketing communications tool in the business-to-business market, very limited work has been done regarding the marketing communications tools that are important in the business-to-business market in the field of logistic industry. Further, although some of researchers have presented the different role of marketing communications in the business-to-business market mainly regarding different industrial products and none of them was concerned with logistical services, in the case of Slovenian, Croatian, Bosnian and Serbian markets.

The increasing importance of communications in the industrial market was provided by Hart (1998), who presented different topics in the industrial marketing communications context. Thus, there is considerable evidence that the potential of business-to-business marketing communication is not yet fully exploited in business practice. Business-to-business marketing communications also represent a neglected area in academic research. It is also interesting to note that leading textbooks in industrial or business-to-business marketing (Bingham and Raffield, 1990; Hutt and Speh, 1998; Bingham, Gomes, and Knowles, 2005) typically devote limited space to business-to-business marketing communications. Also, reviews of contributions from journals specialized in the area reveal a very limited emphasis to communication in the business-to-business market (Smith, Gopalakrishna, and Smith, 2004; Cutler and Javalgi, 1994; Garber and Dotson, 2002; Rinallo and Borghini, 2003; Gilliland and Johnston, 1997, Homburg and Garbe, 1999; Brennan, 2003; Herrington and Lollar, 1996). This research gap may partly be attributed to an overemphasis on the business-to-consumer/business-to business dichotomy.

As a result of further considerations emerging from literature analysis on the use of communication tools in the business-to-business markets, we hypothesize that customers interested in purchasing supplier's logistical



services will privilege those tools that allow a direct and interactive exchange with the supplier's representatives, such as sales representatives visits, trade advertising, trade fairs, exhibitions during conferences and meetings, and so on. These communication tools are suitable for creating an experiential exchange of information. Borghini and Rinallo (2003) found in their paper the direct contacts let the sellers reduce the social and the technological distance from the buyers and give the customer the possibility to assess the supplier capabilities with direct questioning and tests.

It has been posited that different instruments of marketing communications targeting business customers have more of an informational and supportive role than marketing communications targeting general consumers. Business customers have also been characterized as being more technical and more information-seeking than the mass consumers. For these reasons the business-to-business marketer generally places a higher level of importance on utilitarian factors like price, productivity, reliability of delivery, and superior quality (Green, 1998).

#### **The Role of Marketing Communications in the Business-to-Business Market**

Communication is the human activity that links people together and creates relationships. It serves as the way to develop, organize and disseminate knowledge (Duncan and Moriarty, 1998). Smith, Berry and Pulford (2002) reported that "communication is a constant activity. It is more than a marketing tool. It is a universal and essential feature of human expression and organization".

Communications in the marketing channel are important from both a theoretical and managerial perspective. They are "the glue that holds together a channel of distribution" as they serve not only as a process by which persuasion, decision making, coordination and power can occur, but as an avenue by which commitment and loyalty can be encouraged (Mohr and Nevin, 1990). Thus, how an organization communicates with customers is important as it affects whether or not the organization attracts new customers, as well as how existing customers experience both the company and its products or services.

Business marketing communications refers to the use of the seller-generated promotional tools to deliver messages to business markets. Most basically, there are three purposes of marketing communication – to inform, to persuade, and to remind customers and potential customers about a product or a company. The promotional tools used in marketing communication – professional selling, advertising, public relations, sales promotion and direct marketing – are often referred to as promotional mix (Bingham, Gomes, and Knowles, 2005).

Customers base their judgments of service and products in part on their perceptions of messages conveyed by organizations. Positive perceptions can increase an organization's credibility in customers' eyes. For organizations in the business-to-business market, there are several communication channels available. One important channel consists of intermediaries. Consequently, organizations need to provide support to their intermediaries such as providing them with free samples, free use of services, consultations, or personal selling. Through the communication efforts of its advertising and sales department, customers can also learn about an organization. Through public relations activities, organizations can transmit a positive image of their services. Examples of public relations activities include exhibitions, in-house journals, sponsorships, and campaigns for local communities (Aung and Heeler, 2001).

Today, successful organizations use integrated marketing communications. Companies can better leverage value-chain benefits to their customers if they integrate their promotion tasks. Instead of optimizing individual elements of marketing communications (e.g. advertising or personal selling) one at a time, close coordination of a various promotion activities within the company helps companies to enhance overall promotional effectiveness. Integrated marketing communications is defined as a "strategic business process used to plan, develop, execute and evaluate coordinated, measurable, persuasive brand communication programs over time with consumers, customers, prospects and other targeted, relevant external and internal audiences" (Keller, 2001). Low reported (2000) that integrated marketing communications has been also defined as a "strategic combination of all messages and media used by an organization to influence its perceived brand value."

## Research Methodology

### Sample and Response

Our empirical research is based upon two different samples. One sample includes 400 companies from three different countries: Croatian, Bosnian-Herzegovina and Serbian-Montenegro companies. The second sample includes 850 Slovenian companies. The research was carried out in Croatia, Bosnia and Herzegovina and Serbia and Monte Negro in November 2006, the mailing in Slovenia was conducted in September 2006.

In the first sample we were using the first sample of 400 companies. During the four-week period following the mailing, a total of 84 responses were received. Including the 21 undeliverable surveys (e.g., wrong address, the respondent not existing) and 4 incomplete surveys, a response rate of 21,0% was achieved (84/400). Thus, the 59 respondents in the sample may be somewhat unique in their characteristics. In this research, the response rate is defined as the percentage of total questionnaires returned by respondents.

The second sample included 850 Slovene companies, logistical directors and other executives who purchase logistical services. Incorporating the 16 undeliverable surveys (e.g., wrong address) and 12 incomplete surveys, a response rate of 37,1% was achieved (315/850). The results presented in this paper are from these 287 respondents. The collected empirical data were processed with SPSS 10, where the emphasis was given to descriptive and inferential statistical analysis.

Some of the possible limitations of the survey results should be noted. First, the low response rate might be considered a concern, but in fact, it is expected in organizational research as opposed to consumer research (Hansen, Swan and Powers, 1996). Second, the time-lag between the two mailing should be considered.

### Measures

A number of measures were collected, including demographics, for each respondent. Multi-item scales based on the procedures outlined by Chirchill (1979) were developed. Most of the measures revolved around the two research issues, and as such, are discussed below.

Having as a general guide previous work in the field by Garber and Dotson (2002) and MacLeod et al. (1999) in the field of American transport and logistic market, we selected 20 marketing communications tools to be measured. These tools fall into Kotler's (2006) four major elements of the marketing communications mix, namely advertising, personal selling, public relations and sales promotion. Using a five-point scale, respondents were asked to indicate the importance of different tools importance (5="extremely important" to 1= "of little importance"). These 20 marketing communications tools, together with descriptive statistics are provided in following Tables.

## Empirical Findings

### Company Profile

In the first part of the questionnaire, the respondents were asked some basic facts about the company, its line of business, number of employees, its largest sales markets, and the respondent's position in the company. The following five Tables show certain characteristics of the sample companies. We can see the respondent's country of origin in the Table 1.

TABLE 1: RESPONDENTS COUNTRY OF ORIGIN

Country	Frequency	Percent
Croatia	33	9,54%
Bosnia and Herzegovina	10	2,89%
Serbia and Montenegro	16	4,62%
Slovenia	287	82,95%
Total	346	100,00%

The returns were dominated by companies of production-oriented business, followed by commercial-oriented business and service-oriented business, which is presented in the Table 2.

TABLE 2: MAIN ACTIVITY OF COMPANIES

Main activity	Frequency	Percent
Production-oriented business	172	49,71%
Service-oriented business	47	13,58%
Commercial business	108	31,21%
Other	19	5,49%
Total	346	100,00%

The position of respondents in the companies shows the following structure in the Table 3. Forty-one percent of the respondents were top executives, thirty-two percent of the respondents belong to middle management, and twenty-five percent of respondents belong to first line management. The remaining three percent of the respondents had different positions in the companies.

TABLE 3: RESPONDENTS' POSITION IN THE COMPANY

Position	Frequency	Percent
Top management	140	40,46%
Middle management	111	32,08%
First line management	85	24,57%
Other	10	2,89%
Total	346	100,00%

The surveyed companies were next asked about their largest sales market. The respondents had the possibility to choose from four different answers. The results in the Table 4 show that the largest respondent sales market is the market of commercial enterprises that is profit-motivated. This is followed by the consumer market, followed by the market of institutions (nonprofit-motivated organizations) and the government (national or local politically oriented organizations).

TABLE 4: RESPONDENTS' SALES MARKET

Sales market	Frequency	Percent
Commercial enterprises	269	94,20%
Government	58	16,80%
Institutions	62	17,90%
Final consumer	171	49,40%

A wide range of companies, classified according to their number of employees, are represented in this study. The returns were dominated by small companies, as we can see from the Table 5. In our sample we had 61,3 % of small companies, 20,8% large companies, and the remaining 17,9 % were middle-sized companies.

TABLE 5: SIZE OF THE RESPONDENTS COMPANIES

Number of employees	Frequency	Percent
Small companies	212	61,27%
Middle-size companies	62	17,92%
Large companies	72	20,81%
Total	346	100,00%

### **Importance of Marketing Communications Tools**

We asked the managers to report on the importance of the twenty common marketing communications tools. In Table 6 below are listed the results of the importance of different marketing communications tools as viewed by the respondents. They were asked to indicate on a 5-point Likert scale, the importance (5="extremely important" to 1="of little importance") of different marketing communications tools listed below.

The results show that there are small differences between the mean scores in importance of marketing communication tools. Respondents indicated advertising on the internet and catalogues and other presentation material as the most important communications tools, followed by direct mail and television advertising. Personal sales visits and participation in trade shows were given by respondents also a high importance. The findings are aligned with the practice of business-to-business marketing, which entails that advertising is necessary, but still not sufficient for the accomplishment of actual sale of services. It plays a supporting role to the personal selling to maintain and expand the sales.

Some forms of direct marketing, such as direct mail, it is also in an important way to reach customers in business market. For the customers of logistical company Intereuropa, attending the trade shows was more important than other forms of advertising, e.g. on transport vehicles, in newspapers and in trade journals. The public relations service was classified as a less important instrument of marketing communications. Respondents gave a low importance to various communication tools of public relations (e.g. sponsorship, donations, participation in charity events, house magazines, press conferences).

To understand the differences in the respondents' view of the relevance of different marketing communications tools across the countries, we would like to find if there are some statistical differences between Slovenian, Croatian, Bosnian and Serbian companies. Assumptions to be met for ANOVA are that the population should be normally distributed, the groups should be independent of each other and the groups should be of equal variance (Taylor, 2001). We checked the distribution by carrying out a Kolmogorov-Smirnov test of normality and the results had been significant ( $p = 0,000$ ) for all marketing communications tools. The four groups are also independent from each other and this was satisfied by the random selection of the samples.

The null hypothesis in one-way ANOVA assumes that all means are equivalent, while the alternative hypothesis states the variability or differences in the means being compared is greater than expected from a sampling error, that is, at least one of the means is significantly different from the others tested (Davis, 1997). Accordingly, we make the hypothesis as follows:

**Null hypothesis, H<sub>0</sub>**, is that all the group means are equal.

**Alternative hypothesis, H<sub>2</sub>**, is that at least two of the means are different.

TABLE 6: RESPONDENTS' IMPORTANCE OF MARKETING COMMUNICATIONS TOOLS ACROSS THE COUNTRIES

Marketing communications tool	Croatia	Bosnia and Herzegovina	Serbia and Monte Negro	Slovenia		
	Mean	Mean	Mean	Mean	Overall mean	Overall std. deviation
Personal sales visits	4,23	4,40	3,69	4,09	4,11	0,30
Advertising on the internet	3,81	4,70	4,19	3,85	4,23	0,41
Television advertising	3,93	4,40	4,06	3,35	4,13	0,44
Catalogue and other presentation material	3,80	4,90	4,00	4,04	4,23	0,49
Direct mail	3,84	4,50	4,07	3,61	4,14	0,38
Participation in trade shows	3,83	4,50	3,94	3,61	4,09	0,38
Advertising in trade journals	4,10	4,00	3,63	3,87	3,91	0,20
Advertising on transport vehicles	3,70	4,10	3,31	3,55	3,70	0,33
Advertising in newspapers	3,42	4,30	3,38	3,40	3,70	0,45
Distributing goodwill gifts and new year greetings to clients	3,47	4,10	3,25	3,29	3,61	0,39
Shows on events and conferences	3,20	3,90	3,50	3,28	3,53	0,31
Press release	3,17	3,90	3,50	3,04	3,52	0,38
Events (sport, cultural, ...)	3,23	3,70	3,00	2,88	3,31	0,36
Advertising on CD (business directories)	3,07	4,10	3,06	2,79	3,41	0,58
Radio advertising	3,32	3,90	2,63	3,03	3,28	0,53
Sponsorship	3,07	3,50	3,06	2,88	3,21	0,26
Donations	2,87	3,60	2,75	2,82	3,07	0,40
Participation in charity events	2,97	3,40	2,88	2,60	3,08	0,33
House magazines	2,70	3,10	3,31	3,03	3,04	0,25
Press conferences	2,67	3,10	3,00	2,73	2,92	0,21

We compared these four groups with respect to their importance of different marketing communications tools to see whether this would yield different results. Using one-way analysis of variance (ANOVA), we found the statistical difference among these segments regarding advertising on the radio (F ratio = 2,988; p = 0,031), television advertising (F ratio = 5,867; p = 0,001), participation in trade shows (F ratio = 2,655; p = 0,049), distributing goodwill gifts and new year greetings to clients (F ratio = 4,048; p = 0,008), advertising on CD e.g. Kompas (F ratio = 2,979; p = 0,032), house magazines (F ratio = 2,687; p = 0,047), and direct mail (F ratio = 2,805; p = 0,040). So, we reject the null hypothesis and conclude that there is a significant difference among different countries regarding marketing communications tools mentioned above.

We also applied the ANOVA to compare the mean score of the importance of different marketing communications tools among the following independent groups: small companies, medium-sized, and large companies. When respondents were divided regardless of their size, a statistical difference was not observed in the importance attached to different marketing communications tools. The test statistic doesn't exceed the critical value so we don't reject the null hypothesis and conclude that the means of different groups regarding the size of the company are equal.

### **Managerial Implications**

Findings from this study present an opportunity for future research by examining the most important marketing communication tools to use in the business-to-business market in the logistic industry. Marketing agencies and business organizations should use personal selling, trade shows and other tools of marketing communications with an emphasis on personal contact for effective marketing communication. The findings suggest that publicity can enhance the overall marketing communication effort. As business marketers focus on value and debate how to communicate value to their customers, many are rediscovering the strategic importance of public relations in their marketing communications mixture.

The issue that is also important because revealing that there are major differences across the former Yugoslavia countries in how business-to-business marketers communicate their characteristics of logistical services to segments of business consumers. These differences are reflected in the use of different marketing communications tools.

### **Conclusion**

The management of business-to-business marketing communications can be a competitive advantage in achieving the strategic company objectives. One difficult challenge for marketers is the large communication options that are available to support their brands (e.g. TV, print advertising, interactive advertising, trade promotion, press releases, sponsorship, event marketing, etc.). Marketers must understand that various marketing communications options have to offer and how they should be combined to optimize their marketing communications programs.

Our research explored the current attitudes of managers in the logistic industry. Specifically, we examined their evaluation of the importance of various promotional tools. We found evidence that a manager's perception is viewed differently by companies in the Former Yugoslavia countries. So, we are not able to make substantial generalizations about the marketing communication strategy. This finding would tend to indicate that each nation represents, in part, significantly different market segments. Thus while some of Western Europe is moving toward "one market," the transitional Balkan nations still remain significantly different market segments.

There are several implications of these findings for logistics management. The results indicate that having different levels of importance for characteristics of a logistics provider across countries can contribute to the development of different marketing strategies for those market segments. Also, the effectiveness of marketing communication strategies depends upon which communication tool is used in different Balkan countries. The logistics marketplace is highly competitive, and thus managers have to be involved in the selection of a logistics provider. Further, marketing communication plays an essential role in the logistics industry. Personal selling and other personal contact promotions (direct mail, participation in trade shows, catalogs and other presentation material) are perceived to be the most important promotional tools in the logistic industry. Some forms of mass media, such as television advertising and Internet advertising, were also given a high importance by respondents. The relative importance of these tools varies with the stage of the relationship between buyer and supplier.

The results indicate that the structure of marketing communications mix in the sample of firms is aligned with the theory in the business-to-business market. The analysis of data on Slovenian, Croatian, Bosnian and Serbian and Montenegro consumers partly confirmed the differences in the marketing communications applied in those markets.

A better understanding of business-to-business marketing communications in Former Yugoslavian countries would contribute to business organizations in the field of logistic industry. It would enable marketers to create more effective marketing communications programs.

Because of the differences across in attribute importance and promotional tools across countries, we conclude that managers should develop different marketing strategies in transitional countries (i.e. Croatia, Bosnia and Herzegovina, Serbia and Montenegro). A better understanding of business-to-business marketing communications in the Former Yugoslavia countries would contribute to increased/stronger business organization in the logistic industry.

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## **Process-Centric Approach to Customer Relationship**

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### **Abstract**

Today's customer demands not only quality products and services but also looks for value in the transaction process itself. This paper explores the role and relevance of IT in creating sustainable relationships. The discussion focuses on the use of technology in the financial sector in India. It highlights how they are changing their business processes to provide better value to the customer during the interaction. The paper reiterates the growing relevance and demand for building relationships with customers and emphasizes the usage of information technology in creating better value for the end user. It also explores the practices being adopted in the financial sector organizations in India in redesigning their business processes to enhance their competitiveness through more meaningful interaction with customers. With information technology setting newer standards of performance, financial organizations that will be able to reorganize their business and services around core processes are the ones that stand to succeed.

### **Introduction**

Organizations are adopting new technological imperatives in order to outperform their competitors. The emphases herein lie in identifying the critical value adding processes; and redesign them to become customer centric. In the recent years there have been increased role of IT in changing the business strategies and cutting operating costs. Increasingly it is revolutionizing the approach of companies towards their customers. IT is being adopted to redefine the customer service parameters and retaining customers. The ultimate objective of technology lies in its applicability in targeting right customers and catering efficiently to their needs.

In this perspective CRM cannot be treated merely as a technology; it also has implications in the strategy formulation for companies. The focus of the paper is to study the impact of CRM as a process which is enhancing the efficiency of the Indian financial sector. With huge amounts of money being invested in IT solutions to upgrade processes, CRM has acquired functional as well as strategic implications. No software can promise to improve the capability of the organization's processes unless the strategic and tactical decisions are in the right place.

The paper first studies the implications of CRM as a process and then makes an attempt to study how applied in the financial sector it has improved the performance of organizations. The implications of adopting a relationship management approach is immense, as it enables organizations in developing not only better understanding of the customer but also helps it in streamlining its activities. The paper can be divided into the following heads:

- Relationship Marketing creating customer loyalty
- CRM as a process management issue.
- CRM driving Indian Financial sector.
- Challenges for the future

### **Relationship Marketing in Creating Customer Loyalty**

It is not only technology that has strategically changed the organizations but also the growing realization that battles have to be fought over efficient service delivery alternatives. Relationship management not only looks on building relationships with customers but also with suppliers and partners. The redesigning of processes in the organizations is being done on the forethought that product delivery can only be improved if organizations are able to change their



value chains according to market needs. The dynamic nature of markets and ever evolving technology perspectives are forcing companies to become flexible in their approach towards their customers. The traditional marketing strategies no longer provide any guarantee of success as the very nature of customer has changed. Access to information has opened new vistas of knowledge and their susceptibility to new products and services has increased manifold. Earlier it was not important to know the customer, or to really understand his mindset. These challenges are calling for adapting strategies that would enable companies to foster better relationships with the customers. Moving from the 'product-centric approach' to relationship marketing has meant finding the right techniques to reach to the customers. No advertising and personal selling budgets promise to give increased customer revenues as relationship marketing does. "Customers are lifeblood of any organization. Like many clichés, this one happens to be true. Without customers, a firm has no revenues, no profits, and therefore no market value" (Gupta & Lehmann, 2005; pp.2).

The customer is looking for value in all his transactions and is willing to pay for that value. In a way technology has brought the customer closer to the marketer. Knowledge about markets, segments and product usage can be easily available to the organizations. Many companies are thriving on this knowledge as it enables them in designing the right kind of marketing and promotional strategies to capture the attention of the customer. Even capturing the attention of the customer has become challenging as media proliferation has led to increase in competition. A better equipped customer with knowledge about various alternatives available in the market is difficult to convince. Companies have to be alert in their approach to understand his definition of 'value' and accordingly position themselves on quality, service, performance, and efficiency perspective. It becomes imperative to create value for him; a value that is able to bind him to the company and stop him from switching to another company's product. Advertising and promotions can be instrumental in influencing the purchase decision the product has been launched in the market; but if the company has built a long term relationship with its customers; advertising and promotion can become more effective in delivering returns. Reducing costs, aggressive promotion and advertising necessarily did not bring revenues and loyal customers. The whole idea is to develop business models that would enhance the quality and improve interaction with their customers leading to greater satisfaction for him.

Companies in India are trying to build long lasting relationship with the customer by focusing more offerings that are relevant to consumer needs. The financial sector is also designing products/services are closely attuned to Indian aspirations. Relationship marketing has always existed in companies; the only change that has come is in its applicability to deliver results. It has always been understood that customer needs are important for companies in designing product and service offerings for the markets. Increased customer satisfaction would lead to increased customer loyalty. Customers are thus perceived as assets for companies and creating customer value essentially would lead to long term growth for the company. The companies unable to retain their customers are not likely to survive in the competitive environment. The thrust of strategy has shifted to maximizing customer value and involving customers in the companies' value creating processes. In the manufacturing sector companies are creating greater information visibility so that the customer has better idea about the company from where he buys products. These interactive efforts are primarily designed to bring about greater participation between the company and its customers and create a sense of partnership.

Information technology has been instrumental in giving more power to the customers as now he not only demands greater information about the various products and services but also views himself as a change agent in the transaction process. In India the influx of new products has led to change in the expectations of the customers. Companies are no longer targeting to an uninformed confused customer, who was earlier dependent on the companies' to cater to his needs; but to a customer who believes that selecting the best product is his prerogative. Relationship marketing looks not only towards building relationships but focuses also on managing and defining these relationships in the long term. It's not only about having clarity about customer needs but also the capability to keep evolving the relationship so that the customer feels enriched by being served by the company.

In this perspective if sustaining relationships is important for companies; the management should develop systems that lead to building these relationships. The traditional organizational structures have to be redefined to cater efficiently to customer needs and also to make marketing cost effective. Confronted with the challenges of dynamically changing IT models and competition from foreign banks, Indian companies had to deploy technology

to make their offerings more relevant. The paper focuses on the idea of building relationships by using CRM soft wares in defining strategies for Indian market. The paper tries to explore the globalization of Indian insurance sector by moving towards a more global IT strategy in targeting customers. “Enhancing customer value, delivering a higher level of service, and enriching the brand all play a critical role in a company’s ability to grow profitably and consistently outpace its competition” (Freeland, 2004 pp. 3)

## **CRM as a Process Management Issue**

The role of organizational structure is to partition the organization into functional silos, so that each function independently enables the organization to attain the objectives. The primary goal is to enhance value creation process and bring about increased coordination across organizational hierarchy. More and more companies are moving towards a process approach as it has become imperative to relook at the organization’s traditional processes and identify their relevance and output towards customer satisfaction. This requires analyzing the relevance of the process from customer perspective, as it is ultimately the customer who is the prime beneficiary of the output.

There has been a growing emphasis on improving the productivity of the organization by focusing on aligning the processes of the organization to the organizational goals. In the 1980s-1990s the organizations were much taken up by the Reengineering philosophy propounded by Hammer (1990). Reengineering represents a move towards increased organization simplicity, and the rationale herein lies that organizations can be restructured along value delivery lines. Reengineering propagated a change in the philosophy of doing business. To improve performance cost reductions and service delivery standards had to be evaluated. Focus on quality and reducing inventory levels are one part of the effort. Hammer (1990) and Davenport (1993) laid stress on the idea of analyzing whether they were doing business in the right way. What may have been appropriate two to three decades earlier may not be viable in today’s business environment. “Stressing the comprehensive nature of business processes, BPR theorists urged companies to define all of their major processes and then focus on processes that offered the most return on improvement efforts” (Harmon, 2003; pp. 24)

The very genesis of transformation was corporate renewal; changing their way of doing business and discovering new capabilities. “In the mid 1980s, British Airways decided to differentiate itself by focusing on marketing and customer service. The employees had extensive training to change the way they performed their jobs” (Sethi & King, 2003; pp. 43). Competition has made organizations realize that to retain customers they must have the processes in place so that the customer is satisfied by his transaction. Transformation cannot be attained merely by deploying technology. To get substantial benefits from technology, the top management must develop right approach towards its important processes which add value to the company’s product or service.

“CRM appeared on the heels of big ticket Enterprise Resource Planning (ERP) initiatives as a big ticket item itself. But by the late 1990s, ERP was notable for problems that befit its size and its lack of identifiable ROI” (Greenberg, 2005; pp.6). The customer relationship management process provides the structure for how the relationship with the customer is developed and maintained. Management identifies key customers and customer groups to be targeted and then devises strategies to improve processes and remove non-valued added activities. At the heart of reengineering is to start thinking away from the traditional approach, look at the old assumptions of doing things and change it according to customer requirements. Reengineering has forced organizations to start looking at their processes according to the customer’s requirements. It is important to identify the core processes a company happens to be good at and then improve them, redefine their relationship with the output the company expects.

“The central concept in CRM is customer value creation. The aim is not to maximize the revenue from single transactions but rather to build a lasting relationship with the customer. The development of customer relationships demands a thorough familiarity with the process by which customers create value for themselves. When considering the entire process, the single transaction diminishes” (Storbacka & Lehtinen, 2001; pp.5).

The role of process management in customer relationship building cannot be underestimated. If we consider the ability of a particular process to deliver value and help the company in improving its performance; it would certainly have to relate ultimately to the customer. The whole endeavor of reengineering was to help

companies perform in the markets. Cost is fast becoming less important for a customer as compared to quality and service. If the time taken by a company to process a customer's order and delivery of the product is reduced, the satisfaction level of customer improves considerably. Most organizations were caught in the web of improving their productivity by cutting costs. Now the emphasis is on innovation and technology; in restructuring processes to keep pace with changes in technology.

The importance of CRM can be understood by realizing that if the value delivery processes are in place, there would be greater customer gratification. It means organizing important processes according to the customer; herein the company must identify the critical decision areas affecting its performance:

- Suitable and timely research or rather information flow would keep marketers well informed about the changing pattern of customer demographics. This would enable company to implement changes in its product and service offerings without any delay with accuracy. Earlier market research techniques that were employed by companies may not prove to be appropriate in implementing changes fast enough. Decreasing product lifecycles are forcing companies to be focused towards deciphering market trends.
- Information technology is being used in a big way to map the customer behavior patterns and their purchase preferences. What earlier had proved difficult for companies has become relatively easy; data can be continuously analyzed and used in marketing decisions. Technology has enabled companies to target the right customers with right kind of alternatives.
- Placing the order and tracking it across the various points in the supply chain has also become a reality for customers giving them greater accessibility to information. Building relationships with the customer increasingly means involving them in the value chain. Many automobile manufacturers like Ford and General Motors are having collaborative initiatives not only with their supply chain partners but also with their customers. Customers can actively participate in designing their vehicles and are also aware about the products' delivery time status. Nike has launched an internet service which enables them to design their own shoes. Federal Express allows the customers to track their shipments through the company's website. Blue Dart Express Limited has been exploring web-based solutions to extend the range of services available to its customers and integrate them into the core products it offers to customers. The basic tracking solution enables customers to track their shipments on-line. A mail-based solution allows the customers to make queries about the status of their shipments using e-mail. These kinds of endeavors lead to greater satisfaction for the customer.
- Whereas earlier reducing the inventory levels had been the prime concern area of reducing operating costs; process management enables organizations to reduce inventory and optimize the stock levels of the product by concentrating on their core competencies. Outsourcing the routine processes has led to reduction in cost across the value chain. Nortel Networks which specializes in manufacturing high performance Internet networks, in 1998 was facing a situation of high declining margins. It sold 15 of its manufacturing plants to its suppliers like Samnia, Solectron and SCI and thus could focus upon more technical core competency. It reduced its cost of manufacturing and enabled the company to keep a better track of changing manufacturing technologies. Purchasing products from the suppliers reduced costs as the company could take advantage of the bulk manufacturing capacities of its suppliers who also possessed the expertise. The company had only to coordinate across its various suppliers across the supply chain and was able to improve service levels by cutting down lead time.
- The value in the transaction is assessed by the company's capability to handle customer requests and complaints on a timely basis. Cisco System has build world class customer service model using Internet as a facilitator. The customers have access to information and solutions to customers are customized according to individual customer needs. The system is called "Cisco Connection Online" and has an open forum which answers queries of customers on networking, it also has troubleshooting engine which guides the customer to get an answer to his specific problem by helping him through the instructor system. In the insurance sector in India, Life Insurance Company has introduced many customer driven IT initiatives. In HDFC India information technology forms the backbone and nervous system of the company. Through a host of IT initiatives all the customer support processes such as branch operations, ATM, telephone

banking, Internet banking and mobile banking have been integrated in an online real time mode for customer convenience. The customer can make payments, purchase demand drafts and transfer funds without stepping into the bank.

The challenge for the companies is to make the customer feel he is well looked after and all his concerns regarding the product performance, installation and after sales support is taken care of. This requires possessing information regarding not only the different products but also the behavioral peculiarities of the customers. It also would require the sales force to have all the relevant information to provide to the customer regarding his/her product; therefore it would involve integrating the different functional processes of the organization to make information available for the company personnel dealing with the front end operations. CRM, as a process would deal with identifying the different aspects of business processes that are crucial for transferring value to the customer, making it possible to retrieve data easily regarding customers so as to take timely decisions. The use of CRM is relatively higher in the service sector as it offers direct contact points with the customers.

Applicability of CRM lies in being able to help marketing managers take decisions faster and enable them to manage campaigns more efficiently. Companies are able to categorize customers according to the revenues they generate and their loyalty for the company. CRM has always existed in organizations; they only change that has come is in its technological application and the facelift that it has received due to staggering amounts of money it involves. CRM cannot promise to deliver results till the organization is able to realign its processes according to the results it expects from the market. The data collection, analysis and processing can only be done if the objective behind relationship management is clearly comprehended and then translated into strategy for getting customers.

## **CRM Driving Indian Financial Sector**

CRM adoption is in early stages of development in India, its applicability to translate results and revenues has still to be understood and adopted. Its usage is similar to the companies' acceptability towards SCM. Most organizations have woken up to the realization that automation of processes does not merely mean implementing ERP modules to make business processes efficient. The benefits that can be attained by implementing CRM and SCM software are still unrealized. The awareness of benefits of CRM is still low outside certain industries. The financial services companies and telecommunication sector were the early adopters of the technology and still offer opportunities to CRM and SCM vendors. With increase in competition, companies are facing the pressure of creating processes that should enhance their productivity. Even though SCM has commonly found usage in automobile sector, FMCG and petroleum sectors; CRM would also find usage in hospitality, railways, retail and financial sector. These are some areas that have seen rapid growth in the past few years with liberalized policies of the government. However, the CRM has still not found usage in strategic segmenting and targeting decisions; its use remains limited to only operational purposes. "CRM is the infrastructure that enables the delineation of and increase in customer value, and the correct means by which to motivate valuable customers to remain loyal- indeed, to buy again" (Dyche, 2005; pp. 28).

With the change in the competitive scene by the entry of MNC players in sectors like telecom, banking and insurance, Indian enterprises had no option but to differentiate themselves and offer services to customers at par with the international standards. CRM can best give results if the enterprise changes its processes to make them compatible with the requirements of the software and the customer. CRM is a strategy rather than only being recognized as IT tool. So going for a CRM solution, the company must define the deliverables. In India even though CRM is considered as the most important challenge facing an enterprise, it is not as yet seen as the most urgent. Thus the focus remains tactical rather than strategic, leading to underutilization of the application. CRM involves collecting information regarding customers, collating and storing it and then finally using it for taking decisions.

The problem most organizations have to address is that they have been used to conducting marketing and business in a different setup. Information sharing had never been possible across various functional departments and the processes were created to meet the needs of a single user of department. Business processes have to be reorganized to span the whole organization so that the information can be accessed by users at all points. The importance of information is supposed to lie in the idea that it should ideally remove the traditional silos and

departmental distinctions and become an enterprise-wide phenomenon. Many companies are structured around product lines; and information needs are also organized around different product categories. Information is viewed by companies as fulfilling the requirements of different product categories separately. Marketing departments may possess their own aggregate databases, but they do not link into sales operations. The use of these databases remains restricted only to specific purpose; if this could be used for various marketing processes the results would be more cost efficient. Data is being maintained about the same customer at different points; so information becomes disintegrated when decision is supposed to be taken related to new product launches or customizing a service according to the specific requirements of the individuals. Probably centralizing the operation would make information readily available and accessible to not only the sales personnel but also service problems can be handled more efficiently without delay. IBM and Caterpillar have information systems that anticipate equipment failures and send alerts to the technicians in the field about the nature of the problem with the tools and parts required to fix it. Such kind centralized databases enable companies to manage the integral part of their marketing and production function. Linking data about customer's past behavior and purchase patterns can make e targeting decisions more focused and effectively planned.

Most organizations are able to calculate the revenues generated by individual customers and also the cost of acquiring a customer. The importance given to customers has increased because companies are awakening to the notion that ultimately the business drivers are not cost-cutting production models but the philosophy to retain customers and provide them with improved quality and service.

As the role of CRM cannot be underestimated in marketing decisions ICICI Prudential and Life Insurance Company are adopting it to improve sales force automation. ICICI Prudential Life Insurance was earlier using GoldMines (a sales and marketing tool) and HEAT (an operational CRM solution) from FrontRange Solutions. It has taken the decision to invest in CM3 from Teradata which has enabled the company to increase its customer base exponentially. CRM has been used by the company to use effective event-based marketing and cross-selling its offerings (Jethwani, 2004). Many Insurance companies are still highly dependent on Business intelligence systems for data mining and analytical purposes. The initial investment of insurance sector is on operational CRM suite and then slowly they are integrating efforts towards data extraction and analysis for analytical CRM. In India the industry is still in the very early stages, so there is over-cautious approach towards use of CRM software as an application that coordinates across various branches.

Standard Chartered Bank was initially using a system called Online Transaction Processing (OLTP) which enabled the bank to manage its transaction applications. The system though reliable did not help the bank in fighting competition; the bank's IT team looked into the bank's requirements and felt that the bank needed a system that could analyze the data that was captured about customers through OLTP system. The bank with over 2.2 million retail customers and over 1.3 million credit card customers had to provide right information to right people in order to improve its operating efficiency. By implementing SAS Customizable CRM Solutions Standard Chartered could address to the needs of the changing banking scenario in the country (Das Gupta, 2003). This software helped Standard Chartered to provide customized solution to the customers and optimize the concept of *customer lifetime value (CLV)*. The bank has also launched aXcess plus savings account for its customers. The customers can access cash at over 1800 ATMs worldwide through Visa card and also they can use the account for shopping at about 10 million outlets in the country. By providing value to their customers, Standard Chartered is not only able to increase customer loyalty but also maximize the shareholder value.

Increasingly in India banks are adopting core banking solutions, which enables to provide complete front and backend automation of banks and also lowers service costs. This helps the bank to provide 24 hours service to its customers making it possible to improve customer service levels. This was earlier not possible with the traditional banking setup. Information technology has become the business driver for the financial sector. No longer are banks focused only on meeting customer service requirements, cutting costs and managing competition; the thrust has now shifted towards developing solutions that would enable them to retain customers. The role of IT deployed in financial sector has shifted towards providing these benefits to the banks. Federal Bank, Bank of Baroda and UTI have all aligned their processes using technology to make customer interface and interaction efficient. The improved Internet connectivity and falling costs of leased lines and VSATs are major forces driving the change. Earlier banks had decentralized technology infrastructures; each branch having its own server and databases. This

led to problems not only involving costs but also coordination. There were issues regarding updating and using the information across all the branches. Most of the banks realized that they hardly knew their customers and how the customer needs have undergone a change. CRM enabled the banks to relate to the specific requirements of the customer. Most of the banks in India are using operational CRM that provides customer support through information accessibility to the customer using phone line or e-mail. Operational CRM alerts the call center personnel about the details the customer requires about his bank account. Analytical CRM enables to analyze the information by understanding the nature of the account and transaction. In here tools such as data warehousing and data mining are prominently used. By using Analytical CRM the bank can offer the customer lower service rates thus enhancing his service encounter experiences. Other advantages that may be reaped are cross-selling and up-selling to the customers' certain services. Data warehouse provides the bank with a single view of all the disparate data that may spread across the bank's systems. Data mining helps to make meaning of the data and use it for positioning and targeting decisions.

Aviva was one the last entrants in the insurance sector in India in 2002. It had to clearly focus its strategy to know its customers and bring out products that were specific to their needs, or else there would very little chance of survival. Aviva therefore went for a complete enterprise wide launch of e-CRM before it started its operations. The CRM suite was deployed in marketing, sales and services and also to integrate the various partners of the organizations (BFSI, 2004). The CRM has enabled the organization to have real time information about their customers, track customer details and handle queries appropriately and further it has enabled quick analysis of the data and marketing initiatives taken by the company. Aviva can keep a track on the viability of its marketing campaigns and can monitor them at every stage. Based on the responses generated the customer service can be efficiently handled. The integration of marketing, customer service and backend processes have clearly enabled Aviva to provide superior service across varied channels. With timely help from CRM software insurance companies like Aviva can sell multiple insurance policies and pension plans to right customers.

“According to a report from Indian Infoline (2004), India has the highest number of life insurance policies in force in the world. The industry is pegged at Rs 400 billion in India. LIC dominated the Indian market largely with the help of its huge sales force” (Pasha, 2004). But as competition has increased and new companies are entering the market, LIC has upgraded its system to improve customer service levels by going for IT deployment. The LIC customer can check his account details through Internet banking and does not have to visit the bank. The upgraded WAN has streamlined processes, making it easier for customers and LIC personnel to have more visibility about policies (The Hindu Business Line, 2002). The LIC staff can efficiently handle grievances and queries of the customers. Transactions can be dealt through internet thus reducing not only operating costs but also improving the service standards

Insurers have added a plethora of products to lure the customers. Increased competition has led to insurance companies joining hands with banks to sell to customers. Such kinds of channel partnerships are designed to increase the coverage area and target all kinds of customers. In this CRM is helping insurance providers to have details about the banks valued and high net worth customers (Mishra, 2006). There has been an increased growth of different companies diversifying into insurance. Tata AIG's alliance with HSBC, Birla Sun Life's with Citibank and IDBI and LIC ally with Corporation Bank, while Kotak Life Insurance has an arrangement with Kotak Bank.

## **Challenges for the Future**

The central concept behind CRM is creating value for the customer. Most companies have realized that to stay in business it is not imperative to maximize revenue from single transaction but to build a lasting sustainable relationship with the customer. The development of customer relationships demands a thorough understanding about the customer and also with the process by which customers create value for themselves. While considering the entire process, the significance of single transaction focus diminishes. The new competitive advantage for organizations is based on the ability of the service provider to help customers create value for them. Involving customers in the transaction can lead to increased satisfaction levels in the service encounter.

In the domain of services where the intangible element makes it difficult to differentiate across the service providers; CRM finds varied applications. In a country like India, where majority of customers are not fully aware about the desirable insurance and banking service levels; CRM can increase the service delivery and satisfaction levels (Trivedi, 2004) . One major problem that banks and insurance providers are facing is that CRM is just being viewed as a facilitating technology rather than being understood as a strategy that would enhance the productivity of the bank. This is the prime reason why CRM has still met with limited success even being around for about 5-6 years. It can also be instrumental in helping banks to exploit into new service options for customers. Also the results that CRM gets for the bank should be measurable; for this metrics have to be well in place before deploying CRM. So any improvement can be evaluated and quantified to analyze the utility of CRM. Other issues related to the implementation are change management, training the personnel regarding the enhanced service dimensions and IT usage. The older legacy systems of the banks also pose a challenge in the deployment of the CRM suite; it requires moving from the poor information systems towards a more customer-centric technology that makes capture and analysis of data easier.

If the front line personnel of the organization are not competent to handle the new technology, CRM initiatives fail. Also as CRM software is expensive, the top management is skeptical towards its results and applicability. It involves having a clear policy about what would be attained by integrating the business. Until the strategic approach is clearly defined and performance parameters laid down; CRM cannot translate results for the company. From the organizations point it would essentially require letting go of old approach of doing business and would mean integrating the data from various touch points into a single database.

Most of the banks are still in the Operational CRM stage (Network Magazine, 2003); to reap the benefit they need to utilize the data for planning marketing strategies. The organizations that have been able to identify the benefit IT can give to the operations will stand to gain. For this it is imperative to move away from the traditional approach of conducting business, maintaining information about the customers and suppliers. The Indian financial sector has a long way to go to come to the level of international standards.

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# Consumers' Response to Cause-Related Marketing in Malaysia

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## Abstract

With the globalization of market, companies face greater competition than ever before. Cause-related marketing (CRM) has increasingly becoming an important strategic tool that provides competitive advantage for companies all over the world. Consumers tend to have favorable attitudes toward businesses that support charities or causes. In Malaysia, some companies have employed this marketing strategy in order to support good causes, increase profits and enhance companies' reputation. A number of charities have been benefited through their alliances with companies in conducting CRM campaigns. However, very little is known about how consumers' response to CRM. This study examines: 1) consumers' attitudes toward both sponsoring company and charity or cause supported and 2) the effect of CRM on purchase intentions. Results of the survey indicated that consumers have favorable attitudes toward both the sponsoring company and charity supported. In addition, CRM also influenced consumers' purchase intentions. **Keywords:** cause-related marketing (CRM), Malaysia, consumers' response, attitudes, company, charity

## Introduction

Cause-related marketing (CRM) has become a catchphrase among practitioners as well as academics. For over 20 years since American Express coined the term 'cause-related marketing' in 1983, the number of companies that conducted CRM programs has increased dramatically year by year. This is evidenced by the phenomenal growth of CRM's expenditures year by year. The CRM expenditures has increased drastically from virtually zero in 1983 to approximately USD 991 million in 2004 (Berglind and Nakata, 2005). Meanwhile, CRM donations has also increased rapidly from USD 630 million in 2000 to USD 828 million in 2002, representing annual growth rate of 14% (Berglind and Nakata, 2005). On the other hand, academics interest on CRM is believed to stem from the seminal work by Varadarajan and Menon (1988) on CRM. Since then, research on CRM has gained its momentum. The essence of CRM is that it links purchases of products and services with donation to a cause or charity. CRM campaigns try to persuade consumers to buy a certain products or services to a specific cause by promising to donate something in return to a designated cause. Research indicates that CRM is a good way to raise funds for charity and increasing public awareness of good causes while at the same time benefiting sponsoring company by enhancing its image, increasing its product sales and thwarting negative publicity.

In today's business environment, as it becomes more and more difficult for companies to obtain market share, differentiation and maintain competitive advantage, effective and strategic CRM would become a viable marketing strategy that offer solutions and gives competitive advantage for companies in the long-run. Few authors suggest that community investment can be considered as a source for gaining competitive advantage (Adkins, 1999; Varadarajan and Menon, 1988). Varadarajan and Menon (1988, p. 60) predicted that corporate philanthropy, in the form of CRM, can enhance a firm's 'corporate image, cultivate a favorable attitude in the minds of consumers, and or/realize incremental sales gains'. Furthermore, consumers have also increasingly pressurizing companies to become socially responsible. Hence, marketing programs with social dimensions are of managers' interests as they respond to higher consumer expectations of corporate social responsibility (CSR). Past literatures indicate that CRM has gaining its popularity to other countries outside the US, such as the UK, Spain and New Zealand. A survey conducted in 1998 demonstrated that 70% of CEOs and marketing directors interviewed in the UK predicted continued growth in their CRM practices (Ellen, Mohr and Webb, 2000). In Spain, half of Spanish companies view their relationship with the community as a valuable part of their strategy (Valor, 2005). In New Zealand, a handful

of New Zealand's causes have been benefited from CRM campaigns conducted. Additionally, consumers in New Zealand expressed favorable attitudes to this type of marketing strategy (Chaney and Dolli, 2001).

Similarly in other part of the world such as in developing countries like Malaysia, CRM has also becoming an important marketing strategy that brings plethora of benefits to both sponsoring company and a cause or charity supported. According to The Liaison Combination (TLC), a private company specializing in connecting business and society, approximately RM2 million was spent for corporate social responsibilities (CSR) activities in Malaysia that involved 110 local and foreign companies (<http://www.liaison-combination.com>). In Malaysia as illustrated by the following CRM campaigns (refer Table 1), a number of charities as well as sponsoring companies have been benefited from their CRM programs endeavors. As shown in Table 1; companies support a multitude of worthwhile causes ranging from medical, children protection to violence prevention.

As CRM is a good way of giving something back to the community and as it is increasingly gaining its popularity in Malaysia it is high time to conduct this research in Malaysia. Furthermore, if this new type of philanthropy is going to move successfully in Malaysia, marketers will need to better understand how consumers response to this campaigns. Additionally, very little is known about how Malaysian consumers respond to CRM campaigns. The objectives of this study are two folds: 1) to examine consumers' attitude toward both sponsoring company and charity or cause supported and 2) to examine the effect of CRM on consumers' purchase intentions.

TABLE 1: CRM CAMPAIGNS ENDEAVORS IN MALAYSIA

Sponsoring Company	Cause Supported	Details
Guardian Pharmacy	Majlis Kanser Nasional (MAKNA)	Guardian’s ‘Bringing wellness to the lives we touch’ campaign has been successful in raising funds for MAKNA. A total of RM200,000 had been raised from the campaign and had been donated to the charity supported. In the campaign, Guardian offered a 20 % saving card to customers, this savings card allowed customers to purchase products from any 22 participating brands at 20 % discounts. Throughout the campaign, for every usage of the saving card over the participating brands, a total of RM2.00 is contributed to MAKNA ( <a href="http://www.guardian.com.my">http://www.guardian.com.my</a> ).
Watsons Pharmacy	All Women Action Society (AWAM)	Watsons conducted ‘Stop Violence Against Women’ campaign with the objectives of raising funds for the charity as well as to prevent violence against women. Watsons contributed to AWAM funds from the proceeds of selling sweaters ( <a href="http://www.watsons.com.my">http://www.watsons.com.my</a> ).
L’Oreal	Malaysian AIDS Foundation’s Paediatric AIDS Fund.	L’Oreal Professionals conducted ‘Color for Life’ campaign. The objectives of this campaign are to raise funds for the Malaysian AIDS Foundation’s Paediatric AIDS Fund, to enhance people awareness about HIV/AIDS and to prevent prejudice on the disease. Throughout the campaign, for every hair coloring session done at participating salons in Malaysia, L’Oreal Professional will contribute RM2.00 to the charity supported. Additionally, the salon will also contribute RM1.00 for the charity ( <a href="http://thestar.com.my">http://thestar.com.my</a> )
Truly Loving Company (TLC)	Hospis Malaysia Rumah Aman Shelter Handicapped and Mentally Disabled Children Association	This company offers 15 households and personal care products carrying the TLC brands and “All Quality, All for Charity” label. The company will contribute all the profits to the four charities supported after deducting costs ( <a href="http://www.nst.com.my">http://www.nst.com.my</a> ).

## **CRM and Related Theoretical Construct**

There are many theories across disciplines that describe individual philanthropy behavior, for instance prosocial behavior theory and motivation theory. Consumers may view a purchase of CRM products as a purchase decision with some form of prosocial behavior (Ross, Patterson and Stutts, 1992). Instead of buying a product or service, consumer could also contribute to a charity at the same time. Prosocial behavior is generally considered to “designate helping, sharing, and other seemingly intentional and voluntary positive behavior for which the motive is unspecified, unknown, or not altruistic”. Prosocial behavior is also defined as “behavior that is valued by the individual’s society” (Burnett and Wood, 1988). In all cases of prosocial behavior, an individual action is toward the improvement of other people that are less fortunate. People help others because they conform to norms that prescribe helping (Burnett and Woods, 1988). Helping behavior is defined as “voluntary acts performed with the intent to provide some benefit to another person, that may or may not require personal contact with the recipient, and may not involve anticipation of external rewards” (Burnett and Woods, 1988). In the context of CRM, people buy CRM products or services because they want to fulfill their altruistic needs.

According to motivation theory, individual philanthropy is based on two basic motivations: altruistic and egoistic motivations. Altruistic motivation is based on the motivation to improve the welfare of the less fortunate and on the other note the egoistic motive is to improve the individuals own welfare (Luo, 2005). Hence, people are motivated to participate in CRM based on either altruistic or egoistic motivations. Individuals with altruistic motivation take donation as an end in itself that is to help improving the welfare of the needy whereas individuals with an egoistic motives take donation as a means to an ends such as to gain recognition and reward from their actions. As such, according to this theory, people motivations to participate in philanthropy are based on intangible benefits and psychological outcomes such as recognition, sense of pride, praise and less personal grief. In summary, these two theories provide a theoretical foundation for understanding why people exhibit prosocial and helping behaviors and why they are willing to help worthy causes by purchasing CRM products.

## **Consumer Response toward Cause-Related Marketing**

Commercial research found out that in general consumers have favorable attitudes toward CRM. In a nationwide survey conducted by Cone Communications and Roper Starch Worldwide, social responsibility is a key factor in hiring and keeping good employees. The survey indicates that 78% of consumers reported that given price and quality are equal, they would choose to buy products linked with a cause they care about; 54% would willing to pay higher price for a product; 66% would switch brands in order to support a cause; 62% would switch retailers and 84% said that CRM helps create a positive company image (Gupta and Pirsch, 2006; Pringle and Thompson, 2001; Cone Roper 2000). Studies show that many consumers believe that after price and quality, social responsibility is the next most important business factor in deciding whether or not to buy a brand (Cone Roper, 2000).

Besides commercial research, academics research on CRM has also gaining momentum since the seminal piece of work by Varadarajan and Menon (1988). An extensive body of research has emerged investigating how consumers respond to CRM campaigns. Past consumer research examined the effects of CRM on a variety of factors such as attitudes toward the sponsoring company, attitudes toward charity and purchase intentions. Ross et al. (1992) study found that most of the respondents in their study felt that CRM was a good way to raise money for social causes and it also led to favorable attitude toward both the sponsoring company and the charity supported. Study on consumers’ attitudes toward CRM had been conducted by Barnes (1992), 90% of the respondents agreed that CRM were a good way for consumers to contribute to charities. Eighty-eight percent of the respondents in her study indicated that in order to buy products linked to charity; they need to be familiar with the quality of products involved in the CRM campaigns. She also found that females and younger consumers were more receptive to CRM compared to male and older consumers. The effect of CRM on consumers purchase intentions was studied by Cui, Trent, Sullivan and Matiru (2003). The results of their study showed that the structural elements of CRM offer did influenced consumers’ evaluation of CRM offers. Consumers with more positive evaluations of the CRM offer have been shown to have greater purchase intentions and vice-versa. Barone, Miyazaki and Taylor (2000) studied the

effect of CRM on consumers' brand choice. Barone et al., (2000) concluded that consumers were more likely to choose brand associated with CRM if they did not have to make a trade-offs either in price or in quality. The effect of CRM on purchase decision had also been studied (Webb and Mohr, 1998). In their study, Webb and Mohr (1998) found that most of the respondents have favorable attitudes toward CRM but CRM had little influence on consumers' purchase decision. Past research indicated that CRM has potential in influencing consumers' purchase behavior (Cui et al., 2003; Barone et al., 2000; Webb and Mohr, 1998). Most of the past studies on CRM mainly focus on the effect of CRM on consumers' attitudes (Ross et al., 1992; Barnes, 1992) and short-term measure such as purchase (Cui et al., 2003; Barone et al., 2000; Webb and Mohr, 1998). On the contrary, the more current studies on CRM have focused on the effect of CRM on a long-term measure that is consumers' brand loyalty. Brink, Schroder and Pauwels (2006) studied the effect on CRM campaigns on consumers' brand loyalty. They examined the effect of tactical and strategic CRM on consumers' brand loyalty. The results of their study showed that customers' brand loyalty can be enhanced by strategic CRM that is linked to low involvement product.

Another stream of research in CRM focuses on moderating variables that affect to what extend CRM campaigns influence the factors mentioned earlier. The moderating effects of the type of products being linked to CRM campaign has been examined by Subrahmanyam (2004) and Strahilevitz and Myers (1998). Strahilevitz and Myers (1998) found that CRM is more effective when associated with frivolous products. They suggested that CRM may offset the feeling of guilt experienced when purchasing luxury items. On the contrary, Subrahmanyam (2004) found that consumers prefer CRM that is linked with practical products. CRM that is linked to practical products enable consumers to donate more frequently. Ross et al., (1992) study the moderating effect of gender and proximity. They found that female were more favorable toward CRM than men and meanwhile the moderating effect of proximity was not significant in their study although they predicted that customer would more likely to support CRM linked to local cause rather than national cause. The effect of congruency or perceive link between the cause and the company was examined by Pracejus and Olsen (2004). The results of their study indicate that high-fit CRM programs can result in five to ten times greater than low-fit CRM campaigns. Ellen et al., (2000) study the moderating effect of donation situation, in their study they found that consumers' evaluations were more positive for CRM campaigns that support disaster as compared to ongoing causes (Ellen et al., 2000). The moderating role of product involvement was studied by Brink et al., (2006). The results of their study indicate that strategic CRM that is link to low involvement products enhance brand loyalty whereas CRM campaigns that is linked to high involvements products do not impact customer brand loyalty (Brink et al., 2006). Barone et al., (2000) found that CRM effect on brand choice was moderated by perceived firms' motivation underlying the CRM program.

In general, CRM results in favorable consumers' attitudes toward the sponsoring company, the charity supported and the products involved as well as purchase intentions and brand loyalty (Brink et al., 2006; Cui et al., 2003; Ellen et al., 2000; Barnes, 1992; Ross et al., 1992). However, CRM has also been identified to run a risk of consumers' backlash (Osterhus, 1997). Moreover, Varadarajan and Menon (1988) warned that companies may incur negative publicity and charges of cause exploitation if consumers perceive the companies underlying motive as self-interested rather than altruistic motives.

## **Research Method**

### **Sample**

This study used convenience sample. The sample of this study came from two undergraduate classes at the University of Malaysia Terengganu (UMT). Questionnaires were distributed to two undergraduate classes ten to 15 minutes before the end of classes. A total of 63 students took part in the study. Of the 63 questionnaires distributed, 61 questionnaires were used for analysis as questionnaires that were partially completed or uniformly answered were eliminated from being analyzed in the current study.

### **The Survey**

The survey consisted of four sections: (1) Definition of CRM and a CRM campaign advertisement, (2) statements measuring attitude toward the sponsoring retailer and the charity or cause supported, (3) respondents past experience with CRM. (4) statements measuring impact of CRM on customers purchase intentions and (5) demographic data of respondents. At the beginning of the survey, the respondents were asked to read the definition of CRM and view

CRM campaign advertisement in which a retailer promises to donate a portion to the charitable organization. See Appendix A for the copy of the stimulus material. A non-existing company and charity were used in the ad in order to eliminate any associations with the consumers past experiences with both the sponsoring company and the charitable organization. After viewing the ad, the respondents' were asked about their attitudes toward the sponsoring retailer and the charitable organization. The questionnaires were adapted from the Ross et al. (1992) study with the addition of purchase intention questions. All items on attitudes measurements employed five-point likert scales (5=Strongly Agree, 4=Agree, 3=Neither Agree nor Disagree, 2=Disagree, 1=Strongly Disagree). Three statements were used to measure respondents' attitude toward the sponsoring retailer: (1) The ad makes me more willing to purchase products from the retailer. (2) The retailer is more interested in supporting rather than exploiting the charity or cause. (3) The retailer is acting in a socially responsible manner. Next, the respondents' attitudes toward the cause were measured. Specifically, statements used to measure respondents attitudes toward the cause were: (1) Cause-related marketing (CRM) is a good way to raise money for this cause. (2) After reading the ad, I am more willing to support this cause in a more traditional manner (for example, donating cash or time toward the cause). (3) The directors of this cause are acting responsibly by using cause-related marketing to raise funds. Respondents were then questioned about their past experience with CRM. This part employs yes and no answer specifically 1=Yes and 2=No. The questions used were: (1) I have supported CRM before. (2) I am aware of CRM but not supporting it. (3) I have never heard of CRM. Respondents were also asked about the effect of CRM on their purchase intentions. Four statements were used to measure their purchase intentions: (1) I am more likely to purchase products that support charity or cause. (2) I am more likely to purchase products from a CRM campaign if familiar with quality of the products. (3) I am more likely to purchase products from a CRM campaign if favorite brands. (4) I am more likely to purchase products from a CRM campaign if familiar with charity supported.

All the items used to measure purchase intentions also employ five-point likert scale similar to the attitudes measurements stated earlier. The final section of the questionnaire was questions that collected demographic data of respondents: major, gender, and race.

## Results

### Characteristics of Respondents

Characteristics of respondents are shown in Table 2. Majority of the respondents (73.8%) were marketing students whereas 26.2 % were students majoring in accounting. Eighty-two percent of the respondents were female and only 18% were male. Most of the respondents were Malay (85.2%), followed by Chinese (6.6%) and Indian (3.3%).

TABLE 2: CHARACTERISTICS OF RESPONDENTS (N=61)

	Frequency n	Percentage %
<b>Major:</b>		
Marketing	45	73.8
Accounting	16	26.2
<b>Gender:</b>		
Male	11	18.0
Female	50	82.0
<b>Race:</b>		
Malay	52	85.2
Chinese	4	6.6
Indian	3	4.9
Other	2	3.3

**Respondents Past Experience with CRM**

Table 3 depicts that the majority of respondents (60.7%) have had past experience with CRM. Approximately 16% of the respondent indicated that they were aware of CRM but not supporting it. 22.9% percent stated that they have never heard of CRM before. Overall, 77.1% of the respondents were aware of CRM. Hence, the majority of the respondents were aware of CRM whereas 22.9% of the respondents were unaware of CRM.

TABLE 3: RESPONDENTS' PAST EXPERIENCE WITH CRM

<b>Previous Experience with CRM</b>	<b>Frequenc y n</b>	<b>Percentag e %</b>
I have supported CRM before.	37	60.7%
I am aware of CRM but not supporting it.	10	16.4%
I have never heard of CRM.	14	22.9%
Total	61	100.0%

**Attitudes toward the Retailer and the Charity Supported**

Results on consumers' attitudes toward the retailer that uses CRM and the cause are represented in Table 4. Approximately 60% of the respondents agreed that the ad made them more willing to buy products from the sponsoring retailer. More than half (57.4%) indicated that the retailer was more interested in supporting rather than exploiting the cause. The majority of the respondents (67.2%) were also agreed that the retailer is acting in a responsible manner. When questioned whether CRM is a good way to raise money for the cause, 61% of the respondents indicated that CRM is a good way to raise money for the cause. Sixty-one percent of the respondents also indicated that they were more willing to support the cause (HIV/AIDS Foundations) in a more traditional manner (i.e. to support a cause by contributing time or money). Less than half (44.3%) of the respondents agreed that the board of directors of this cause was acting responsibly by using CRM to raise funds for the charity.

TABLE 4: ATTITUDES TOWARD THE SPONSORING RETAILER AND THE CHARITY

Attitudinal statements	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
The ad makes me more willing to purchase products from the retailer.	6 (9.8%)	30 (49.2%)	22 (36.1%)	3 (4.9%)	0 (0%)
The retailer is more interested in supporting than exploiting the cause.	5 (8.2%)	30 (49.2%)	18 (29.5)	7 (11.5%)	1 (1.6%)
The retailer is acting in a socially responsible manner.	6 (9.8%)	35 (57.4%)	13 (21.3%)	7 (11.5%)	0 (0%)
Cause-related marketing (CRM) is a good way to raise money for this cause.	4 (6.6%)	33 (54.1%)	15 (24.6%)	9 (14.8%)	0 (0%)
After reading this ad, I am more willing to support the cause in a more traditional manner (for example, by donating your time or money for the cause).	4 (6.6%)	33 (54.1%)	17 (27.9%)	7 (11.5%)	0 (0%)
The board of directors of this cause is acting responsibly by using CRM.	5 (8.2%)	22 (36.1%)	25 (41.0%)	9 (14.8)	0 (0%)
*1=Strongly Disagree    2=Disagree    3=Neither Agree nor Disagree    4=Agree 5=Strongly Agree					

**Impact of CRM on Purchase Intention**

Past literature indicates that one of the benefits of CRM is its potential to influence consumers purchase behavior. In this study, respondents were asked whether CRM influences their purchase intentions. Results presented in Table 5 indicated that 54% of the respondents in this study were more likely to purchase products from CRM campaigns. The majority of respondents (67.3%) agreed that in order to buy CRM products they need to be familiar with quality of the products involved. Additionally, 62.3% of the respondents also agreed that familiarity with charity supported and brands involved also influence their purchase intentions.



TABLE 5: IMPACT OF CRM ON PURCHASE INTENTION

Questions about purchase intentions	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
I am more likely to purchase products that support charity or cause.	2 (3.3%)	31 (50.8%)	16 (26.2%)	10 (16.4%)	2 (3.3%)
I am more likely to purchase products from a CRM campaign if familiar with the quality of the products.	9 (14.8%)	32 (52.5%)	14 (23.0%)	6 (9.8%)	0 (0%)
I am more likely to purchase products from a CRM campaign if favorite brands.	11 (18.0%)	27 (44.3%)	16 (26.2%)	7 (11.5%)	0 (0%)
I am more likely to purchase products from a CRM campaign if familiar with charity supported.	5 (8.2%)	33 (54.1%)	14 (23.0%)	9 (14.8%)	0 (0%)
*1=Strongly Disagree 2=Disagree 3=Neither Agree nor Disagree 4=Agree 5=Strongly Agree					

## Discussion and Conclusions

Prosocial and motivation theories describe individual philanthropy behavior. These theories explain why people involved in charitable giving. People help others by giving donation as they conform to norms that prescribe helping. Their underlying motives to donate are based on either altruistic or egoistic motives. According to motivation theory corporate philanthropy and CRM can also be based on two basic motivations: altruistic and egoistic motivations. Corporate philanthropy and CRM are conceived not only to benefits charitable causes, but also to improve a company's profits, image and performance and in the long run provide a source for competitive advantage.

This study is conducted in Malaysia where to the knowledge of the authors the term CRM is still new to Malaysian consumers. Although it has gaining popularity among companies in Malaysia as evident by the examples of CRM endeavors conducted by several companies as shown in Table 1, however it is believed that some consumers are unaware of the term. Nevertheless, this study is conducted on undergraduate business students that are normally familiar with most of business and marketing terms. This study offers insight about how Malaysian responds to CRM. Generally, most of the respondents views CRM favorably. They have favorable attitudes toward both the sponsoring and the cause supported. As indicated by the results shown in Table 4. This is in line with past studies conducted in the western countries, past studies also shown that most of the respondents have favorable attitudes toward CRM, sponsoring company and charity supported (Cui et al., 2003; Barnes, 1992; Ross et al.,1992). Majority of the respondents in the current study also agreed that CRM is a good way to support charity. Sixty percent of the respondents indicated that CRM is a good way to raise funds for the cause supported in this study. Another important finding of the study is that the majority of the respondents also agreed that they were more

willing to support the cause in a more traditional manner. The results proved that CRM does not affect the traditional way of donation giving. Even though, in CRM literature it is suggested that one of the advantages of CRM is its potential to impact the traditional philanthropy among consumers. The results found the contrary. Although, the findings of the study showed that most of the respondents have favorable attitudes toward CRM but less than half (44.3%) of the respondents agreed that the boards of directors of the cause is acting responsibly. One possible explanation for this is that some people are still skeptical about CRM. CRM is not like the traditional philanthropy whereby company contributes money or materials to specific cause. In CRM, donation is linked to product purchase. Hence, people might perceive the underlying motive of charity and company conducted CRM campaign is for their self-interested motive and not for altruistic motive.

CRM also influenced consumers' purchase intentions. As shown in Table 5. Majority of the respondents agreed that they were more willing to buy products associated with cause. More than half of the respondents agreed that they were more likely to purchase products that support charity or cause. The respondents found it is important that CRM is linked to products that the quality is familiar to the consumers. The result showed that 67.3 % of the respondents agreed that in order for them to buy products from CRM campaigns, they must be familiar with the quality of the products. The majority of the respondents also indicated that CRM need to be linked to favorite brands and well-known charities.

The results of the current study differ from the study conducted by Kropp and Lavack (2003). Kropp and Lavack (2003) found that consumers' attitudes toward CRM were less positive in countries where CRM was less established. They conducted a study on consumers' attitudes toward CRM in four countries from four different continents: Canada (North America), Norway (Europe), Korea (Asia), and Australia. The results showed that respondents from Canada and Australia have more favorable attitudes toward CRM compared to respondents from Norway and Korea. Attitudes toward CRM were most favorable for Canadian and were least favorable for Korean. This is due to the fact that CRM is more advanced in the United States and Canada, followed by Australia, however, CRM received little attention in Norway and almost no attention in Korea (Lavack and Kropp, 2003). On the contrary, the current study found that even though CRM is relatively new in Malaysia, the majority of the respondents view CRM favorably. In addition, most of the respondents also have favorable attitudes toward both the sponsoring company and the charity supported. The rich tradition of giving and sharing among Malaysian contribute to the positive response toward CRM in Malaysia even though the term CRM is still relatively new to Malaysian. Charitable giving plays an important role in the society of Malaysia as is evident by the range of charities that depend on public donations both in terms of money and materials. In the event of natural disaster for example, Malaysians contribute generously. Malaysians contribute money, materials, time and voluntary services to relieve human sufferings from disasters causes such as Tsunami and flood both at the local and international level. In additions, Malaysians also contribute to ongoing causes such as preventing crime, AIDS and other diseases, and supporting education.

This study has important implications for marketers and charities. CRM campaigns are perceived favorably by the respondents in this study. Most of them have favorable attitude toward the sponsoring company as well as the cause supported. It can also be considered that CRM was not perceived as a substitute for the more traditional methods of fundraising since the majority of the respondents were still willing to support the cause involved in the more traditional manner. CRM may be a viable marketing strategy for both company and charity in realizing their businesses' objectives in Malaysia. However, despite its popularity among companies, there were still a number of people that were skeptical and unaware of CRM. Therefore, companies would have to communicate to the public about their CRM endeavors. Additionally, companies need to communicate their CRM endeavors to consumers as well as demonstrate genuine support of the cause in order to reduce consumers' skepticism level and to ensure the effectiveness of this strategy in the Malaysian market.

## **Limitations**

The present study had several limitations: 1) small number of respondents reduces the ability to generalize the results to the larger populations, and 2) the use of students sample may not reflect the larger populations. Hence,

results may be different if adult were use for the sample. Additionally, respondents were not asked to make an actual product purchase that would result in a direct contribution being made to HIV/AIDS Foundation. The association of CRM campaigns with other type of charities or causes such as violence and crime preventions, orphanage, and handicapped people may produce different results.

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## Appendix

### Appendix A: Stimulus Ad

#### **Definition of Cause-related marketing (Varadarajan and Menon, 1988):**

Cause-related marketing is the process of formulating and implementing marketing activities that are characterized by an offer from the firm to contribute a specified amount to a designated cause when customers engage in revenue-providing exchanges that satisfy organizational and individual objectives.

## Stimulus Ads

There are about 40 million people worldwide living with HIV/AIDS.

You can help Bookstore A to support people with HIV/AIDS through your purchase of “Living with AIDS” range of books.

For every sale of “Living with AIDS’ range of books, Bookstore A will donate to HIV/AIDS Fund.

“Buy books and help people with AIDS to live a better life”



## Differences in Online Buying Behaviour: Spain and Japan Compared

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### Abstract

Increased competitiveness in commercial distribution calls for a revision of the typical explanatory factors of consumers' behaviour. One of the most significant changes has been the development of Communication and Information Technologies. Both enterprises and entrepreneurs are thus increasingly interested in adopting the resources provided by the CITs to improve their respective channels of product distribution. It is therefore relevant to analyze how loyalty within an online context is produced. Additionally, the context where consumers and markets interplay may also have a weight for understanding the patterns of online shopping (Burgmann et al., 2006; Tse et al., 1998). This study offers a comparative analysis of the two different contexts provided by the Spanish and Japanese cases. While both cases are developed economies, they may however display significant differences regarding perceived trust, motives and inhibitors for online buying and socio-demographic characteristics of online buyers in each country.

### The Context of Online Shopping in Spain and Japan

Spain and Japan are currently two developed economies which are involved in deregulation and technological development processes. However, both countries present differences in many aspects, like consumers' styles, distribution system, technological and Internet penetration, and usage of online shopping. Thus it is important to know if there are global groups of consumers or if nationally defined characteristics effects still remain strong in online buyers' behaviour (Chai & Pavlou, 2004; Okada, 2006).

National differences could have some effects over the marketing decision-making process, especially in risky situations; on the other hand, such differences often disappear when two different cultures establish commercial contact (Tse et al., 1998).

Japan and Spain have a set of similarities and differences which could affect online buyers' behaviour. In this situation, we wonder which are the drivers and impediments of buying online in each country and if there are differences according to buyer characteristics and perception of risk. The main contribution of this study is the comparison of two different countries –Spain and Japan- according to several buying variables: drivers and impediments, socio-demographic characteristics and perceived risk. In fact and following Van Herk et al. (2005), cross-cultural studies that contemplate the behaviour, attitude and reactions to marketing strategies in different countries and cultural countries are scarce. This situation is much more remarkable in the case of the comparison between Spain and Japan.

#### **Internet Usage and Technological Infrastructure in Japan and Spain**

In Spain and Japan internet has penetrated later than in other countries, being this delay larger in Spain. For example, in the year 2000 the proportion of population connected to internet in Japan was between 12.5% and 23%, while in Spain it was between 3.5% and 12.5%. In the same year, already more than 35% of the population in America, Australia and Scandinavia was connected to internet. However, in spite of the slowly introduction of internet in Japan, since the year 2000 this has been rising fast, reaching more than 35% of the Japanese population one year later, and approaching to the proportion of online users in the US (68.7%) in 2006 with 61% of its population online. In Spain, however, the penetration of internet has been more slowly, not reaching a proportion between 25% and 35% of its population until 2004, and just 38% in 2006 (Zooknic Internet Intelligence, 2004;

AECEM-FECEMD, 2006; Internet World Stats, April 2006). In addition, if we consider the number of households connected to internet, the difference between Spain and Japan is also remarkable. In the year 2000, 34% of Japanese households were connected to internet, but it grew very fast reaching 81.4% in 2002, and later grew more slowly, reaching 87% of the households in 2005. Again, Spain shows a slower growth, being 17.4% of its households connected to internet in 2002, 25% in 2003, and just 41% in 2006 (INE, 2002, 2003, 2006; MIC, 2006).

Spain's and Japan's internet penetration also have some remarkable qualitative differences. Two main differences must be considered. The first one is the technology for internet connection. Japan shows a higher penetration of the most efficient connection type (broadband) than Spain, although in this last country recently broadband use has increased quite a lot. In 2002, Japanese and Spanish populations acceding to internet by broadband were 28.2% and 23.4% respectively, and they had increased to 52.2% and 44.7% in 2004. In the year 2005 the households connected to internet by broadband represented 65% in Japan and 59.3% in Spain. Thus, a larger proportion of Japanese population has been enjoying a better internet service than the Spanish population (INE, 2003, 2005, 2006; MIC, 2003, 2005).

The second qualitative difference is the spread of internet access from mobile phone in Japan. In 2005, the population using cellular phone to access internet was 81.2 % of the population using internet, while the population using PC was 77.4%, and the use of cellular phone for accessing internet is especially high among people under their 30s (MIC, 2006). Due to the Japanese lifestyle and the time spent in public transportation, many Japanese use their mobile communication devices (e.g. cellular phones, PDA, etc.) to connect to Internet. In addition, the Japanese can access internet from other devices, like ATM-like devices at convenience stores and from TV games at home. In contrast, Internet connections in Spain are mostly made through PC (Aoki, 2000; Pardo, 2004).

#### **Online Shopping, Delivery and Payment Systems in Japan and Spain**

Japanese also buy online more frequently than Spanish. 90% of Japanese internet users have online shopping experience, and almost 60% of them have made six or more purchases during 2004 (Center for Life Information, 2006). Only 17.5% of the total Spanish population has online shopping experience, and only 31.8% of Spanish population that used internet in the last 3 months (before the moment of INI's survey in mid-2006) had purchased online in the last 12 months (INE, 2006). Although these data are not directly comparable to the Japanese data, we can presume a lower penetration of online shopping among Spanish population. The higher experience with internet and online shopping of the Japanese may be an important reason for having also a deeper involvement in online shopping. For example, individuals with longer internet experience, do online shopping more frequently, and spend more money, than individuals with less experience (Kashiwagi, 2004). Similarly, online shopping experience has a positive effect on online shopping activity: individuals with online shopping experience reported that their frequency of online shopping, the amount of money spend in online shopping, their degree of satisfaction with online shopping, and the search for product information online before purchasing, even when the purchase is at a store, has increased with their experience buying online (Center for Living Information, 2006).

Payment and delivery systems of online-purchased goods in Japan also differ from those in Spain. In Spain payment by credit card is extensively accepted by consumers and retailers, but it isn't the case in Japan. In fact, in Japan the different alternatives for payment are larger, since it is possible pay with credit card, by cash on delivery, bank transfer, or even at a convenience store. As Aoki (2000) stats the most common method of online shopping payment used in Japan is cash payment upon the delivery/receipt of ordered goods. However, in Spain, credit card payment has a great acceptance among online buyers and the number of cases of fraud complaints over the last few years has been practically nil (Pardo, 2004). In Table 1 we can see the acceptance of those methods for pay online purchases.

TABLE 1: ACCEPTANCE OF PAYMENT METHODS AMONG ONLINE SHOPPERS

Source:	Instituto Nacional de Estadística (INE) (2006)	Center for Life Information (Seikatsu Jouhou Sentaa) (2006)
METHOD OF PAYMENT	SPAIN	JAPAN
<i>Credit card</i>	70%	64,5%
<i>Bank transfer</i>	32,6%	45,5%
<i>Cash on delivery</i>	20,4%	52,7%
<i>Conbini</i>	---	39,9%

Regarding the delivery system, the role of convenience stores (“conbini”) is fundamental in Japan. Convenience stores are placed close to the online buyer’s residence, train stations and work places, and provide consumers with many services, like delivery of online purchased products, cashing service, online shopping, etc. In a convenience store the online buyer is able to pick up and pay his online orders at any time of the day, every day of the year. Thus, convenience stores in Japan act as distribution points for other retailing companies which sell online, and make the online purchase much easier and safe for the buyer.

### **Culture, Shopping Styles and Online Shopping**

The relationship between cultural factors and Internet usage has been broadly studied (Steenkamp et al., 1999; de Mooj, 2000; de Mooj, 2004; la Ferle et al., 2002; Yenyurt & Townsend, 2003; Müller & Gelbrich, 2004). Most of the researches into this issue are based in some of the cultural dimensions developed by Hofstede (1980), Hofstede & Bond (1988). From these studies we can conclude that there is a negative correlation between cultures with high levels of “uncertainty avoidance” and Internet usage, and there is a positive correlation between “individualistic cultures” and Internet usage. In these dimensions, although there is not a radical difference between Japan and Spain, these countries show different characteristics: Japan’s culture promotes more uncertainty avoidance and less individualism than Spanish culture.

However, culture interacts with many other factors, and Hofstede’s dimensions are too general to analyze the perceptions that affect the real consumers’ behaviour in different countries. Thus, the social, economic, cultural contexts and the lifestyle determine the consumers’ behaviour, and each country’s distribution system reflects the consumers’ characteristics in order to satisfy their demands (Ishibuchi, 2003). Ishibuchi considers that consumers can be classified in different groups according to the different combinations of two dimensions. One dimension is rationality in the search of good price and quality versus behaving non-rationally, just following fashion. The other dimension is orientation to cooperation with other people versus individualistic orientation. According to Ishibuchi, the combination of these dimensions is the result of the life style and cultural and economic factors. The combination of those two dimensions determines the buying behaviour of consumers, who could search more or less information for making their decisions, be more or less influenced by publicity, look more or less intensively for cheap prices and/or good and reliable service, and so on. According to the results of Ishibuchi’s empirical research, the group oriented to price is dominant in the three countries he studied (US, Austria and Japan), however the proportion of individuals in each group is different among countries, and in the case of Japan there is a higher degree of heterogeneity than in the other countries.

Elaborating on Ishibuchi’s approach, we suggest that the characteristics of the Japanese distribution channel, like the large number of small stores selling fresh and cooked food, the large number of 24 hours open convenience stores providing with a great variety of products and services, the spread of the just-in-time provision system, the accurate treatment of the customer and so on, are an adaptation of the distribution system to the consumer’s shopping and lifestyle. Their lifestyle is characterized by little free time, limited space at home, frequent small quantities purchases, a great variety of goods available at any time, etc. And, when internet has been introduced in a society, we consider that consumers’ perceptions when shopping online are affected by their shopping style, which is the result of the consumers’ life style and other social and economic factors. Thus, consumers will prefer some shopping sites relative to others, and consequently distribution channels and production industries and their established standards would be related to those consumers’ preferences. To make clear how individuals perceive online shopping is the aim of our research. In addition to consider the effect of the technological development and environment, the delivery and payment systems, and the consumers’ online

experience, which differs in Japan and Spain, we also consider the possibility of different buying styles in both of them. With our empirical research we will find out whether Japanese and Spanish consumers show heterogeneous perceptions about the key factors involved in online shopping process.

## **Key Variables in the Study: Drivers, Impediments, Perceived Risk and Socio-Demographic Characteristics in Online Shopping**

### **Drivers and Impediments to Online Shopping**

Internet has peculiar characteristics that differentiate it from other purchase means and areas. There are many studies that have dealt with the driving and inhibiting factors to initiate a B2C online relationship and have emphasized Internet's benefits as a distribution channel and therefore are motivating (AECEM-FECEMD, 2006; Burke, 2002; Parsons, 2002; Rohm and Swaminathan, 2004; Ramus and Nielsen, 2005; Lin y Yu, 2006; Forsythe et al., 2006): among others, cost and time savings, a greater control on the service delivery, less waiting time, a greater level of customization, location convenience, efficiency and flexibility, ease of use, more convenience than other alternatives, lack of contact with salespeople, 24 hour availability, instant gratification as the information is available on the spot, and interactivity.

Nevertheless there are other factors which can mitigate or even eliminate the consumer's willingness to purchase online (Anckar et al., 2002; AECEM-FECEMD, 2006; Ramus and Nielsen, 2005; Lin & Yu, 2006; Forsythe et al., 2006). As mentioned previously, in B2C relationships in an online context, there is information asymmetry in favour of the firm, which is the party that knows the true quality of its products. This fact is aggravated by consumer impossibility to estimate directly the product quality as they are not able to see, touch, smell or try the product before purchasing it, and by the lack of personal contact with a salesperson to advise them on the product. The characteristics of the product to be purchased may also act as an inhibitor for online buying as there are many products, like food, that are more sensitive to the absence of physical interaction. This lack of interaction prevents the consumer from distinguishing the quality of certain products, like food, due to the fact that the consumer's perception of the quality of this type of product is complex and their evaluation is based on sensory properties like the product's appearance, taste, smell and texture (Nazlin, 1999). Other impediments to online purchase are the costs of learning and training in how to use Internet and the change from other channels to the virtual one, the generation of anxiety and stress on the consumers who don't feel comfortable when using Internet, the absence of interaction and social contact with other people, and the lack of perception of benefits in relation to traditional purchasing manners.

Regarding the drivers, Wolfenbarger and Gilly (2001) suggest that two behaviours can be identified in online customers: experience-based behaviour (those who buy for fun and enjoy) and goal-oriented or utilitarian shopping (which is task-oriented, efficient, rational, and deliberate). On this basis and other related works (Anderson y Srinivasan, 2003; Anckar et al., 2002), this paper proposal is as follows: on the one hand, as rational motives for online shopping, speed, convenience, range of products, access to a special selection differentiated in comparison with a traditional store, timetable flexibility, shortage of stores in the consumer's residential area, less stress in the purchase, less impulsive purchases and an easier price comparison; on the other hand, as experience-based motives for online shopping, the search for original ideas and enjoyment.

Likewise, the most mentioned impediments for avoiding online shopping gathered in this study are the lack of personal relationship and advice from the salesperson, the lack of relationship with other people, the impossibility to see, touch or smell the product, the difficulty in refunds and claims, the high cost of the order's handling and delivery, the need to make large orders to reduce delivery costs, the expiry date of certain products, technical problems in the Internet connection or browsing, excessive complication to surf on the Web or purchase on certain web pages, the need to plan the purchase, the lack of service customization, and the lack of security in payment.

### **Perceived Risk**

Perceived risk is defined as an attribute of a decision alternative that reflects the variance of its possible outcomes (Gefen et al., 2002). This variance has two components: first, the uncertainty about whether some outcome will happen; and second, the consequences (usually harmful) of that outcome. In fact, online shopping means more



possible negative outcomes than offline shopping (especially regarding to personal information privacy and security). Therefore regarding online shopping is very useful to conceptualize risk as the likelihood of getting a negative outcome.

The risk level that a customer associates to a buying decision is higher in online shopping than in traditional shopping (Akaah & Korgaonkar, 1988; Tan, 1999; Cunningham et al., 2005). Moreover the importance of perceived risk in online shopping means that only customers with low risk avoidance profiles prefer online shopping to traditional one (Juan, 1999). It is widely accepted that the higher the level of risk, the lower the likelihood of transaction success. However the influence of perceived risk is not the same over the entire buying process, and is different within an online context than within an offline one: in e-commerce the effect of perceived risk is lower in the "alternative evaluation" stage, but higher in the "purchase decision" one; while in traditional retailing, the effect increases in the "alternative evaluation" stage, and decreases in the "purchase decision" and "post-purchase behaviour" stages (Cunningham et al., 2005). Park and Jun (2003) state that there is a negative effect of perceived risk on privacy and security over online shopping, thereby reducing purchases frequency.

There are authors who find differences in variables like perceived risk according to buyer's gender (Garbarino and Strahilevitz, 2004). Specifically, women perceive greater risks than men regarding online shopping. In addition, women give much greater importance to the loss of privacy than men. The greater difference between men and women is that women focus more on the loss of their privacy than on the likelihood of this loss. Personal recommendation is more efficient reducing perceived risk for women than for men. Although the women are more adverse to buy in absence of personal recommendations, when these exist the women significantly increase their desire of purchase. In men's case, the recommendations do not have significant effects on the purchase desire. In addition, the women settle down quantitative differences according to the recommendation's source ("friend" vs. "close friend"), whereas for men the effect is quite quantitative (depends on the number of recommendations).

In any case, there actually are differences between men and women regarding to their behaviour and attitudes towards Internet: the women seem to be interested in Internet less than men (Roper Center for Public Opinion Research, 1998), pass less time in Internet (Allen, 2001; Pastore, 2000a; Kehoe et al., 1998; Sheehan, 1999) and visits less pages (Allen, 2001) than men. As far as commerce online also differences have been founded: Although women are less prone to buy online (Allen, 2001; Pastore, 2000b; Sheehan, 1999; Briones, 1998) and spend less money online than men (Allen, 2001), women make 70% of the offline purchases.

Since previous research have proved that the perceived risk is negatively related to willingness to buy (Shimp and Bearden, 1982; White and Truly, 1989) and the women are less prone to online shopping, we could think that it can be explained because the women are less familiarized with Internet to have incorporated to its use later than men.

In short, differences between men and women have been founded in the following aspects: women have a greater risk avoidance (Brody, 1984; Gutteling and Wiegman, 1993; Gwartey-Gibs and Lach, 1991; Steger and Witt, 1989; Stern et al., 1993; Slovic et al., 1997; Gardner and Gould, 1989; Barke et al., 1997), are more concern about the loss of their privacy (Sheehan, 1999; Kehoe et al., 1997), focus on relationship and communication, trends to communicate its experiences and their behaviour are more influenced by others recommendation as opposed to masculine individualism (Tannen, 1990; Brannon, 1999).

#### **Socio-Demographic Characteristics**

Online commerce development implies that companies are automatically involved in global markets (Wilson, 1999), and will need to deal with new clients who might be quite different from their traditional ones (Okada, 2006; Barnes et al., 2007). Thus, it is necessary to use new concepts of market segmentation which include consumers from different countries and cultures. To classify consumers in homogeneous clusters allows ecommerce retailers to be more efficient in the satisfaction of their customers' needs and, hence, to increase their sales (Barnes et al., 2007).

Donthu and Garcia (1999) have studied the differences between online and non-online buyers, finding significant differences in terms of age, income, importance of convenience, risk aversion impulsiveness, variety seeking propensity, attitude towards marketing, and attitude toward advertising (Kau et al., 2003). Consumer characteristics are essential to adopt Internet as a buying channel and influence their loyalty and satisfaction (Ranaweera et al., 2005). Other authors have characterised online buyers by clustering them within several groups (Kau et al., 2003; Barnes et al., 2007). Research concerning online buyers from France, Germany and U.S., Barnes

et al. (2007) has identified 3 typologies of online shoppers related to 7 variables: “extraversion”, “neuroticism”, “trust”, “attitude” (towards online shopping), “perceived risk”, “shopping enjoyment” and “willingness to buy”. Different levels of each variable are related to different countries, and this suggests that these socio-cultural differences may affect online shopping as well.

“Gender” and “age” have been the more studied variables regarding online shopping, but there is no clear evidence: though Zeffane and Cheek (1993) show a negative correlation between age and Internet usage, Teo (2001) suggests that age does not have a significant effect on online shopping. Neither is the role of gender clear: even though men tend to buy online more than women (Teo, 2001), this could be because men are more expert using Internet, having begun to use it earlier. In Japan, Women’s online shopping usage is lower than men’s for the population above 40 years old, but it is higher for younger people. For example, men in their 40s and 50s represent 21.9 of the total online buyers, and women of the same age represent 14.2%. However, men in their 20s and 30s represent 18.3% of the total online buyers, and women of the same age represent 26.8%. Considering only online shopping through mobile phone, the use by young women is remarkable (24% of online buyers though mobile phone are women in their 20s) (Center for Life Information, 2006). Thus, we see how in Japan there is a different online shopping behavior between men and women, with a growing participation of the young women.

#### **Buyer Expertise Regarding Internet Usage**

Internet usage is a determinant of online shopping (Bellman et al., 1999; Lohse et al., 2000; Citrin et al., 2000). Lohse et al. (2000) refers to “wired lifestyle” which involves issues as hours spent online per week (time), n° of months using Internet (experience), n° of hours working online, search for online information, the feeling of e-mail as an essential communication tool. These variables explain 79% of online shopping behaviour.

Park and Jun (2003) show that “n° of hours spent online” are positively related to online shopping.

The degree of user expertise is a key variable when it comes to reduce perceived risk and develop loyalty to a web site. In this sense, Park and Stoel (2005) demonstrate that previous experience of shopping online influence perceptions of risk when shopping online and intentions to purchase online. The study by Rodgers et al. (2005) indicates that firms may develop and provide differentiated services to high- and low- experience consumers because on-line experience influence on satisfaction, loyalty and their antecedents.

Although there are not many studies to date that analyze the influence of buyer characteristics on online shopping, Zhou et al. (2007) make a revision of some of them (Table 2).

TABLE 2: ZHOU ET AL. REVISSION OF CONSUMER FACTORS RELATED TO ONLINE SHOPPING

Source: Zhou et al. (2007)			
Factor Types	Individual Factors	Major Findings	Surveyed Studies
<i>Demographics</i>	<i>Gender</i>	Male consumers make more online purchases and spend more money online than females; they are equally or more likely to shop online in the future and are equally or more favourable of online shopping. Women have a higher-level of web apprehensiveness and are more sceptical of e-business than men	Alreck & Settle, 2002; Brown et al., 2003; Donthu & Garcia, 1999; Korgaonkar & Wolin, 1999; Levy, 1999; Li et al., 1999; Rodgers & Harris, 2003; Slyke et al., 2002; Stafford et al., 2004
	<i>Age</i>	There are mixed findings on the relationship between age and online shopping intention	Bellman et al., 1999; Bhatnagar & Ghose, 2004; Bhatnagar et al., 2000 ; Donthu & Garcia, 1999 ; Joines et al., 2003 ; Korgaonkar & Wollin, 1999 ; Li et al., 1999 ; Rohm & Swaminathan, 2004 ; Stafford et al., 2004
	<i>Income</i>	Income is positively related to online shopping tendency	Bagchi & Mahmood, 2004; Donthu & Garcia, 1999; Korgaonkar & Wolin, 1999; Li et al., 1999; Susskind, 2004
	<i>Culture</i>	Consumers from an individualistic culture are more likely to use the Internet for e-commerce than those from a collectivistic culture. A more masculine society has more predominant male shoppers and is more involved in online shopping	Chau et al., 2002; O'Keefe et al., 2000; Park & Jun, 2003; Park et al., 2004 ; Shiu & Dawson, 2002 ; Stafford et al., 2004
<i>Internet experience</i>	<i>Frequency of Internet usage</i>	There are mixed results for the effects of Internet usage on online shopping intention. Internet usage is negatively related to perceived product risk	Bhatnagar & Ghose, 2004; Bhatnagar et al., 2000; Cho, 2004; Citrin et al., 2000; Jarvenpaa & Todd, 1997; Jarvenpaa & Tractinsky, 1999; Liao & Cheung, 2001; Nysveen & Pedersen, 2004; Park, 2002
<i>Shopping motivation</i>	----	Motivational factors play a key role in determining time spent on product searching and online shopping. Experimental (hedonic) shoppers always find more enjoyment in interactive environments than in the pure text environments	Childers et al., 2001; Joines et al., 2003; Johnson et al., 2004; Novak et al. 2000; Solomon, 1999 ; Wolfenbarger & Gilly, 2001
<i>Psychological perception</i>	<i>Risk perception</i>	Perceived risk is negatively related to online shopping intention	Bathnagar & Goose, 2004; Bathnagar et al., 2000; Featherman & Pavlou, 2003; Garbarino & Strahilevitz, 2004; Huang et al., 2004; Javenpaa & Todd, 1997; Jarvenpaa & Tractinsky, 1999; Jarvenpaa et al., 1999; Joines et al., 2003; Kolsaker et al., 2004; Liang & Jin-Shiang, 1998; Liao&Cheung, 2001; Park et al., 2004; Pavlou, 2003; Pires et al., 2004
<i>Online Shopping experience</i>	<i>Frequency of online purchases</i>	Frequency of purchases is positively related to online shopping tendency and negatively related to the likelihood to abort an online transaction	Brown et al., 2003; Cho, 2004; Foucault & Scheufele, 2002; Moe & Pader, 2004; Park & Jun, 2003; Yang & Lester, 2004

## Method and Results

### Sample and Data Collection

The empirical study conducted is based on information collected with the help of a questionnaire given to Internet users and online shoppers in Spain and in Japan. In order to reach these users in Spain, questionnaires were sent to several cyber-centres (public or private centres with Internet access). Several regional development agents and cyber-centre supervisors collaborated in the distribution and collection of questionnaires in several Spanish regions. The agents and supervisors were asked to deliver the questionnaires to those users of Internet in the cyber-centres who had previously stated that they at least once have bought products or services online. The data collection process took place in May, June and July 2006. A sample of 533 individuals were obtained. After an initial filter process where 26 questionnaires were eliminated due to incompleteness or wrong answers, the final sample included

507 individuals. The same process was followed in Japan, but in this case native speakers helped us to correctly translate the questionnaire into Japanese language. The final sample in Japan was 210 (216 were collected and 6 were eliminated). Table 4 shows both samples divided by gender, age and location. Among Japanese interviewees there are more women and younger people than in the Spanish sample. As Aoki (2000) states, the number of women using the Internet is rapidly increasing in Japan and most Internet users in Japan are in their 20s and 30s. As Garbarino and Strahilevitz (2004) state, we can see that, in the early stages of Internet development, there are more men than women acquaint with this new technology (as we can see in the Spanish case) (Table 3).

TABLE 3: SAMPLE CHARACTERISTICS IN SPAIN AND JAPAN

	Gender		Age			Home location		
	<i>Spain</i>	<i>Japan</i>		<i>Spain</i>	<i>Japan</i>		<i>Spain</i>	<i>Japan</i>
Male	53.5%	36.8%	< 18	5.9%	1.9%	Near shopping centres	67.4%	79.2%
			18-24	45.1%	75.6%			
			25-34	29.3%	10.5%			
Female	46.5%	63.2%	35-44	12.3%	5.7%	Far away from commercial establishments	32.6%	20.8%
			45-54	5.1%	4.8%			
			55-64	1.6%	1.0%			
			> 64	0.6%	0.5%			

#### Results: Differences in Internet Usage

Firstly, we have analysed the differences in the use of computers and Internet in both countries. We measured the frequency of Internet usage by means of five indicators: frequency in the use of computers, e-mail, Internet, chats and online buying. These items were measured in a five-point scale: 1: *Every day*; 2: *Several ways a week*; 3: *Once a week*; 4: *Every 15 days*; 5: *From time to time (sporadically)*. The ANOVA analysis that appears in Table 4 shows some significant differences between Japan and Spain. The use of e-mail and chats is more frequent in Spain, whereas the general use of Internet is more frequent in Japan. However, there are not significant differences regarding the frequency of computer use and online buying. In this sense, we have to admit that all the individuals that answered the questionnaire have bought online at least once so that the rest of the questionnaire made sense.

TABLE 4: ANOVA: SPAIN VERSUS JAPAN (Frequency of Internet use)

<i>Variables</i>	Means (from 1 –more- to 5 –less-)		<i>F-ratio</i>	<i>Sign. level</i>
	<i>Spain</i>	<i>Japan</i>		
Use of computer	1.34	1.43	1.779	0.183
Use of e-mail	1.56	1.87	11.268	0.001
Use of Internet	1.55	1.39	4.883	0.027
Use of chats	3.61	4.53	50.565	0.000
Use of online commerce	4.67	4.75	1.136	0.287

#### Results: Differences in Perceived Risk

Secondly, the survey groups were asked to evaluate the risk they perceived when buying online, the motives behind their online shopping and the inhibitors they come across during such process. In the first place and in order to measure perceived risk, we followed the scales developed by Stone and Gronhaug (1993) and Laroche *et al.* (2005) and Cunningham *et al.* (2005), which comprise the five dimensions that have been used traditionally in risk literature: functional risk, financial or economic risk, physical risk, social risk and psychological risk (Jacoby and Kaplan, 1972). Nevertheless, our study focuses on functional, financial and physical risk because they are the most relevant ones in the online context. Table 5 comprises the Confirmatory Factor Analysis of the scale of perceived risk together with the ANOVA analysis that provides some differences between Japan and Spain. This analysis reflects differences in perceived risk, in a way that Spanish consumers exhibit higher levels of perceived risk when buying online than Japanese consumers.

TABLE 5: PERCEIVED RISK ITEMS, CONFIRMATORY FACTOR ANALYSIS AND ANOVA

	Perceived risk items	Factor loadings	Goodness of fit	
CFA	Potential loss of money when buying a product or service online	0.831	$\chi^2(8) = 59.79$ (p = 0.000) GFI = 0.972 AGFI = 0.927 CFI = 0.988 RMSEA = 0.0967	
	Concern about the relation between benefits obtained and expense involved if buying online next months	0.916		
	Buying online can involve a waste of time	0.838		
	Concern about results not being as expected if buying online next month	0.677		
	Worry about the bad result of the product bought online	0.746		
	Lack of time implies stress because loss of time when buying online	0.690		
ANOVA	<i>Spain (mean)</i>	<i>Japan (mean)</i>	<i>F-Ratio</i>	<i>Sign. level</i>
	0.3414	-0.8281	272.659	0.000

**Results: Online Shopping Drivers and Inhibitors**

In the third place and previous to the measurement of drivers and impediments and taken as a reference the motivations and barriers to online buying outlined in the study by AECM-FECEMD (2006), authors maintained interviews with consumers and firms in order to make a brainstorming and revise the questionnaire.

Hence, in order to measure the drivers, 21 indicators were used, gathering the motives relevant to greater purchase convenience and speed, a greater variety of options (more products, more ideas, timetable flexibility) and the possibility of rationalizing the purchases (less stress and less impulsive purchases). Likewise, in order to measure the impediments, 13 indicators were used, referring to the lack of physical contact with the salesperson and the product, to the greater costs of the transaction (as a result of security problems, delivery costs or losses due to the expiry of the product), and the technical problems or the lack of adaptation to the online purchasing process. Five-point Likert scales were used, taking different literature projects as a reference and undertaking the necessary adaptation. Such indicators were subjected to two factor analyses, the results of which are shown in Table 6 and Table 7.

TABLE 6: INTERNET SHOPPING DRIVERS (FACTOR LOADINGS)

	FACTORS				
	1	2	3	4	5
Payment security	0.830				
Good post-purchase service	0.805				
Firm's reputation	0.657				
Wide information about product/service	0.643				
Quick web site	0.591				
Interactivity between buyer and seller	0.536				
Less stress while shopping		0.732			
Few stores in area of residence		0.676			
Less impulsive purchases (non-planned purchases)		0.637			
Searching for ideas			0.671		
Wide product range			0.655		
Access to special products not available in a normal store			0.585		
Enjoyment			0.434		
Attractive web site			0.349		
Convenience				0.726	
Speed of purchase				0.693	
Easy price comparison				0.549	
Long shopping hours; no timetables				0.536	
Easy shopping for handicapped people				0.450	
Lower prices					0.675
Promotions					0.534
<i>Explained percentage difference</i>	26.1%	11.2%	7.5%	5.4%	5.1%

TABLE 7: INTERNET SHOPPING IMPEDIMENTS (FACTOR LOADINGS)

	FACTORS		
	1	2	3
Lack of Internet knowledge	0.752		
Technical problems regarding Internet connection or browsing	0.707		
Excessive complication while browsing and buying on many web pages	0.701		
The need to plan the purchase	0.593		
High postal and delivery costs		0.813	
The need to obtain large orders to reduce delivery costs		0.730	
Difficulty regarding claims and refunds		0.654	
The impossibility to see, touch or smell the product		0.614	0.516
Lack of payment security		0.425	
Short expiry date on certain products		0.417	
Lack of personal contact and salesperson advice			0.835
Lack of relationships with other people			0.796
Lack of client service customization	0.512		0.472
<i>Explained percentage difference</i>	31.8%	11.8%	11.4%

The factors obtained clearly reflect five **types of drivers or driving factors**:

- Factor 1. *Search for a good online service.*
- Factor 2. *Rationality when shopping and the need of shopping online.*
- Factor 3. *Scope of possibilities.*
- Factor 4. *Greater convenience and easiness when shopping.*
- Factor 5. *Search for lower prices.*

Likewise, three **types of impediments** have to be taken into consideration:

- Factor 1. *Technical difficulties,*
- Factor 2. *Greater transaction costs.*

- Factor 3. Lack of physical contact.

The next step was to compare the drivers and the impediments of online shopping in two different social contexts, Japan and Spain. The two countries were compared using ANOVA. After calculating the factors, they were re-codified from 0 to 5 so that it would be possible to compare them. This analysis revealed some significant differences between Spain and Japan buyers on most of the factors tested. As summarized in Table 8, our results indicate significant variation in three Internet shopping drivers (search of a good online service, the scope of possibilities, and the greater convenience) and in the three impediments.

TABLE 8: ANOVA: SPAIN VERSUS JAPAN

Variables	Means		F-ratio	Sign. level
	Spain	Japan		
Driver 1. Search for a good online service	3.2673	1.8852	442.150	0.000
Driver 2. Rationality when shopping	2.6275	2.5122	2.553	0.111
Driver 3. Scope of possibilities	3.0716	3.2849	11.289	0.001
Driver 4. Greater convenience	3.4706	3.6042	5.641	0.018
Driver 5. Search for lower prices	2.7987	2.8861	2.140	0.144
Impediment 1. Technical difficulties	2.6509	2.3086	19.229	0.000
Impediment 2. Greater transaction costs	2.7934	3.0750	17.490	0.000
Impediment 3. Lack of physical contact	2.3734	2.5546	6.399	0.012

Specifically, according to our ANOVA results, Spanish buyers consider the offer of a good online service a more important reason for online buying than Japanese buyers. However, Japanese buyers give more importance to the scope of possibilities and the convenience as drivers of online buying. There are no differences about the rationality and the lower prices as drivers of online buying. As for the inhibitors, the technical difficulties are more relevant for Spanish than for Japanese buyers, maybe because Japanese people know more about new technologies and Japan is a country more advanced than Spain in new technologies, whereas transaction costs and the lack of physical contact are more relevant impediments for Japanese than for Spanish buyers.

**Results: Effects of Socio-Demographic and Internet Expertise Variables on the Drivers and Impediments**

After analyzing the differences between countries according to drivers and impediments, we considered the influence of socio-demographic buyer characteristics (gender, age and place of residence) and its interaction with the country existence of factors. Moreover, we considered the degree of buyers' expertise on Internet as another influencing variable. Five indicators of expertise were used (*I consider myself as an expert on online buying, I consider myself as an Internet expert, I am involved in the commercial style of the Internet, I usually buy products/services on the Internet, my level of expertise with computers is high*) that were reduced to a single factor throughout a factorial analysis. Table 9 comprises the Confirmatory Factor Analysis of the scale of buyer expertise together with the ANOVA analysis that involves again differences between Japan and Spain. Concretely, Spanish consumers consider themselves as more experts in the use of Internet than Japanese consumers. Once the factor was created, we re-codified it into a dichotomical variable: low online buying expertise and high online buying expertise. Table 10 offers the results of two-factors ANOVAs and the interactions in the cases where significant effects were found.

TABLE 9: BUYER EXPERTISE: ITEMS, CONFIRMATORY FACTOR ANALYSIS AND ANOVA)

	Expertise items	Factor loadings	Goodness of fit
CFA	I consider myself as an expert on online buying	0.995	$\chi^2(2) = 8.114$
	I consider myself as an Internet expert	0.679	(p = 0.017)
	I usually buy products/services on the Internet	0.711	GFI = 0.994
	My level of expertise with computers is high	0.419	AGFI = 0.972
			CFI = 0.996
			RMSEA = 0.0651
ANOVA	<i>Spain (mean)</i>	<i>Japan (mean)</i>	<i>F-Ratio</i>
	0.0868	-0.2209	13.951
			<i>Sign. level</i>
			0.000

TABLE 10: TWO-FACTOR ANOVAS

Models	Dependent variable	Source	F-ratio	Sign. level
Two-factor Anova Country*Gender	Driver 3. Scope of possibilities	Country	1.333	0.454
		Gender	0.011	0.932
		Country*Gender	9.639	0.002
	Impediment 2. Greater transaction costs	Country	214.118	0.043
		Gender	54.846	0.085
		Country*Gender	.060	0.806
Two-factor Anova Country*Place Of residence	Driver 1. Search for a good online service	Country	292.827	0.000
		Place	2.781	0.096
		Country*Place	0.358	0.550
	Driver 2. Rationality when shopping	Country	3.171	0.075
		Place	3.650	0.057
		Country*Place	1.973	0.161
	Driver 4. Greater convenience	Country	0.263	0.609
		Place	3.284	0.070
		Country*Place	5.222	0.023
Two-factor Anova Country*Age	Impediment 2. Greater transaction costs	Country	9.203	0.003
		Age	4.219	0.000
		Country*Age	1.872	0.083
Two-factor Anova Country*Expertise	Driver 2. Rationality when shopping	Country	1.818	0.178
		Expertise	7.388	0.007
		Country*Expertise	0.705	0.401
	Driver 5. Search for lower prices	Country	4.482	0.035
		Expertise	6.639	0.010
		Country*Expertise	3.987	0.046

The results of Table 10 show that the direct effect of gender is significant on the perception of greater transaction costs as an impediment ( $X_{Male} = -0.075$  ;  $X_{Female} = 0.117$ ); the direct effect of the place of residence is significant for the search of a good online service ( $X_{Near} = -0.012$  ;  $X_{Far} = 0.000$ ), the rationality when shopping ( $X_{Near} = -0.075$  ;  $X_{Far} = 0.119$ ) and the perception of greater convenience ( $X_{Male} = -0.057$  ;  $X_{Female} = 0.030$ ); the direct effect of age is significant for the perception of greater transaction costs ( $X_{<18} = -0.208$  ;  $X_{18-24} = 0.144$ ;  $X_{25-34} = 0.058$ ;  $X_{35-44} = -0.301$ ;  $X_{45-54} = -0.592$ ;  $X_{55-64} = -0.667$ ;  $X_{>64} = -0.832$ ), and the direct effect of expertise is significant for the rationality when shopping ( $X_{Low} = -0.127$ ;  $X_{High} = 0.145$ ) and for the search of low prices ( $X_{Low} = -0.033$ ;  $X_{High} = 0.103$ ).

Following these results, women perceive greater transaction costs in online shopping than men. Also, people between 18 and 34 perceive greater transaction costs in online shopping than the rest of people. As for the place of residence, people who do not live near commercial establishments consider the good online service that is offered in the virtual shops, the need of online buying, and the fact that Internet allows them an easier purchase as



more important reasons to buy online. However, those who live near of shops think that convenience and easiness of shopping are more important drivers of online buying. Finally, for those who have more experience in online buying there are two drivers more relevant than for the less experienced: the need of online shopping and the search of low prices.

The interaction effects only are significant in four cases. Theses effects are represented in Figure 1. In these figures we observe the next results:

First, as regards online buying because of the scope of possibilities, as we said before, in Japan it is a more important motive for choosing online commerce than in Spain. However, it is a more important motive for Spanish women, whereas in Japan it is a greater motive for men.

Second, in Japan people who live near shopping places find greater convenience and easiness when buying online than people who live far away from commercial centres. The difference in this case is really significant. However in Spain there is not a big difference between these two groups.

Third, concerning the perception of transaction costs, minor differences are found between Japanese and Spanish people according to their age. Specifically, Japanese young people (less than 18) perceived greater transaction costs in online shopping than the Spanish young people. The same occurs for the oldest (more than 55): the perception of transaction costs in online shopping of Japanese is greater than that of Spanish.

Fourth, whereas in Spain there are not differences between low and high experience shoppers about the fact of online buying searching for lower prices; in Japan there are considerable differences. High experienced online buyers consider more important the searching for lower prices as a reason for online shopping whereas low experience buyers hardly value this motive.

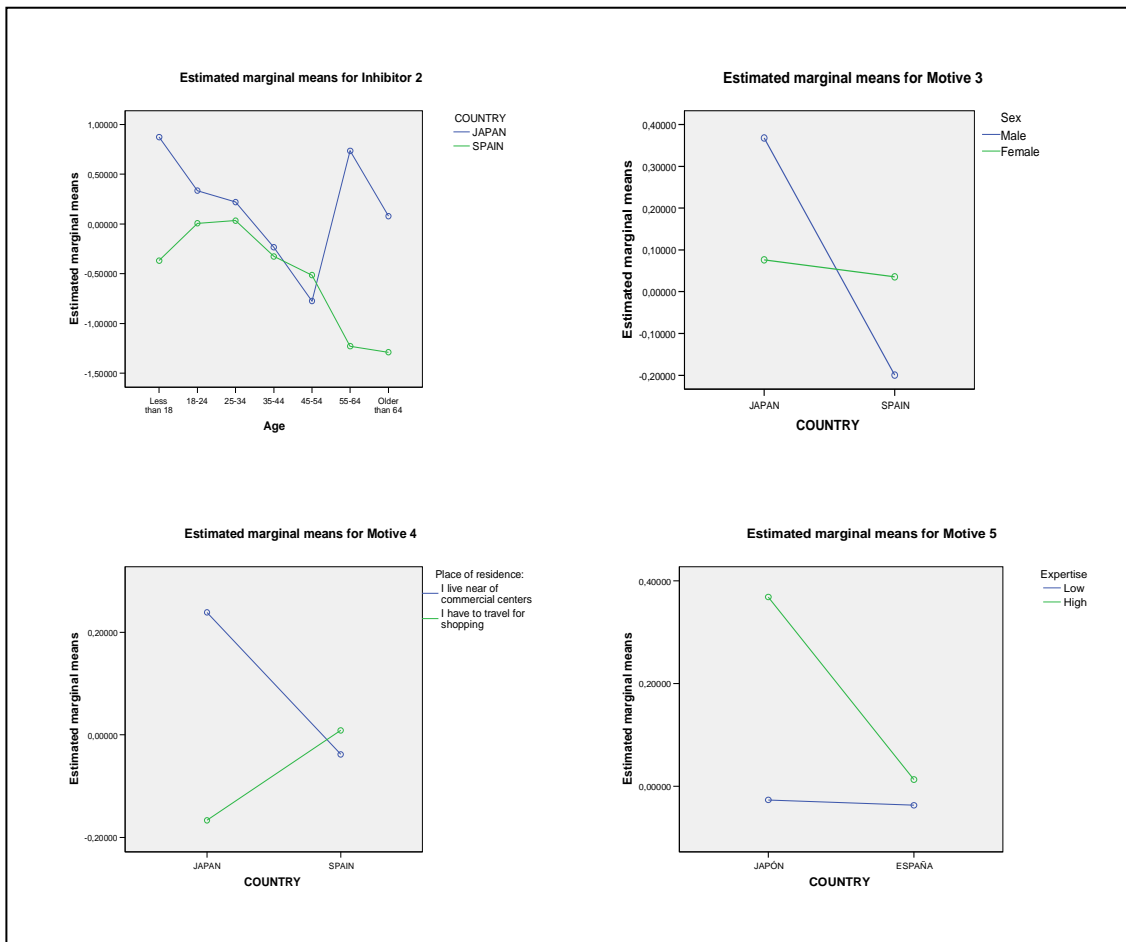


FIG. 1: INTERACTION EFFECTS

## Discussion

The new Communication and Information Technologies have supported the development of business in a global and international market. This global and common market contrasts, however, with the existence of great differences in the adoption of e-commerce by the consumers of different societies. The heterogeneity in the behaviours and the attitudes towards e-commerce may imply different business strategies in order to increase the use of Internet as a commercial channel.

From our point of view, it is interesting to see how e-commerce in other countries is developed and the similarities and differences in shopping styles among countries, now that Internet has become more than a tool of global communication and become the place to conduct global businesses. In line with other studies that have emphasized the influence of social aspects in the consumer behaviour, this study analyses the differences in online buying behaviour between consumers from countries with different history, tradition, distribution systems, life styles, and that are geographically far away from each other, as is the case of Spain and Japan. Concretely, our study focused on the analysis of the degree of adoption of e-commerce, the risk perceived and the drivers and impediments that are considered by consumers in each country. In general, we can say that although there seems to be a “virtual

culture" shared by consumers everywhere (Johnston & Johal, 1999), there are nuances that should be taken into account regarding drivers and impediments to adopt online buying, expertise and Internet usage or perceived risk.

The first result of our study is that there are not relevant differences as it regards the frequency of use of online commerce. Most surveyed online buyers make their online purchases just sporadically in both countries, although the use of e-mail and Internet is actually frequent. In spite of little but significant differences between the two countries in the use of e-mail, use of Internet and use of chats, those differences could be due to the greater possibilities of non-pc Internet connection (e.g. cellular phone) that Japanese can enjoy. However, the perception of risk is greater for the case of Spanish buyers than for Japanese buyers. Spanish buyers declare that they perceive more economic risks, less benefits, and more concerns about not obtaining the expected results in electronic commerce. This result can be due to the more recent incorporation of Spanish users to online shopping, to the systems of payment (more secure in Japan) or to the fact that Spanish are less confident than Japanese. Future studies should go deeper into this issue.

The second part of the analysis is about the drivers and impediments of online buying. We have found five types of Internet shopping drivers: the search for a good online service, the need of shopping online, the scope of possibilities, the greater convenience, and the search of lower prices. Such motives have been compared for the e-buyers of the two countries. Results indicate that both Japanese and Spanish buyers consider the greater convenience and the scope of possibilities as the main motives for buying online, but these motives are more important in Japan than in Spain. The more relevant difference between the two countries is about the search of a good online service, a more important motive in Spain than in Japan. It reveals that Japanese buyers value the e-commerce especially because of the easiness and the possibilities they find there, whereas Spanish buyers also value the good online service that is offered in the web sites they use. Finally, the rationality (less stress, less impulsive purchases) and search for lower prices are less important drivers, and there are not differences between Japanese and Spanish e-buyers.

Likewise, we have classified impediments into three groups: the technical difficulties, the greater transaction costs and the lack of physical contact. In this case, the transaction costs are the main impediment for buying online. These costs are perceived as greater by Japanese buyers than by Spanish buyers. This result may be associated to the fact that in the Japanese shopping style a good service, concept that includes reliability of the service (Ishibuchi, 2003), is quite important and that the Japanese culture shows a higher risk avoidance than the Spanish culture (Hofstede and Bond, 1988). Similarly, the lack of physical contact is a bigger barrier to online buying for Japanese than for Spanish buyers. This result confirms that in Japan, a country less individualist than Spain (Hofstede and Bond, 1988), consumers are more reticent to buy online as it does not allow a direct contact with salespeople or with other consumers. Besides, the use of combinis in Japan as physical places to pay, pick up their products ordered online and buy some convenience goods, facilitates the contact among consumers. However, technical difficulties seems to be bigger in the case of Spain, probably because Spain is less advanced in Communication and Information Technologies (C.I.T.) and in delivery systems for ecommerce (e.g. combini) in comparison with Japan.

Finally, the third part of our research has focused on the analysis of direct and indirect effects of socio-demographic variables on the perception of drivers and impediments of online buying. As for the direct effects, results indicate that female perceive transaction costs as a more important impediment to online buying than men. In fact, female usually perceived higher risks and are less prone to online buying than male (Allen, 2001; Garbarino and Strahilevitz, 2004). The same happens with young people (between 18 and 34 years old), who perceive higher costs than the rest of age groups. As regards home location, individuals who live far way from shops value more the customer service and perceive there is a need to buy online. In contrast, individuals who live near commercial establishments appreciate more the convenience deriving from online shopping. Consumers who define themselves as more expert in the use of electronic commerce especially value rationality when shopping and the possibility to obtain better prices online than offline. In relation to indirect effects, there are also some differences between Spain and Japan. Japanese male value more than Spanish male the wide range of shopping alternatives and varied assortment that Internet offers to the market. Moreover, Japanese male who live near shops appreciate more convenience than male who live further, whereas in Spain there is not really a difference. Finally, Japanese buyers that are more expert in the use of internet and in online buying evaluate higher than non-experts the possibility of

finding good prices online, while in Spain there is not such a different between experts and non-experts.

Perhaps we are facing some sort of Product Life Cycle (P.C.L.) regarding to ecommerce: at the first stages placement (delivery systems), information and product quality (quality of the web, post-purchase service, payment systems, firm's reputation) are more important (as Spanish buyers do) than afterwards, when the new product (ecommerce) is widely accepted and consumers focus on price (as Japanese online buyers do).

## **Managerial Implications**

One of the managerial implications of this study concerns the higher perception of risk by Spanish consumers, who have accessed later than Japanese to the Internet and even perceived more technical impediments to online buying. That is why firms with a Spanish target audience should make an effort to promote the advantages of C.I.T. to do the shopping and must create consumer trust through adequate privacy and security policies, improving non-PC connection systems as cellular phones, and introducing some innovations in delivery systems (e.g. conbinis) and in Internet access systems (e.g. ATM-like devices), all this in order to foment the increase of Internet use as a shopping channel.

On the other hand, Japanese buyers feel themselves more limited to buy online due to transaction costs and lack of physical contact. In this case, firms should focus, not as much on security and easiness of surfing and buying on the Internet as trying to search a competitive advantage and differentiating element in the electronic channel in comparison with the traditional channel. This implies not only reducing costs, but also looking for new ways of interaction and contact that transmit consumers the same feelings of closeness and proximity that are the strengths of traditional commerce.

## **Limitations and Further Research**

*As limitations of the work* it should be mentioned that different web sites have been considered in this research, which implies heterogeneity in results (Ribbink et al., 2004). Moreover, the collection procedures and the sample sizes are not exactly the same in Spain and in Japan, which has made the comparison difficult. From the results *future lines of research* may emerge. In the future we would like to analyze the Internet users who access the Internet through wireless phones, video game devices and Internet appliances because these type of users have increased in Japan because many business people and students commute every day and spend a number of hours in public transportation (Aoki, 2000; ECOM, 2002, 2006; Okada, 2006). In our Japanese sample, 10.7% of users have bough online mainly using their cellular phones or at least as equally as using computer. Besides, conbinis play an interesting role in promoting e-commerce among consumers in Japan as it tends to be the place where consumers go to pay in cash for merchandise ordered online and it is the place where some people go to shop online at the terminals and pay when they do not have Internet access at home. Another interesting issue regards the king of product bought. The most popular goods for Japanese online shoppers are computer-related products (Aoki, 2000; Okada, 2006), whereas Spanish people mainly buy travel tickets, books and show tickets (AECM-FECMD, 2006). Another interesting way to extend this study would be to develop a model of antecedents of online loyalty and compare it with the generation of offline loyalty.

## **References**

Contact authors for the complete list of references.

# A Management Mystery: The Case of the Missing Customer

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## Abstract

This paper addresses a remarkably enduring gap in the management literature. It traces the persistent neglect of the customer's role in management theory and argues that one of the unfortunate side-effects of academic fragmentation has been the unchallenged appropriation of 'the customer' by the Marketing discipline. Although Peters and Waterman highlighted the inability of management theory to explain the success of America's top-performing companies as far back as 1982, nothing has changed. Despite the intense focus on customer experience, as opposed to so-called 'customer service', by the new generation of successful global enterprises such as IKEA and Infosys, management theory continues to lag management best practice. This delinquency is especially remarkable given mounting evidence that customers are far from satisfied with the way they are treated. The serious deficiency in the literature stimulated the author to investigate more deeply the connection between customer experience, corporate reputation and business success. The resulting international survey, which is on-going, together with two mini-case studies, based on IKEA and Infosys, demonstrates huge untapped potential for enhancing corporate reputation by providing a more positive customer experience. It also reveals the critical importance of an integrated approach to organizational learning whereby corporate leaders leverage Knowledge Management (KM) systems to develop innovative, customer-centered business models and, as a result, create new market space. Different philosophies and concepts are incorporated into a new learning organization paradigm (INOVACC), which has been developed by the author as a tool for assisting organizations embarking upon customer-driven mindset and culture change programmes.

## The Myopia of Management Theory

More than half-a-century ago, Peter Drucker, the father of modern management, emphasized the centrality of the customer in business enterprise. He stated it with classic simplicity; 'there is only one valid definition of business purpose: to create a customer.'<sup>(1)</sup> Based on this definition, it is the core responsibility of managers to attract and retain customers. Of course, the *means* by which managers perform this responsibility requires considerable elaboration. However, it is difficult to argue with Drucker's key point, which makes it all the more extraordinary that subsequent generations of management theorists have paid very little attention to the significance and role of the customer in their work. In many ways it is another classic case of academics not seeing the wood for the trees. Although there has been a multitude of management frameworks including an emphasis on basic management functions, advocacy for various models of organizational design, the significance of situational and contingent factors, the importance of individual motivation and group behaviour, the distinction between management functions and leadership roles and (more recently) knowledge management, by and large the customer perspective has been abdicated to the Marketing discipline.

A classic example of continuing management myopia is the landmark project undertaken by Shell and the Tavistock Institute of Human Relations in the mid-1960s, which was a partnership between one of the world's leading companies and one of the pre-eminent management research organizations at that time. Despite claiming to have produced "A New Philosophy of Management", the project was totally preoccupied with an internal organizational perspective and dealt primarily with industrial unrest, trade unions, productivity bargaining and employee motivation. There was no direct reference to customers or service in the 'Statement of Specific Objectives', the resulting company development programme or the Index.<sup>(2)</sup>

As late as the early 1980s, Peters and Waterman, both prominent in academic and consulting circles, and seeking to explain the success of America's top companies, emphasized once again the poverty of prevailing management theory:

No existing theory helps much in explaining the role of the customer in the prototypical excellent company. At most recent theory talks about the importance of the external environment in influencing the institution. It misses by a mile, however, the intensity of customer orientation that exists within the top performers, and that intensity seems to be one of the best kept secrets in American business. (3)

About the same time, Moss Kanter highlighted the flaws in contemporary management theory and the problems encountered by companies dominated by functional specialization and segmented thinking. In a major research study she identified big performance differences between integrated and segmented cultures. She found that, in a segmented culture, problems are 'left with specialists' who have no incentive for cooperation. Such a culture 'makes it harder for the organization to move beyond its existing capacity in order to innovate and improve'. By contrast, Moss Kanter concluded that highly-innovative, customer-focused organizations tend to treat problems as 'wholes' and are therefore strongly 'team-oriented'. (4)

By the 1990s, the fragmentation of management practice and theory had spiraled out of control. The one contaminated the other. Over a thirty-year period it was estimated that there had been 'fifteen major new ways of looking at organizational structure'. Railing against the rampant fashion for 'gurus', 'fads' and "quick fixes" such as reengineering, flat structures and TQM, for example, Hilmer and Donaldson, two of Australia's most respected management academics, put the case for a more holistic, professional management approach, including the recognition that corporate success is 'not just one thing' but many. However, among the multitude of variables, there are two which are indispensable: leadership and its commitment to the principle that 'customers come first'.(5) Despite their compelling advocacy, there has been little change. It appears the myopia of management theorists and their students has degenerated into blindness. Almost a decade later, following a survey of customers of 862 leading companies, Bain and Company found that only 8% of customers described their experience as superior. (6)

## **Globalization and its Implications for Management Theory**

Even though the environment in which managers operate is being transformed exponentially, management theory continues to lag management best practice at an accelerating rate. Over the past decade or so, information technology, economic integration, relentless innovation and change, combined with increasingly intense marketing, have changed the competitive rules of the game for organizations big and small. Customers and the community (that is, potential customers) have become much more powerful, influential and selective. Globalization now reaches into every aspect of human existence. At the broadest level it shapes trends in economics, finance, trade, manufacturing and employment markets; at the micro-level, it intrudes into daily life in the form of food, news, travel, religion, entertainment, clothing and the most basic shopping activities. Concurrently, a new generation of organizations has successfully interpreted, leveraged and learned from these trends to create truly global customers by inventing unique but universal sources of added value. Such organizations straddle industries and make redundant the old economist's distinction between products and services. Examples of this phenomenon include Google, Zara, Dell, Harvard Business School, Citibank, Microsoft, IKEA and Infosys.

Until recently, in exploring and managing the possibilities and implications of globalization, the emphasis has been mainly on the economic and operational aspects. (7) However, the activities of consumers and world-wide lobby groups, including human rights and environmental movements and on-line bloggers and campaigners, have drawn attention to the collective failure of governments and corporations to address the dark side of globalization and the expectations of customers satisfactorily. Critics point to increases in poverty, disease, illegal and unethical behaviour by multinationals including corruption, workplace injustice, environmental degradation, quality and service deficiencies and cultural insensitivity as evidence. As a result, global brands have not only become more powerful but also more vulnerable. This huge management dilemma has been scarcely acknowledged by mainstream management theory.

In the global context, the massive equity in leading global brands is always at risk. The costly ethical and strategic failings of major enterprises in recent years such as Kmart, Arthur Andersen, Global Crossing, Mitsubishi, Citibank, Nestle, Shell, Bridgestone, Enron, Perrier, Ford, Nike, the Australian Wheat Board and IBM (8), to name

only a few, provide strong evidence of the power and sensitivity of consumer values, expectations and sentiment. In various ways each of these companies, for some time at least, got out of touch with their customers and their communities. Given the constant potential for a consumer backlash and a generally more alert, volatile and competitive business environment, it is clear that, more than ever before, organizational leaders need to carefully monitor and learn from what is happening in the societies in which they operate and become more adaptive, flexible, innovative, values-driven and socially responsible.

## **International Service Reputation Survey**

In view of the persistent neglect of the customer perspective in the management literature, and given mounting evidence of customer dissatisfaction with their service experience, the author began investigating the underlying issues in 2002. The resulting study includes an extensive review of corporate mission statements, and extensive and continuing international survey of service excellence and reputation, and a series of on-going focus groups designed to dig deeper into perceptions and expectations of service quality.

The examination of corporate documents has been extremely revealing. It emerges that, like quality, service has become a major priority of modern managers if corporate vision and mission statements are to be believed. The extraordinary success of Japanese companies in world markets during the 1970s and 1980s made 'total quality management' a strategic imperative for many organizations around the world. Inevitably, the initial emphasis upon product quality led to a greater concern for service quality. However, the resulting emphasis upon incremental service improvement led to superficial solutions. Instead of reviewing strategies, structures and systems in the light of customer needs and preferences, the main focus was upon the behaviour of frontline service delivery personnel. It was driven from marketing rather than a strategic management perspective. From the 1980s onwards, customer service became synonymous with excessive frills, familiarity and fuss, extravagant packaging, tempting bonus offers and hollow clichés such as "have a nice day" became standard practice. Instead of serving the customer which, in the case of budget airlines, may mean very little service, if that is the customer's preference, terms such as "excellent customer service", "customer relationship marketing" and "customer intimacy" have given managers a mandate to bombard their customers with often unwanted and invasive telemarketing calls, spam and junk mail.

Whereas many service marketing initiatives are designed to ensure that the provider is the dominant player in the proposed relationship, successful service providers increasingly invite the customer to enter into a partnership and even help design and customize the service experience.

The survey results and focus group meetings reveal a bleak picture. Despite the importance attached to so-called customer service in corporate mission statements and marketing material, this study reinforces previous research findings which indicate that very few organizations have succeeded in establishing a front-of-mind reputation for excellent service. This short-coming would appear to provide enormous scope for strategically-managed organizations to re-focus their knowledge management systems and to establish a major new source of competitive advantage based upon a unique capacity to serve customers. Between September 2002 and February 2007 the author randomly surveyed 482 adults in Perth, 446 in Singapore, 309 in Hong Kong, 117 in Lyon, France, 301 in Shanghai, 277 in Mumbai, India and 180 in Ho Chi Minh City, Vietnam. Participants were mainly mature-age post-graduate students, attendees of management short courses and low/middle level office staff. The survey was extremely simple and invited respondents to quickly write down examples of organizations which had given them consistently outstanding service over a period of at least two to three years. No discussion preceded the administration of the survey.

About three minutes was allowed for the task in order to tap front-of-mind nominations as opposed to examples that required respondents to search their memories and took some time to recall. It was emphasized that there were no restrictions on the types or number of organizations which might be identified. The author has also conducted 15 focus groups, with a minimum of one in each country surveyed, in order to explore the views of customers about service providers in greater depth.

Of the survey respondents 18% in Perth, 21% in Singapore, 17% in Hong Kong, 13% in Lyon, 21% in Shanghai, 22% in Mumbai and 24% in Ho Chi Minh City failed to nominate even one organization. 60% of all

respondents nominated only one organization and barely 6% nominated four or more. The organizations cited varied greatly from location to location. Most were small, local organizations including retail shops, hairdressers, tax agents, freight forwarders, mobile phone retailers and trades people. Among the most frequently mentioned large organizations were airlines, hotels, large department stores, banks, mobile phone manufacturers and car makers. It is noteworthy that, with only one or two exceptions, no professional firms, government departments, public utilities, universities or hospitals were named. The wide range of industries and firms nominated, and the variations between locations, reinforces the view that service is a very personal and subjective experience and there can be a large gap between the provider's perception of the service offered and the customer's perception of the service actually experienced.

The views emerging from the focus group discussions indicated that there is a major opportunity for organizations big and small to build a competitive edge and imprint a reputation by better managing service delivery in the eyes of the customer. It also became apparent that there has been a considerable blurring of the traditional distinction between goods/products and services. Customers increasingly look for comprehensive, integrated solutions and positive, productive experiences in exploring options and satisfying their needs. Strong visionary, ethical and purposeful leadership was continually highlighted as the reason why some organizations, especially those mentioned here, have a reputation for service excellence. The remarkable success of companies such as Starbucks, IKEA, Infosys, Virgin, Officeworks (Perth) and Carrefour was seen to be very much the result of leadership, which not only identified, learned from and leveraged trends in consumer preferences and behaviour, but also invented business models for delivering unprecedented and often previously unimagined benefits to customers.

The most frequently cited large organizations by questionnaire respondents and focus group participants in Singapore were Singapore Airlines, The Ritz Carlton Hotel, Federal Express, Robinson's Department Store and DBS Bank. It is significant, however, that, according to a few Singaporean respondents, some local business class travelers on Singapore Airlines feel that ground staff and cabin attendants discriminate against Asian passengers and give preferential treatment to Westerners. In Perth the clear winners were Skippers (a local new and used car dealership specializing in Mitsubishi, Hyundai and Volkswagen) and Singapore Airlines, followed by IKEA, the Hyatt Hotel and the RAC, a road service club. Banks featured prominently in the Hong Kong survey with Hang Seng Bank and HSBC receiving the most mentions followed by IKEA. The two most popular large service providers nominated in the French survey were Carrefour and IKEA. In the case of Shanghai the leaders were China Telecommunications, Haier (white goods) and Volkswagen. The focus groups in India offered very high praise for Infosys, a software outsourcing consultancy that most participants had never dealt with. The other companies mentioned in very positive terms were India's largest home-grown businesses, the Reliance Group (a diversified manufacturing business specializing in electronic security and facilities management) and the Tata Group (a diversified giant with 96 companies operating in seven different business sectors). Respondents in Ho Chi Minh City cited a number of mobile phone companies of which VNPT seems to be the most popular.

A prominent theme in most of the focus groups was that, just as service providers often fail to deliver the service their customers expect, just as often they attempt to provide service they don't want. For example, a number of Perth participants commented critically about restaurants where the waiters hover around the table and are excessively solicitous. "Why is it that, when you're in the middle of your first mouthful, a waiter will suddenly pounce and ask if everything is okay?", complained one regular restaurant patron. It is possible that this sort of irritation is related to the more casual lifestyle and social habits which are characteristic of Western Australia. In more traditional and hierarchical societies, it is likely that a more attentive style of service would not only be expected but demanded. Cultural sensitivity and knowledge are essential elements in rolling out and implementing an international business strategy.

One of the most striking themes to emerge from the focus groups is the blurring of any distinction between products and service. The emphasis on customer experience was consistent. As one participant put it:

I think customers to-day judge service on the whole package. It doesn't matter whether you're talking about mobile phones, restaurants or budget airlines. Look at the Hyundai Getz. Why is it such an incredible success story? It's not just about persuasive salesmen and discounts. It's much more than that. The car offers amazing style, great design, trendy colours, fantastic fuel economy and road handling – an unbelievable warranty – all at a very low price. How do they do it?



In contrast, some of the groups were extremely vocal about their problems with digital cameras. The main source of the complaint related to warranties and the quality of service. Sony was a particular target of criticism and participants echoed many of the negative comments which have been appearing recently on web blogs. In comparison upstart challengers such as LG and Samsung received considerable praise for their warranties and follow-up service and these results would appear to mirror shifts in the relative international rankings of the respective brands.

It is now sufficiently clear from the survey that managers take an excessively narrow view of service. The very concept of 'customer service' suggests that service is a specialized point-of-sale activity – the final element in the value chain. Indeed, 'customer service' and 'customer relationship marketing/management' are generally based on the company's assumptions about what constitutes a positive service experience as opposed to what the customer needs, values or prefers.

### **Knowledge Management (KM), Learning Culture and the Link with Strategic Leadership**

Perhaps the most striking insight from the survey is the fact that even the world's most successful companies and valued brands have not even scratched the surface in building a reputation for providing a memorable service experience. Accordingly, there is a massive, untapped opportunity to enhance customer value and boost brand equity by looking beyond simplistic, narrow, marketing-driven notions of service. In order to put the survey results in context, it is important to give prior consideration to the processes and mechanisms used by organizations to shape their assumptions and strategies in connecting with customers. In particular, it is important to draw a distinction between KM and organizational learning and to explore the role of leaders in managing the strategy-making process. In this paper it is argued that the extraordinary spate of corporate crises and failures since the 1980s, despite massive investment in information and KM systems, suggests a serious shortage of corporate leaders with high-level strategic thinking skills and the ability to connect with the values and aspirations of their communities. Thus, while acknowledging the importance and widespread adoption of various forms of KM, it is also important to place it in a proper perspective (9). The problem with new management fads and systems is that they can quickly become ends in themselves. It is therefore important to remember that the purpose of KM is to create and apply knowledge as a strategic resource for defining future direction, building competencies and shaping culture. For example, a well-developed KM process is an essential pre-condition for constructing competitive advantage around a strategy of innovation. It provides the organizational resource which informs and drives the critical dimensions of innovation: that is, pro-activity by individuals and groups throughout the organization; the autonomy needed to experiment and collaborate across boundaries; the continuous flow of information and ideas which are indispensable to the process of creativity; and the necessary foundation for taking measured risks with confidence, trust and enthusiasm.

However, it is one thing to put in place the functions, structures and policies that encourage and support innovation. It is quite a different thing to create a learning culture. Managers need to make a clear distinction between the 'enablers' of KM, such as technology and systems, which have tended to become ends in themselves, and the 'drivers', such as leadership and strategy, which are much more important. KM does not automatically produce a learning culture. A learning culture is the product of inspiring, ambitious leadership, as opposed to operational management, which:

- Emphasizes resourceful, relentless environmental scanning;
- Connects continuous learning with strategy-making processes
- Aims to satisfy the needs and potential needs of both present and future customers
- Creates mechanisms and rewards for teamwork, knowledge-sharing and innovation
- Insists that a primary responsibility of managers is mentoring future leaders;
- Invests in the building of unique competencies in an unswerving quest for excellence and;
- Above all, regards constant adaptation and change as an opportunity to be leveraged rather than a threat to be resisted.

Unless leaders ensure that these values, attitudes and priorities are in place, KM will have limited strategic impact and innovation will not flourish. One positive sign that a learning culture exists is the general attitude of

employees towards inter-departmental cooperation and committee meetings. Employees in traditional organizations often engage in segmented thinking and give low priority to assisting colleagues in other areas to achieve their targets. In a learning organization, by contrast, people feel connected to broader strategic outcomes. Through their work on multi-discipline project teams, they feel empowered and supported. They enjoy coming together with their colleagues for the purpose of pooling, planning and proposing innovative initiatives, because there is a real sense of trust, sharing and mutual enlightenment, and, even more important, moving the organization forward to achieve its strategic goals.

To be a true learning organization, an organization must first be strategy-driven and customer-committed. It must have a powerful sense of mission and driving purpose. Furthermore, it must have the focus, energy and commitment that only an ambitious, widely-shared strategic goal can generate. From the time it begins to glimpse and define the future it aims to invent, the learning organization becomes aware of the integral relationship between its core competencies and the goal it seeks to achieve. In a world of turbulence, uncertainty and intense competition, strategy embraces the dynamic, constantly evolving relationship between means and ends. The textbook notion of strategy as the game plan, developed only after the goal has been firmly set in place, is the product of academic logic rather than a realistic understanding of how the business environment actually works. Given the contingencies of the contemporary operating environment, the only feasible competitive strategy is a strategy in organizational learning and partnership (10).

The learning organization imagines and then invents its own future. It does this by gaining an intimate knowledge of the context in which it operates, by identifying the critical forces shaping the emerging context, by learning from these insights and experience, and by developing, and then leveraging the unique competencies needed to create new sources of value that neither customers nor competitors could even visualize in advance. Such foresight, creativity and performance in serving customers can only be attained if the organization puts in place the people, processes and programs necessary for selecting, sharing and exploiting the tacit and explicit knowledge which underpins world-class service competencies.

## **Learning Organizations in Action: Two Case Studies**

IKEA and Infosys Technologies have been selected for further consideration because, in both cases, the leadership of founders played a decisive and instructive part in leveraging deep industry and market knowledge to create innovative new business models and value propositions for their customers based upon superior service. Both organizations began as entrepreneurial SMEs, adapted to changing competitive environments, and grew to become global giants within a generation. Both companies provide valuable insights into the relationships between KM, organizational learning and strategic leadership.

### **IKEA**

IKEA is one of the most revolutionary examples of a new business model based upon value-adding relationships and processes, is the Swedish home furnishing company IKEA. IKEA has created and maintained unique market space in a traditional industry by successfully leveraging global forces and creating a completely new set of core competencies unmatched by any of its competitors. IKEA's central 'business idea' derives from its founder's philosophy of 'democratic design'. It is elaborated in the company's vision statement as follows:

The IKEA business idea is to offer a wide range of home furnishings with good design and function at prices so low that as many people as possible will be able to afford them. And still have money left! (11)

Today IKEA's 'business idea' is reflected in its network of over 150 stores, 1800 suppliers, 42 trading service offices and 25 regional distribution centers world-wide. It offers over 10,000 different products universally, which is clear evidence that it has a value proposition which crosses international boundaries, cultures and demography and that it is a company driven by will and vision. (12)

The effective implementation of the IKEA business model relies more upon integrated service management than upon traditional marketing techniques. The IKEA business model not only provides well-designed, cost-effective home furnishings by leveraging principles of global sourcing, self-service and do-it-yourself assembly but

it also aims to make shopping an intimate and enjoyable experience by offering comprehensive product catalogues mailed directly to customers, modular in-store merchandising, customization of options and a range of family-oriented facilities. IKEA is a classic example of a company where service strategy is shaped by a deeply-internalized service culture that stems from the vision which its founder, Ingvar Kamprad, described as “the IKEA way” (13).

In every sense IKEA is a learning organization. It learns from its customers whom it describes as partners; it works with and benefits from world-class collaborators such as Fujitsu and Microsoft; it uses its trading service centers in 33 different countries as vital sources of local market intelligence; but, most of all, it draws on the ideas and input of its global workforce, described as ‘co-workers’, each of whom contributes to the ‘collective effort’, through their involvement in the ‘entire process’ – from market research, product development and production, right through to customer service and sales.

The key descriptors for the IKEA system are world-class design, global production and logistics, value-adding processes, total flexibility, employee empowerment and knowledge of the customer. It is the total customer value package – a fully integrated business model – which is the real innovation, rather than any particular aspect of strategy, product design or service delivery. It has been pointed out that to focus on IKEA’s low costs and low prices are to miss the true significance of the company’s business innovation.

Nevertheless, despite the universality of its basic value proposition, IKEA learned only gradually – and from bitter experience – the importance of adapting to local market preferences and conditions. Thus, for example, its parochial assumption that American consumers would not require home deliveries proved false. Similarly, failure to research the space limitations of a typical Japanese house or apartment, meant that most standard IKEA furniture items were far too large and were therefore reluctantly rejected by many shoppers in Japan. (14)

IKEA demonstrates the importance and power of designing the organization around the customer. Instead of the traditional introverted hierarchy of management functions and reporting relationships, it concentrates on the management of knowledge, relationships, processes and competencies in order to keep inventing new and better sources of value to its customers. This case highlights the critical inter-play between the management and creation of knowledge, on the one hand, and a corporate culture which encourages and supports learning on the other. (15)

#### **Infosys Technologies**

Infosys Technologies is another strongly customer-centric company. In a well-developed learning organization, leaders see themselves primarily as mentors - developing, empowering and supporting talented people. At Infosys technologies, for example, the CEO, Narayana Murthy, describes himself as ‘Chief Mentor’. Over the past twenty-five years Infosys has become a world leader in providing consulting and IT services by pursuing a strategy of ‘innovation with speed and imagination’. It has been successful largely because of its recognition that excellence in innovation goes far beyond the possession of IT capability. Core competence in innovation requires very special management and leadership processes. Within a generation, Infosys has become India’s best-known and most-trusted brand in the global market. Its world-wide reputation for serving its software outsourcing clients with exceptional expertise, responsiveness and integrity is unmatched. According to Murthy, his company’s growth has been largely due to management’s ability to learn how ‘to manage rapid growth’ and, at the same time ‘to keep the soul of a small organization in the body of a large one’.

According to Dr. V.P. Kochikar, the Principal Knowledge Management Officer at Infosys, effective KM cannot be achieved apart from ‘significant process, mindset and culture change’. In the case of Infosys, this has been achieved by putting in place an integrated strategic management model emphasizing management and leadership excellence relating to critical corporate capabilities, cross-functional processes and quality standards. With over 10,000 employees world-wide, alliances with companies such as Microsoft, Oracle and Intel, and many clients among the ‘Fortune 500’, Infosys has appointed dedicated ‘thought leadership groups’. They provide the impetus for innovation in designing solutions and delivering service to clients. It is these mentoring groups that shape the knowledge-seeking agenda and, having done so, provide the conceptual frameworks upon which the core competencies of Infosys are built. Kochikar has proposed a five-level staged framework for KM. At Infosys it is known as ‘The Knowledge Management Maturity Model’. (16) It is clear that Infosys has already realized many of the characteristics of levels four and five which include:

- ❑ Enterprise-wide knowledge sharing systems
- ❑ Lowering of organizational boundaries

- ❑ Quantification of the benefits of knowledge sharing
- ❑ Effective feedback loops
- ❑ A culture of institutionalized knowledge sharing
- ❑ The organization successfully shapes environmental change by using empowered project teams.

Wide multi-disciplinary involvement in the Infosys ‘thought leadership groups’ ensures that there is a strong and pervasive culture of scanning, reflecting, learning and teaching throughout the organization. Managers, consultants and specialist staff are simultaneously both teachers and learners, especially in their on-going interactions with alliance partners, customers and supplier networks. The relentless search for knowledge, which can create new competencies as well as strengthen existing ones, is driven at every level by ambitious stretch goals and performance accountabilities. Which encourage both individuals and groups to seek resources and solutions from outside their current comfort zones and capabilities.

### **INOVACC: A Model of a Learning Organization**

A number of common themes can be identified from this analysis of corporate success and failure. In order to develop the necessary capabilities of constant renewal and continuous innovation, organizations must first have the capacity to learn from their own experience as well as from the environment around them. What does this imply for organizational design and management?

Just as the environment has changed the strategic imperatives confronting organizations, it has also forced organizations to review their structural architecture in order to place much greater emphasis upon obtaining information creating knowledge and learning new competencies. Drawing on insights from the case studies previously discussed. INOVACC (See Figure1) portrays the organization as a learning and innovation engine rather than as a conventional pyramid of functional, geographic and product units. It is a prototype for a mindset and certainly not a prescription for an organizational structure. As an acronym for an ‘Interactive Network of Value-Adding Core Competencies’, INOVACC represents a dynamic amoeba, constantly transforming itself, open to the world, going out to the world, more resembling a series of integrated concentric circles than any other shape. Designed to optimize its relationship with the environment and connect with all its stakeholders, this new model is a value-adding machine in perpetual motion. Driven by an intelligent business brain (a kind of strategic ‘black-box’), INOVACC operates as an original business concept based upon unique core competencies, which are leveraged by business processes involving project/product teams. The project/product teams are multi-disciplinary, totally customer-focused and constantly drawing on diverse sources of potential knowledge and organizational learning. They are motivated to strive for excellence, share knowledge and collaborate effectively by a reward system designed to recognize both individual and group performance.

INOVACC is not intended to dispense with formal structure or hierarchy but it does clearly subordinate them to the primacy of strategic intent and organizational learning. It expands and strengthens individual and group motivation and accountability for customer-centered, value-adding innovation and reflects the need for an integrated approach to environmental scanning, continuous experimentation and learning from experience. The search for new ways to add value to the customer’s, and the potential customer’s experience is a paramount design principle.

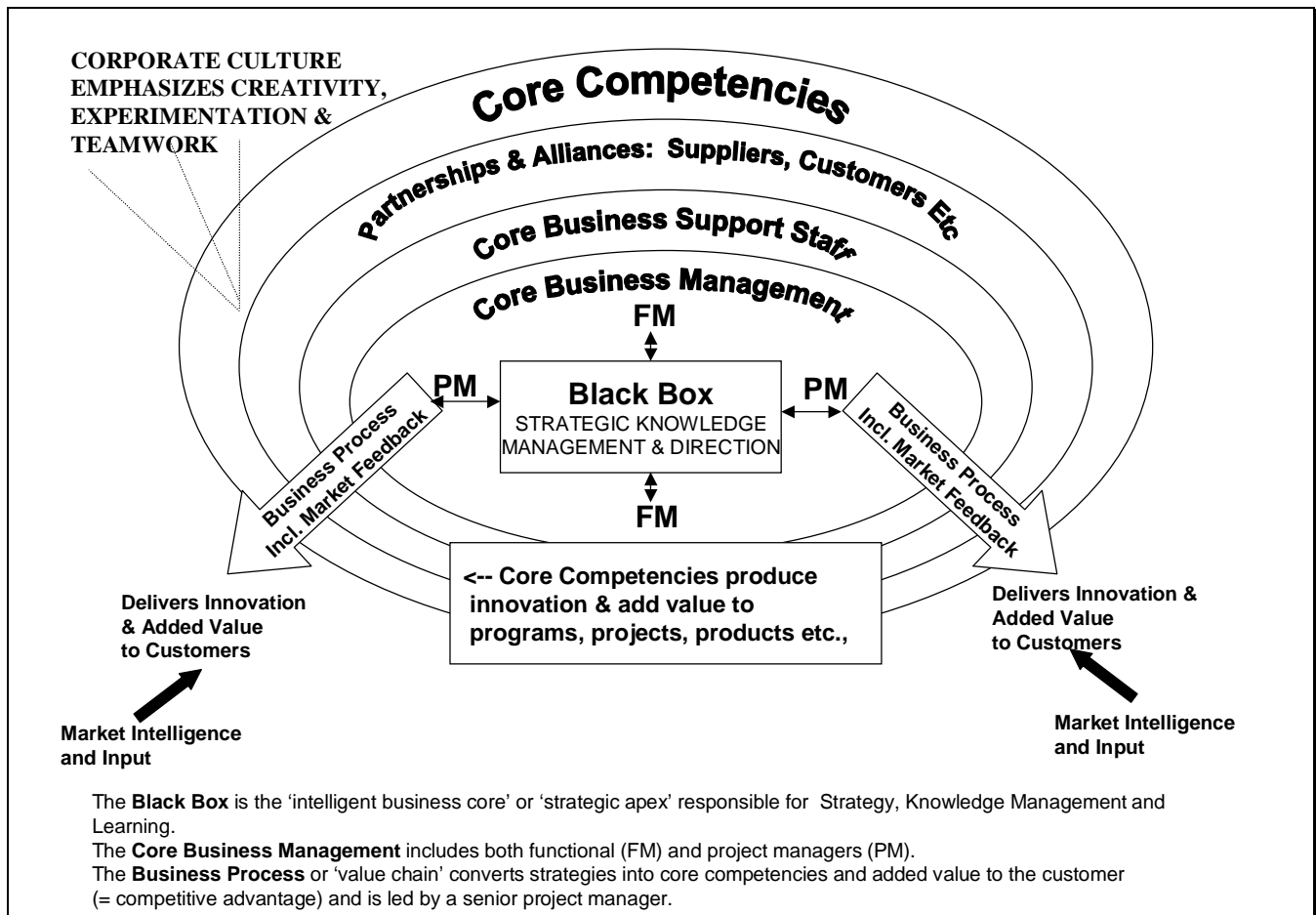


FIGURE 1: THE NEW MODEL - INTERACTIVE NETWORK OF VALUE ADDING CORE COMPETENCIES (INOVACC)

The purpose of the Black-Box is to provide strategic leadership: conceptualizing, communicating, coordinating and developing. The most important roles of top management are to define the customer-centered values, stretch goal and strategy, align people to them and inspire and empower them to make it all happen. In its essence it is an integrated process of teaching, learning and creating, which eventually becomes a pervasive culture, shared and practiced by all of the organization's stakeholders. Flexibility and adaptability are obvious distinguishing features of INOVACC. The project/product teams are constantly seeking to better align themselves with existing and potential customer bases. As part of the same process, they are also vigorously seeking out and forming networks to increase their knowledge and ability to serve future markets better. It is a dynamic not a static exercise, action rather than academic learning. Raw data, technical information and business knowledge are quickly absorbed into the organization's individual and collective learning experiences in a culture which is led by, and characterized by, people who are committed to competency-building, experimentation and living in the future. (17) In all of this, the senior managers, in their Black Box capacity, illuminate and uncover the way forward. Although they could be described as teachers, they should not be thought of as traditional classroom teachers. Instead, their role is to stimulate, guide, mentor, influence and empower but, above all, to be tireless in their efforts to provide access to knowledge and new learning opportunities. It will not be easy to recruit managerial leaders like this from among the ranks of typical fast-track functional managers with degrees from traditional business schools. These are not jobs for people whose ambition exceeds their wisdom, whose immaturity preoccupies them with power, status and self-promotion and whose careers have been shaped by cleverly climbing the organizational hierarchy and who are primarily motivated by money. Finding the right people in the first place is the biggest challenge confronting organizations to-day; the second biggest challenge is to keep developing their leadership potential around an unswerving, customer-centered strategic focus.

## **Towards a Learning Culture**

INOVACC is designed as a mental model to address the alarming findings regarding customer experience which have emerged from the survey and, in addition, draw from the lessons of successful organizations such as IKEA and Infosys. Its practical aim is to embed a deep, strategically-directed learning culture with five equally important and inter-dependent features:

- ❑ A top management team with highly developed leadership skills
- ❑ Close alignment between customer-centered values and corporate goals, strategies and structures
- ❑ Strategic architecture in place for simultaneously thinking about the future, reflecting on the past and learning from the environment
- ❑ Continuous investment in building core competencies by leveraging the organization's knowledge and skill base.
- ❑ Uncompromising emphasis on accountability for performance outcomes

Not surprisingly, organization-wide and life-long learning is a driving philosophy in learning organizations. It applies with equal force at every level. At the corporate level there is a deep understanding of the need for constant re-invention and transformation; even Fortune 500 companies – the biggest and best in the world – only have a life expectancy of less than 40 years. At the group level there is a constant need to build and leverage organizational competencies in order to keep creating innovative new sources of value and at the individual level, personal growth and mastery are seen as 'an essential cornerstone of the learning organization'.

As Senge has pointed out (18), organizations acquire their institutional learning and core competencies through the accumulation and transfer of individual and team learning. It is therefore incumbent upon top managers in their mentoring capacity, to initiate and support developmental learning projects on a continuing basis. While it is important to provide for both individual and team-based action learning, the strategic value of group projects cannot be under-estimated. There must be a direct connection to, and accountability for corporate performance targets. Thus multi-disciplinary teams not only give individuals the opportunity to learn the disciplines of dialogue, reflection and

constructive discussion, but they also provide direct involvement in innovative strategic projects with organization-wide significance and bottom-line outcomes. (19)

Strategy-driven organizations need to monitor and project market trends very closely. They need to be designed to do this effectively. If information is to be selectively gathered, processed and acted upon, an extremely well-constructed strategy process is required, with a clear focus on the strategic goal and the core competencies related to it. At the most basic level, the organization needs a constant flow of quality information relating to customers, suppliers and competitors. From this information it should be developing insights about future industry evolution, related economic and technological trends, the capabilities of competitors and emerging new arenas of opportunity. (20)

In conclusion, the first step towards future market leadership involves a collective commitment by the top management team to a radical new management theory which involves a middle-top-bottom approach rather than top-down or bottom-up. It is important that senior managers see this step as a major shift to a new 'mental model' such as INOVACC and ensure that it is presented to employees as a momentous opportunity and a watershed in the history of the organization

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Special Note: This research builds upon and extends a study published in Nankervis, Alan, Yuki Miyamoto, Ruth Taylor and John Milton-Smith (2006). *Managing Services*, Cambridge University Press, New York.



# Managing Marketing Spirit with Organizational Symbolism

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## Abstract

The purpose of this preliminary study is to begin the conceptualization and research of Marketing Spirit. It is our goal to introduce the concept and justify the need for it regarding contemporary research in organizational culture and the market orientation. Hitherto, the diversity of the field of market orientation has failed to establish any conclusive link between the market orientation of an organization and its performance in the marketplace. We adopt the “organizational symbolism” perspective of organizational culture regarding market orientation as first categorized by Smircich (1983) and later developed further by Deshpande & Webster (1989) and explore the need for a new component such as marketing spirit that could further explain the relationship of success in implementing a selected business strategy, market orientation, and business performance. The conceptualization of marketing spirit is carried out with an iterative process of literary review and fieldwork with companies.

## Research Setting, Goals and Methodology

The theoretical foundation of this conference paper lies in the active discussion around the market orientation of organizations (Kohli & Jaworski, 1990; Narver & Slater, 1990; Day, 1994; Deshpande & Webster, 1989; Tuominen, Rajala and Möller, 2000). It is our goal to contribute to this discussion and further develop the concept by researching the issue of sustaining and developing a marketing oriented organizational culture in firms. The literary review was formed around the original mapping of research in market orientation and organizational cultures by Deshpande and Webster (1989). We selected some 30 articles quoting them as a reference and naturally added articles and books from other research streams as our knowledge and understanding of the problem grew.

The theory development in this paper is based on an abductive research approach, which is a combination of deductive and inductive research, to which a sequence of qualitative case studies is linked. The aim is to systematically intermix literary reviews for the development of a theoretical framework with empirical fieldwork consisting of case analysis in order to advance the research. The exploratory nature of this study supports our choice of a qualitative research approach. Within qualitative research we use a cultural approach (Moisander & Valtonen, 2006) as a means of understanding and investigating the dynamics between institutions and (organizational) social action. This combines interviews, reading various business texts and observation. The aim is to understand the mechanism behind how companies adopt a selected business strategy. On an individual level, the aim is understand how people make sense of their work life and act in a certain, hopefully desirable, way.

A first round of in-depth interviews was conducted in Australia and Japan in December 2006. These semi-structured interviews focused on what managers felt to be the driver of their business success and how they attempted to create an organizational culture that would support their business philosophy. The selected four firms had outperformed their competition in their respective markets in terms of growth, profitability, or market share. As they were all in the high-tech industry, we felt safe to assume to that in addition to their high-class technology, they were also examples of successful commercialization and marketing skills in general.

## Market Orientation

Market orientation refers to the business philosophy where companies strive to understand the markets, both from a customer and competitor perspective, and align their operations in order to serve their customers. (Tuominen, Rajala and Möller, 2004) A market-oriented organization is one where the marketing concept is adopted in all actions (Kohli & Jaworski, 1990). The main argument of market orientation is that companies with higher levels of market orientation should reach better business performance.

The theoretical background of market orientation derives from the marketing concept (Drucker, 1954; McKittrick, 1958). Its main elements are customer orientation, interfunctional coordination, and profitability as seen in the following figure.

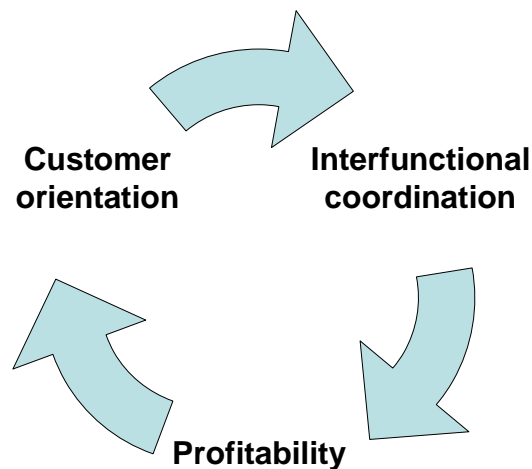


FIG.1: THE MARKETING CONCEPT

Customer orientation requires knowledge of customers. This knowledge or market intelligence acts as the basis for creating value for customers (Narver & Slater, 1990). Organizational decision making is based on market intelligence, which also takes into consideration other exogenous factors, such as competition and regulation, in addition to customer information. These issues cannot be examined only as they are today, but possible future changes must be anticipated (Day & Wensley, 1988; Narver & Slater, 1990).

Customer orientation consists of (a) understanding internal customers' requirements that affect external customer needs and preferences, (b) obtaining information about external customers' needs and preferences through internal customers, and (c) creating additional buyer value by increasing internal customer benefits (Mohr-Jackson, 1991). Internal customers refer to the company's own employees. They are the actual creators of a firm's offering and thus the producers of customer satisfaction. Better customer service can be reached through clear and open communication of corporate values, norms and expected behaviors. This includes guidelines, process descriptions, and measurement of performance. The satisfaction that internal customers get from their work transfers through the organization finally producing better satisfaction among external customers. In market orientation employees are empowered to take any actions that may benefit the customer and improve the relationship. Profitability must also be maintained, at least in the long run. Companies value the work and input of personnel involved with serving customers. They can bring valuable information from the frontline of business. (Mohr-Jackson, 1991)

Interfunctional coordination is of great importance, since developing a market orientation requires the efforts of everyone in the organization from top management to employees in all departments and functions – not just marketing. Firstly, different marketing processes must be coordinated. This involves the work of the sales force,

advertising, product management, marketing research, etc people. (Mohr-Jackson, 1991) Secondly, marketing must be coordinated with other organizational functions (Kotler, 1991). Creating superior value for customers requires the efforts of full-time and part-time marketers. It can be achieved when each employee on all organizational levels ask themselves, how do I contribute to excellence in customer relations and to revenue? (Gummesson, 1991) In order for all operations and activities to have synergy, employees must be entirely committed, well-trained, involved and motivated to create value for customers (Mohr-Jackson, 1991).

Naturally, profitability is the goal of any business. It can be seen as the result of market orientation (Kohli & Jaworski, 1990). This is the result of having a business that is customer oriented in the first place. Also, all operations are aligned to serving the customer and creating superior customer value. This is a shared, common goal, of both employees and management.

#### **Market Orientation in Organizations**

By definition, market orientation is “the organization-wide generation of market intelligence pertaining both to current and future customer needs, dissemination of the intelligence across departments, and organization-wide responsiveness to it” (Kohli & Jaworski, 1990). Mohr-Jackson (1991) found that market orientation leads to an improvement in a firm’s performance as a result of improved internal customer satisfaction. This is closely related to how much meaning people find in their work. This finding supports the discoveries of Kohli and Jaworski (1990), where market orientation was found to bring various psychological and social benefits to employees. In practice it can be found in increased employee morale, job satisfaction, organizational commitment, and a sense of pride in being a part of a firm where each individual, team and department are working towards the same goal – superior customer value. (Mohr-Jackson, 1991)

Furthermore, Mohr-Jackson’s interviews provided detailed evidence on positive results from market orientation. It effects several business performance indicators, such as ROI, ROE, productivity, costs, sales, volume, market share, sales growth, profits, and customer satisfaction. From the employee perspective, the research found positive effects on ownership, security, job satisfaction, full participation, involvement, motivation, enthusiasm, empowerment, absenteeism, accidents rate, productivity, and effectiveness. These all have an impact on the bottom line.

Market orientation has two primary schools - the functional and cultural view (Deshpande & Webster, 1989). These two approaches are described in more detail in the following sections.

#### **The Functional View on Market Orientation**

The traditional school of market orientation views business from a functional or structural stance. The focus is on performance and management structures aiming at monitoring and controlling behaviors of employees and business performance. (Deshpande & Webster, 1989). Market orientation comprises of three components: customer orientation, competitor orientation, and interfunctional coordination (Narver & Slater, 1990). Customer orientation is a constant process, where the firm makes every effort to understand both overt and latent customer needs, and aims at creating superior customer value by providing an offering that satisfies these needs. Similarly, the company must put an equal effort in to knowing both current and potential competitors, and spreading this information across the organization. Interfunctional coordination refers to the planned alignment of all organizational resources into working towards the common goal of creating superior value for the customer. It has proven perhaps easier to establish a link between the functional view and business performance, and this topic has been widely researched. The common consensus is that a strong market orientation leads to a better financial result.

#### **The Rise of the Cultural View in Market Orientation**

Deshpande and Webster (1989) defined market orientation as a cultural phenomenon. This cultural perspective refers to more fundamental characteristics of organizations (Kohli & Jaworski, 1990). Corporate culture has been defined as the pattern of shared values and beliefs that help individuals understand organizational functioning and thus provide them norms for behavior in the organization (Deshpande & Webster, 1989) Pettigrew (1979 as cited in Alvesson & Berg, 1992) defined corporate culture as an entity as follows

TABLE 1: THE KEY ELEMENTS OF CULTURAL PHENOMENON

Corporate Culture as an entity: Collective, Clan, Tribe	Artifacts:	Physical and Visual
	Collective Mental Frameworks and Manifestations:	Sagas& epochs forming Legends Myths forming Stories
	Collective Action Patterns:	Rites, Rituals, Ceremonies, Celebrations

The collective, clan and tribe act as metaphors trying to capture the essence of corporate culture. Artifacts can be found physically in architecture and design, or more visually in graphical design such as logos. Furthermore, myths and stories strengthen the collective mental framework of an organization. Legends act as the living history of the firm. Both current and new employees are integrated and more deeply committed to the firm through collective action patters. For example, rites and celebration strengthen these feelings.

In the modern workplace employees are seeking a feeling of meaning and being a part of something larger and important. Naturally, if there is conflict between organizational and individual values, people perform poorly or leave the firm. A strong and shared corporate culture has a proven causal relationship to productivity and profitability. (Jurkiewicz & Giacalone 2004).

A market oriented culture is realized as a mentality or business philosophy that puts the customers' interests first in everything that a firm does (Deshpande et al. 1993). All organizations are market oriented to some extent and market orientation can be seen as a continuum. In order to be successful and profitable, companies need to serve customers. The level of market orientation in a firm depends on how central clients and their needs are in the formulation of the company's strategy and the running of its daily operations. (Harris, 1999) Therefore market orientation or culture is not created – it is not something that a firm has, but rather what it *is*. It can be managed, guided, steered, or manipulated. Nevertheless, culture is the result of a continuous negotiation between all members of an organization. Its members alter it in an evolutionary way. (Kohli & Jaworski, 1990; Narver & Slater, 1990; Harris & Ogbonna, 1999). As we see it, managers can encourage certain kind of behavior.

Developing market orientation centers on the management's ability to steer the culture and work climate into a certain direction. Research has shown that it is a rather cumbersome task and market orientation cannot be easily implemented in any time and place. (Narver & Slater, 1998) It can be argued, that the failure or success of business is defined by the implementation of selected strategy, not in its selection. So it is all about people and what they do. (Mohr-Jackson, 1991) A research gap lies in the implementation of customer orientation in firms. (Kennedy et al., 2003)

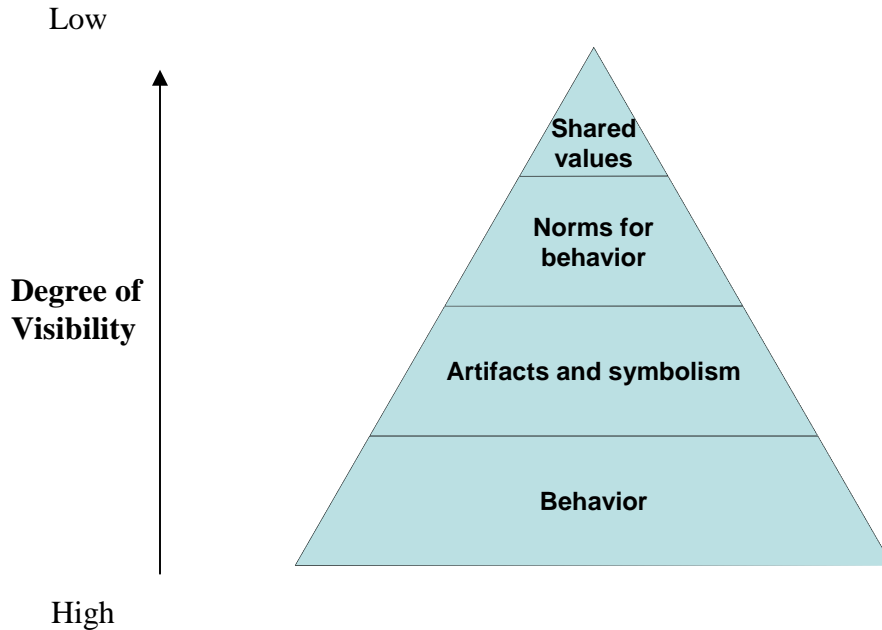


FIG. 2: A FRAMEWORK FOR MARKET ORIENTED ORGANIZATIONAL CULTURE

The figure above presents a conceptualization of a market oriented organizational culture by Homburg & Pflesser (2000). This framework is based on the work by Schein (1992) in the field of organizational culture. The four separate, but interrelated elements are shared basic values, behavioral norms, artifacts (and symbolism), and behaviors.

Values can be further described as “a conception, explicit or implicit, distinctive of an individual or characteristic of a group, of the desirable which influences the selection from available modes, means and ends of an action” (Kluckhohn, 1951; cf. Homburg & Pflesser, 2000). Norms are more specific and have more relevance for the members of the organization in guiding their behavior. Values act as the basis of the development of these norms that legitimize behavior in the organization defining expectations about behavior and its results. Artifacts include stories, arrangements, rituals and language that are created by an organization. They have strong symbolic meaning. Behaviors refer to organizational behavior patterns with an instrumental function. (Homburg & Pflesser, 2000). In that sense they relate to daily work routines and processes that manifest the values and norms of a firm.

The three levels differ by the degree of visibility, which high in the case of market-oriented behaviors and artifacts. In the case of norms visibility is medium, and low in the case of shared basic values (Schein, 1992).

#### **Deshpande’s 5 Types of Market Orientation**

To further elaborate on the categorizations of organizational culture first introduced by Smircich (1983) and later developed and utilized for the furthering of research in the field of organizational market orientation, explanations of the various perspectives are in order. Chronologically the locus of culture in an organization has migrated from being seen as an independent variable which could therefore be independently and directly affected by management intervention to being seen as a metaphor of the organization itself therefore assuming a more embedded and foundational organizational phenomenon which changes in an evolutionary sense as members of the organization gradually alter their behavior.

The dichotomy of organizational culture paradigms as adopted from Deshpande & Webster (1989) is as follows. The “functionalist view” encompasses the first two perspectives of organizational culture: the comparative management and contingency management paradigms. The perspectives are “functionalist” because they view the culture as an independent variable, the former as exogenous and the latter as endogenous to the organization. Even as the locus of the culture varies from external to internal, both perspectives hold that culture can be observed and modified as a singular entity extractable from the whole of the organization.

The “cultural view” encompasses the three perspectives which treat the culture of the organization as a metaphor of the organization itself. These perspectives are organizational cognition, organizational symbolism, and structural/psychodynamic perspective. The first views the culture of the organization as a metaphor for organizational knowledge systems. The behavior of these systems is guided by shared “rules” that the members adopt. In other words the organization (now analogous to culture) can be guided by affecting how the members perceive the rules. The second perspective, organizational symbolism, adds a layer of complexity to how culture manifests. According to it, culture is seen as a metaphor for shared symbols and meanings. Therefore, the culture manifests in artifacts of the organization. These include such phenomena as stories, rituals, legends, ceremonies, and celebrations occurring in the organizational context. The way these artifacts manifest guide the values, norms and behavior of the members of the organization. The last perspective, the structural/psychodynamic perspective views the culture as the structural patterns that link the unconscious human mind with behavioral manifestations in social arrangements. This elevates the idea of the organization into a form of human expression rather than purposeful instruments. (Deshpande & Webster, 1989)

In this study we adopt the organizational symbolism perspective of the “cultural view”. In their study, Homburg & Pflesser (2000) concluded that artifacts were the sole direct drivers of the behavior of the members of an organization. If these artifacts contained market oriented content they would drive market oriented behavior. It was unclear however, would this behavior contribute to actual business performance. We wish to introduce the concept of MS that could develop to become a component of the organizational culture. It could be conveyed to the members of the organization through appropriate artifacts to aid in the transformation of market oriented behavior to business performance.

#### **Issues not Explained by Market Orientation**

Research regarding the manifestation and the outcomes of market orientation has constituted its own branch for close to 20 years. However, fundamental challenges persist to remain throughout the studies. This seems to be true due to the great degree of fragmentation in research methods, metrics, and even the fundamentals regarding the conceptualization of what market orientation is and how it manifests within an organization. For us, the most relevant issue is the inconclusiveness of results of studies attempting to establish a connection between an organization’s market orientation and its effects on business performance. Depending on the measures and determinations of the perspective of market orientation has been shown to be an inconclusive, scrappy, unconditioned field, riddled with “measurement issues” (Deshpandé & Farley, 1998; Kohli, Jaworski & Kumar, 1993; Narver & Slater, 1990). The assumption that greater market orientation will lead to better financial and market performance has had mixed support, and that the fundamental link between market orientation and performance has yet to be fully explored and supported (Noble, Sinha & Kumar, 2002; Jaworski & Kohli, 1993; Pelham & Wilson, 1995; Han, Kim, Srivastava 1998; Narver & Slater, 1990).

Even as this study must assume a very preliminary form, it is our goal to embark into research to find evidence that the component of marketing spirit exists and could through later studies emerge as what could explain the link of market orientation behavior and the business performance of the organization. Firms with high market orientation can be a financial hit or fiasco, and vice versa.

## Marketing Spirit

The term has been generated as a response to clear lack of consensus within the research of market orientation regarding what market orientation constitutes and what its link with business performance is. Furthermore, the focus of research should be in the implementation of market orientation, which is crucial for business success (Kennedy, Goolsby & Arnould, 2003). It is our view that the corporate culture and way of working in a firm should represent the management's business philosophy. They are a manifestation of what the management sees as crucial for their business success. This business philosophy is presented as the first part of marketing spirit in the following figure. The roots of this business philosophy may lie in market orientation.

Secondly marketing spirit refers to the spirit management of the firm. Business success or failure is dependent on people – how is the selected strategy understood and adopted in the organization, thus becoming a joint way of working and culture. The management tries to actively create an environment that guides the organizational culture towards a certain state. This ideal state should support business philosophy of the firm and thus steer the behavior of individuals towards this desired direction.

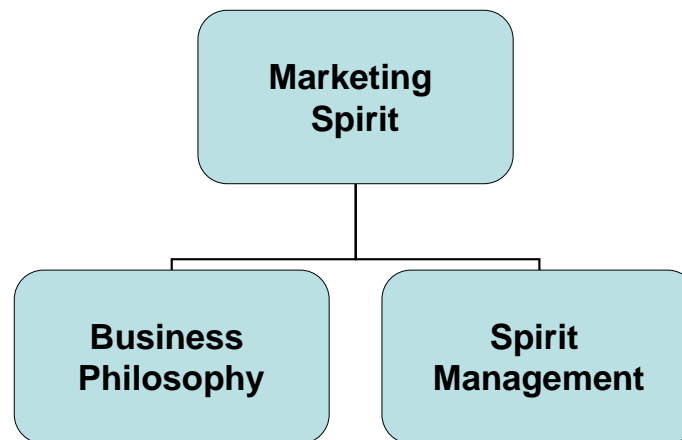


FIG.3: THE ELEMENTS OF MARKETING SPIRIT

The theoretical foundations for our research into business philosophies derive from the marketing concept (Drucker, 1954), which still today clearly defines the three main pillars of business success: customer orientation, interfunctional coordination, and profitability. Companies exist to serve customers. The most successful firms can even anticipate changes in the market – needs of customers, actions by competitors, and regulators – and create an offering, which provides superior customer value. In order to successfully provide superior customer value, each and every individual, team, department, and function within the firms must be committed to this task. This is achieved through interfunctional coordination. Profitability is a necessity for the continuation of a business. The marketing concept emphasizes profitability through customer relationships in the long run.

The business philosophy of a firm, or rather its management, can be based on the marketing concept and market orientation. Further development of this concept has been done by Aspara, Pöntiskoski and Tikkanen (2007) through the notion of exploration and exploitation on product/technology and market/customer dimensions. The authors argue that it is marketing spirit - a refined market oriented philosophy. Finding the correct balance between dimensions can be the basis of sustained performance as companies are either market-driven or market-driving organizations – or combine elements from both strategies in different dimensions (product/technology and market/customer). Spirit management takes place through values, norms, and organizational symbolism. They

provide the basis for a common understanding of how business should be done. How employees think about customers, each other, and their work.

The outcomes of marketing spirit in a firm can be found in the innovativeness it shows in serving customers. This can be achieved in a caring work environment, which allows employees to flourish. People can find meaning and the feeling of connectedness, being a part of some greater entity, in their work (Jurkiewicz & Giacalone, 2004). Most importantly, employees can and should demand results from their employees. Efficiency together with innovativeness and a caring work environment lead to profitability. This increases the wealth of all members and stakeholders of an organization.

TABLE 2: HOW MARKETING SPIRIT WORKS

MARKETING SPIRIT		
THE MARKETING CONCEPT	TRANSLATED INTO A COMMON WAY OF WORKING WITH	DESIRED OUTCOME
Customer Orientation	Selected <b>business philosophy</b> , such as a certain school of MOR	<i>Innovativeness</i> in serving customers
Interfunctional Coordination	<b>Spirit management</b> and guiding behavior through values, norms, artifacts and symbolism	Creating a <i>caring work environment</i> where employees can flourish
Profitability	<b>Guiding behavior</b> through daily processes, measuring, monitoring, tools, rewarding schemes, etc.	Maintaining <i>efficiency</i> , which leads to growth and increased wealth for all members of the organization

Four interviews with managing directors conducted in Australia and Japan helped us understand the everyday challenges companies have in maintaining and developing certain kinds of organizational cultures supporting the vision of the managers – their business philosophy regarding how business should be done.

The managers spoke first about their business philosophy and business success. A clear link with market orientation theory and a marketing spirit mentality could be found. The basis of their success was in innovativeness in serving current and future customer needs.

*...what we have done is we have identified a niche of the market, which hasn't been serviced...[so it is] very much a blue ocean product, there was nothing there, which made it easy and difficult because it was a new concept. We had to almost create a new market.*

Respondent 2 in Australian firm

*...it is crossfire, where we discuss ideas a thousand times, some ideas are gone, some ideas remain and survive, and eventually become our new business.*

Respondent 1 in Japanese firm

The example of the top management was found to be an actively used tool to encourage certain kind of behavior. Leading with their own example, managers were involved in business development and sales. The interviewees told stories and legends of how managers gave direct sales leads to sales team members or encouraged employees to be proactive in thinking about new ways to make money. This could happen through existing contacts or coming up with new clients or services.

*...every single managing director on the board is always trying to be creative in terms of clients, business models, products, how we should carry out our business...if I can spare my time for introducing business to the sales and marketing team...to create new business beyond our existing contacts.*

Respondent 1 in Japanese firm

*They really push you...you are out there, you can get involved. The managing director [brings] a newspaper article, drops it on your desk and says "go out there and make money from it". It really encourages you to really be proactive.*

Respondent 2 in Australian firm



In Japanese firms, managers were contemplating the benefits of traditional Japanese or more international management styles and structures. A clear emphasis was on a self-confident attitude towards work, getting people out on the market place and talking to existing as well as potential customers. Regarding sales, managers wanted their employees to understand that business is not something that should be taken personally. Rejection from clients doesn't mean that you are incapable.

*Our reward structure or promotions were based on very traditional Japanese values, which means the company regarded seniority as the most important factor...now we regard the experience and quality of work, discipline and punctuality, all those things, as very important factors when evaluating an individual.*

Respondent 1 in Japanese firm

*Until now they [employees] have been more like inward type of people rather than outward types. I would like them to become more sociable, outgoing, talk to everybody, don't be shy, this is just business, [It is] strictly a professional thing not personal, just go ahead, and don't be afraid of making mistakes because people make mistakes.*

Respondent 1 in Japanese firm

In respondent firms, sustaining and developing the organizational culture was an on-going process involving both top management and employees. Managers didn't even expect their employees to remember all the core values of the firm. It was seen more as something that provided a framework for how work should be conducted. Especially in the Australian firms the empowerment of employees involved directly with clients was seen as important.

The everyday contacts – discussions & telling stories - between employees and open communication regarding business goals and expected ways of working were considered important. They provided the examples that inexperienced or new employees could follow. They were found useful also for teaching existing employees what kind of behavior managers expect from them. This was backed with actually quite simple tools, such as CRM software and process descriptions. Joining values, norms, and artifacts with everyday processes and ways of working were found to be most effective.

*...trying to produce the mission statement quite recently and a set of core values...trying to create alignment...I had a sample and put out ...but the mission statement is actually more a goal...I suppose we have core values...but some people think differently [and it is about understanding] what we should be doing with the customers. I think it is becoming more and more important as we grow to say where we are going. Then look at everyone's activities and say "Well you are not doing that. I'll tell you what to do", rather "if you want to deal with customers that way, it is your responsibility". We have our values and everyone has the frames on how we work with our customers.*

Respondent 2 in Australian firm

*...one thing we have done really well is mouth-to-mouth sharing; we are a very open firm. For example, any employee can go the files, open it up and see a customer's data. [We share] all exiting opportunities in just plain email, "Went to see this firm and they are interested in this and this". "I heard this in the market" and so on. Then we have several internal systems just to help people manage their business...basic CRM and issue tracking systems.*

Respondent 2 in Australian firm

Finally, the respondents were asked to describe what they considered marketing spirit to be. This was the first time the term was mentioned in any interview and the interviewer had not defined the term in advance. The respondents associated it with understanding customers' current and future needs – being in touch with the market. At this point, the concept of interfunctional coordination finally arose. Marketing spirit was seen as a sales orientation in a firm focusing more on the marketing and sales functions. Managers didn't consider it a top level attitude towards business and how it should be run in general.

*Marketing spirit? You can probably make things better with the customers, something that the customers are using, best solution for them and we could probably provide a better solution, better ideas from them...You get to know what people need, and if you understand that you can start expanding your mind [regarding] what sort of service we could possibly provide them to be more competitive than others or they would be willing to pay more for a service.*

Respondent 1 in Japanese firm

*...that the driver of the business would be active promotion, trusting the business world...in some cases the development people could sit in [meetings with clients], because they are actually doing the work, listening to the customers....marketing spirit would be a kind of passionate desire to spread your products or services throughout the market.*

Respondent 2 in Australian firm

### **Sustaining and Developing Marketing Spirit**

We subscribe to the view that market orientation (Harris, 1999) and similarly marketing spirit can be viewed as a continuum. Thus managers should consider how they can sustain or develop marketing spirit in their organizations. It is our view that this not differ from other kinds of organizational development projects. However, there are considerable barriers to organizational development, and it can be said that the implementation of any selected strategy is the key to business success. (Mohr-Jackson, 1991) All organizational members must understand the implications and complexities of any selected orientation in a firm. They must believe in its worth and be committed to the selected strategy as a priority for the organization. (Harris, 1999)

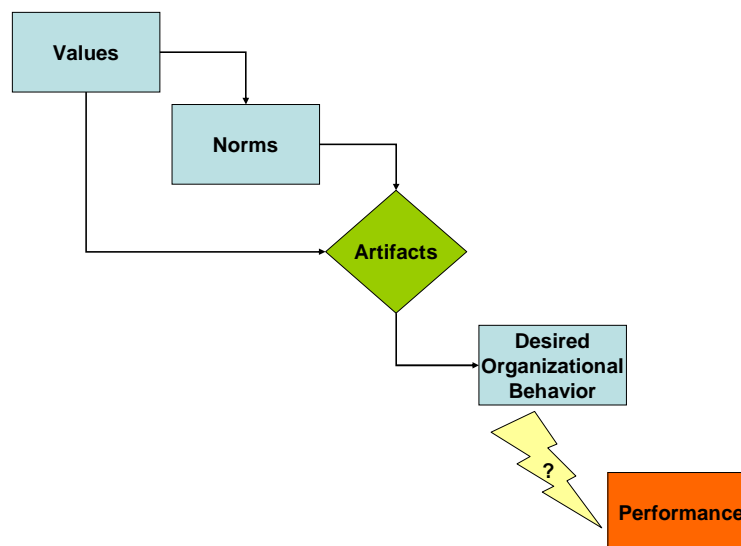


FIG 4: A SIMPLIFIED MODEL OF FINDINGS ADAPTED FROM HOMBURG & PFLESSER (2000)

Content of artifacts define what organizational behavior is. Artifacts are affected directly by values and norms. Artifacts were found to be the sole direct driver of behavior. Current research is not sufficient to justify marketing spirit and performance link.

Marketing spirit, as we define it, certainly is a component arising from the riddles of the cultural perspective of market orientation research. In this preliminary paper we link it as being the manifestation of successful symbolic management, whether incidental or purposeful. Smircich (1983) combines organizational symbolism from its underpinnings in both fields of anthropology and organization theory. The concept combines the anthropologist notion of “culture as a system of shared symbols and meanings” to “organizations are patterns of symbolic discourse. Organization is maintained through symbolic modes such as language that facilitate shared meanings and shared realities.” Furthermore, we, when defining MS, subscribe to her worldview of organizational culture as not something the organization has, but something the organization is (1983). Kohli & Jaworski have a similar outlook as their view of the cultural perspective relates to “the more fundamental characteristics of the organization” (1990). Additionally, as stated, the culture of an organization is not a fungible and cannot be readily changed, but a continuum that alters evolutionarily through the actions of its members (Kohli & Jaworski, 1990;

Narver & Slater, 1990; Harris & Ogbonna, 1999). We follow this mindset in the development of marketing spirit. It is a component of the organizational culture in an organization and its evolution is most readily affected by communicating it through the tangible manifestations of organizational symbolism.

In a way, marketing spirit is the “drive” that the individuals of an organization exhibit in their actions. The manifestations of organizational symbolism are multiform, but they all contribute as integrators of the culture. As Pfeffer puts it (1981):

*Organizations are viewed as systems of shared meanings and beliefs, in which critical administrative activity involves the construction and maintenance of belief systems which are continued compliance, commitment, and positive affect on the part of participants regardless of how they fare in the contest for resources. Language, symbolism, and ritual are important in this management activity which is effective in part because members find it difficult to precisely assess what they are obtaining from the organization.*

Other studies have also concentrated in the symbolic aspects of an organization and their relation to organizational outcomes such as turnover, absenteeism, and commitment (Meyer, 1981; Kreps, 1981; Martin & Powers, 1983). This research strand argues that cultural artifacts, including the actions of management itself are powerful means of communication through symbols. They can build organizational commitment, rationalize the members’ activity, motivate members and facilitate socialization (Smircich, 1983). When successful, culture can even facilitate the generation of commitment to something larger than the self, and it can also guide and shape behavior (Meyer, 1981; Pfeffer, 1981; Peters & Waterman, 1982). When culture manifests in the individual actions of employees that have such characteristics as the expanded meaning and shared belief for the advancement of the organizations faring they exhibit spirit, when these actions take the manifest in ways of the cultural school of market orientation, they are marketing spirit or succinctly what makes the market orientation go. The evolution of this component of the organizational culture can be (at least subtly) affected by symbolic management, or the ways how organizational artifacts are exhibited or promoted within the organization.

## **Concluding Remarks and Suggestions for Further Research**

As this study is the founding foray into what we hope to later emerge as what we call marketing spirit, it is still early to elaborate on the possible results in concrete. However, we do feel there to be a need for furthering the research in the field of market orientation, especially as the challenges in the predictive power in terms of company business performance seems compelling. We chose to adapt the organizational symbolism perspective due to its concentrating in the organizational culture as a fundamental element of the organization and because it better allows for the future testing of the implications of marketing spirit (Deshpnade & Webster, 1989). In accordance with organizational symbolism, it is our view, that meaning laden artifacts can encourage behavior in accordance with the meaning contained in the artifact (Smircich, 1983; Deshpande & Webster, 1989; Homburg & Pflesser, 2000). However, this behavior was not concluded to translate into business performance (Homburg & Pflesser, 2000). Marketing spirit, through further inquiry could emerge as the missing component not captured by the metrics of market orientation alone. It could also be fostered by appropriate artifacts to encourage marketing oriented behavior with the needed “drive” to better explain and predict business performance in the marketplace. Further research will include more work on the conceptualization of the concept and both qualitative and quantitative studies.

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## **Consumer Resistance by Ordinary People: the Experience of the Italian Gruppi di Acquisto Solidale (Solidal Buying Groups)**

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### **Abstract**

Consumer resistance is a subject which has not received a great deal of attention in the marketing literature. Various forms of consumer resistance practices are however observable in many countries. They vary in many respects, but may all be regarded as forms of behaviour that are essentially unconventional. Interestingly enough, in recent years Italy has been the cradle of a particular type of consumer resistance, in the form of the “Solidal Buying Groups” (SBG). Their main idea is to organize collective purchasing of consumer goods, based on the key principles of fairness and solidarity. This paper aims to present this experience on the basis of an empirical study carried out in 2005. The key point is that SBGs represent a unique form of consumer resistance through the behaviour of ordinary people, and a clear example of the “gift economy” in practice.

### **Introduction: Consumer Resistance**

Naturally the buying attitudes and approach of different consumers vary widely. Purchasing choices, both in quantitative and qualitative terms, are not determined by purely, so-to-speak utilitarian or objective factors, but also by the space and importance goods and services occupy in the individual’s own life. Consumer spending is thus not only a product of a rational assessment of costs and benefits. Evaluations are also made that are not always outwardly visible and might indeed not even operate at the conscious level. To categorise schematically what is in reality a *continuum*, consumption can be viewed as positive, neutral or negative activity.

There are those consumers who view the consumption of goods and services favourably and associate it with increasing prosperity, enhanced lifestyles and part of a satisfying and gratifying process. This group is probably still probably represents the majority of consumers. These have no problems, unease or hesitation of any kind in relation to consumption. Their slogan is “buying and consuming is great”. Their relationship with the goods themselves, the symbolic aspects of the brand and the practical business of shopping is positive and relaxed.

There are then those consumers for whom consumption is a means to an end, a process that aims to meet the “technical” needs of living. It does not play such an important role as it does for the previous group. Those in this group have a disenchanted view of consumption. That is not of course to see that there may not be pleasure involved in the purchase of certain objects or, quite the contrary, but there is also an awareness of the more controversial aspects of consumption or consumerism. There may not however be any significant mental or emotional investment in these aspects. Finally there are those consumers who see consumption as a damaging process or, in other words, have a negative judgment of the apparatus that has been built up over time to satisfy people’s consumer needs. The object of their criticism is the logic behind such apparatus and its resulting manifestations. It should be noted that criticism of materialism and consumerism are certainly nothing new. It is also not the first time that there have been attempts to set up buyers’ groups, of varying size, aimed at defending the consumer from the sellers’ power by grouping together for greater contractual power.

On the one hand, however, criticisms of a society based more and more on the possession of material things came mainly from intellectual and cultural elite. Such criticisms thus tended to circulate within the confines of an internal, if heated, debate that did not greatly affect the conduct of the mass of consumers. On the other hand all forms of consumer of solidarity or cooperative action that developed over time primarily sought to penalise the objects of criticism, without addressing the market’s general economic organisation.

This paper deals with more recent forms of resistance instigated by consumers, especially the typically Italian form that seems to us of some importance, as represented by the Gruppi di Acquisto Solidale or “solidal

buying groups” (SBGs). Consumer resistance may naturally assume a great many different forms, operating with varying degrees of intensity, of involvement and of effectiveness. Attention is at this point be drawn to a number of different initiatives at the heart of society or to persons coming together to form groups that may be regarded as, to a greater or lesser, extent as stable and structured. Each is different from the other but each feels it has had enough of the pressures exerted by business. Some groups are and some are not driven by ideological aims.

These are, in the opinion of the authors, highly interesting phenomena, even though not necessarily from a quantitative point of view. Despite the relatively modest scale, they should not be underestimated or overlooked either by academics or by the business community itself since they are indicative of a climate change that is taking place. It also represents a splitting up of the relationships of consumers with the world of goods. The list that follows is deliberately limited to those groups that relate directly to material objects, their purchase, their use and their disposal. It does not for example include the numerous movements that concentrate on the effects of publicity and business communication in general or other initiatives described in the literature, such as the Burning Man Festival (Kozinets, 2002), the online community (Hemetsberger, 2006) and the bookcrossing (Dalli, Corciolani). The list is also almost certainly incomplete insofar as initiatives are often limited in scope or short-lived and the list also purports to provide examples and not detailed analysis:

- a. Freecycle;
- b. Dumpster Diving;
- c. Yo Mango;
- d. Spontis.

#### **Freecycle**

Freecycle, which brings together the worlds “recycle” and “free”, is a sort of international federation of communities of persons that intend to reduce waste and believe in the re-use of any materials and objects. The web site [www.freecycle.org](http://www.freecycle.org) tells us that this network was formed spontaneously in the United States in 2003 and memberships are purely voluntary and free. The individual local communities are run by volunteers and make up parts of a global network that has now spread all over the world. Freecycle works like this:- anyone wishing to literally donate a “second life” to an object he or she owns puts an ad online and anyone who wants to own it responds. This process may work in reverse where someone seeks an object he or she wishes to acquire. The only rules are that what is offered and exchanged is free, legal and suitable for all ages.

This is in our view yet another interesting use of the Internet, which obviously greatly increases the potential of the concept and is a particularly intelligent and positive way of making a contribution to the environment, making use of the logic of the gift. In fact the mission of the movement is “*to build a worldwide gifting movement that reduces waste, saves precious resources & eases the burden on our landfills while enabling our members to benefit from the strength of a larger community*”. The absence of any form of financial consideration means that only those who are really have an ideal and shared interest in the environment enter the cycle and ensures the maintenance over time of the spirit of generosity that is essential to the survival of this type of initiative.

#### **Dumpster Diving**

Dumpster Diving is a broad term that brings together individual and group conduct aimed at finding the necessities for living in waste. According to the supporters of this action, there are enough useful things, food and other goods, to live on quite adequately, even if obviously to a standard of living not exactly in line with what is commonly regarded as normal. The group benefits its users with a whole range of advice and tips on how to make such activity more effective and less risky.

No crimes are committed in dumpster diving as the only property taken is that which has been thrown away by others. This is tolerated by some and annoys others. There is an ecological aspect to the activity as well as an implicit attack on consumer society and a somewhat anarchic spirit of those wishing to be entirely self-sufficient without actually working. It is also a kind of game, where the players are involved in a sort of treasure hunt.

#### **Yo Mango**

Mango is the brand name for a popular Spanish retail clothing chain. In street slang “yo mango” means “I steal”: the Yo Mango movement offers garments specially made to encourage shoplifting. The essential aim is not however to incite theft as such, also because often the actions are symbolic and stolen goods are subsequently returned, perhaps

to a different sales outlet. The main objective is to promote an alternative lifestyle and an attitude that would have it that happiness is not something to be found in material objects, not something that can be bought.

The site [www.yomango.net](http://www.yomango.net) gives a complete overview of Yo Mango, which is presented as an open and complex collection of experiences, a brand that can be applied to any action, initiative, behaviour or thought inspired by the rejection of private property and capitalist culture. With respect to the previous examples, this movement is more markedly antagonistic and, despite its actual declarations, justifications and suggestions, sometimes spills over into truly unlawful actions.

#### **Spontis**

There is a band of people with this name in Germany that turn up at downtown supermarkets and restaurants dressed as cartoon superheroes armed with knives and guns and who then steal products, preferably luxury foods, that are then distributed to poor people in the suburban districts of the town.

The parallel with the legend of Robin Hood is obvious and in this case it is clear that the final action, though still not especially widespread, is symbolic in nature. Such actions have gone strangely unpunished, since the actions are not for profit and what once again emerges is an effort to find bizarre, non-conformist, extravagant and creative means of expressing the rejection of certain lifestyles. In the last few years consumer resistance has become of increasing interest to the academic world, though this attention has been mainly in the field of anthropology and less in that of marketing (Dobscha, 1998).

Depending on the case, interest has been focussed on various aspects of the phenomenon, with a number of attempts being made to define and classify it (Peñaloza, Price, 1993; Fournier, 1998; de Luca, 2006). No real consensus has however yet been reached. One of the main areas of agreement regards just this variety of forms that consumer resistance takes, as well as the advisability of keeping “multiple conversations” open, as regards Consumer Culture Theory and hence consumer resistance – (Arnould, Thompson, 2005).

Consumer resistance has thus been considered in terms of the day to day behaviour of the individual (Peñaloza, Price, 1993), as group action through boycotts and as the search for alternative providers (Herrmann, 1993), as the rejection of specific product or brand (Hogg, Banister, 2001) or as opposition in general terms to market culture, either as straight opposition to the market or as conduct in a dialectical relationship with the market while partially integrating with it (Peñaloza, Price, 1993; Carducci, 2006; Hemetsberger, 2006; Dalli, Coriolani). Some have argued that consumer resistance is not “destructive” and that it represents the emancipation of the consumer, stating that it “is actually a form of market-sanctioned cultural experimentation through which the market rejuvenates itself” (Holt, 2002: 89). It has also been affirmed that consumer movements have in fact transformed mainstream consumers from those who benefit from their actions into their adversaries (Kozinets, Handelman, 2004). Albeit from inevitably and even substantially differing viewpoints, the subject of consumer resistance seems of particular interest to studies in marketing and merits further investigation. This can be argued first and foremost because “we cannot consider consumer resistance as an interesting phenomenon marginal to our real concern of understanding those who want to consume. (...) We must understand consumption and resistance as co-constituting discourses that are inextricably linked: to understand one, *we must* understand discursive practices associated with the other” (Fischer, 2001: 123). Secondly, because it sheds light on the link in the production-distribution-consumption chain that has gained most importance in recent times, that is to say consumption. Marketing by business has, on the other hand, paid still less attention to these phenomena, although there are signs of a growing awareness of the issues of environmental, social and ethical aspects in general.

It is not difficult to comprehend why most companies’ focus is on consumers rather than those who, for various reasons and in various ways, oppose consumption itself. Almost by definition they do not represent an particularly important target in marketing terms, though some enterprises have sought to turn the “opposition”, the “rebels” and the “resistance” into a distinct market segment worthy of a dedicated marketing mix (Rumbo, 2002). Although from the point of view of business such attitudes are not without certain logic, to turn the adversaries into customers would seem in the end to be a short term response rather than actually settling the issue. It would be desirable to see a more substantial rethink on the part of business to their approach to the market by sincerely embracing the logic of affiliation. It cannot however be denied that the actual and general application of such an approach will encounter numerous difficulties and obstacles in the current fiercely competitive market place aimed at obtaining short term performance.

All forms of consumer resistance can be roughly interpreted as “folk” expressions, akin to the rebellious and provocative movements of the sixties. The attractions of an alternative lifestyle, non-conformity and action for effect, are sometimes more important than the actual substantial reasons for the action [1]. However fascinating and however powerful the symbolic impact, and whatever degree of reasonableness may or may not be attributed to these phenomena, it is unlikely that such conduct would have the strength to subvert a production, economic and social system that has been built up over what is now a long period. These are, furthermore, partial trends that will never regard all consumers. It is a well known fact that markets are made of individuals that are all different and that any segmentation is necessarily an approximate art. There will always therefore be bands of persons who for various reasons will be happy with an overabundance of choice, which enjoy or even intensely desire the search for the latest thing and enjoy shopping at all times and everywhere. There are many such people focussed on material things who love to follow fashion and to express themselves through the things that they possess (Belk, 1988; Hogg, Michell, 1996).

In addition to the impact the above movements have at the concrete level, they also have value for the meaning they express. The movements summarily described above are among the most extravagant and radical forms of opposition to an economic and social model that they have for some time regarded as oppressive and wrong. Rather than be swept aside as being of little importance or for being wholly innocuous, they may also be seen as weak signs and small expressions of a growing unease and increasing intolerance of the system, capable over time of effecting much larger changes than might be expected. Less eye-catching, but certainly more important in terms of their growing influence on the current production-distribution-consumption system, are the groups that form the central subject matter of this paper.

### **Giving Meaning to Consumption: the “Solidal Buying Groups” or “Gruppi di Acquisto Solidale”**

If such an investigation were to be carried out, it would probably be found that there is in every country some form of *consumer resistance*. It was essential for us to take a more detailed look at the situation of our own country of Italy. We therefore stumbled upon a wholly original phenomenon that seems typical to Italy and curiously confined within its borders, that is to say the Solidal Buying Groups (the SBGs). The idea at the root of these groupings is to organise collective purchasing of commonly used products, adopting buying criteria based on principles of justice and social solidarity, the details of which will be explained below.

It is quite clear that the tendency for the consumer, as indeed the manufacturer or the seller, to form associations to remedy positions of contractual disadvantage vis à vis the counterparty is nothing new. These include for example buyers’ groups *tout court*, *consumer co-ops* and *food buying clubs*. In such cases, however, the aims and the decision-making processes have utilitarian and economic aims. The SBG groups on the other hand have an underlying philosophy which goes beyond making savings to embrace a different vision of consumption for that which is characteristic of traditional economics. What is new is the “S of SBG, translated as “solidal”, by which is intended to a crucially ethical and socially responsible aspect. A brief web search reveals the existence of similar groupings, particularly in Latin America [2]. It can also however be seen that these tend to be sporadic, transient and isolated phenomena. The Italian story is unique in terms of the numbers involved and the spread of the movement over the national area.

This phenomenon seems to the authors to be worthy of special study not only because of its extension, since while growing it is still a marginal movement, but also because of its importance and implications in terms of future distribution and production, with all entailed consequences for marketing strategies.

#### **The study, the Method and the Principal Results**

This study was carried out in the month of August 2005 in relation to all of the “solidal” buying groups in Italy, which at that time numbered 207. The interviewees were sent an email questionnaire made of 27 multiple choice questions. The reply rate obtained was 19%. Considering that almost 20% of the interviewees were unable to reply for various reasons (such as lack of an email address, incorrect email address, businesses closed during the summer vacation period etc.), this reply may be considered a quite satisfying redemption rate.



To summarise greatly, the study provided the following profile:

- there are in Italy today 287 SBGs variously distributed over the whole of the national area, though heavily concentrated in the north;
- it is a recent phenomenon that nevertheless has its own history with the first SBG arising in Fidenza in the province of Parma (Northern Italy);
- by “contagion”, by “splitting” from already established groups or by the “affiliation” of organisations in defence of the environment or social centres, or parish facilities, growth has been exponential with a doubling of numbers every two years (Fig 1). The real boom was not however seen until 2001, at which stage 70% of the groups were established. The establishment of the SBG groups in that period was above favoured by the Internet that was then making strides into the Italian family home, encouraging the spread of information about the new forms of consumption as well helping with the actual functioning of such organisations, especially as regards the management of orders. The contradictions and ever more clear signs of crisis in the traditional economic development model certainly also played an important role particular over the last five years;

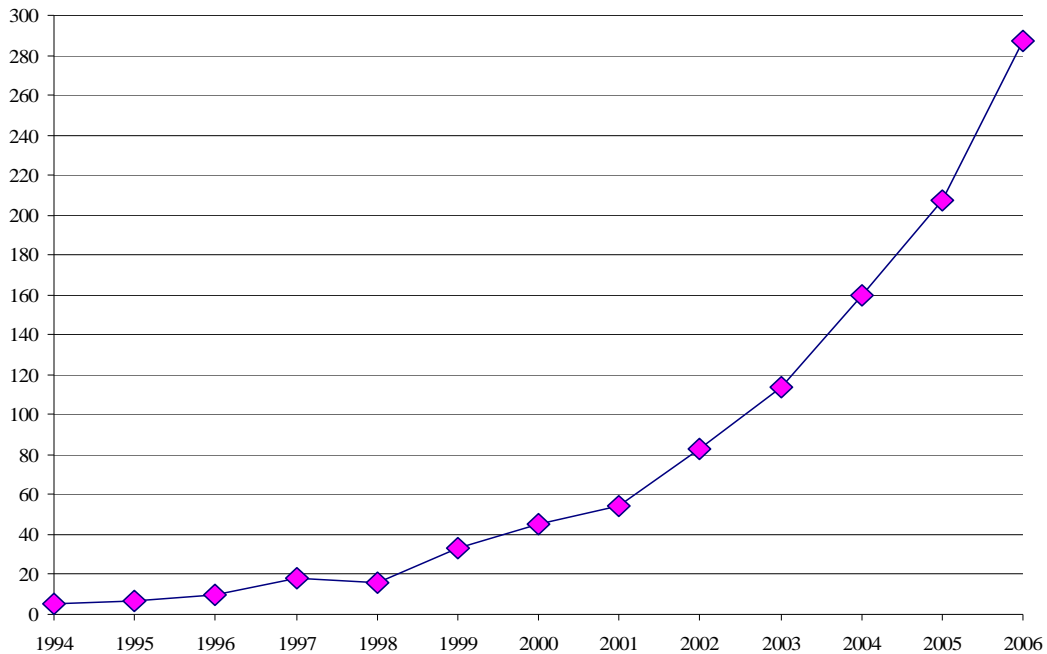


FIG. 1: THE NUMBER OF SOLIDAL PURCHASING GROUPS RECORDED OVER THE YEARS

Source: processing of directly obtained data

- The groups analysed have an average of around twenty families each, involving a total expenditure of a little fewer than 400 euros each. They are certainly therefore small but they wish to remain so in order to facilitate the relationships and the social entity of the group. While the rather limited budget can be justified by the limited range of goods and the fact that they buy through traditional supply channels;

- From the point of view of the kinds of goods, the phenomenon is currently mainly restricted to convenience foods (Fig. 2), though it may be that in the future other more sophisticated products may be included. There is some movement towards the inclusion of clothing, electricity, natural remedies and telephone and insurance services. The fact is that to try out, test and change is part of their modus operandi, as they have not wish to remain imprisoned within rigid categories. There are indeed at the moment isolated attempts to extend the basic model also in the direction of own-production;

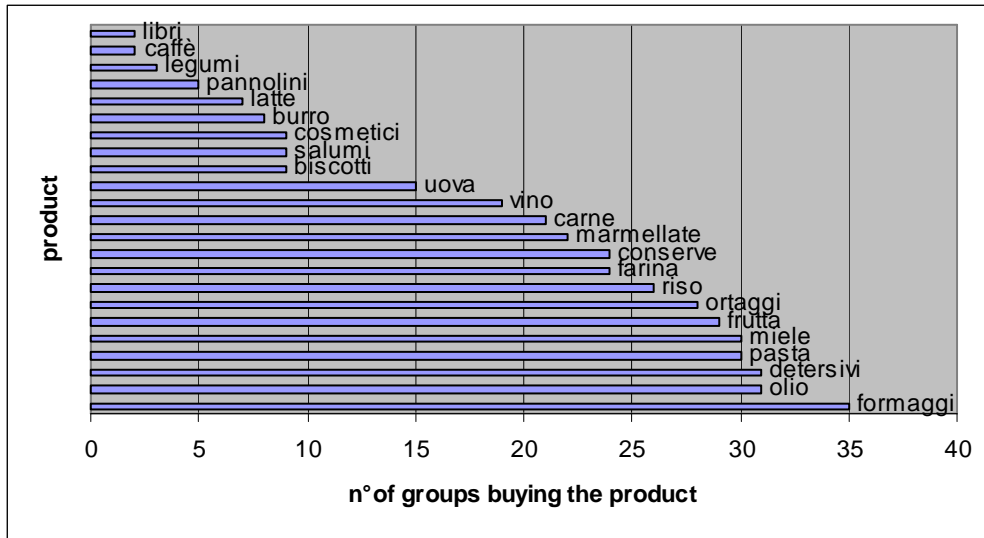


FIG. 2: THE ASSORTMENT  
Source: the authors' own direct data

- Because it is impossible to cover all family needs with group buying, 45% of the families regularly use other shopping channels such as shops and supermarkets. The rest only occasionally have such recourse to such channels (47%) or even never do so (Fig. 3);

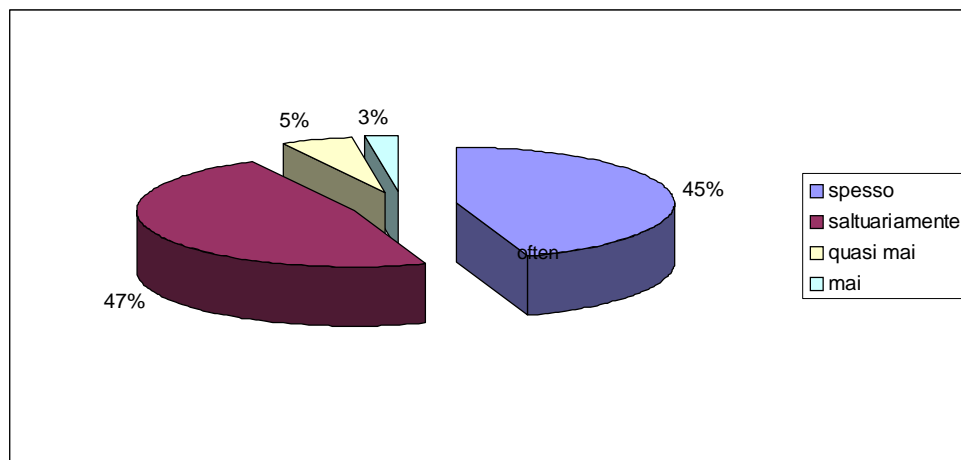


FIG. 3: SUPERMARKET AS A PURCHASING CHANNEL

Source: the authors' own direct data

- From the organisational viewpoint, most of the groups (68%) were set up spontaneously and informally, with no particular type of legal personality, putting their trust simply in a set of internal rules for the group and sharing out their running costs equally between the members who act as equals on a good faith basis [3]. They are generally speaking non-organised organisations where however the enthusiasm of the people involved in a shared project makes up for any management or organisational shortcomings. The organisations walk a narrow line between the strictures of an organisation and the free choice of the individual;
- In terms of their impact on daily life, it would seem that they result in a reduction in time taken over shopping due to the organisational advantages of the division of tasks. Buying as a group is not however an immediate or natural activity. There are some down sides, including the need to schedule one's purchases over the longer term, to have somewhere to store the goods, to have the time to take part in the choice of suppliers, attend meetings and take part in the purchasing logistics process [4] with the need for a spirit of participation and cooperation on the part of each and every member. These factors may in fact hinder satisfactory participation in the group and make collective buying that even worse than the usual shopping chore.

Alongside these so-to-speak external features, the study also looked at the more intimate aspect of the fundamental motives driving the establishment of the groups. Within a picture containing a variety of choices, experiences and at times quite unique processes, three principal animating principles were identified. These normally co-existed, albeit with different degrees of intensity, within the context of a single group:

- critical consumption (radical or pure *GAS's*);
- socialisation (relationship-based *GAS's*);
- savings (market or tout-court *GAS's*).

When the group is established with the main aim of participating in critical consumption, we can describe it as a radical or pure *SBG*.

The critical consumer, in this sense, is one that carefully weighs consumption and considers its economic, environmental, socio-cultural and ethical implications (Centro Nuovo Modello di Sviluppo – New Development Model Centre, 2003). In the specific case it is a matter of making choices of products and manufacturers according to a series of criteria that reflect a more humane view of economics, consisting of various elements including respect for the environment, a return to natural rhythms, solidarity with small producers and with the members of the group, the safeguarding of local culture and traditions and the protection of consumers and workers with a view to controlling the social costs of production. In concrete terms such principles translate into the following choices:

- *organic or in any case natural products that are in season and that may be recycled (or with little packaging, as well as being useful (in line with emerging trends of behaviour such as those known as voluntary simplicity (Etzioni, 1998));*
- *products from small and local businesses that not only supply products that meet the listed requirements but that are also respectful of working conditions.*
- the payment of a *fair price* that assures small producers a decent living that repays the real costs of production and that takes account of the interiorisation of social costs (Panati, Golinelli, 1991);

These choices are aimed at realising in practical terms the concept of solidarity that gives us the “S” of *SBG*, setting the phenomenon apart from that of other buying groups. The concept is one which extends beyond producers and individual members of the group to embrace a concept almost of moral regeneration applicable to the whole of society.

The social and political spirit that animates the *SBGs* is a historical characteristic of the movement and is an essential aspect of 80% of the groups interviewed. The ethical connotation of such groups is not however their only important aspect. Each buying group also has a relational aspect that may in fact be predominant, giving

essential to form to what the authors have decided to call the ‘relational *SBGs*’. In a society in which, even in the face of planet-wide interconnections, it becomes increasingly difficult to establish a community feeling, the solidal buying group has shown itself to be a useful instrument for the purposes of enjoying new experiences as a group. It should be pointed out that the *SBGs* also set out to stimulate reflection, cultural exchange and information that then goes on to encourage the spread of consumption behaviour based on awareness and proper evaluation of one’s actions. Participants are moved by a desire to share their experience. This frequently gives rise to the establishment of real friendships. The relationship with the producer also ends up by becoming a personal one. Members of the group go to the producer, meet him and study the production methods employed such that they become part of the production process themselves, thereby discouraging any opportunistic intent. In the so-called relational *SBGs* the relationship of trust built up between manufacturer and buyers overflows into what has been called a “culture of conviviality” (Saroldi, 2001) which has not infrequently also given rise to the encouragement of collective use of products such as cars, domestic appliances and books. The relational nature of the group also emerges in the value attributed to the meeting of members. While these take place on average on a monthly basis, there are groups that meet every week because of the importance they give to the social element [5]; there are on the other hand groups that meet just a few times a year because they are interested only in quality purchases or savings.

In this regard, though the *SBG* philosophy extends explicitly beyond the mere making of savings, there is a price benefit gained from the shortening of the supply chain and the scale of the purchases themselves. After the introduction of the Euro, the issue of saving money has become important to many families that are forced to consider the more economic aspects of the *SBGs* (‘market’ *SBGs*) (regarding only 15% of the groups interviewed, see Fig. 4). This has however gone on to favour the more personalist visions at the heart of the *SBGs*, including eating healthily and spending little. It remains true that “obtaining reasonable prices that can be afforded by everyone is an important requirement so that anyone can become a member of a solidal buying group, so that it does not become an elitist phenomenon” (Valera, 2005).

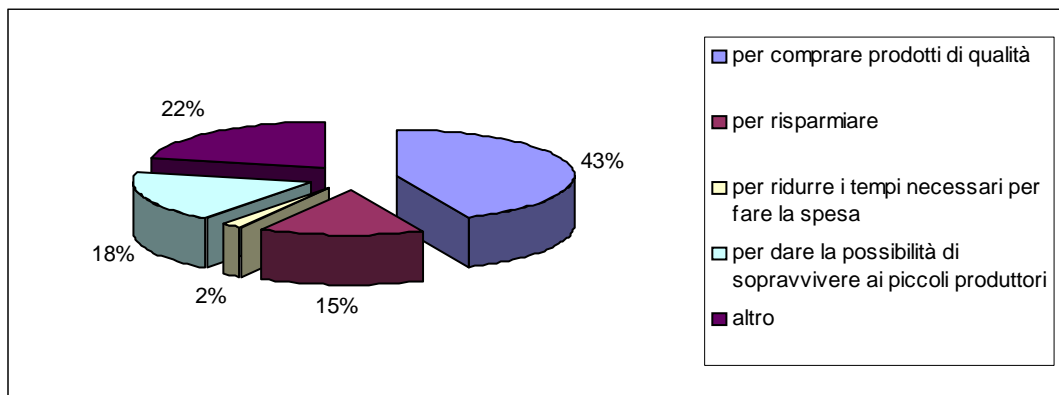


FIG. 4: THE REASONS FOR JOINING IN AN SBG

Source: the authors’ own direct data

Although the savings are important (see table 1), they are rarely a fundamental factor. If the price were to be higher than that found at the supermarket the purchase may be made in any case (this was confirmed by 69% of the interviewed groups), especially if a supermarket purchase would be to the detriment of a small producer (Fig. 5).

TABLE 1: SUPERMARKET VS GAS PRICES

PRODUST	SUPERMARKET PRICE	GAS PRICE	DIFFERENCE %
5 kg of spaghetti	8.30	5.64	-32.05
three 340 g tins of tomatoes	2.37	3.21	35.44
2 kg of DOP grana padano cheese – similar to Parmesan	39.60	22.00	-44.44
900 g of fresh robiola cheese	9.00	6.90	-23.33
900 g of Emmental	11.07	7.80	-29.54
5 kg of Carnaroli rice	15.30	9.00	-41.18
5 l of extra-virgin olive oil	72.00	29.50	-59.03
640 g of apricot jam	4.00	4.30	+7.50
640 g of strawberry jam	4.20	4.96	+18.10
640 g of orange marmalade	3.20	4.40	+37.50
810 g of of aubergines in oil	8.97	6.93	-22.74
870 g of artichokes in oil	15.63	12.87	-17.66
1 kg of organic applies	12.45	6.89	-44.66
Transport costs 4%		5.20	+100
<b>TOTAL</b>	<b>214.39</b>	<b>135.24</b>	<b>-36.92%</b>

Source: the authors' own direct data

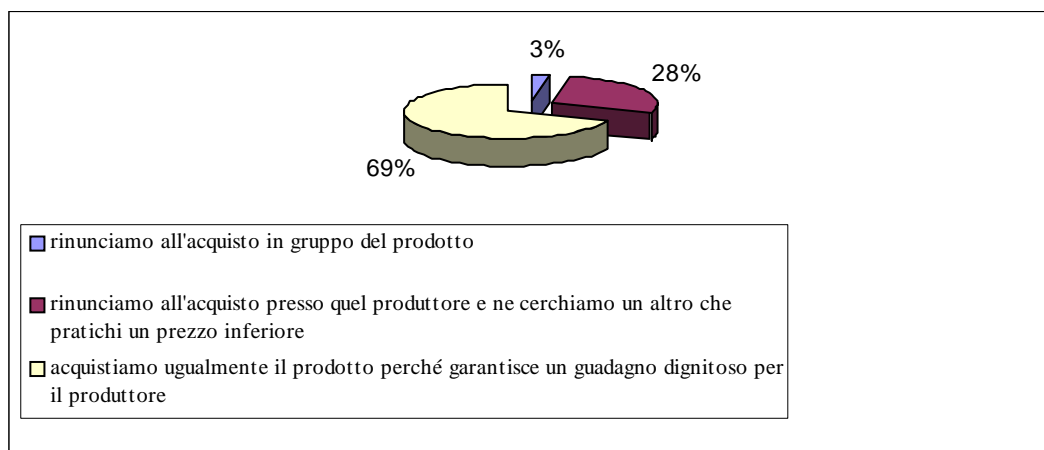


FIG. 5: IF THE PRICES WERE HIGHER THAN SUPERMARKET

Source: the authors' own direct data

It is thus clear that the common and perhaps hasty description of the movement as a means for obtaining savings would seem to be reductive and inaccurate in the case of the world of the SBGs. What finally emerges is a highly significant group philosophy where performance, benefits and savings certainly play a part but where the overriding aspects relate to a school of thought and convictions, particular views of the world and consumption choices that are not determined by material choices but are a response to intangible needs.

### Marginal Notes: from a Show of Resistance to a Push for Change

Of the forms of *consumer resistance* referred to in this paper, special attention has been given to the SBGs and this is for the following reasons. First and foremost this is a new and original phenomenon. It may seem superficially

like any other form of aggregation or cooperation between consumers, but on close examination it can be seen that these SBGs operate on a different level in the following ways:

- They membership acts according to the dictates of principles of fairness, justice and solidarity;
- They seek to extend their purchasing beyond foodstuffs and into services;
- The savings aspect is not paramount.

Even with respect to the many forms of *consumer resistance* there are significant differences that are worth highlighting:

- They are the paradigmatic expression of *active* behaviour on the part of the consumer. The members of these groups engage in *concrete action*. They are not therefore movements proposing opinions or protest groups that to a greater or lesser manage to reach a public or demonstrations that cease to exist once the point has been made, i.e. forms of *voice* reaction (Hirschman, 1982). On the contrary, they act in first person committing themselves to a sequence of specific tasks:

- not only is this active conduct but amounts even to a *complication* with respect to habitual buying, as a result of a series of self-imposed restrictions. This seems all the more surprising in that we are living in times when to ask someone to give up some of their time without offering something in return would appear almost to amount to sacrilege and when trends are towards simplification and the reduction of effort and thought (Borgmann, 2000);

- they represent a return to a community dimension where this is currently in decline, where social life is organised in such a way as to increasingly lead to the isolation of the individual, even though there are numerous possibilities for online connections between persons;

- they do not only respond to material needs (through savings), but also satisfy what could almost be regarded as spiritual needs. In the SBGs, however, the desire to know the history of the products being consumed, to feel a sense of belonging to a group, to improve one's own life through encounters with other persons, to feel special, to feel free to make one's own choices (Baccarani, 2001) and to "live one's life differently" (Censis, 2004) are not so much expressed through the giving up of consumption or through any unwillingness to be sucked in by the allure of modernity, as through a revisiting of the concept of wealth and wellbeing in post-consumerist vein, as measured by the value given to relationships and the search for meaning in one's actions (Rullani, 2004);

- they may be seen as an application of the logic of the so-called gift economy: the individual can, through consumption, not only satisfy his or her legitimate egotistical needs but may also carry out undeniably altruistic actions, especially in relation to the, and this is perhaps the most surprising thing, the producer or manufacturer.

In addition to the above factors that help us understand the framework of the phenomenon, there other implications that should not be overlooked by business when it comes to their market research and their studies of *consumer behaviour*:

- these are not bizarre social expressions but are part of a consolidated paradigm of exchange economics, while nevertheless creating a parallel market falling back on a parallel market through alternative supply, both as regards the type of goods purchased and in terms of the distribution channels engaged;

- they are indicators of an individual unease that is not expressed in an extremist or antagonistic form but rather through the *normal families* in their ordinary daily tasks;

- these are not flashes in the pan but are part of an *organised phenomenon* with what must now be regarded as having life cycles that are not over quickly.

In other words, if they have a lower profile than other forms of protest, they certainly would appear to be more relevant in terms of their influence. They may indeed, in future, be capable of significantly affecting the current production-distribution-consumption system. Naturally, despite the extreme optimism expressed by the majority of the SBGs, it is neither feasible nor even imaginable that we will see a complete revolution where supply is met entirely of small local businesses and demand made up wholly of the SBG system. This is also because for the above-described phenomenon to become more mainstream, not only would mass communication be necessary towards a society that has generally little awareness of its consumption, but also real large-scale "re-education" would be required in relation to buying, which would involve an expenditure in terms of time that would be unthinkable in society that runs at the pace modern society does. All this is quite apart from the material difficulties in expanding the purchasing range. While the mission for moral regeneration of society may be a Utopian dream, the

cultural diversity expressed in this movement may be capable of indirectly influencing lifestyles and stimulating new ideas and make a small but concrete contribution to changing the ways people think about their purchasing with a more sober, essential and responsible result.

It is as a potential force for change that the phenomenon should not be underestimated, presently broadcasting a weak signal that could expand in integrated fashion in the future.

There is already in fact an evolutionary process of change taking place, in at least three directions:

- an extension of the pool of users from families and individuals to include also local authorities, with some experimentation in this direction already underway in a number of municipalities in the north of Italy;
- indirect influences on the distribution system, which seems ever more disposed to integrate its supplies with local products, with those that are the product of fair trade and with organic foods;
- growth, not so much in the size of the individual groups (where size would go against their intrinsic spirit and in any case impede their working), but in terms of their relationships and networks. This both internally (complementarily with other SBGs) and externally (in harmony with other so-called socially responsible realities such as those concerned with fair trade, the balance of justice, ethical finance, organic farmers, cooperative societies and so forth) [6].

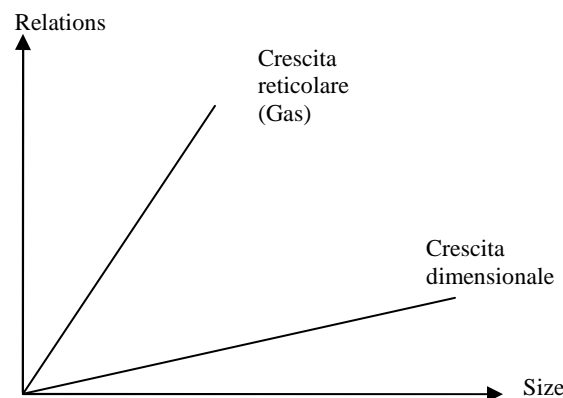


FIG. 6: RELATIONAL GROWTH OF THE GASES

Source: the authors' adaptation of data from R. Grandinetti's and G. Nassimbeni's, *La dimensione della crescita aziendale*, Franco Angeli, Milan, 2007

A network would also have the advantage of reducing risks, which are as things stand quite substantial, of each local culture being excessively self-referential, missing each chance to compare notes with other groups and possibly improving the situation. These factors should at least attract the interest of businesses in the light also of the fact that the behaviour, as indicated on several occasions, is that of normal persons attracted by the logic of the gift and thus not by some sterile and simple form of resistance but by something indicative of change at a deeper level.

## Conclusions

From among the various forms of consumer resistance, the authors' have given a central role to the SBGs, both because of the original nature of the phenomenon and because of the lack of attention hitherto paid to them in the literature. Empirical research has revealed the features summarised here below to be particularly worth reflecting upon:

- this is *continuous* behaviour, where the buying patterns are permanent; these may be *total*, where the whole of the needs for goods and services, and not just products, are met: or *ordinary* where the pattern reflects the normal buying practice of the people concerned, and especially *constructive*, i.e. going beyond the logic of sterile opposition typical of boycotts or demonstrations;

- it is an *organised phenomenon* with a life cycle that may no longer be regarded as brief, which *creates a parallel system*, falling back on supply methods that are different from what is regarded as “normal”, both in relation to the type of goods bought and with regard to the distribution channels. There are clear signs of *growth* in this area, especially as regards networks, with respect to other phenomena in the so-called socially responsible economy.

Exercising their preference for a clearly alternative model, the SBGs are indeed significant, given that they are increasingly having an impact on the traditional market system, though still for the moment to a limited extent. Studies may be carried out to investigate in further detail the responses given by the production and distribution system to emerging consumer forms such as those considered in this paper.

## References

Contact authors for the list of references.

## End Notes

[1] And perhaps, at the end of the day, such interpretation is partly true in the sense that the enjoyment of provocation, the mischievous attitude and the fun of upsetting traditional mores are certainly not alien to the movements in question. They enjoy being at the heart of a storm that is both of their making and which shapes their being, where practically any individual and collective behaviour is admissible, where the more unorthodox the behaviour the better its chance of finding a place in which to operate.

[2] Movements of some interest have also been found in the United States. In particular the Community Agriculture Supported groups are groups of persons who either autonomously or at the initiative of the producer “adopt a farm”. The support is such that, and here lies the main difference from our own SBGs, the members not only benefit from the products, but also bear part of the costs and risks of management. For further information see Cooley J.P., Lass D.A., “Consumer Benefits from community supported agriculture membership”, *Review of Agriculture Economics*, Vol. 20, n. 1, 1998 and Adam K.L., Community Supported Agriculture, <http://attra.ncat.org/attra-pub/csa.html>.

[3] In other cases the association formula is used (21%) or it is hosted by already existing associations or cooperatives (11%), with great advantages in terms of access and contributions, concessions and facilities, but with however greater bureaucratic strings attached.

[4] According to the groups approached, the greatest difficulties for collective buying lying in the logistics: 32% find the business of collective members’ orders particularly laborious. 19% say that they have major problems in finding space to store the goods, 15% in scheduling their own consumption over the longer term and 13% in finding the time required for the attendance of meetings.

[5] For 34% of the groups the meetings are seen as an occasion to discuss issues that are dear to the lifestyle of the critical consumer and an opportunity for cultural exchange, while for 15% of the groups these are truly social occasions.

[6] The solidal economies network is currently being tested through local “solidal economy district” networks, which as many as 14% of those interviewed said that they were engaged in.



# **Consumer Receptiveness in the Development of a Holistic Communication Strategy: Trust, Advocacy and Brand Ecology**

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## **Abstract**

**In a new marketing era where the Push/Pull marketing model has been replaced by the new Trust/Advocacy framework to better relate marketing strategies with consumer behaviour, companies have still problems to identify, measure and evaluate consumer receptiveness and to drive it in the development of an ecological brand communication strategy. Even if brand loyalty is becoming harder and harder to reach, managers are almost blended about brand dislike analysis and “brand ecology”. Communication strategies have to become multi-channel and multi-target to better respond to consumer receptiveness and to allow advertising to shift from infotainment to entertainment and then with the support of an holistic marketing approach to move from entertainment to engagement. Advertising has to create trust and empathy more than purchasing needs, only in this perspective in a growing and growing advertising jam Companies will be able to sustain their Brand identities and equities. The final purpose of this paper is to show the importance of Consumer Receptiveness as key driver in the development of a holistic communication strategy based on multi-channel solutions. Create consumer receptiveness knowledge to better vehicle brand information to customers in a more and more engaged two-ways dialogue.**

## **Introduction**

Since the early nineties some authors as Payne (1995), McKenna (1991), Cross and Smith (1992) discussed about the increasing need to manage relationship building has brought forth a variety of "new generation" marketing approaches-customer-focused, market-driven, outside-in, one-to-one marketing, data-driven marketing, relationship marketing, integrated marketing, and integrated marketing communications.

The increasing importance of communication in marketing is demonstrated by differentiating these “new generation marketing” approaches from traditional and classic ones. Each approach emphasizes two-way communication through better listening to customers and interactivity and the idea that communication before, during, and after transactions can build or destroy important brand relationships (Duncan and Moriarty 1997; McKenna 1991; Peppers and Rogers 1993; Schultz et al. 1993; Zinkhan et al. 1996).

In this article we argue it’s possible to build a competitive advantage into a brand communication strategies looking at the customer behaviour with a “new generation” perspective: considering the reach, the attentiveness, the relevance, the receptiveness and the impact of a brand since during the whole brand communication strategy it will be possible to develop a real innovative holistic plan based on a Trust and Advocacy perspective (Urban, 2005) that offers to the brand image a real competitive advantage in term of awareness, trust and reliability and brand ecology. The paper approach is based both on a critic literature review concerning the increasing customer power, the challenge to use a multichannel communication plan based on a ecological multi ways dialogue between front office and back office.

In their classic paper, Gardner and Levy (1955) wrote that the long-term success of a brand depends on marketers' abilities to select a brand meaning prior to market entry, operationalize the meaning in the form of an image, and maintain the image over time. The fact that several brands have been able to maintain their image for decades supports their position and our perspective.

Short-term, market-driven factors such as current consumer needs and competitors are used as a basis for managing the brand's image/position (Aaker and Shansby 1982; Arabie et al. 1981; Keon 1983; Trout and Ries 1979; Urban and Hauser 1980; Wind 1982). Because both positioning and repositioning decisions are based on current

conditions, they are not strategically oriented. In this perspective our objective is to provide a deeper understanding of the holistic communication in an interactive and more and more complex scenario where trust is not anymore a added value but a requirement. Copy and advertising are becoming more and more expensive and the competition stronger and stronger so it becomes necessary to develop holistic communication plans based on the capability of a brand strategic target (or prime prospect) to be reached and to be involved into the brand message. After a critic literature review we found a lot of strategic overviews about these subjects but few indications of possible tactical solution regarding for instance when and where customers are more receptive, how to use multimedia solution to reach engagement or even more important how to apply the concept of Brand Ecology inside a Trust and Advocacy multimedia communication plan. The article is organized to show and to explain all the most important concepts that have to be included in a ecological holistic communication plan. We look first at Consumer Receptiveness and Customers Understanding then at Brand Ecology, Trust and Advocacy and cross media benchmarking and finally at the creation of an ecological holistic communication brand.

## **Consumer Receptiveness**

Several scholars have acknowledged that marketers play an important, active role in providing social relationships (Blau 1973; Bradach and Eccles 1989; Granovetter 1985; Kang and Ridgway 1996). Most market transactions contain social interaction elements (Granovetter 1985), and more important, marketers usually try to be nice to their customers (Bradach and Eccles 1989; Granovetter 1985). Furthermore, as relationship marketing has become an increasingly common marketing strategy, the social content of market interactions has increased (Kang and Ridgway 1996). Social exchange theory suggests that, in responding to marketers' friendliness, consumers feel obligated to return the friendly overture (Blau 1973; Kang and Ridgway 1996). This provides the unscrupulous marketer an opportunity to harm consumers financially or emotionally. There are several theoretical explanations that can be used to identify consumers who are more receptive. Social integration and activity theories suggest that consumers' openness to sellers' may result from a sort of social isolation. Social isolation makes people feel less connected to friends and other support systems and makes them more likely to respond to sellers who pay attention to them (Butler 1968; Friedman 1992; Kang and Ridgway 1996; Phillips and Sternthal 1977). In 1980 Nahemow explained the relationship between social isolation and the ability to persuade, as follows: "Individuals who, by virtue of their social isolation, are not in a position to argue their opinions for the benefits of a Brand with other people ultimately become unsure of their own point of view and are, therefore, highly vulnerable to persuasive communication". So, as a matter of fact, a nowadays lifestyle that make us spending a lot of time by ourselves push our receptiveness high and helps companies to become more effective with their advertising.

Companies know that and they usually wonder "when and where their consumers are more receptive". Looking both at the literature and at the market industry it's possible to assume there isn't a standard definition of receptiveness. All the models we have analysed are based on the traditional AIDA conceptual scheme for creating advertising and marketing communication messages.

According to Kang and Ridgway (1996) starting from AIDA model it's possible to decline tens of different combinations of consumer receptiveness schemes. Although it's possible to define several basic steps that can cover all the different solutions in the field of Consumer Inclination to buy the product/service of a specific firm. Some of this aspect can be summarized as: 1. Being exposed to advertising; 2. Attention; 3. Interest; 4. Understanding the content; 5. Relating the content to available knowledge; 6. Acquiring relevant skills; 7. Desire to own/consume; 8. Storing the changed pattern of knowledge/desire; 9. Storing product features; 10. Attitude change; 11. Decision; 12. Purchase; 13. Possible repurchase.

The philosophy of the current big market consumer goods companies is to reach the attentiveness of the consumer with a huge advertising pressure and possibly high quality products. The advertising helps them to support what is called the "first moment of truth" when a consumer decides to buy a product from a seller.

Starting from the AIDA model and going through the thirteen steps regarding Consumer Inclination to buy it would be possible to define three different overall scenarios concerning the consumers' involvement and in everyone it's possible to define a kind of priority order relating to the three main consumers' actions on the purchasing process:

- **Do** (the action of purchase), - **Feel** and - **Learn** (about the product).

According to the literature on consumer receptiveness and typologies of market (Lee and Soberon-Ferrer 1997; Lord and Kim 1995; McGhee 1983) it's possible to define two main typologies of Product/Service market:

- **High Involvement**: where consumers are strongly involved in the action of choosing, buying and using a product;

- **Low Involvement**: where consumers are marginally involved in the action of choosing, buying, using a product.

Finally looking at several studies (e.g. D. Hyman and J. Shingler, 1999) concerning the relationship between consumer receptiveness and product distinctiveness we can distinguish:

- **Distinctive Product**: when for a consumer it's easy and immediate to recognise a product, its peculiarity compare with other product and its possible competitive advantage;

- **Similar Product**: where for consumers it's hard to distinguish one product attributes to the others'.

Looking at the "Do, Feel and Learn" approach together with the "typologies of market" and the "Product Distinctiveness" it could be possible to summarise them in a final scheme where depending on the typology of market and on the product distinctiveness, the three main consumers' actions on the purchasing process can take a different order:

High Involvement Distinctive Products	High Involvement Similar Products	Low Involvement Distinctive Products	Low Involvement Similar Products
1. Learn 2. Feel 3. Do	1. Do 2. Feel 3. Learn	1. Do 2. Learn 3. Feel	1. Learn 2. Do 3. Feel

FIG. 1 – THE DIFFERENT ORDERS OF THE THREE MAIN CONSUMERS' ACTIONS ON THE PURCHASING PROCESS  
- KELLER, K.L. (2003)

This result becomes very significant regarding the "Who", the "What" and the "How" on a Brand Communication Strategy.

When there is an High Involvement Market, as for example Racing Motorbikes, and the Products are very distinctive (Ducati, Honda, Yamaha, etc.) consumers first try to catch as many information as possible, then they try to feel which is the best choice for them and not always it's the most convenient in term of Cost/Quality (Moschis 1992) and only at the end they decide which motorbike they will buy.

On the contrary, when in a High Involved market products are similar (e.g. casual clothes) consumers first but a product, then they feel about the product they bought and finally they start to learn about the product and about competitors.

In a Low Involvement market as Consumer Goods, consumers have the "Feel" action only at the end of the purchase process. When the products are distinctive consumers first buy the "leader" product for their needs and then acquire information about other similar products, when Products are Similar Consumers first learn about products and then they but the most efficient product for their needs.

Whether in High Involvement Market the receptiveness of consumer is naturally very high on people that are interested in the product and very low on people that are no-consumers of the product, in Low Involvement market it becomes strategically very important to define when the consumers could be more receptive because the natural interest on consumer goods product for example is usually very low.

So, being a company which sells product is a Low Involvement market, it's common to say that "identifying drivers or situations of high receptivity (in a media sense) will be much more difficult than identifying drivers of strong copy or advertising (in a content sense)". This is due to the fact that copy drivers work more on a general, basic level while media receptivity is more related to specific consumer groups, situations, etc (Lee and Soberon-Feffer 1997; Lord and Kim 1995).

## Receptiveness Driving Factors

Several authors, especially Bradach and Eccles in 1989 and Granovetter in 1985, identify three main driving successful factors in terms of creativity and media scenario (from a consumer receptiveness perspective):

- The basic "C" level (called *biological or natural level*, genetically driven): these are factors that influence consumers via consumers' natural and biological mechanisms;
- The intermediate "B" level (called *learned*, culturally driven level): factors that work on consumers' "learned" mechanisms;
- On top of them, the "A" level (called the *actual situation level*): these are factors related to the concrete situation in which the consumer is at a certain moment.

The "C" factors are pretty general and can be broadly applied across countries, target groups, categories. Companies are typically using many of them in their creative copy development work. Usually the Advertising departments have a range of discrete number of them, and firms with experience in advertising have learnt that these factors apply pretty universally.

The "B" factors are more specific to countries, cultures, and target groups. Big firms address them typically in creative copy work when they think about the use of copy for different targets, in different countries etc. A simple example would be the arrangement of print advertising which should follow the standard theme of how a page is read: from left to right in Western countries, from right to left in the Near East.

Lastly, the "A" factors can be very specific: think of the factors that "rule" situations of media reception: target, mood of the person, time of day, social circumstances, program environment, position of commercial in block etc. The difficulty here is that there are so many different factors (so that each of them has limited influence only), they come in many variations and combinations, and they are hard to control. Therefore it will be quite difficult to find rules or even guidelines to help Advertising and Creative Manager identifying "receptive" situations on a broad, general level (Kang and Ridgway 1996). A corollary could be that corporate receptivity studies might be of limited value, at least for the developed countries where consumers are consuming media and advertising in a very sophisticated and educated, often cynical way. The situation may be different in developing countries where a company's products are more emotional and media (especially TV) are consumed in a more positive and sensitive way. In other words, companies may have to answer the receptivity question by individual studies, specific to country (or region), category, sometimes target. One gold rule in marketing is never asking consumers about their receptivity directly. For Consumers the topic is not self-concerning and it is too difficult for them to separate the media from the message. Companies will probably be more successful with an indirect approach or using consumers' panel where they obtain media exposure (for the different channel like TV, Radio, Cinema, Print, Outdoor/Indoor Ads) and read purchases. Using advanced modelling techniques, and based on a sufficient number of data points on respondent level, Marketing departments could obtain the most effective situations of media reception with effectiveness being defined as triggering purchase (Moschis 1992; Smith and Moschis 1985).

Another very important aspect in the receptivity arena is the time in term of share of brain dedicated to listen advertising in that precise moment of the day. Someone who is much focused on an activity or is under high stress will not have much capacity left and not be receptive to advertising while someone who is in a relaxed mood and not focused on a demanding activity will have some brain capacity left and thus be more open to advertising messages. "The real problem with the concept of "timing" in term of share of brain is how to make it controlled and actionable by media. If it will be a reliable scenario".

The last important dimension about receptivity is "how" the message will be received. Starting from some empirical researches done by McKenna (1991) and McLuhan (1994) looking at the movies context we can define several main modalities on how the movie story and drama are received by the audience:

1. trying to find some connections and relations between the content of the movie and their own life or current situation,
2. being emotionally touched by the film (e.g. crying during sad scenes or screaming),
3. losing space and time dimensions because of being totally captured by the plot,
4. deep identification with the hero,

5. analyse in deep the message of the movie trying to extract emotional contents focusing on the emotional narrative element of the story,
6. and thinking about the production values of the film (money costs, special effects, etc.)
7. how the plot could be changed (criticism or other points of view)

Different types of people will go through more or less all modalities, but tend to "prefer" some of them. Over the course of a specific movie, modalities will obviously change, following the drama. Noticeably, these modalities are also at work for TV advertising. A hypothesis is therefore that advertising that "continues" the modality of the feature film is better received. Again, the question is how we can make this concept actionable. A lot of research will be needed for example on the relation of different modalities to different channels, targets, situations.

## When and Where Are Your Consumers Receptive?

“Marketers are being bombarded with news and concepts that consumers are getting harder and harder to reach with advertising messages” (Shocker, Allan D; Srivastava, 1998). Audiences are fragmenting, consumers are multi-tasking, and new technologies give consumers the power to skip commercials if they choose. The Big Advertising Spender Companies have responded to this news with a strategy to generate and leverage deep “consumer insights” to connect effectively and efficiently with their targets when and where they are most receptive. The purpose of this paragraph is to synthesize some of the key current messages about receptivity and give guidance on how to proceed with receptivity work on a brand communication strategy plan.

Jean-Noel Kapferer (2001) on his work regarding the “Reinvention of a Top Brand in the new market realities” and later Keller (2003) explains in deep the concept of “Receptivity”; here there is a summary of the four main components:

1. **Reach-ness:** it is the first building block to effective communication. Reach-ness is a basic requirement but it is not sufficient by itself. It tells us how many target consumers had an opportunity to see or hear an advertisement. The biggest worldwide companies have developed measures for most traditional and some emerging media vehicles in the different regions of the world.
2. **Attentiveness:** Marketers need to reach consumers when they are paying attention to commercial messages; when they are listening not sleeping; when they are watching not chatting to friends; when they are interacting not looking at the children.
3. **Relevance:** Categories have 'relevant moments', when consumers are more likely to engage with messages about the category. It's fundamental to know the prime prospects of a Brand to choose the right advertising in the right moment. Furthermore, relevance of the message itself appears to be a driver of receptivity in all categories.
4. **Impact:** Advertising messages reach attentive consumers when the category is relevant to them and the final step is to deliver a message that will motivate them to act. The current best measure for message impact is a mix-combination of Recall and Persuasion.

Starting from the population who are persuaded by the message it will be visually identified the “Gaps” scheme to arrive at the Total Potential population:

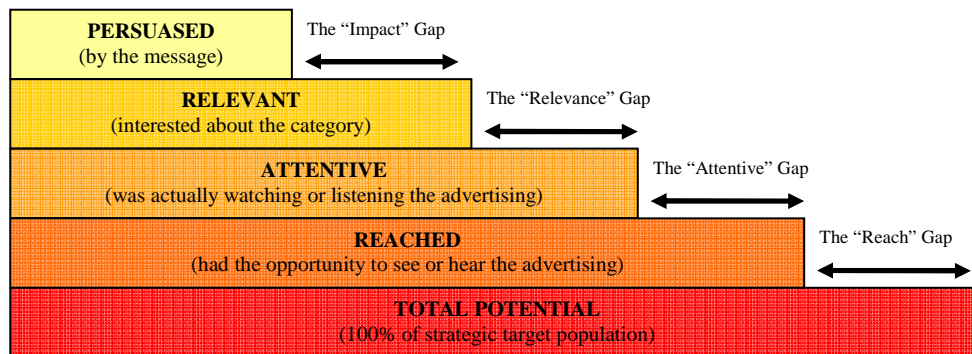


FIG. 2 – “GAPS” SCHEME ON RECEPTIVENESS

The majority of scholars about receptiveness (especially Friedman 1992; Lee and Soberon-Ferrer 1997; Moschis 1992) are strongly connected with the clear understanding of “Who” is your “strategic target” and “prime prospect”. In the literature scholars look at the connections between receptiveness and Prime Prospect focusing on two main directions:

1. **Contact-centric research** that produces insights about what vehicles are most influential to the Brand target consumers and how consumers interact with media vehicles. Some examples of contact centric researches are Custom Contact Studies and Market Contact Audits. Finally to provide consumer perceptions of what contact are most influential in a category worldwide consultant companies give Category Specific, available for all markets.
2. **Occasion-centric research** that provides insights about the occasions a Brand message is most likely to be relevant to the Brand target consumers, independent of their media habits.

Some examples of Occasion-centric researches are Focus Groups and One-to-one deep interviews.

As a brief conclusion of these two approaches it has to be said that the real challenge for Companies is to find the intersection of influential contact and relevant occasions and some of the best examples are on businesses that have run both types of research together.

### Understanding Customers: “Who”, “What” and “How”

Since 1941 Oxenfeldt and Swam said that “a well-communicated image should help establish a brand's position, insulate the brand from competition and therefore enhance the brand's market performance”. Later in 1979 Shocker and Srinivasan added that you can “well communicate” only if you know who is the right target for the communication. All the biggest consumer goods companies as for example Procter & Gamble, Unilever, Colgate and so forth invest heavy budgets and a lot of effort trying to understand their customers thoughts, needs, behaviours etc. For them it's crucial to know something about consumers before the competitors because, as Wind (1993) said “create relationship with your customers is the first and critical step in building competitive advantage”.

Similarly, as the traditional marketing mix elements have become commoditized, companies are realizing that their most valuable assets are relationships with customers and other key stakeholders. This is because the net sum of brand relationships is a major determinant of brand value (Duncan and Moriarty 1997). The importance of relationships as market-based assets that ultimately contribute to shareholder value is discussed by Srivastava, Shervani, and Fahey (1998). Duncan and Moriarty (1997) (as reported in the following scheme) described very in deep the parallel communication and marketing processes showing that the communication is properly defined by a Receiver (“Who”), by a message (“What”), by a channel (“How”) and finally by the presence of the competitors (“Noise” is called by Duncan and Moriarty).

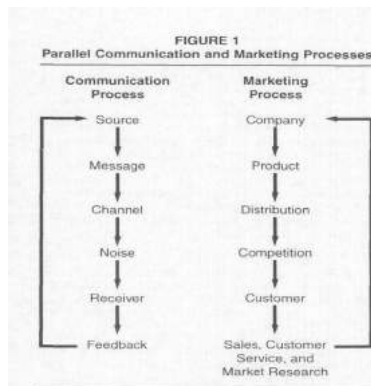


FIG. 3 - T. DUNCAN, S. MORIARTY – PARALLEL COMMUNICATION AND MARKETING PROCESSES - 1998

So, to create relationships Marketing and Brand Managers have to answer three basic questions:

1. “Who” is my target I want to relate with?
2. “What” do we want to tell them during our communication and our relationship?
3. “How” can we pass the brand message to make it as efficient as possible?

In the following pages we will try to go deeper on answering these three questions with a special focus on the correlation between “Who”, “What” and “How” definition and the development of a holistic brand communication media plan.

• **“Who”:**

Before starting with any Marketing Action the most important aspect is to understand who will be the target of our marketing or communication campaign. Inside the potential universe of people that could use our product/service it’s important to define:

- *Overall Target:* people that can be interested on trying or purchase our product/service;
- *Strategic Target:* we have to define which segment of the Overall Target is strategically more significant for our business and for the company;
- *Prime Prospect:* finally it’s very important to define inside the Strategic Target the consumers who could be more profitable for the company and the consumers who have to buy first the product to support the ROI of the advertising campaign.



FIG. 4 – THE COMPOSITION OF “WHO?”

When these three segments are clearly defined Managers have to start wondering which message (“What”) could be more appropriate for the Prime Prospect they have defined:

• **“What”:**

Duncan and Moriarty (1997) in their Parallel Communication and Marketing Model call our “What” as “Message”: the concepts are exactly the same.

Which message does the company wants to communicate to its Strategic Target and Prime Prospect? We decide to use “What” because the question marketing managers have to wonder is “What do we want to communicate”. The answer can be connected with the new using of the product, or the benefits of a product, or a new claim to re-position the product or a simple clear picture of a special characteristic or design.

The “What” is the message we want to communicate to our “Who”. In the message it has to be clear which is the Brand we are talking about and its benefits. Both the Brand and the benefits have to be in line with the already existing Brand equity and the Brand Image.

The purpose of the message is to show to the “Who” that there is a Brand which responds to their needs and which makes them feel comfortable with its benefit.

Finally when we have defined the target of our communication and the object to communicate it’s fundamental to define how we communicate the “What” to the “Who”.

It’s time to define the “How” or “the right channel to communicate the message to the target”

- **“How”:**

In Schramm's basic communication model (1954), information flows through channels of communication, or media. Channels in marketing studies refer to distribution instead of communication, and "flow" is represented by the movement of goods. In marketing's value chain, Schramm's stream metaphor contributes the idea of upstream (suppliers/vendors) and downstream (distributors, customers). What is common to both is that a channel is a conduit through which a stream of something (products, information) flows. The way to communicate a Brand message is as much important as the message. Very effective message sometime are communicated with an improper “How” and on the other hand not very effective message are communicated with very efficient media channels and communication actions.

In the communication plan the media strategy is usually the part concerning the “How” and the measures to determine if a media is good to communicate and advice about the “What” are: *Reach, Frequency* and *Gross Rating Points* (GRP) per media. Although it’s important to remember that a good “How” is not only concerning about choosing the right media channel but also working together with the whole Brand team to define the main line to follow to communicate as clearly as possible the benefits and the plus of a product/service.

Not only the Television, the Radio or the Print can be right channel to “How” communicate: packaging, free sampling, tribal marketing, stickers, word of mouth can be sometimes much more effective channel (e.g. “A-Style”, fashion clothes for young, in Italy).

## **Brand Ecology**

In a marketing arena where it’s getting harder and harder to catch consumer receptiveness the concept of Brand Ecology becomes more central and strategic on the development of a Communication Campaign.

The concept of Business Ecology (Pilotti, 2004) is concerning the creation of a virtuous network between the final results and the beginning factors that helped to create that result. The idea is to create a virtuous circle where not only the business key factors (customers, processes, suppliers, market shares and so forth) are analysed and considered to develop new strategies but also the correlations and the interrelations among these concepts become strategic. If we apply this perspective to the Brand Management we could say that Brand Ecology is the evaluation, development, analysis and creation of brands where receptiveness, segmentation, targeting, positioning and so on become not anymore a single channel concept but a multi-channel one so we will have multi-segmentation instead of single segmentation, multi-targeting, multi-positioning, new concepts that will be able to re-orienting the brand strategy in a scenario with an increasing brand distortion and receptiveness fragmentation.

Clients are more and more different one to the other, not only for their life-styles but for their purchasing impulses associating different products frequently not connected with the traditional demographic, social or “by using” variables. There are other factors as community styles or brand dislike where the traditional mass market advertising is not so efficient anymore. This weakness is strongly connected with the more and more widespread micro-segments which are able to move independently from the macro-segment where they are considering part of. For example a phenomenon like Brand Dislike (Dalli, 2004) become more and more frequent in the creation of specific users community and a lot of micro-segments start to follow an adaptive imitation process to identify themselves as not-belonging to some Brand values.

The Brand Ecology suggests considering concepts as targets, channels, timing exposure, etc. increasing the level of complexity during the cross sections analysis to investigate possible hidden correlations and interactions.



Consumers perceive different messages depending on conditions where they listen the advertising, depending on the channel is presenting the advertising and so on. The level of complexity is maximum during his receptiveness process and, more important this process of acquisition of Brand information is not sequential.

As a possible answer to that problem there is the Brand Ecology Approach where the push-pull marketing strategy is substitute by the Trust and Advocacy approach (Urban, 2005).

## **Trust and Advocacy**

“Advocacy is a major step forward in the evolving interaction between a firm and its customers. Push/pull marketing is driven by the economics of mass production-efficient processes that created mounds of low-cost goods. Relationship marketing is impelled by the saturation of push marketing and intense rivalries, particularly around quality, price and communication. Advocacy will be the next imperative because of the accelerating growth of customer power” this is how Prof. Glen Urban (2005) explain the shift from the push/pull model to the new trust/advocacy model. Behind this shift there is the growing customer power, customers who starts to dislike and to reject both mass communication products and mass communication advertising. To create virtuous relationships the communication has to become more efficient in the customer perspective. Nowadays on Internet you can compare prices, performances, fares and whatever else just in few clicks. If the communication is reaching the wrong target or the receptiveness of the message is too low a company would loose customers in much less time than 5 years ago. The customer power needs to be supported not limited.

To build competitive advantage is strategic to know as much as possible the receptiveness of the “Who” but it’s strategic as well to communicate the “What” in the most trustworthy way to gain customer loyalty and to contrast as much as possible Brand Dislike effect.

To work in an advocacy perspective is important to understand consumer receptiveness (Do, Learn, Feel) to communicate the right message in the most holistic and complete way. Inside the new Trust/Advocacy Paradigm the Brand Ecology plays a crucial rule: only with an ecology perspective it will be possible to move from infotainment to entertainment. Only when a communication strategy has reached an entertainment level it will be possible to move forward to the final engagement level and to reach that it’s necessary to work with a cross-media campaign. To engage customer it will be necessary to surprise them communicating the right message at the right time keeping control not only on consumer behaviour, habits or like but especially on effect as brand distortion, community dislike effect, perceptions and feelings.

Trust and Advocacy have to lead Business choices in all the different media-channels and in particular on the new-media as Internet, Mobile devices, TV on demand and so forth where the power of customers is key factor to success. Companies have to understand that customers are responsible and very good decision maker. Urban in his “Don’t Just Relate, Advocate” (2005) is writing that “Customers are active and want to control the buying process; they prefer to learn and make an informed decision”. The implication of this “Advocacy Theory” is a more efficient communication strategy based on real superior performances based on engaging advertising messages to create feelings on top of brand loyalty.

Trusted tools (Advisors, neutral benchmark, free trial, sampling, etc.) are available and are proven trust builders throughout each communication channel. The Ecology approach suggests using them simultaneously to improve the complex of the communication matrix and to create an engagement built on trust. To create engagement is necessary to create a multiplicity of stimuli and the only way to do that is to pop up the complexity (considering more variables and more customer human being aspects) and the inter-communications among channels, messages and receptiveness.

## **Cross Media Benchmarking**

Another very important aspect to be considered is the cross media analysis to determine the effectiveness (in term of cost and ROI) of a specific media in relation with a specific brand or service. Overall, results show that TV, Print and large, interactive on-line advertisings such as “Superstitials” or Integrated Sponsorship (area on media sites that

look/feel like the brand with brand/category specific content), are effective communication vehicles. However, other on-line advertising units, such as banners, pop-ups and sidebars, do not deliver similar branding and should be curtailed, where branding is an important objective. Looking more in details at the media quoted above (font: Nielsen Media Research and Nielsen//NetRating, 2005):

1. **Television** provides the best balance of providing broad reach to a brand's strategic target, effective communication of the brand's core equities, and creating an emotional connection with viewers in a cost effective manner.

2. **Print**, despite being lower in recall vs. Television, is still an effective medium; particularly as it relates to creating a more intimate message amongst a brand's prime prospects or strategic target where increased depth of sale/greater explanation of benefits are required.

3. **On-line "Superstitial" and Integrated Sponsorship** deliver effective branding. They also show strong potential to create a two-way dialogue to communicate very complex and personalized messages. Interaction with and recall of ad units increases with their size, provided the large size does not negatively disrupt the task/quest the consumer is on.

4. **Other on-line advertising models** (e.g. banners, banners with pop ups, sidebars, etc.) suffer from poor interaction and recall and should be avoided for branding purposes. However, with better negotiations/ industry moves to cost per click or acquisition metrics, these units may become economical conduits to other quality branding vehicles (e.g. e-mail, sampling, etc).

Related, but beyond this media study, e-mail and Mini-sites are emerging as cost effective branding vehicles:

1. **E-mail** has become an effective vehicle, particularly when in-house lists are used. All Brands should drive options to opt-ins for future contacts, as part of site registration or as part of other on-line sampling, promotion, e-mail or sponsorship programs. However, caution must be used to ensure contacts reward the consumer for their attention by providing valuable programs, offers and utility/services to avoid risk of list burn-out or deleting.

2. **Mini-sites** (less than 15.000€ manufacturing) are important for all brands to cultivate a basic presence on the web. These sites provide basic brand/product information, answer FAQ (Frequent Asked Questions), collect registrations into email opt-in lists and create a base to drive sampling or word-of-mouth efforts. Conversely, creating Destination-sites (more than 30.000€) will be appropriate only for brands in categories with high involvement or a high information need that is not being met otherwise. The constant need to refresh content to maintain repeat visitors makes this cost prohibitive for most brands and companies. As such, these large sites should only be considered as part of a broader CRM effort.

J.Lull (2000) on his work about Media, Communication and Culture assumed that to complete a cross media benchmarking other two concepts have to be analysed and considered as indicators for media plans development: Effectiveness and Efficiency.

1. **Effectiveness:** Television, Print and Superstitials are all strong in terms of their effectiveness in communication and recall. Specifically, Television provides the best balance between broad reach and the ability to make an emotional connection with the viewer communicating basic brand messages and refreshing its core equities (Television average recall 63% - Nielsen Media Research 2005). Where more detailed information is needed or where the message is complex, Print (Print average recall 43% - Nielsen Media Research 2005) or Superstitials within Mini-Sites are likely to be more effective. Other online models like banners or frames are relatively less effective. Even if it was not directly investigated in this paper, in the literature (Lee and McGowan 1998; McQuail, 2002; Lull, 2000 and others) there is a broad convergence on the conclusion that the biggest value that internet based models can bring is in creating two-way consumer relationships. Also, recall and interaction are linked to the size of the interactive ad units. Further, while this is not a specific media mix research, some results from media consultants (e.g. Nielsen//NetRatings) show that Television when integrated with an online campaign produces more effective results than either one used separately.

2. **Efficiency:** Brands must look at acquisition and impression costs of effectively reaching target consumers via each medium. In terms of generating recall, Television is about 30% costlier than Superstitials, and Print is about twice as costly as Television. However, Television is still three times cheaper than Web-Banners in this respect. Nevertheless, since only part of the population is online, limitations of reach with Superstitials/E-mails and

the type of marketing message (e.g. whether there is a need for interaction) still make Television essential to achieve broad scale message delivery.

So, in term of effectiveness and efficiency, Television or Print is not always the best media choice. Looking for alternatives, for example, e-mail is capable of delivering personalized brand messages in a cluttered online media environment, particularly as part of in-house lists. E-mail, when integrated into a well orchestrated Consumer Relationship Management (CRM) program has the highest impact as it is expected and benefits from significant open rates (more than 70% - Nielsen Media Research 2005). This is because those who opt-in are more inclined to respond to the brand communications. This reinforces the theory that marketing to existing consumers is cheaper (McGhee, 1983 Lord and Kim, 1995).

## **The Ecological Holistic Communication Plan**

“A holistic communication is the base to create a good and successful brand image and brand idea” (Friedman 1992; Lee and Soberon-Ferrer 1997). Looking at the literature there is a lot of effort regarding the importance on developing an efficient master communication plan but only few works regarding the importance of the qualification test before starting with the final execution of advertising to calibrate the receptiveness factors and to start an ecological circle on customer channels. An holistic communication plan which tries to be as consistent as possible on building the brand image becomes ecological when all the factors described before (from the definitions of the key driving factors for an engagement communication (factor C, B or A) to the definition of Reachness, Attentiveness, relevance and Impact through the analysis of the purchasing process (Learn, Feel, Do) concur with the same importance on the definition of the cross media choices to reach a real multichannel plan. In this plan all the messages have to be trustworthy to advocate consumers’ purchasing and to shift from infotainment to entertainment. Summarising the main works on communication developed during the last decade by Walther (1996), McQuail (2000), Friedman (1992); Lee and Soberon-Ferrer (1997) and other researchers regarding media communication projects it was possible to synthesised five critical steps during the creation of a Holistic Communication plan:

### **1. The importance of the landscape**

Before starting with any communication or marketing action is fundamental to clearly define and understanding of the Strategic Target and the Prime Prospect within it. Inspirational, broadly defined, relevant brand equity is important along with clear business objectives and a good understanding of the landscape (Friedman, 1992).

### **2. New ideas in communication**

The first and basic idea has to be media-neutral and inspiring. It needs to have legs and be able to support a possible campaign. The brief that has to be done at this stage is not for a storyboard or a print advertising, but it is a brief for a general communication idea. “The key tip to see if an idea could be an immediate good idea was to ask the agency to explain their idea in less than 20 words” (McQuail, 2000). Only with good ideas advertising can create entertainment. If the good idea is communicated at the right moment the entertainment will become engagement.

### **3. The Communication Master Plan**

The development of a good Communication Master Plan is based on deep consumer insights and a good understanding of not only the contact points, but the context of when and where the target is likely to be most receptive. The Connection Context (McLuhan, 1994) is the idea that crystallizes and embodies your desired connection with your target. The Connection with the target has to be established in the right context for the consumers. The right Context is the best moment of receptiveness of consumers and it coincides with the using of the product or with the need to have a specific product for the current context. The Connection Context becomes the lens; filter; focus for when and where you will connect. The Communication Master Plan is the blueprint for connections and reflects when and where our target will have the opportunity to see, feel, hear, and touch the Brand’s messages. The key here is to consider all relevant touch-points. Brand management doesn’t necessarily have to use them and it may end up with Television being the key channel to reach the consumer, but don’t just default to Television without considering the full range of appropriate contacts. Appropriate contacts include in-store and

influencer/PR driven opportunities. As well as prioritizing contact points, the Communication Master Plan outlines the strategic role of each contact point and how they integrate (McLuhan, 2000).

#### **4. Qualification and Pre-Test**

Based on the contact channels identified, issue the "call to work" briefs to the agencies that will execute the contacts and the agencies that will develop the content. New steps at this stage include the Agencies conducting a synergy review themselves ahead of the complete work being presented to the Brand. In this step the pre-test qualification become very important because depending on the Communication Master Plan defined it's important to invest energy and money in a feasible and traceable idea development. A real test of the idea in this step could be not applicable because it's too early but it's important to start the qualification process between the Master Plan and the idea creation and definition. During this pre-test it has to be measured the Connection Context (McLuhan, 1994) to better define the weights and the degree of development and application of concepts as attentiveness, receptiveness, purchasing process, receptiveness driving factors and so forth.

#### **5. Execution and Measurement**

The last action is regarding the execution of the idea and then the measurement of that. It's strategically very important to develop the idea exactly as it was defined on the plan without changes concerning problems in the material execution of the communication message or the advertising. As important as the execution is the correct measurement of the communication idea in term of attribution, awareness, ROI, purchase and re-purchase and so forth. In term of ROI it has to be considered the correct period of development of the idea and it has to be "cleaned" from other communication/advertising/promotion effects.

Regarding the attribution and the awareness it's important to test if consumer correctly connects the communication with the Brand and of course if they have seen it at least one time. Measuring this it has to be keep in mind that "it's not enough to have seen an advertising (Awareness Barrier) but it's necessary to remember the Brand whose the advertising id concerning about (Attribution Barrier)" (McLuhan, 1994; Keller, 1993).

Finally it's relevant to make sure the learning is brought back into the marketing and media organization.

## **Main Conclusions**

This paper wants to be an overall review of all the key factors that occur during the development of a holistic brand communication plan from an Ecological point of view. Both in the academic literature and in the industries' market there is a clear converge on the importance to consider the final consumer as the driver for any marketing action and especially for the communication projects. In this scenario the definition of the right "prime prospect" become fundamental to avoid the risk to be driven by the wrong driver.

Looking at the whole Communication process described above it's important, at the same level of the "Who" to support the "What" and the "How" analysing in a Trust and Advocacy perspective all the Marketing Processes required: from the Company organization to the Customer Service passing through the concepts of product evaluation, distribution, and competition analysis and customer segmentation. Only using a complete perspective it will be possible to develop an ecological and holistic communication plan.

The Brand has its own specific identity and in a more and more competitive market the management has to respect its image and equity developing innovative communication plan and marketing projects. Looking at the competitors' media strategies could be not enough for three main reasons: first it's becoming harder and harder to correctly identify the delivery strategies, the targeting strategies and the continuity strategies of competition, secondly competitors can have another "prime prospect" as driver and thirdly it's always harder to define a clear brand identity and brand image if a company is following the actions of the market leader. Instead of looking too much at competitors is much more efficient to concentrate on how to evaluate the receptiveness of brand consumers and to communicate in the entertainment way using multichannel solutions with a higher degree of complexity concerning the relationship between consumer receptiveness and message engagement. It has to be understood which is the right consumer purchase behaviour "Do, Feel, Learn" and which are the right receptiveness driving factors to evaluate "when" and "where" they are more receptive.

A Brand Communication plan has to be part of a broader Trust and Advocacy business philosophy where strategies are global but tactics are local. A global competitive advantage can be gained only supporting the brand with trustworthy efficacy local tactics starting from product position to local cross media Benchmarking. The right definition of the “How?” passes through a complete analysis of all the possible touch-points with the final market. Effectiveness and efficiency has to be key words in the definition of the holistic communication plan and in this definition process a special comment has to be developed for the most important media: Television. In the “New Marketing Era”, Paul Postma (1998) explains how in a holistic perspective the rule of television has to be strongly correlated both with the using of “new media” as internet and e-mail and with the traditional communication channel to create a multichannel environment where engagement is the new shared language.

An efficient holistic communication plan, driven by consumer needs and based on Trust and Advocacy paradigm, can become the most important competitive advantage for a brand in term of image, awareness and recognition. Building an holistic and trustworthy reputation allow the Brand to be positioned in consumer’s mind as a leader brand and consumers are more leaned towards giving knowledge to an image leader brand. So the marketing knowledge circle regarding the brand shift from an efficacy circle to an ecological chain where brand knowledge sharing between consumers and the company becomes a powerful fuel to build new ideas and stronger competitive advantages.

In this ecological perspective marketers and companies have to use the interactive tools (web, mobile devices, blogs, etc.) as strategic solutions to gain feedbacks from the growing customer power. Messages reach customers several times per days and the majority reach the customer when their receptiveness is very low. For this reason a more interactive communication model based on Trust and Advocacy could re-distribute communication budget focusing more on entertainment or engagement solution instead of only on an invasive infotainment.

There is also another important aspect: the correct evaluation of the communication cube (channel, message, content and contest). It could become useless to show a luxury car advertising right after an advertising concerning a non-profit funding campaign. The single message has to be as much interactive and engaged as possible but it has to present and communicate a content appropriated for the overall contest.

In this scenario marketers have to be very careful to measure the possible brand-dislike phenomenon using respect, trust, advocacy, commitment, partnership, transparency as basic ingredients to create an advertising campaign.

Creating shared trust value with a “win to win” strategy where there are benefits both for companies (profit, awareness, loyalty, etc.) and for customers (trust, engagement, message and product customization, etc.) allow advertising to continue to play a strategic role during the transition from broadcasting scenario to the narrowcasting scenario.

## Further Research Trajectories

As a next step research trajectory in building Competitive advantage into a Brand Communication plan is to consider the debate around the value of Prime Time versus Non-Prime Time (or Daytime). In this paper we haven’t consider this variables in the developing of a holistic communication framework because, in the literature, there isn’t clear evidence on how manage this Prime Time versus Non-Prime Time variable. Then there is a lack in take into account the question of distribution channels which is important in high developed countries as European countries and United States (e.g. network vs. cable channels). A future step could be measuring the receptiveness of customers in an engagement scenario vs. an entertainment or infotainment one using the ecology approach in a complete trust and advocacy perspective.

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# **An Application of the Conversion Model to Analyse Customer Commitment**

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## **Abstract**

Customer retention has become a major concern for many firms as it contributes to profitability over the long term. Various strategies have been followed to achieve customer retention, because of the benefits associated with customer retention. The apparent route to enhance customer retention is to create long term relationships with customers. Customer delight, customer satisfaction and customer commitment are some of the strategies that have been studied for the creation of long term relationships to achieve customer retention. This article deals with the measurement of customer commitment to assess customer retention. The Conversion Model (CM) is used to measure customer commitment. This study explores customer commitment, as measured by the CM, in the South African fast food industry. The empirical findings in respect of the customer commitment segments for fast food retailers in South Africa and the marketing strategies that could be followed for the different segments are also reported.

## **Introduction**

The late management guru Peter Drucker once said that the sole purpose of a business is to create a customer (1973). The past two decades have witnessed a surge in academic research and practices that focus on the opposite of what Drucker promoted, namely retaining the customer. This interest in customer retention could have been triggered by the work of Dawkins and Reichheld (1990) who reported that a 5 per cent increase in customer retention led to an increase in customer net present value of between 25 to 95 per cent across a broad spectrum of different business environments. Customer retention has become a focal point for many firms as it has been acknowledged as a vital contributor to profitability over the long term (Anderson and Sullivan, 1993; Fornell, 1992; Iniesta and Sánchez, 2002; Heskett, Sasser and Schlesinger, 1997; Heskett, 2002; Dick and Basu, 1994; Anderson, Fornell and Lehmann, 1994). The focus on customer retention has led to “a growing recognition that customers, like products, have a life-cycle that companies can attempt to manage. Customers are acquired, retained and can be grown in value over time” (Ang and Buttle, 2006). Various strategies have been followed to achieve customer retention, because of the obvious benefits associated with customer retention. The apparent route to enhance customer retention is to create long term relationships with customers. Various authors have described the advantages of longer relationships to enhance customer retention and marketing productivity. The interdependencies resulting from longer relationships reduce transaction costs and generate higher quality while keeping governance costs lower than exchange marketing (Sheth and Sisodia, 1995; Heide and John, 1992; Williamson, 1985; Heskett, Sasser and Schlesinger, 1997; Palmatier, Dant, Grewal and Evans, 2006). The starting point of departure for the creation of long term relationships has also generated a fair amount of debate amongst academics and practitioners. Customer delight, customer satisfaction and customer commitment are some of the strategies that have been considered as essential for the creation of long term relationships with the ultimate aim to achieve customer retention and loyalty. Each of these three strategies has been discussed comprehensively in the academic literature (Anderson, Fornell and Lehmann, 1994; Anderson and Sullivan, 1993; Rust and Oliver, 2000; Szymanski and Henard, 2001; Oliver, 1999; Gounaris, 2005; Gundlach, Achrol and Mentzer, 1995; Bansal, Irving and Taylor, 2004). This article deals with the measurement of customer commitment as a means to assess customer retention. The Conversion Model (CM) is used to measure customer commitment.

## **Customer Commitment**

Commitment has been defined from various perspectives. For the purpose of this article it is deemed necessary to attend to some of these definitions as it will provide insight into the complexity and the multi faceted dimensions of

commitment. Scanzoni identified commitment as the fourth phase in relationship building. In Scanzoni's view commitment consisted of three measurable criteria, namely inputs, durability and consistency (1979:87). Inputs refer to significant resources being exchanged; desirability refers to association over time between the parties concerned, whilst consistency means the extent of inputs made to maintain the association. Commitment has been defined as "an implicit or explicit pledge of relational continuity between exchange partners" (Dwyer, Schurr and Oh, 1987:19). Dwyer et al also state that commitment implies a willingness to make short-term sacrifices to realize longer-term benefits and that commitment represents the highest stage of relational bonding and concur with Scanzoni's three criteria to define commitment (1987:23).

Berry and Parasuraman (1991: 139) argue that in the domain of services marketing, "relationships are built on the foundation of mutual commitment". Morgan and Hunt found that, after an extensive literature review as well as support in an empirical study, commitment is central to all the relational exchanges between a firm and its partners (1994: 23). Morgan et al. (1994: 25) also determined that co-operation arises directly from relationship commitment. Gundlach et al. (1995: 79) argue that commitment has three basic components: an input or instrumental component (some form of investment), an attitudinal component (which refers to behavioural intention) as well as a temporal dimension that refers to the intention of relationships to exist over time.

Anderson and Weitz (1992) found that "commitment in a relationship suggests a long-term orientation and assumes that the relationship is stable and will continue long enough for channel members to realize the long term benefits". This is similar to a study by Mohr and Spekman (1994: 137) who found that commitment suggests a future orientation in which partners attempt to build a relationship that can weather unanticipated problems.

A broad definition was provided by Morgan et al. (1994: 23) when they described commitment as "the belief of an exchange partner that the ongoing relationship with another is so important as to warrant maximum efforts at maintaining it". This definition is similar to that of Moorman, Zaltman and Deshpande (1992: 316) who define commitment as "an enduring desire to maintain a valued relationship." The "enduring desire to maintain" component of this definition, indicates that a committed partner would prefer the relationship to endure for an indefinite period and is therefore willing to put in some effort in order to maintain the relationship. The "valued relationship" concept argues that commitment will only exist if partners agree to the importance of the relationship.

One of the key characteristics of commitment in a relationship is the committing party's purposeful and consistent engagement of resources to maintain the relationship over an extended period of time (Gao, Sirgy and Bird, 2005: 399). Gao et al. further imply "that reciprocal or joint commitment can lead to stable long-term relationships through aligning participants' incentive structures and enhancing their confidence in each other's behaviours" (2005: 399).

Gounaris defined commitment as "the desire for continuity manifested by the willingness to invest resources into a relationship" (2005: 127). Gounaris also pointed to the existence of two types of commitment, namely affective and calculative commitment (2005: 127-128). The distinction between affective and calculative commitment, which was originally identified by Mathieu and Zajac in 1990, stems from different motivations for maintaining a relationship despite the fact that both types of commitment are relatively stable attitudes and beliefs concerning the relationship. The motive for affective commitment appears to be a generalized sense of positive regard for and attachment to the other party, while calculative commitment stems from an anticipation of high termination or switching costs associated with ending the relationship (Gounaris, 2005: 128).

The above-mentioned definitions of commitment share certain common characteristics. The characteristics are:

- it requires inputs from the parties involved
- it has a long term orientation
- it has a psychological dimension
- the parties make efforts to maintain the relationship – the relationship is important to them.

It is deemed necessary to distinguish between loyalty and commitment to avoid possible confusion. Loyalty is essentially behavioral - it is the continuous usage or purchase of a brand, product, service, etcetera (Ceurovst and Kitaeff, 1996:56). Continuing to be a customer of a bank or airline, repurchasing the same brand of car, and buying the same brand of washing powder are examples of loyal behavior. Continuity of the afore-mentioned behaviour,



however, does not necessarily indicate strong, absolute loyalty. Commitment, on the other hand, is of a psychological nature - it is the power of the relationship between a person and a brand, product, or service. It is crucial to measure commitment because it can decay long before it becomes evident in a person's behaviour. One can become uncommitted to a brand of car long before you're in the market for a new car or you can be uncommitted to a bank long before you switch.

Hofmeyr and Rice (2000:80) identify three conditions to exist for a person/customer to be perfectly committed to anything. These three conditions are:

- (1) they must be happy with <whatever product, service, etc>
- (2) the relationship must be something that they care about
- (3) there must be nothing else that appeals to them.

## **Purpose of the Study**

Studies on the effect of commitment on customer retention have been extremely limited (Bansal, Irving and Taylor, 2004; Garbarino and Johnson, 1999; Pritchard, Havitz and Howard, 1999; Bettencourt, 1997). This article is an attempt to make a contribution in this respect. During 2005 and 2006 the CM was used in a study of two industries in South Africa, namely the fast food and motor vehicle industries. These two industries were selected because both are extremely competitive whilst their products represent the two boundaries of low involvement products (fast food) and high involvement products (motor vehicles). This article deals with the application of the CM in the food industry.

The primary objective of this study is to explore customer commitment, as measured by the CM, in the South African fast food industry. A secondary purpose of the study was to report on the empirical findings in respect of the customer commitment segments for fast food retailers in South Africa and the typical marketing strategies that could be followed in respect of each segment.

## **The Conversion Model**

The CM establishes a consumer's level of commitment to a brand to make predictions about future loyalty. The CM uses four dimensions to measure commitment. The first dimension is satisfaction with the brand. However, satisfaction correlates poorly with future behaviour, as evidenced by many researchers (Keaveney, 1995; Mittal and Lassar, 1998; Miranda, Kónya and Havrila, 2005; Andreassen and Lindestad, 1998). Understanding satisfaction does not help us to fully understand why consumers do what they do. Customer satisfaction falls short in two important areas. Firstly, it does not provide for the identification of customers who are at risk and secondly it is unable to manage non-customers (Richards, 1996: 52). Satisfaction is, however, an essential component of understanding the relationship between customers and brands. The second dimension is a customer's perception of the alternatives. The evaluation of a brand does not happen in isolation. It is a comparative measure against the competition. This also means that a high customer satisfaction score does not necessarily mean that the relationship with the customer is secure. The third dimension is the importance of brand choice to a consumer. If brand choice doesn't matter, it is difficult to achieve commitment. The product category, as well as brand choice, has to be something relatively important in the consumer's life for commitment to be possible. The more that brand choice matters, the more likely it is that the consumer will take time and trouble to make the final decision about which brand to choose. The fourth dimension is the consumer's degree of ambivalence. The more ambivalent the consumer is about which brand to choose, the more likely it is that the final brand choice will be delayed until the last possible moment. For consumers such as these, point-of-purchase stimuli become critically important, as they will often only make their final choice at the shop shelf.

The CM classifies consumers in terms of their level of commitment to a brand. Thus, the relationship that consumers have with every brand in the market is identified. This approach is a prerequisite to distinguish the relative attraction of other brands compared to those that consumers are currently using. With this information, users

and non-users can be placed in different segments. Users and non-users are classified in according to four segments Hofmeyr and Rice (2000:25-26). Figure 1 is an illustration of the eight segments produced by the CM.

The CM split users of a brand into one of four segments (Hofmeyr and Rice, 2000: 25):

**Entrenched:** these are users of the brand who are not likely to switch brands in the near future.

**Average:** these users of the brand are unlikely to change in the short term, but there is a possibility that they might change in the medium term.

**Shallow:** these users have a lower commitment than average and some of them are already actively contemplating alternatives.

**Convertible:** these users are most likely to defect to other brands.

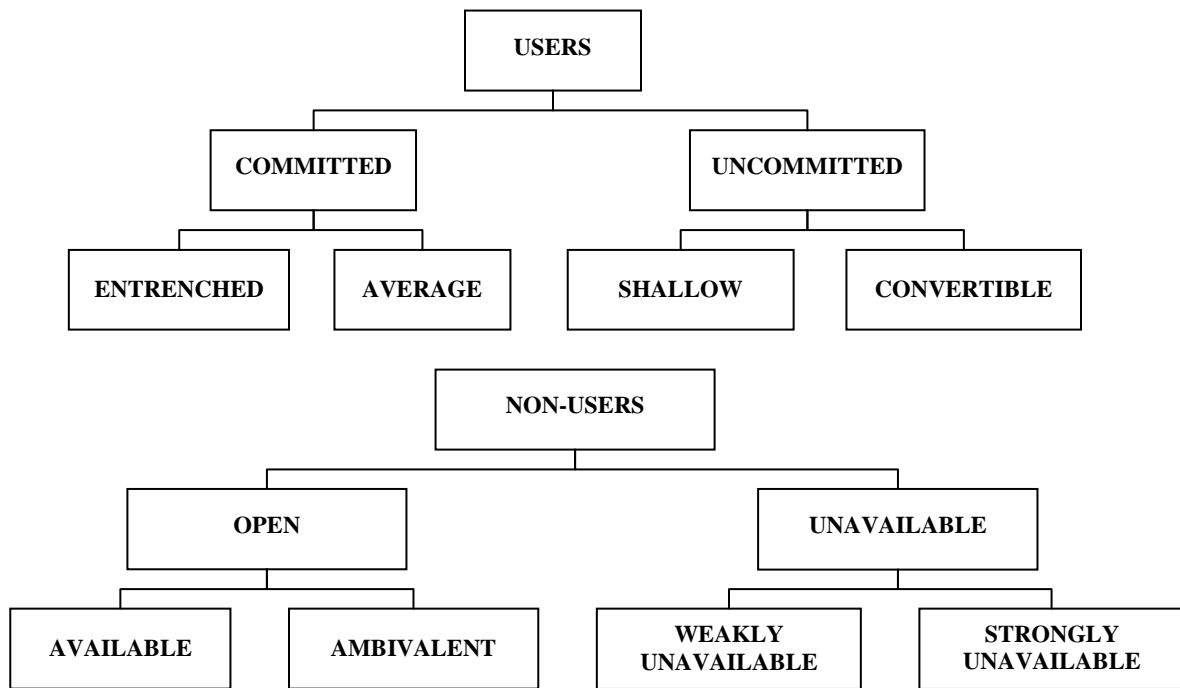


FIG. 1: SEGMENTS OF THE CONVERSION MODEL

Source: Hofmeyr and Rice, 2000: 26.

Non-users are, similar to users, also graded into one of four segments (Hofmeyr and Rice, 2000: 26):

**Available:** this group of non-users of the brand prefer the brand to their current brands though they have not yet switched but they have been identified as psychologically ready to switch.

**Ambivalent:** these non-users are as attracted to the brand as they are to their present brand – they are therefore 'open' to the brand.

**Weakly unavailable:** non-users whose first choice lies with their current brands, though not firmly.

**Strongly unavailable:** this group of non-users prefer their current brands and they are least likely to switch to the brand in the near term.

## Methodology and Empirical Study

### Measures

The CM employs the following four dimensions to measure a consumer's commitment to a particular brand (Rice and Bennett, 1998; Hofmeyr and Rice, 2000):

- Need satisfaction – which refers to the extent to which consumers' needs are satisfied by a particular brand.
- Involvement in the category – which express the importance of the brand choice in the category to the consumer.
- Attitude to alternatives – which indicate the levels of commitment that the consumer has to the brands currently used.
- Intensity of ambivalence - which refers to the degree to which the consumer is pulled in different directions by the brands on offer.

Need satisfaction is measured on a 10 point Likert scale. Involvement and attitude to alternatives are measured with one item each on a 7 point Likert scale. The intensity of ambivalence is measured on a 3 point scale.

According to Hofmeyr and Rice (1995) CM establishes the strength of the psychological relationship between a person and all his/her choices in a market. CM classifies the users of a product/service in terms of how committed they are to continue to use it whilst non-users are classified in terms of how available for conversion to the product/service they are. The algorithm that is used to allocate consumers to the segments illustrated in Figure 1, is based on the mathematics of catastrophe theory (more specifically the butterfly cusp) (Rice and Bennett, 1998: 62). The allocation algorithm classifies respondents according to their responses on the four dimensions of satisfaction with the brand, the importance of the brand, the perception of alternatives and a respondents' degree of ambivalence. The following example illustrates a customer in the entrenched segment: "If a respondent was extremely satisfied with a brand being used, the choice of the brand was extremely important (that is, the respondent was involved in the category and with the brand), the brand was perceived to be significantly better than any other brand on the market, and the respondent was not at all ambivalent about his or her consumption pattern, the respondent would be classified as "entrenched" (Rice and Bennett, 1998: 62). For understandable reasons, all the possible permutations of the dimensions are not described in this article, as the CM is a proprietary technique. The data analysis for this article was done by The Customer Equity Company, the developers of the Conversion model. The output of the CM is both brand and person specific (Hofmeyr and Rice, 1999). As far as brands are concerned the technique produces a full overview of the psychological strength of the brand in its market. CM also produces a specific profile for a person, in other words, it produces a profile of the strength of the psychological relationship that each person has with each brand in the market.

#### **Sample and Data Collection**

Data were collected by means of a questionnaire that was personally administered. Personal interviews were conducted with respondents during June 2005. All interviews were conducted using random suburb sampling to obtain a representative sample. Suburbs were drawn from the 2001 South African census and five interviews were conducted within each selected suburb to ensure that a demographically representative sample was achieved across suburbs and areas. The total sample for this study was 2000 interviews. Other characteristics of the sample and sampling procedure are as follows:

- the interviews were conducted in the seven major metropolitan areas of South Africa
- the sample is in the same proportions of the South African population in terms of both ethnic group and gender to be representative
- respondents are interviewed in-home
- respondents were required to be 18 years and older to qualify for the interview.

A total of 33 national fast food brands were included in the study. The Appendix contains the names of the brands.

#### **Results of the Data Analysis**

Figure 2 illustrates the findings for all the brands included in the study. The graph clearly illustrates that commitment is rather low in the fast food industry.

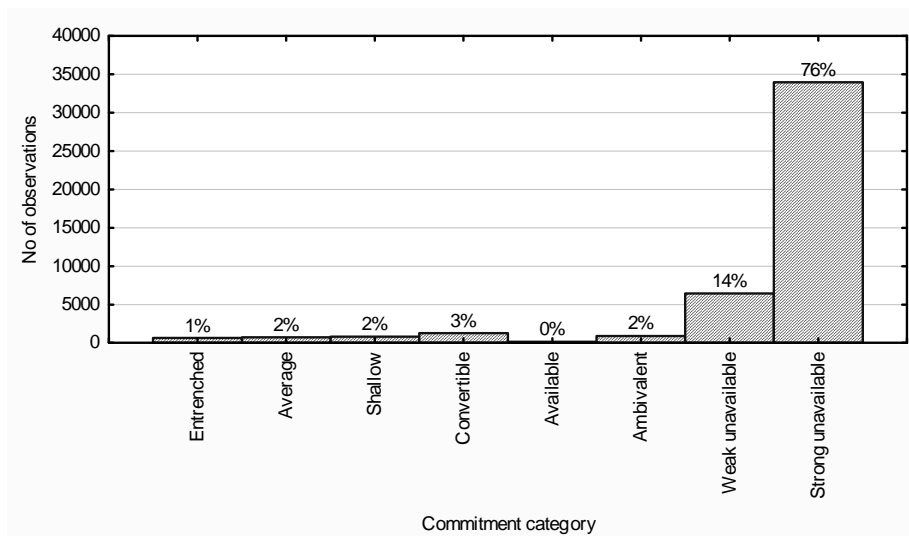


FIG. 2: COMMITMENT CATEGORIES OF THE CONVERSION MODEL FOR THE FAST FOOD BRANDS INCLUDED IN THE STUDY

Figure 3 illustrates the eight segments produced by the analysis of the data of the six best supported brands. The number of respondents for each of the six brands is set out in Table 1.

TABLE 1: NUMBER OF RESPONDENTS FOR BEST SUPPORTED BRANDS

<b>Brands</b>	<b>Number of respondents</b>
KFC (Kentucky Fried Chicken)	533
Nando's Chicken	124
Chicken Licken	99
McDonalds	92
Spur	89
Steers	65

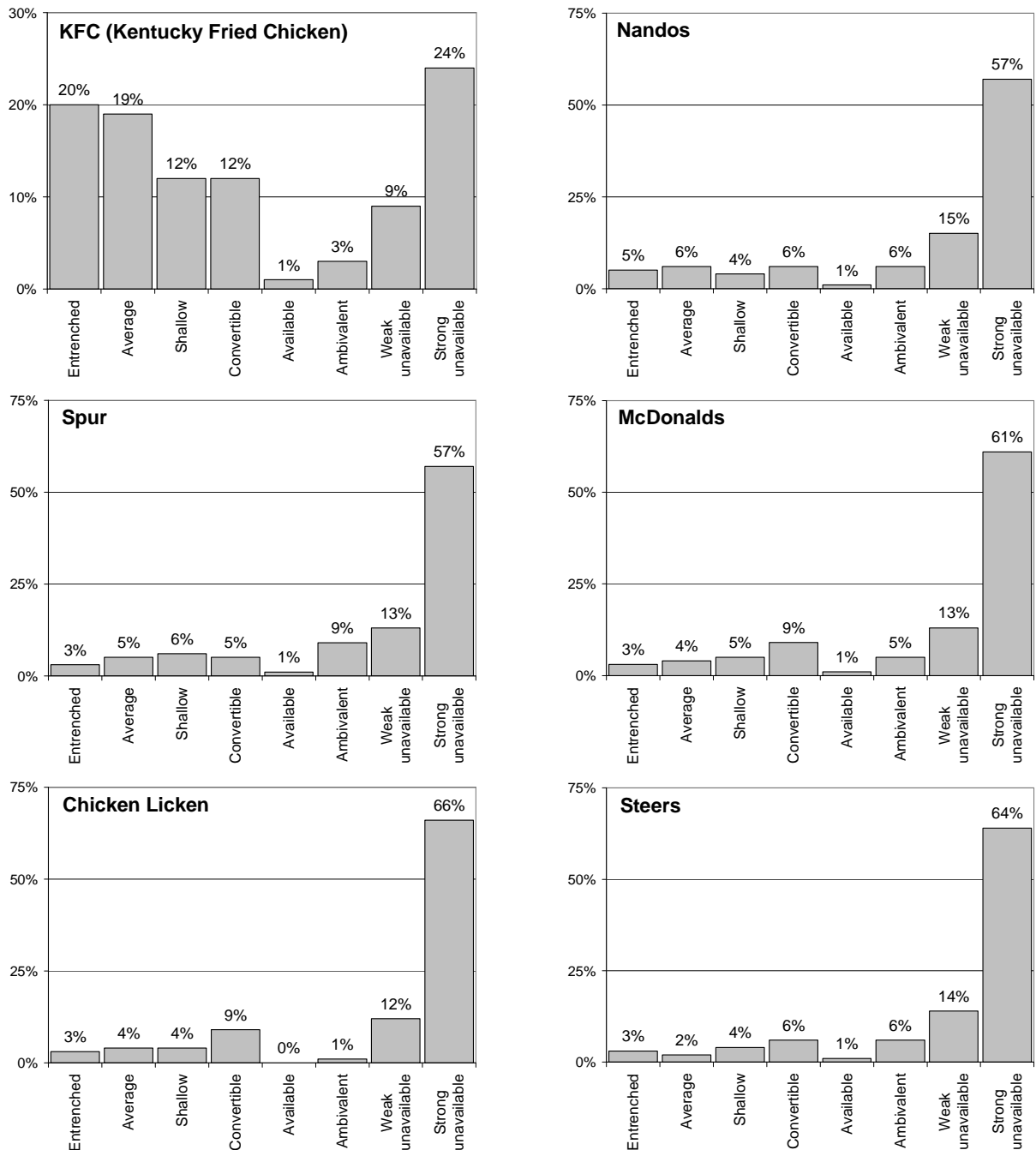


FIG. 3: RESULTS OF THE CONVERSION MODEL STUDY: USER AND NON USER SEGMENTS

Figure 3 clearly indicates that KFC is by far the strongest fast food brand in South Africa because 20% of their customers are entrenched whilst the second strongest brand, Nando's, only have 5% entrenched customers. The

rest of the brands have 3% or less entrenched customers. Entrenched customers are the prime customers of a brand as they are users of the brand who are not likely to switch brands in the near future. These "apostles" are likely to recommend the brand to other people and in doing so provide valuable goodwill (Ceurvorst and Kitaeff, 1996).

**Discussion of the Results of the Data Analysis**

Table 2 is a summary of the committed, uncommitted, open and available customers of the six best supported brands.

TABLE 2: PERCENTAGE OF CONSUMERS IN THE DIFFERENT CM SEGMENTS

Brand	USERS			NON USERS		
	Committed	Uncommitted	Total	Open	Unavailable	Total
KFC	39	24	63	4	33	37
Nando's	11	10	21	7	72	79
Spur	8	11	19	10	70	80
McDonalds	7	14	21	6	74	80
Chicken Lickin	7	13	20	1	78	79
Steers	5	10	15	7	78	85

Table 2 shows that 62% of KFC's users are committed  $[(39 \div 63)(100)]$ . KFC has the strongest brand strength of the brands studied. McDonalds and Steers, on the other hand, have the weakest brand strength of the six best supported brands, namely 33% committed customers.

The appropriate management of the relationship with customers differs from segment to segment. Basically those customers who use the brand can be split between committed (entrenched or average) or uncommitted (shallow or convertible), while those who do not use the brand can be divided into those who are open to the brand (available or ambivalent) or unavailable (weakly or strongly unavailable). The non-users, except in the case of KFC, constitute the largest segment. This situation, as will be indicated later on, is applicable to most instances.

Committed customers are the easiest relationships to manage. These customers prefer and are fond of the brand, believe the advertising about the brand and are not particularly price sensitive. However, they require continuous reassurance about the choice they have made. If the commitment of customers is not taken care of, their relationship with the brand can weaken. This is especially relevant for brands such as Spur, McDonalds, Chicken Lickin and Steers as their committed customers only constitute between 42% and 33% of their users. A drop of one percent in committed consumers of Steers, for instance, result in a drop of 6% of the committed share of their users (that is  $[(5 \div 15)(100)] = 33\%$  and  $[(4 \div 15)(100)] = 27\%$ ). One of the very functional means to nurture committed consumers is advertising. Advertising set consumers' minds at rest and enhance the consumption experience in their minds. Commitment will only persist with maintenance of the brand. The high allegiance to brands amongst committed consumers make brand switching very difficult to accomplish, especially in respect of the most favoured brand in the repertoire. Markets tend to be more static, with considerable changes only happening when new channels of distribution are introduced into the marketplace "(such as Egg, the first Internet-based bank in the United Kingdom) or when new meaningful dimensions are introduced to product categories (such as adding baking soda to toothpaste), causing consumers to reassess what the realistic alternatives are to the brands they are using" (Hofmeyr and Rice, 2000: 36-37).

A lack of commitment by users to a brand can come from many sources, such as a lack of involvement in the category or dissatisfaction with the product or service. The opposite can also give rise to a lack of commitment, namely exceptional heavy involvement in the category, which in turn leads to a dedication to experiment with brands and ongoing assessment of new brands. Uncommitted consumers for whom brand choice is unimportant, are consumers for whom brand choice is so unimportant that they might be unaware of the actual brand they buy. They select the brand that can be purchased with the least hassle - convenience and price are their main selection criteria. Advertising is rather unsuccessful at reaching these consumers, as they belong to that group of consumers that is least likely to 'see' and 'like' any advertising for the category. They will be screen out advertising and marketing efforts should rather focus on point of sale and promotion activities that increase the visibility of the brand.

In the event where consumers are uncommitted but brand choice does matter, the marketer faces a

daunting task. In such a situation it is likely that the customer experienced problems in the past. The precise nature of the problem encountered has to be established and the most fitting action taken. A very distinct type of customer, namely the “promiscuous” consumer is also part of this segment of consumers. An example is the keen wine enthusiast for whom brand choice is very important but who also experiment frequently with other brands. These consumers are devoted to experimentation and pay a lot of attention to advertising and therefore the more information they can be given about a brand, the better.

Available non-users are non-users who don’t use a particular brand at present, but who are immediately available for acquisition. The extent of this segment is very relevant when new categories, such as cell phones, are launched. In one study it was found that the size of the available non-user segment to all brands of cell phones was so large, that any focus on inter-brand competition was irrelevant (Hofmeyr and Rice, 2000: 39). As non-users were available to the category, it meant that the brand that was most easily available, came to mind first and was competitively priced, would be selected.

Ambivalent consumers are not using a brand because they are undecided about it. The brand about which this segment is ambivalent, is not regarded as any better or any worse than the brand they currently use. To win these consumers over to a product, some worthwhile incentive has to be offered to them. Examples in this regard could be price, more convenient packaging size or a particular form of promotion. Additional research among these consumers is required to gain insight into what could win them over to a product. Most of the South African fast food brands studied, have experienced great success with promotions including co-branding (for example Disney characters sold with meals) or linking up with a major sporting event such as the Soccer World Cup. In the latter instance customers could qualify for a draw in which the prizes included all expenses paid trips to the sporting event if a meal was purchased during a particular period.

As explained above, non-users who are available to or ambivalent about a brand are uncommitted users of competitor brands. Marketers are frequently enticed to focus more on the unavailable than on the available and ambivalent segments since, for most brands, the unavailable segment tend to be the largest of all segments. Except for KFC, this is also the situation amongst the six brands reported in Table 2. The unavailable segment constitutes 70% or more respondents in the case of the brands other than KFC. The reason(s) why a consumer may be unavailable to a particular brand could be one or more of the following (Hofmeyr and Rice, 2000: 40):

- they know of the brand, may even have tried it, but see no reason to switch;
- they are committed to the brands they use;
- they are aware of the brand, but have a poor image of it;
- They don't know the brand exists.

The latter reason for unavailability is the easiest one to remedy. The brand must be brought under their attention through via advertising or other promotion means to induce trial.

In some instances consumers are aware of the brand, tried it, but are still not interested in buying it again. In the cider market it was found that male drinkers, who had tried the product, were the unavailable (Hofmeyr and Rice, 2000: 41-42). They found the cider too sweet and believed it was mainly for women. In this situation it was evident that a new product, preferably a cider with a drier taste and more of a 'macho' image, would have to be launched to satisfy the needs of these unavailable consumers. It made no sense to continue to attempt to try to convince unavailable male drinkers to use the current brand.

In the event of established mature brands, the most common motive for unavailability to a brand is that consumers are satisfied with their current choice. They have no reason to switch from their current choice. They don’t perceive anything wrong with a competing brand; they are contented with their current brand.

The unavailable segment of consumers is least likely to be persuaded by advertising. The best possibility for advertising is to bring the brand to this segment’s attention and even then, the chances that the advertising will be viewed in a positive way are low. Trial or sampling remains the dominant means to get unavailable consumers so far as to consider the inclusion of the brand in their repertoire of brands. This approach is particularly relevant when the reason for their unavailability to a particular brand lies in a strong commitment to the brands they are currently using. The segments produced by the CM enable us to comprehend why consumers are unavailable to a brand. It enables us to come to a decision whether there is any reasonable chance of winning the unavailable segment to a

particular brand in the near future.

## **Managerial Implications**

Customer retention has become a major challenge for many firms as it has been acknowledged as an essential contributor to profitability over the long term. The dilemma many managers experience is that although their customers state they are satisfied, they often still switch over to competing suppliers or brands. The basic truth is that satisfied customers aren't necessarily loyal customers. Even behavioural loyalty is misleading. Behavioural loyalty requires a concomitant attitudinal dimension that mere satisfaction does not possess and which is a prerequisite for commitment. The major advantage of the CM is that it takes, apart from satisfaction, also the psychological importance of the brand choice to the consumer as well as a comparative measure of the customer's preferred brand against the competition, into account. The CM is also useful, apart from measuring retention, to indicate possible sources of new business.

The management tasks for managing individual segments can be summarised as follows:

- For committed customers it is important to continually reassure them about the choice they have made. Regular advertising for maintenance of the brand is important as it puts consumers' minds at rest and enhances the consumption experience.
- Point of sale and promotion activities are important for uncommitted customers with no particular brand preference.
- It is necessary to create ample opportunities for uncommitted customers for whom brand choice is important, to complain or to make suggestions. For the "promiscuous" type in this segment it is important that advertising takes place regularly, websites are updated frequently with new information and to try and get these customers on mailing lists.
- Available non-users are important when new categories of products are launched. For them the brand must be easily accessible, come to mind first and be competitively priced.
- Ambivalent consumers require that a worthwhile incentive has to be offered to them, usually via an unusual or extraordinary promotion campaign, to win them over to a product.
- Unavailable segments require in-depth research to determine whether any marketing strategy or tactic could be of assistance to persuade such consumers.

## **Limitations of the Study**

Care should be exercised in the interpretation and utilisation of the results. The major reason for this is that, although the sample is representative of the entire South African population, this does not necessarily mean that the respondents are representative of typical fast food consumers. In other words, the typical customers of the various fast food retailers might be underrepresented in the sample. Location of the fast food retail outlets and the mobility levels of the different racial segments of the population can influence representation in the sample.

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Contact author for full list of references.

## Appendix

### NATIONAL FAST FOOD BRANDS INCLUDED IN THE STUDY

Al's Gourmet Chicken	Ocean Basket
BJ's	O'Hagans
Barcelos	Pannarotti's Pizza
Bimbos	Pie City
Chicken Licken	Pizza Hut
Debonairs Pizza	Pizza Perfect
Fish Aways	Romans
Golden Egg	Roosters
Juicy Lucy	Scooters
Kauai	Steers
Kentucky Fried Chicken (KFC)	St Elmo's
King Pie	Something Fishy
London Pie Company	Subway
McDonalds	Spur
Milky Lane	Whistle Stop
Mimmo's	Wimpy
Nando's Chicken	Other (Had to be specified)

## Convergence of Marketing & CSR through Innovative Products& Services

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### Abstract

It has been seen from the population pyramid that about 4 Billion people live on less than \$1500 per annum on a purchasing power basis. More than 50% of these people live on less than \$ 1/- a day. For these people the government of the country concerned is trying to do something but it is awfully inadequate in terms of both quality and quantity. The author propagates that some progressive corporate is doing something as a part of their corporate social responsibility agenda. This will not solve the problem; to make a dent in this area a proper business model has to be developed that will get revenue that will meet the demands of the other stakeholders. Author quantifies the health spending of these people which if channelised properly it can bring in revenues to the corporate as also meet their social needs. Some examples set the direction in which market & CSR will converge.

### Objective

The paper is an effort to take the author's earlier research forward (paper presented at CSR conference at Vilamoura Portugal in February 2006) [1] on how innovative products and services can meet the requirement of the Bottom of the Pyramid and simultaneously generate revenues for the corporate that has to look after their stakeholders. The concept of Bottom of the Pyramid by C K Prahalad was the inspiration of the earlier paper of the author and the present paper is an extension of the same. While C K Prahalad, was mainly focusing on the innovative marketing technique, the undersigned focusing on the innovative product and services. The present paper focus on the healthcare needs of the BOP section of the market segment that constitutes a consumer base of 4 Billion. The effort of the government is always needed but with the advent of neoliberalism, most of the governments are unable to meet the expenses as also rising aspirations of the people. The paper explore various ways business and industry can help in this regard; only corporate social responsibility will not be enough, business has to earn revenue to have sustained interest and then only there will be real improvement the health care delivery of this large segment of the business through innovative products and services.

### Methodology

*The research is mainly in the South Asia and based on secondary data from UNDP, World Bank and IBRD sources. Some other published papers were referred including the speech of Chairman of Hindustan Lever Limited in the Annual General Meeting of the company in 2007. The company is well known for its corporate social Responsibility and serving the Bottom of the Pyramid. In addition to that personal interview of some of the important executives of leading business houses in India was carried out on the on going projects.*

### Preamble

As will be seen in the following paragraph, that South Asia has the dubious distinction of becoming home to more than half of the 4 billion BOP populations. Significantly almost half of the world's poor living on less than \$1 a day lives in the South Asian region. The problem of finding food, nutrition, safe drinking water and proper sanitation is so acute that hardly any body thinks about their health care. Increasingly, the governments of these SAARC countries are faced with deficit in revenue expenditure year after year, trying to reduce expenses so it is becoming almost impossible for them to fund health care for this unfortunate lot. In the developed country also there is a shift from government spending to private participation in healthcare delivery but the reason is quite different. In their

case it is a matter of *Equity* i.e. improving the health of the entire population and giving a uniform pattern and also putting resources where the need is more. Secondly *Efficiency* which means the treatment given is efficient as also cost effective. Finally, *Response* that caters to the needs of the individual patient and user of the facilities. [2] However, in case of South Asian region it is a battle of survival. The following table will highlight the enormity of problem on only one aspect.

TABLE 1: SELECTED HEALTH INDICATORS IN SOUTH ASIAN COUNTRIES  
 - = NOT AVAILABLE | GNP = GROSS NATIONAL PRODUCT| \* = MOST RECENT DATA FROM 1997-2000|

COUNTRY	POPULATION	GNP PER CAPITA [2001]	INFANT MORTALITY RATE [2000]	TOTAL FERTILITY RATE [2000]	CHILDHOOD MALNUTRITION [1997-2000]*
Afghanistan	27247944	-	163	7	49
Bangladesh	133405392	370	60	3	48
Bhutan	828044	640	58	5	19
India	1033389824	460	69	3	47
Nepal	23584706	250	74	4	47
Pakistan	141450160	420	83	5	-
Sri Lanka	19649486	830	15	2	-

SOURCE: WORLD BANK, WORLD DEVELOPMENT INDICATORS 2002 DATABASE

The global community is focusing on inequality increasingly as it is realized that unless there is inclusive growth it is very difficult to achieve sustainable growth. Extensive research has been carried out by IMF and World Bank. Gwatkin and others have carried out lot of analytical work by demographic and health surveys which was released by World Bank in 2000. [3,4,5]. “From the perspective policy, there is a qualitative difference between the inequality described in the first three rows of the Table 2 below and that described by the last two rows.....health sector outcome such those in the first three rows, are determined by factors within as well as outside the health sector. While health outcomes are the ultimate of a health system, policymakers have far more control over health sector outputs such as those in the last two rows” said Abdo S Yazbeck, World Bank and David H. Peters of John Hopkins University in their Overview of the publication Health Policy Research in South Asia. [6]

TABLE 2: INEQUALITY IN HEALTH OUTCOMES AND HEALTH SECTOR OUTPUTS IN SOUTH ASIA (WEALTH QUINTILES).

OUTCOMES AND OUTPUTS	BANGLADESH 1996/97		INDIA 1992/93		NEPAL 1996		PAKISTAN 1991	
	Poorest	Richest	Poorest	Richest	Poorest	Richest	Poorest	Richest
Infant Mortality rate <sup>a</sup>	96	57	109	44	96	64	87	62
Child stunting <sup>b</sup>	50	24	65	31	59	32	61	33
Fertility rate <sup>c</sup>	3.8	2.2	4.1	2.1	6.2	2.9	5.1	4
Full immunization	47	67	17	65	32	71	22	55
Attended delivery	2	30	12	79	3	34	4.6	55

<sup>A</sup> Deaths under age 12 months per 1000 live births.

<sup>B</sup> Percentage of children under age 5 years whose height for age is below-2 standard deviation z-score.

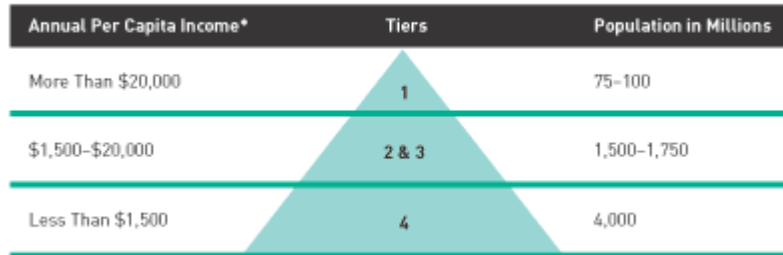
<sup>C</sup> births per woman ages 15-49 years.

Source: Gwatkin and others 2000. [3]

## Four Consumer Tiers

At the very top of the world economic pyramid are 75 to 100 million affluent Tier 1

### Exhibit 1: The World Economic Pyramid



\* Based on purchasing power parity in U.S.\$

Source: U.N. World Development Reports

Now consider the 4 billion people in Tier 4, at the *bottom of the pyramid*. Their annual per capita income based on purchasing power parity in U.S. dollars is less than \$1,500, the minimum considered necessary to sustain a decent life. For well over a billion people roughly one-sixth of humanity per capita income is less than \$1 per day.

Even more significant, the income gap between rich and poor is growing. According to the United Nations, the richest 20 percent in the world accounted for about 70 percent of total income in 1960. In 2000, that figure reached 85 percent. Over the same period, the fraction of income accruing to the poorest 20 percent in the world fell from 2.3 percent to 1.1 percent.

This extreme inequity of wealth distribution reinforces the view that the poor cannot participate in the global market economy, even though they constitute the majority of the population. In fact, given its vast size, Tier 4 represents a multi-trillion-dollar market. According to World Bank projections, the population at the bottom of the pyramid could swell to more than 6 billion people over the next 40 years, because the bulk of the world population

growth occurs there. Most Tier 4 people live in rural villages, or urban slums and shantytowns, and they usually do not hold legal title or deed to their assets (e.g., dwellings, farms, businesses). They have little or no formal education and are hard to reach via conventional distribution, credit, and communications. The quality and quantity of products and services available in Tier 4 is generally low.

Let's have a quick view on the conditions and the facts, figures of the South Asian countries and India. The results are on the loop side but give a lot of opportunities for the corporate sector, if utilized.

- Access to safe water & sanitation facilities is one of the fundamental requirements of the human beings globally whether they reside in urban or rural areas. However, it is noticed that problem is more acute in the rural areas as compared to the urban areas. Although significant achievement has been made in providing safe drinking water, only 60% people across the globe are under sanitation coverage. This means about 2.4 billion people in the world are yet to get improved sanitation facilities and 80% of such people live in rural areas. Unfortunately, the majority of this population lives in Asia and particularly in India and China.
- The challenge of poverty alleviation is particularly acute for the South Asia region. With 20% of the world population, South Asia represents about 40% of the world's poor. Nowhere is this challenge more acute than in the area of providing safe drinking water and good sanitation services. In South Asia, the deficiency in terms of access to safe drinking water is anywhere from 15-30% of the total population and for sanitation in the area of 60% or more.
- As per Fifty Fourth Round Report of National Sample Survey Organisation published in July 1999, only 17.5% of rural population was using the improved latrines in India. By the end of the Ninth Five Year Plan i.e. March, 2002, it is estimated that sanitation facility would improve to 20% of the rural households. As per Global Water Supply and Sanitation Assessment 2000 Report of WHO & UNICEF, 73% urban population and 14% rural population had access to sanitation facilities in year 2000, while the total coverage for the whole country was at 31%, which is far below the requirement.
- Health hazards of poor water supply and sanitation facility are enormous. Approximately 4 billion diarrhoea cases are reported every year because of this and approximately 2.2 million children, mostly under the age of five, die every year. The loss to human lives is abnormally high. About 10% population of the developing world is affected by intestinal worms, which can be controlled by better sanitation and hygiene facility.

Now let's have a look at the health and human development indicators of India

TABLE 3: KEY DEVELOPMENT INDICATORS

Population	1.1billion
GDP	8.4% <i>growth rate</i>
Poverty (at \$1 a day, ppp)	35% ( <i>as per latest report it is 29%</i> )
<b>Fertility rate 2004</b>	3 births per woman
<b>Average life expectancy at birth (1998-02)</b>	63yrs
<b>Infant mortality (per 1000 live births, 2004)</b>	62
<b>Maternal Mortality (per 100,000 live births, 2001)</b>	540
<b>Access to improved water source 2001</b>	86%
<b>Access to improved sanitation facilities 2002</b>	30%

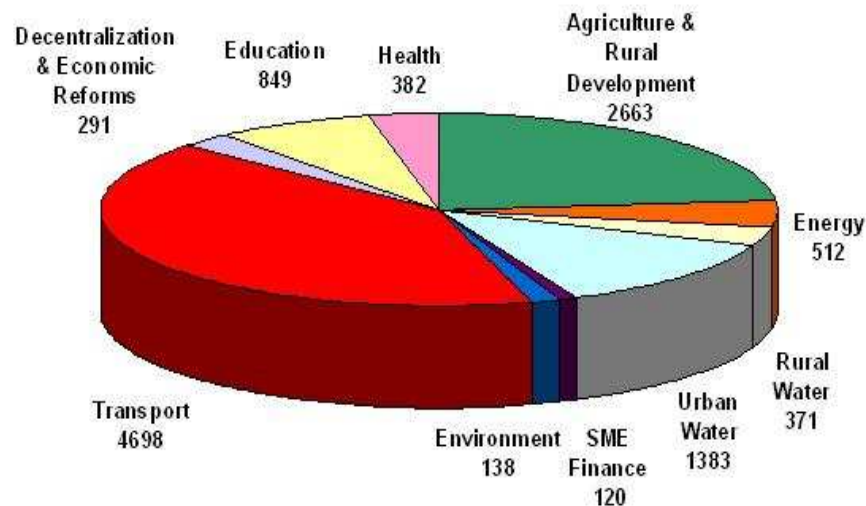
SOURCE: WORLD DEVELOPMENT INDICATORS, 2006 AND CSO REVISED ESTIMATES OF GDP

Figures speak facts. That's what we can infer from the above indicators. Though India is making efforts in the direction of improvement but still there are many milestones to cross. The race still falls far from the finish line

and with the world speeding to that end point; and India has to move fast. If we look at the sectoral lending of the funds from world bank- rural water, health and education are still very much inadequate.

The following figure gives a detailed view of lending of funds from World Bank to different sectors.

**Lending by Sector** (As on June 30, 2006, in US\$ million)



### Initiatives taken by the Government of India

- In India, Government has taken up this challenge through a major National Programme viz. the Rajiv Gandhi National Drinking Water Mission. The programme has allocated USD 500 million to finance a Programme in 63 Districts across 25 States impacting about 70 million people in the rural areas. The Programme is supporting a decentralized, drinking water and sanitation program in partnership with our local governments and communities.
- So far, Government of India (GOI) sanctioned 138 such projects with an outlay of INR 14260 million. The physical targets that these projects intend to achieve are: construction of 12.30 million individual household latrines, 120 thousands latrines for schools, 14048 sanitary complexes for women, 9086 toilets for balwadis/anganwadis and 1132 Rural Sanitary Marts/Production Centers. GOI also intend to cover all the remaining 374 districts during the Tenth Five Year Plan period, which will commence from April 2002.

India, we have some very good successful initiatives taken by Non-Governmental Organizations (NGO) and communities in the sanitation sector. The emergence of “Sulabh Souchalay” is one of the most interesting and social innovations in modern India. It has not only provided low cost sanitation facilities but also helped in liberating scavengers in the country. It has provided eco-friendly solutions. This organization has been able to construct and maintain 5000 public toilets with bath attached and has rehabilitated more than 36000 scavengers. For details see [1].

We have seen how the life of the people of Tier 4 is, poverty breeds discontent and extremism. Although complete income equality is an ideological pipe dream, the use of commercial development to bring people out of poverty and give them the chance for a better life is critical to the stability and health of the global economy. The

emergence of the 4 billion people who make up the Tier 4 market is a great opportunity for corporate sector. It also represents a chance for business, government, and civil society to join together in a common cause. Indeed, we believe that pursuing strategies for the bottom of the pyramid dissolves the conflict between proponents of free trade and global capitalism on one hand, and environmental and social sustainability on the other. One concrete example could be sanitary napkins needed by the women in the productive age group could generate enormous business if these products can be made available to this segment at a price affordable by them. Council of Scientific & Industrial Research in India is developing absorbent materials that can be made from scrap paper, cloth and some plastic materials which can be used to make a set of sanitary napkins at price which is one tenth of the multi-national brand. With a BOP population of 4 billion moving up to 6 billion giving an enormous new market segment. Even if only 30% of the women in the BOP use this it is a mind boggling regular business which is hitherto untapped. Either corporate can research and develop an alternate absorbent materials or make a joint effort with CSIR to develop and/or market the product. Here is an ideal area of public private partnership that can meet a social need as also generate millions of dollars for the corporate.

Sustainable product innovations initiated in Tier 4, and promoted through consumer education, will not only positively influence the choices of people at the bottom of the pyramid, but may ultimately reshape the way Americans and others in Tier 1 live. Indeed, in 20 years, we may look back to see that Tier 4 provided the early market pull for disruptive technologies that replaced unsustainable technologies in developed countries and advanced the fortunes of the corporate sector with foresight.

Because Tier 4 communities are often physically and economically isolated, better distribution systems and communication links are essential for development of the bottom of the pyramid. Few of the large emerging-market countries have distribution systems that reach more than half of the population. This led to continued dependence of the poorest consumers on local products and services which are sub standard, more expensive; similarly cheap credit is not available through Banks and these unfortunate lot has to depend on unscrupulous moneylenders who charges astronomical rate of interest. As a consequence, few MNCs have designed their distribution systems to cater to the needs of poor rural customers. Creative local companies, however, lead the way in effective rural distribution.

New commerce in Tier 4 will not be restricted to businesses filling such basic needs as food, textiles, and housing. The bottom of the pyramid is waiting for high-tech businesses such as financial services, cellular telecommunications, and low-end computers. In fact, for many emerging disruptive technologies (e.g., fuel cells, photovoltaic, satellite-based telecommunications, biotechnology, thin-film microelectronics, and nanotechnology), the bottom of the pyramid may prove to be the most attractive early market.

## Healthcare at the Bottom of the Pyramid

There are significant reasons to pay attention to healthcare at the bottom of pyramid. “bottom of the pyramid” (BOP) markets are all the rage right now BOP has strong implications/promise for healthcare delivery, as Kevin Jones from [Xigi](#) states: “half of BOP health care spending is on **pharmaceuticals**, much higher than in more affluent countries. This is especially the case in rural areas, where access to clinics is often limited.” It is too early to assess the impact, but for those unfamiliar to this segment, there is a growing drumbeat and unmistakable energy surrounding this concept

*Rural East Africa illustrates both the challenges BOP households face in obtaining health care and the potential health market they represent. Access to public health care is often very limited. Even finding medicines to buy—especially ones that work—can be difficult. Spending on health care is low— only \$183 a year for a typical rural household in Uganda. Of that, half is spent on medicine, often without a doctor’s prescription; self-medication is common for BOP households.*

The measured BOP health market in Africa (12 countries), Asia (9), Eastern Europe (5), and Latin America and the Caribbean (9) is \$87.7 billion. This represents annual household health spending in the 35 countries for which standardized data exist and covers 2.1 billion of the world’s BOP population. The total BOP health market in these four regions, including all surveyed countries, is estimated to be \$158.4 billion, accounting for the spending of 3.96 billion people

TABLE 4: POTENTIAL OF HEALTH MARKET

AREAS	Health market potential(in billions)	Population covered
Asia	\$42.2	1.5 billion
Asia & Middle East	\$95.5	2.9 billion
Latin America	\$24	360 million
Eastern Europe	\$18	486million

The share of total household health spending that takes place in the BOP—and thus the relative importance of the BOP market—varies widely. In Asia the BOP dominates the market, with an 85% share. In other regions its share is far smaller: 54% in Africa, 45% in Eastern Europe, 38% in Latin America. In Eastern Europe and Latin America mid-market and high-income groups tend to dominate health markets, even though large majorities of the population in both regions are in the BOP. But Africa shows the greatest disparity between the BOP share of the total population (95%) and the BOP share of health spending (54%).

*Generally speaking, the smaller the percentage of the population in the BOP, the greater is the likelihood of wealthier population segments account for a disproportionate share of the health market.*

TABLE 5: THE BOP INCOME SPECTRUM

BOP	3000
BOP	2500
BOP	2000
BOP	1500
BOP	1000

Bottom-heavy BOP markets—where more than half of spending occurs in the bottom three of the six BOP income segments—predominate in Africa (9 of 12 countries) and Asia (8 of 9). Malawi and Tajikistan illustrate this pattern. In two of the larger countries, India and Indonesia, while still bottom-heavy, spending is concentrated more toward the middle of the BOP income spectrum, in BOP1000–2000. India, with \$35 billion in annual BOP health spending (85% of the national market), shows what this spending pattern looks like. Generally in Africa and Asia the distribution of health spending across BOP income groups closely matches the distribution of the population across these groups.

The products and services that households are willing to buy depend to some extent on income. Average household spending at different income levels is thus a useful guide to product design. But spending, especially for health care, also depends on access to services. If travel to a hospital or health clinic costs more in cash or lost wages than the service itself, anecdotal evidence suggests, price-sensitive BOP households may defer treatment until a condition is relatively serious. In any event, the available health dollars might be larger if health care services were available relatively easily, and travel costs could be avoided. Current levels of household spending on health should thus be regarded as establishing a lower bound for the willingness to pay.

Average health spending by BOP households varies widely across countries. The difference depends in part on whether markets are top heavy or bottom heavy and may also reflect BOP access to public health services. But the variation can also reflect differences in the questions asked and the expenditures captured in national surveys. Both Indonesia and Pakistan have bottom-heavy health markets, for example, their reported BOP health spending per household averages are very different: \$78 and \$197 (the extremes for measured countries in Asia). In most countries measured household health spending increases roughly in proportion to income through the BOP.

In many countries, however, health spending increases disproportionately in the highest BOP income segments, BOP2500 and BOP3000—indications of latent demand for health care in the BOP. The ratio of average health spending per household in BOP3000 to that in BOP500 is 8:1 in Nigeria, 6:1 in Gabon, 9.5:1 in Sri Lanka, 3:1 in Ukraine, and 6:1 in Peru. Health care models that can tap higher income segments to cross-subsidize services



to lower income segments—such as the Aravind Eye Care Hospitals in India—show much promise as a way to extend even expensive services such as surgery to the poorest parts of the BOP

As incomes rise still higher, per household health spending continues to increase—but only modestly compared with the increases in income, except in Africa. The ratio of average annual household spending for health in the mid-market segment to that in the BOP is 1.5:1 in Russia, 2:1 in Colombia, 2:1 in India, and 3:1 in Thailand—but reaches 11:1 in Nigeria and 14:1 in South Africa.

The relative sizes of urban and rural BOP health markets differ significantly across regions. In Asia the rural BOP health market is 2.4 times the size of the urban one, largely reflecting the distribution of the BOP population.

Pakistan's BOP health market, for example, is 71% rural. Among measured Asian countries, only in Indonesia does BOP health spending in urban areas exceed that in rural areas. In Africa urban and rural BOP health markets are roughly comparable in size, even though rural areas generally account for a larger share of the BOP population. In Nigeria, for example, rural areas account for 52% of the BOP health market but have 22% more BOP households than urban areas.

The BOP share of the total urban health market is smaller in every region than the BOP share of the rural market, because of the concentration of mid-market and high-income populations in urban areas.

The first response to illness in many BOP households, especially in the lower income segments that dominate bottom heavy markets, tends to be self-medication. Pharmacies or other sources of medicines are thus often the front line of health care, especially in rural areas where access to clinics and hospitals may be limited. Supportive evidence for this comes from the surveys reported in this analysis: in nearly every measured country and in every BOP income segment pharmaceuticals account for more than half of all BOP health spending. As a result, the BOP often dominates national pharmaceutical markets, especially in Africa and Asia.

## **Trends Pointing towards Robust Future Growth**

1. Growing incomes, literacy and awareness bode well for the healthcare services market
2. Proportion of households in the low -income group has declined
3. Rising income expanding rich and middle income group
4. Shift in disease profiles from infectious to lifestyle-related diseases are expected to raise expenditures
5. In the inpatient market, the share of infectious diseases is expected to decline from 19 per cent in 2004 to 16 percent in 2008.

## **The Rural Healthcare: an Opportunity or a Challenge?**

Challenges posed by the rural environment often exacerbate already complex health policy problems. Our Nation as a whole is struggling with issues related to:

- Providing access to care for the large and growing number of uninsured persons.
- Reducing infant mortality & improving health of mother
- Caring for an aging population.
- Aligning financial incentives for payers, providers, and patients.
- Integrating population-based services with personal health care services.

In rural areas, these problems are further complicated by:

- Geographic isolation.
- Transportation barriers.
- Population those are generally older and less affluent.
- Shortages of financial, human, and capital resources.

Although the challenges facing rural communities are formidable, the opportunities for improving health and health care services are also great. Many believe that government at all levels will continue to play a crucial role in

providing targeted subsidies or enhanced payments to providers located in rural areas. The private sector also can play a major role if they can harness the vast opportunities that are available at the base of the pyramid. In the World bank publication named Innovations in Health Service Delivery [7], the editors Alexander Preker and April Harding discussed about the corporatization of Public Hospitals as most of the national governments are finding it very difficult to meet the expenses incurred as also meet the growing aspirations of the people in quality of the service provided. Here is an opportunity of for the corporate to meet the social responsibility as well as earn some revenue for the stake holders. Many of the major players in the private sector have started to change their direction. They started to discover the latent potential in the rural for an improvised and low cost technology. House of Tata is a role model in India so far as corporate social responsibility is concerned and they started the Tata Memorial Hospital in Mumbai to meet the growing needs of the people for cancer treatment. They have a section where poor people can get free treatment. Over the years, the reputation of the hospital reached such a height that patient of all income levels from various parts of the country as also neighboring SAARC countries are pouring into Mumbai to get treated for this deadly disease. This success led the Tata to start a similar hospital at Kolkata by investing INR 5 billion. Here is an example of how CSR and Business Plan are converging.

## **Health is Wealth**

That's what is being realized by the corporate. With major work force for the factories particularly in the shop floor coming from the Tier 4 or the BOP, much emphasis is being given to the healthcare at this level. There is a large market for health services in this level of the economic pyramid. Science and technology are often termed as a double edged weapon, but it can be said that technology is a multi- edged weapon. In the case of the bottom of the pyramid, technology can be best utilized to provide a cost effective health facilities to the people. Since the income level of the people at the BOP is very low, they can't afford costly healthcare. Making cost effective does not mean that they should be provided with inferior quality goods. Some of the examples of the companies that have started their campaigns for the up bringing of the healthcare in the rural area are P&G, Glaxo, and Philips etc. Focusing on the healthcare project of Phillips India, there are lots to it. A brief of their plans and initiatives is given below.

## **Philips India- Rural Healthcare**

Philips India, a subsidiary of the Netherlands based Royal Philips Electronics, the Indian Space Research Organization (ISRO), part of the Department of Space under the Ministry of Science and Technology, Apollo Telemedicine Networking Foundation (ATNF) and Development of Humane Action (DHAN), a Madurai based NGO are jointly involved in DISHA (Distance Healthcare Advancement) - a project aimed at meeting the healthcare needs of the less privileged in India. Each is a strategic partner in the project bringing their unique capabilities to deliver the Project's aims.

DISHA, a telemedicine initiative is a business plan conceived by Philips India for providing distance healthcare to the underserved people at the base of the economic pyramid. Healthcare is a core focus area for Philips and the company has a clear vision to make technological innovations in healthcare accessible, available, and affordable to wider sections of people around the world. DISHA is a step in that direction. The project will meet the needs of India's more vulnerable groups who need adequate but affordable healthcare.

This strategic partnership between a Government agency (ISRO), the largest healthcare service provider in Asia (Apollo), one of the most respected NGO in the country (DHAN) and a global leader in imaging and medical diagnostics (Philips) is the first of its kind in India and is an outstanding example of public-private partnership in addressing one of the country's key concern areas.

In 2004 Philips commissioned ACNielsen (with support from ICG Consultants) to conduct a qualitative and quantitative research in India, which revealed that people in rural areas with lower incomes spend a higher proportion of money on healthcare than their urban counterparts. A large percentage of costs go to paying high interest rates on loans for healthcare, while travel and lost work time accounts for much of the remainder. Early

intervention in a health crisis is therefore critical in dealing with poverty. The DISHA initiative is being piloted in Theni district in Tamil Nadu and was formally inaugurated recently in Madurai.

Philips, a leader in high quality diagnostic equipment, has custom-built a tele-clinical van complete with diagnostic equipment, including an ultrasound machine, X-ray machine, a defibrillator and an ECG machine. This van with dedicated doctors and other Para-medical staff will operate in the areas around Theni district in Tamil Nadu.

ISRO has in the past couple of years, taken the initiative for a satellite-based telemedicine network in the country to reach super specialty healthcare and consultancy to rural and remote area population. For the DISHA project, ISRO is providing the connectivity through VSAT and allocating the required bandwidth on its INSAT satellite free of cost.

Apollo Hospitals Group is a pioneer in the field of Telemedicine in India and is credited with being the first to set up a rural telemedicine centre in the village of Aragonda in Andhra Pradesh. Apollo Telemedicine Network Foundation (ATNF) with 76 telemedicine centres including 5 overseas has today emerged as the single largest Telemedicine solution provider in India.

The Apollo Specialty Hospitals, Madurai, the leading super-specialty tertiary care hospital in Madurai is the referral hospital for the DISHA mobile tele-clinical van. Apollo will make available to Philips the required doctors and paramedical staff in the van, as also train the medical and paramedical manpower. Apollo's specialist doctors and operational staff at its hospital in Madurai will provide specialized diagnosis and care for patients visiting the mobile tele-clinical van.

DHAN Foundation provides the vital link to the local community and will play a key role in community participation for the project. DHAN will provide counseling (through domiciliary follow-ups) to the patients on nutrition and hygiene. They will train volunteers from the villages to motivate and play an active role in counseling. This will enable the villagers to directly participate in the implementation of the project.

*“Philips is a Healthcare, Lifestyle and Technology company. Our vision is to be able to improve people's quality of life through the products we offer and the markets we serve. Our challenge lies in expanding our scope to new markets and new business opportunities with sustainability as the key driver” said Mr. Ramachandran CEO Phillips India.*

*“Today the population growth is highest in emerging markets especially in the mid and low ends of the economic pyramid. Technology can help drive sustainable solutions that bridge the divide between the privileged and less privileged sections of society and improve the quality of life at all levels. However, new value delivery models need to be created to make this happen and this strategic partnership is a step in that direction” he added*

In India, 80% of the population lives in the rural areas, whereas 80% of the medical community lives in the cities. 11% of the world's population, which resides in the rural areas of India, remains devoid of quality healthcare. This scenario could change with the use of Telemedicine, that would bridge geographical distances and provide healthcare to those sections of the society that currently don't have access to quality healthcare. Through telemedicine we transfer the knowledge and not the patients, who are then treated at their respective villages. This is very convenient, cost and time effective.

## **Opportunity at the Bottom of the Pyramid**

Hindustan Lever Ltd. (HLL), a subsidiary of Unilever PLC and widely considered as one of the best-managed companies in India, has been a pioneer among MNCs exploring markets at the bottom of the pyramid. For more than 50 years, HLL has served Indian elite who could afford to buy MNC products. HLL's rural marketing department adopted a customer-centric approach with the 'Project Bharat' programme that involved a direct marketing method. This enabled HLL achieve higher penetration in rural homes by studying the awareness, attitudes and habits of rural consumers. The modus operandi involved use of vans that offered a price-pack consisting of small-unit detergent, toothpaste, face cream and talcum powder - for Rs.15. Video shows were used by the sales reps to explain the benefits of using these products. The affordability factor was a decisive one for the sampling exercise. To build on the success of this initiative, HLL used the 'Integrated Rural Promotion Van' programme to ensure that its products

reached even villages where the population was over 2000 people. To reach out to the villages having a population less than 2000, HLL used self-help groups by providing them self-employment opportunities. Banks provided micro-credit that enabled these villagers to purchase stocks from HLL and start selling them directly to consumers. This was the first step in educating the villager personal care which was immediately followed by health and hygiene that were fostered through the usage of its products. To spread the message, it formed tie-ups with Non Government Organizations (NGO) and voluntary organizations, United Nations Development Programme (UNDP) etc. The aim was to cover 75 per cent of the population from the current 43 per cent. The 'Project Bharat' programme enabled HLL to reach out to 13 million rural households by the end of 1999. It enabled higher growth rates of its products in rural areas compared to urban areas. HLL continued to use relevant tie-ups to further its rural marketing efforts. While addressing the share holders at the Annual General Meeting in May 2007, Mr. Harish Manwani the chairman of HLL reiterated Unilever's commitment to fight against child hunger and providing nutritional expertise and financial support to the poor families. In partnership with UN scheme of World Food Program (WFP), the company is working "Together for Child Vitality" in countries like Ghana, Kenya and Columbia as the starting point. This three year partnership is a part of UN Millennium Development Plan for alleviating extreme poverty and providing primary education. In 2001, HLL embarked on the 'Project Shakti' programme that has received a lot of media attention owing to its objective of empowering underprivileged rural women. HLL focused on villages having a population less than 2000 people and launched the Shakti Vani programme that not only provided income opportunities for the women but also provided health and hygiene education. The Shakti programme covered 50,000 villages in 12 states in India that included Andhra Pradesh, Karnataka, Gujarat, Madhya Pradesh, Tamil Nadu, Chhattisgarh, Uttar Pradesh, Orissa, Punjab, Rajasthan, Maharashtra and West Bengal. ([http://www.hll.com/citizen\\_lever/lifebuoy\\_chetna.asp](http://www.hll.com/citizen_lever/lifebuoy_chetna.asp)) [9] Drawing inspiration from Grameen Bank of Bangladesh, micro credit enabled these under privileged women to earn close to Rs. 750 and in some cases up to 2500/-. HLL successfully roped in the state governments and several NGOs to support the effort. According to HLL it is double the average household income. There are about 35, 000 women who have already joined this programme and they are reaching 100 million rural consumers thru' 100,000 villages by 2006 It is an excellent business strategy of reaching and penetrating market to enhance market share. This is a cost effective way of reaching more than 2 million rural households. [10] This is where the convergence of marketing and CSR takes place with innovative approach.

## Conclusions

It can be seen from the above facts and figures that many organizations are doing lot of philanthropic work to meet the corporate social responsibilities. However that alone can not solve the problem of health care delivery to the bottom layer of the economic pyramid. There has to be revenue generation for the corporate to meet their stakeholders' aspirations otherwise it remains a social reform agenda that will remain a co curricular activity. We may draw the following conclusions:

- Delivery of health and hygiene offers a great opportunity to corporate sector
- The size of the market is billions of dollars and innovative products and services can bring in additional business to corporate world.
- Development of cost effective sanitary napkins may rake in millions of dollars and eliminate lot of health problems.
- Similarly educating the rural populations about health & hygiene will meet some social objectives and also promote the products as was done by HLL for their brands Lifebuoy soap & Pepsodent toothpaste
- Another challenge is the logistics of delivery of modern and advanced treatment that can be done thru' modern technology as was done by a consortium of ISRO, DHAN and Apollo Hospital.
- In the study made by Philips India thru' AC Nielson proved that BOP population in the villages spend more money than their urban counterpart and thru advanced technology this potential can be tapped. It will also eliminate self medication and lost wages due to travel. Deployment of the latest technology will make the

availability better, reducing the cost factor and avoiding self medication. This will also make it cost effective and elimination of over medication which many a time is harmful in the long term.

- Some isolated efforts of the corporate are there but it has to be made a movement to tap additional market segment and meet the social responsibility of the corporate.

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# Studies on Conditions of Brand Extension and the Framework of Evaluation

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## Abstract

Apart from owing the value of the core mechanism, most of brand assets came from brand extension. Consequently, the study on brand extension is the vital important aspect in the brand research fields, on top of that, it is also a question that we can not avoid. However, the studies on brand extension always lag on the brand essence. This paper based on the forward achievements, by normative analysis for the conditions of brand extension, to arrive at the conclusions of the brand extension functions, and bring up the evaluating framework for the brand extension. **Key words:** brand extension, brand assets, framework of evaluation

## Introduction

The main value of brand assets came from brand extension. As is known to all, the costs and risks of establish new brand is more and more high, the approximately expense of creating a new brand are between \$50,000,000 and \$100,000,000 in developed countries. To build an international famous brand, the outlay will reach \$1,000,000,000, Even if such expenses have been invested, it does not mean that the new brand will be successful. In general situations, less than 30% of the new brands can survive in the market for three years. So, the brands' extending ability becomes the most important factor to determine the realization of brand value. At the same time the brand extension is the most common application in brand-building practices. Take the USA as an example, in the past ten years, among the new-launched consuming products, about 95% belongs to brand extension, and the new brand product is merely 5%. Therefore, the brand extension has all the while been the exploring object for the brand researchers.

## Brand Extension

There still be no uniform definition of brand extension, the scholars have different views in their special researching fields. The definition of marketing is rather representative, it is generally believed that the brand extension is a strategic decision between increase the new product line or new brand, and it refers extending a well-known brand or a successful brand with marketing influence to totally different products (Zhang, 2005). A rather straight forward expression is that brand extension refers to, based on the brand status, extend core brand to new products or services, with the expectation of reducing the risks of marketing new products and gaining greater market returns with fewer marketing costs. (Hu, 2004). There is also another definition that Brand extension is a marketing strategy, based on quite well-known brand in the market, to name new products or services with the existing brand in order to reduce the risks of launching new products (Ding, 2005).

Those definitions of brand extension are based on viewing the brands as a marketing tool, however the development of brands research goes beyond that. After brand relations theory, the essence of the brand could be expressed by the value of brand equity and brand operating system. So the understandings of brand extension could not be a simple marketing tool. The perspective of brand extension should be an operating system, rather than a simple marketing tool.

Mechanism of brand extension building on the Brand management system is not only the researches on products' correlation degrees under brand, brand Cognitive, and psychological mechanism of brand extension, but

should make it possible to abstract the extension of general sense of products from the brands, and understand essence of the role of extension. The best abstract method is to establish the Brand Extension Model. Brand extension theoretical model is the advanced issue of brand theories. In the past, many studies have focused on the elements composing the brand model. After all, brand itself is not only an independent functional system but also an aggregate of many subsystems. Even if the model is set up, the occurrence of the corresponding conditions are still difficult to achieve. Therefore, we view the activity of brand extension as the campaign of subsystems synergy relations, and the result of coordinated interaction between subsystems. We don't believe the model is determined by some certain variable, and researches on extension will no longer be stuck in the elements and elements relations. More importantly, we solve the problems of perspective of the essence mechanism by point of view of accruing conditions.

### Conditions of Brand Extension

While abstract the Brand as a complete operating system, the factors influence the conditions of brand extension can be categorized into the following three aspects: firstly, the open degree of brand system; secondly, the exclusive degree of brands system's surrounding environment; thirdly, the correlation degree between brand system and extending environment. The following three aspects will be discussed:

### The Open Degree of Brand System

Every developing system is opened, so is brand system. It is continuous developing during the process of necessary contacts and exchanging with the outside. Whether a brand can extend or the degrees of brand extension were all constrained by the extent of openness of the system itself. The degree of openness is negative correlate with the degree of specialization, and the higher level of openness system is, the weaker the specialization get. The system openness will be restricted by specialized power. Therefore, we can describe their degree of specialization in the countdown to the brand extension of this nature.

The degree of a brand's specialization is fixed by the initial time of brand's establishment, i.e. the positioning stage in marketing. The higher degree of the segments of the Positioning products covered by Brand System is, the higher degree of specialization is. The brands with high degree of specialization are well accepted by consumers because that building brands system in a segmented market will reach the brand relationship easily than the less specialized brands. However, the further extension will be restricted by their original position, and it is difficult to utilize the nature brands extension to fulfill the value of extension.

As expatiated as above, we can draw the degree of openness of brand system as follows:

the degree of openness = 1/the degree of specialization

the degree of specialization = The degree of the segments $\approx$ segment market/total target market

This access to a general assessment indicator:  $\mu_1$  represents the degree of open system, I represents the capacity of segment market, and M represents the capacity of total target market.

So, we can get the formula :

$$\mu_1 \approx 1/M \quad \text{formula } \square$$

$$\mu_1 \in (0, 1)$$

The primary theory is brand oneness theory which distorts the brand specialization frequently, i.e. the brand only has one concept and one kind of core value, even if two different products belong different industries, after abstracting, the identical concept and core value adapt to the basic conditions of extension. Using the degree of openness of brands system to describe the brand extension is much more accurate than the associate degrees of products.

### The Exclusive Degree of Brands System's Surrounding Environment

Exclusivity means certain individuals were excluded from the consumer products interests. When consumers pay for private goods, other people can not enjoy the benefits brought by such products or services, and they have to pay enough money to consume the product. An operating environment could be an industry or a product market, if only it matches the qualification of existing and extending of brands system, then we can take it as the brand extension environment. The developing environment which brands exist in is independent opening system, and can be viewed as an entity with many attribute. Exclusivity is the most correlative attribute with brand extension, and it is the most factor affecting brand extension and capability of extension. The more exclusive environment is, the lower level of

compatibility the brand extension is, Vice versa.

There are several indexes to estimate the exclusivity of marketing environment, mainly determined by the market's position in lifecycle and competitive extent. Some studies showed that the efficiency of brand extension in the introduction stage is better than in the mature stage. The more mature, the more exclusive market is. By estimating the specific market, we can position the market in the stage of life-cycle. To denote the degree of maturity, we use percentage depth dose from the introduce stage to the top of maturity stage. Since the decline stage is following with top of maturity stage, the value of brand extension in those stages is too small to ignore, we will not take those stages into account. We use  $\alpha$  to represent market maturity.

Saturation degree is the general index to estimate the competition, and usually use the ratio of the real market supply capacity to maximize market capacity. The bigger the ratio is, the more fierce competition is. we use  $\beta$  to represent the open degree of system,  $s$  to represent the real market supply capacity, and  $Z$  to represent maximize market capacity of target market environment system. Then we can draw the following:

$$\beta = s/Z$$

To sum up, we use  $\mu_2$  to represent the index of exclusive degree of brand system surrounding environment, and draw the following formula:

$$\mu_2 = \mu_2[\alpha, \beta] \quad \text{formula } \square$$

$$\mu_2 \in (0, \infty)$$

### The Correlation Degree between Brand System and Extending Environment

The degree describes the correlation of abstracted brand system and extending environment.

One of brand system's manifestation is the information class, which is the abstracted brand symbol system, it reflected the mutual accepted parts between brand acceptor and brand manufacturer. Originally, the brand was used in marketing, always act as a tool of diversity, its manifestation can be understood as the course of identification abstracted between the brand of product and consumers, until the brand symbol system have matured completely, marked that the course of abstract finished.

The course of a brand develop from the concrete to the abstract, the mature mark of brand is the integrity of symbol system. If a brand possessed the ability of extension or not, is not controlled by brand system, in the long-term practice, consumer have a blur understanding to every industry or segmental market. In order to simplify course of memory and choice, these blur understanding will be abstracted as symbol, and stable comparatively.

The market that covered by brand system do not compare with brand itself, after extension, they will abstract respectively, compare and contrast interaction, a compared model can be established. The correlation is more weak, the brand extension is more difficult, vice versa.

Based on the difference of consumer experience, the degree of abstract is difference. The evaluation about this course, need to establish a compared model of matrix.

The course can be expressed in vectors.

$\mu_3$  is the degree of correlation between brand system and the environment of extension.

$\Gamma_1[\mu_1]$  is the vectors of abstract degree of brand system.

$\Gamma_2[\mu_2]$  is the vectors of reflect degree of consumer

Then we can draw the following:

$$\mu_3 = \Gamma_1[\mu_1] \cdot \Gamma_2[\mu_2] \quad \text{formula } \square$$

Unfold  $\Gamma_1[\mu_1] : [0, \mu_{11}, \mu_{12}, \mu_{13}, \dots, \mu_{1n}]$ , among them: 0 is a concrete entity,  $\mu_{1n}$  was abstracted completely, Unfold  $\Gamma_2[\mu_2] : [0, \mu_{21}, \mu_{22}, \mu_{23}, \dots, \mu_{2n}]$ , 0 is the knowledges of consumer are conform to the characters of market completely,  $\mu_{1n}$  was abstracted as character of feeling completely.

and draw the following formula:



$$\mu_3 = \Gamma_1[\mu_1] \cdot \Gamma_2[\mu_2] = [0, \mu_{11}, \mu_{12}, \mu_{13} \dots \mu_{1n}] \cdot [0, \mu_{21}, \mu_{22}, \mu_{23} \dots \mu_{2n}]$$

### Estimating Framework of Capability of Brand Extension

Capability of brand extension is produced by the interaction of brand system and environment system. When the interaction between the subsystems is equal, the conditions of brand extension are fulfilled. The relationship of above three indexes can interpret the interaction between brand system and environment either. The relation between the open degree of brand system and exclusive degree of brand surrounding environment is independent. the correlation degree is the relation of brand system and the extending environment , and the relation is built on  $\mu_1$  、  $\mu_2$  、  $\mu_3$ , given by the following formula :

$$\mu = E ( \mu_3 ) [ \mu_1 , \mu_2 ] \quad \text{formula } \square$$

put it into formula  $\square$  , we can get the following formula :

$$\mu = E ( \Gamma_1[\mu_1] \cdot \Gamma_2[\mu_2] ) [ \mu_1 , \mu_2 ] \quad \text{formula } \square$$

put formula  $\square$ ,  $\square$  into formula  $\square$  , we can get:

formula:  $\mu_1 \approx IM$     formula:  $\mu_2 = \mu_2[\alpha, \beta]$

$$\mu = E ( \Gamma_1[IM] \cdot \Gamma_2[\mu_2[\alpha, \beta]] ) [IM, \mu_2 [\alpha, \beta]] \quad \text{formula } \square$$

The formula  $\square$  is the model framework to estimate capability of brand extension incorporation operating system.

### Conclusions

This paper bases on the character of brand operation system, interprets the conditions of brand extension, and brings up the evaluating framework for the brand extension. Calculation of extension theory, same as the Brand Mechanism, is also built on the demonstration. Therefore, launching further research to framework is to study on the ability of Brand extension to find out the correlation coefficient.

### References

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# Re-defining Brand Value under the Influence of Shifting Consumer Behaviour

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## Abstract

In the last years, the number of “green and ethical” brands has increased as a result of shifting consumer behaviour in favour of environmental and ethical consumerism, mainly in North America and the EU. This paper gives a brief introduction into the new market realities of global and national markets, which include, among other factors, a shift in consumer purchasing behaviour and their power to influence companies’ practices and products. These new market conditions may have significant implications on brand building, as well as its management. The purpose of this paper is to bring into a discussion a holistic approach in creating values associated with the brands, which may lead into a new model of brand building. It is argued that companies with the ability to adapt quickly to changing market situation may gain bigger market share in contrast to those who continue thinking according to the rules created 50 years ago.

## Introduction

Every sequence of several centuries the society goes through a significant transformation stage. Within several decencies every society transforms itself - its overall worldview shifts, its basic values and norms move, social and political structures change, arts and the key institutions adapt according to the changes and trends in the external environment (Drucker, 2006). Today’s fundamental changes, started over thirty years ago, are only the beginning of new future realities. To name some of them, Kapferer (2001) identifies the following factors, which create new market conditions: mega-distribution power, new consumer power bolstered by the Internet, new unconventional Internet competition, consumer and media fragmentation, the rise of local identities in reaction to the forces of globalization. The other phenomenon, which influences the ways companies do their business, is a rise of ethical consumerism around the world (Harrison, 2005). This paper focuses only on selected factors that have a growing impact on the perception of brand value and the management of brand.

## Shifting Consumer Behaviour

Increase of level of literacy of the population and ease of information flow through the Internet has created new realities that completely change market conditions and how companies do their business. The corporations are no longer closed organisations, but through the Internet they become ever more open and interactive places for providing and receiving information as well as exchanging ideas, stories and experience that consumers have with their products and shopping *per se*.

Internet brings consumers into direct contact with the company’s values by involving them on their personal and behavioural level (Kapferer, 2001). It is largely used by many consumers to learn more than just about the company’s products, but also to “check” whether companies behave responsible towards its stakeholders and different society groups.

Today’s consumers are more than ever interested in how companies create their values (Willard, 2005). Big corporations like Nike, C&A, H&M, Next, Nivea, L’Oréal, British Telecom or Ford Motor Company promote on their websites not only their products, but make available information that goes much beyond the traditional marketing „promote-sell“ strategy. This consequently alters consumers’ attitudes towards companies and their purchasing behaviours while choosing different products.

Global companies often speak about global issues such as environment, climate change, health and safety issues or poverty and human development, which traditional marketing was not used to. Most of the famous

garments' brands such as Nike, Next or C&A have been progressively introducing ecological labels and/or informative labels about their socially responsible activities. H&M, for i.e. attached to certain articles a label showing the company's commitment to tackle water scarcity in the selected developing countries.

An increased awareness about global challenges among the consumers forces companies to speak and react on the issues that were not on their agenda a few years ago. This is all due to a rise in the number of ethical consumers around the world over the last two decades appears to be unprecedented (Harrison, 2005). If one would type "ethical consumer" into the Google search in 11 April 2007, 1 610 000 related messages show up. To try searching for "effects of multinational corporations" 1 160 000 and just for two words "global challenges" the number is much higher and reaches 160 000 000. Search engines such as Google, Yahoo and other local search engines make extraordinary easy, and in global scale, access to all kind of knowledge and information that consumers may require and use when they make purchasing decision.

Additional specific examples of the various impacts of information and communication technology on consumer behaviour can be mentioned (Business Dialogue. NCFSD, 2006): e.g., the availability of increased and better information with the emergence of web-based markets such as e-Bay [making more 'anarchic' but also possibly better functioning markets], digitalization and 'de-materialisation' (goods are substituted by services, e.g., music being downloaded over the web rather than bought on CDs) accessibility of all kind of sources of information related to the quality and origin of the products, the company's practices and behaviour make consumers much more knowledgeable and informed than it was before the spread of informatization age.

Recent EU Special Eurobarometer 217 - public survey - published in 2005 by the Environment General Directorate shows that nearly half of the respondents are worried about "water pollution" (47%), "man made disasters" (46%), "climate change" and "air pollution" (both scoring 45%). The fifth most mentioned issue is "the impact on our health of chemicals used in everyday products" (35%). In average climate changed worries 45% of the EU citizens (this issue is not perceived as the most important for citizens in the New Member States - NMS - than it is in EU15 original countries). Finally, men seem to be significantly more concerned about the issue of "climate change" (49% versus 41%) while women seem to be more concerned about natural disasters, and the "impact of chemicals on health" (35% versus 28%). The greatest concern was expressed on the issue of "increasing quantities of waste": 43% for NMS citizens, in contrast to 27% for EU15 citizens. "Air pollution" is a greater concern in the 10 NMS at 52%, (in fact, it is the second highest concern for people in these countries). In the former EU15 the issue scores 43%. According to the same survey, scores on "air pollution" in all 10 NMS are above the EU-25, and on average reached 45% of the answers.

Societal concern about the quality of the environment, intensified by daily media news, documentary films and radio broadcasting about the causes and consequences of human activities on the natural ecosystems and climate, strongly influence individual aspirations, attitudes and change purchasing strategies and behaviours towards more environmentally friendly and ethically produced goods and services.

Local, regional and global social and environmental organisations and movements as well as think-tanks (i.e. Worldwatch Institute, Greenpeace, World Conservation Union, OXFAM, International Fair Trade Organisation, World Resource Institute, and International Institute for Sustainable Development, just to mention some of them) have also a transformative impact on how people think and behave.

Changes related to the size and age structure of the population, degree of education and level of income are another factors relevant to the market. Ageing of population and reducing of family size in many developed economies have radically changed the way we live. UN Organisation in the report World Population Prospects: 2000 Revision predicts that European population will decline rapidly from 451 million in 2000 to 110 million in 2050, but immigration rate will remain high. The report showed that almost every European country is experiencing very low birth rates. Effects of demographic trends on retirement age and health could create an increased demand and consumption of health- and personal-care products and services, and overseas travel, as people have demands to be satisfied during a longer life. These demographic trends have direct consequences on how, what and where people will buy and in what quantities.

Growing number of government laws and regulations in favour of environmental protection as well as environmentally-friendly consumption and production are also direct consequences of changing society attitudes and opinions about ecological values. Looking back to the history of the European Union, in October 1972 the EU put

into effect the first environmental legal act. At the time of writing this paper (March 2007), the European Union has more than 700 items of Community legislation relating to environmental protection (reference to the European Parliament Fact Sheets), including more than 200 legal acts to monitor (according to the EU, DG Environment web site). These legislative measures cover all environmental sectors, including water, air, nature, waste, and chemicals, and others which deal with cross-cutting issues such as access to environmental information, and public participation in environmental decision-making.

To summarize the main aspects of the growth of ethical consumerism, Harrison (2005) proposes the following factors:

- the globalisation of markets and the weakening of national governments
- the rise of multinational corporations and brands
- the rise of campaigning corporations and brands
- the social and environmental effects of technological advance
- a shift in market power towards consumers
- the effectiveness of market campaigning
- the growth of a wider corporate social responsibility movement

#### **Emerging “Eco-hedonism”**

“Eco-hedonism” (taking pleasure from buying ecologically friendly products of high quality) creates an increasing demand for more ecologically and ethically produced goods and services in all EU countries. In some countries like Austria, Germany, Switzerland, Denmark or Great Britain “ecological consumerism” make green products “cool to care” as stated in the Business Dialogues 2006 of UK National Business Council for Sustainable Development.

At a time when net disposable income continues to grow, particularly in the NMS (ICEG EC, 2005), the individual consumption patterns change and consumers determine what they see as socially desirable or acceptable products. A recent Czech survey showed that Czech consumers progressively prefer to consume healthier food, including organically produced, and Czechs pay more attention on the origin of the food if compared to the previous years (Main TV News, 10 May 2007).

The findings from the survey “Organic food Products Surge Ahead” published in January 2007 by GfK Germany show that organic products are a market with a future. Already last year, as many as 90% of all German households bought at least one organic product and the number of purchases and amounts spent on these products is continually rising.

According to the report prepared by United Nations Economic Commission for Europe and FAO, Danish consumers are very interested in environmental topics (98 % think that it is very important to take care for the environment) and are also willing to pay more for the sake of the environmental protection. They indicate that they would pay up to 43 % more for the products provided these products have lower environmental impacts than the conventional ones, and knowing that their use may have a positive impact. The main reason why Danish buy green products is environmental protection (76 %), followed by a wish to sustain their health and prosperity (51 %). These findings can be compared to the Czech survey, prepared by Synergy Marketing and GfK Czech Republic in 2006, showing that organically produced food increased by 30% in 2006 to compare to 2004. Those respondents who buy regularly green products do it, above all, due to health reasons. The criterion of nature protection does not matter to them as much as to the Danish consumers.

According to Mori survey conducted in 2000 on behalf of CSR Europe (a European non-profit organisation promoting CSR concept) across 12 European countries, 70% respondents said that a company’s commitment to social responsibility is very or fairly important when they are making a purchase decision, which includes a quarter of those for whom it is very important. The survey further showed that social responsibility is seemingly most important in Spain, Belgium, Switzerland and Great Britain. Moreover, around one in five of the public across Europe would be very willing to pay more for products that are socially and environmentally responsible. This opinion was the strongest in Denmark, Spain, Sweden, the Netherlands, Switzerland and Finland. (Mori and CSR Europe, 2000).

Another survey of public in 23 countries, conducted by Environics in 2000 revealed that for the first time responsibility issues such as treatment of employees, community commitment, ethics and environment were

mentioned more often than product and brand quality as important factors in forming an impression of a particular company (Enviro-nics Millennium Poll, 1999).

The recent UK poll - The Future Leaders Survey 2006-2007, prepared and launched by Forum for the Future and Universities and Colleges Admissions Services, provides interesting findings into the hopes, fears and expectations of 54,240 UK's university students aged 17 to 21, for the academic year 2006-2007. The survey was based on the premise of what the world will be like in 25 years. The majority expects quality of life in the UK to improve but 91% think climate change will be significant, and 80% think inequality between rich and poor countries will continue to grow. According to the questionnaire results, two thirds believe global oil reserves will have run out. 76% believe lifestyles need to change radically in many areas, to tackle climate change and other environmental challenges. The report further highlighted that respondents think of themselves as less healthy, more affected by crime, more worried about the future, and more materialistic than their parents were at their age, 65% see themselves as more materialistic, and only 6% think they are less. 55% of respondents believe they are more concerned about the environment than their parents were at their age - identifying the main reasons for this as a growth in awareness for current challenges. When asked to name the type of actions taken for environmental reasons, the respondents gave the following answers:

- 40% had bought locally produced food instead of imported food
- 34% had avoided large chain stores and favoured locally owned shops
- 22% had taken part in a demonstration or protest march and 17% had written to their MPs
- 17% had taken a holiday in the UK instead of travelling overseas
- 26% had joined a third world development charity and 14% joined an environmental charity or pressure group

The Future Leaders Survey may be a sign for nowadays government and economy leaders to look at. Today's young people are future leaders. Studies like these should be a reference for marketing experts as to think on appropriate strategies to be adopted, as today's young people become tomorrow's main consumers.

World celebrities show new preferences, too. "What would you drive if you could afford any car in the world?" That was the question for Hollywood stars like Cameron Diaz, Brad Pitt, Alicia Silverstone, and 33 others, all driving around Hollywood in their hybrid cars (Celebrity Hybrid Cars Web site). With so many celebrities showing themselves in the hybrids, it's hard to ignore their potential influence in getting more people to think about switching their gas-guzzlers for a hybrid car.

Still, there are many paradoxes in consumers' behaviour and disagreement between what people think is good and right and how they act. In Mori survey of public opinion (2000) with CSR Europe showed that despite the high level of concern expressed by the public on ethical issues in their relationships with companies, half of the British respondents (53 per cent) agree that they are sympathetic to social and environmental issues but not active (Mori and CSR Europe, 2000). This dissonance is unlikely to counter-balance what consumers are concerned about from their consumers purchase behaviour. Already cited report Business Dialogue from UK National Business Council for SD showed that consumers know what behaviours are unsustainable and yet, are highly selective about which products or personal behaviour they choose to change. For instance, they may switch off lights but still use cheap air travel to go on holiday more frequently.

With changing market conditions, alongside with shifting consumer values towards environmental and ethical consumption (Calvin and Lewis, 2005) companies should adapt and elaborate strategies based on the questions how the market is today and will be tomorrow, rather than based them on the old paradigms and assumptions. Strategy elaboration represents a key process within each company aiming at continuous and goal-oriented development of its business activities. The importance of strategic planning rises in the period of uncertainty and permanently changing external and internal conditions. The major challenge relates more to the identification of critical factors that will shape the new futures than to the actual description of the market situation. Managing and building brands in turbulent times therefore have to quickly adjust to the new realities and uncertainties.

### Categories of Emerging Conscious Consumers

Conscious consumers differ from the conventional ones in many aspects. According to Roper Starch Worldwide (Roper, 1996) there are five different consumer segments, classified into the following consumer categories in Table 1.

TABLE 1: CONSUMER CATEGORIES

True Blue Greens	Hold strong environmental beliefs and live accordingly. The most “fired” from all environmental activists, they believe they can personally make a difference in reducing environmental damage through personal green-shopping and political and social activism. They devote time and energy to environmentally cautious practices and they try to influence others to behave the same. True Blues are more willing to support financially environmental organisations and more likely to boycott products made by companies that do not action an environmentally responsible manner. They are the most educated in terms of received education out of the five groups; many of them hold executive or professional positions in various private or public organisations.
Greenback Greens	They are willing to pay extra for environmentally friendly products. Although they are very much concerned about the state of environment and support environmental associations and NGOs, still they feel too busy to change their lifestyles and behaviour. Greenbacks are generally not politically active, but are ready to pay and support green products through product price premium (you said this already above). “Green” shopping within this group is very high.
Sprouts	They are ready to engage in environmental activities but only when it requires little or no effort. Actions like recycling, when supported by local municipal law, are their main green activity. They read labels - although less often than the True-Blues and Greenbacks. Their concerns for being green ends at the supermarket cashier: Sprouts generally will not choose a green product if it is more expensive than other products. When they do, they are only willing to pay up to 4 % extra. They are well educated, and most of them are married. With more education and information, they are often the source for new Greenbacks and True-Blues.
Grouzers	Do not believe that individuals play any significant part in protecting the environment. They feel the responsibility remains with the government and large corporations. Grouzers complain that they are too busy to get involved in any environmental activity, and at the end, green products are expensive. Finally, they believe everything they do will have no positive impact on the current unsustainable consumption and production anyways. Their overall attitude is that it is not their business to care.
Basic Browns	Are overall not convinced that environmental problems are that serious as for them to pay attention. They just don’t care. The largest of the five groups, Basic Browns have the lowest median income and the lowest level of education.

Not all “deep green” consumers (True Blue Greens) have the same characteristics and reasons why they buy green products. It is possible to further segment them into sub-categories, reflecting the major types of environmental issues that are of their interest. Jacqueline Ottman (Ottman, 1998) divides them into the following three sub-categories: Planet Passionates, Health Fanatics, and Animal Lovers.

With the goals of protecting natural environment and keeping the wildlife pure and untouched, Planet Passionates focus on issues relating to land, air, and water. They recycle bottles and cans, avoid overpackaged products, clean up shores, forests and rivers, and boycott tropical hardwood producers, and companies that do not behave responsibly. They often belong to the social group of people supporting a lifestyle known as “voluntary simplicity”, which is about living a meaningful life - one in which an individual determines what is important, or "enough," for him or her, and neglects the rest.

Health Fanatics, as understood from their name, are mainly concerned on the health consequences of environmental problems. They worry about, for example, getting cancer from too much exposure to the sun, genetic defects from radiation and toxic waste and hazardous chemicals and on the long term impacts on their children’s health of pesticides on fruits and vegetables. Health fanatics frequent natural food stores and eat organic foods.

Animal Lovers, the third major group of deep greens, protect animal rights. As an example of their actions, they do not eat meat, product of a mass production. Or, they simply become rather vegetarians than meat consumers.

Animal Lovers check to see if products are "cruelty-free," if not, they immediately boycott them. They often support financially wildlife animal protection-focused organisations.

According to Ottman "green" consumers want their products they buy to be sexy, economical, and environmental friendly, all at the same time.

"Green" consumers read the labels and often search for the environmental information about origin and effects of purchasing products from Internet, magazines and books. They follow and boycott those corporations that do not behave socially and environmentally responsibly and they are likely to switch brands and become loyal to those who do behave so.

MORI conducted another more recent research in typology of ethical consumers in the study for the Co-operative Bank, in 1999, through out a series of four focus groups across UK. The outcomes showed that the middle-aged (35-54) appear to be the most active consumers on ethical issues. The research revealed that there are key consumer types (MORI with Co-operative Bank, 1999):

TABLE 2: KEY CONSUMER TYPES

Type	Percentage	Characteristics
Global watchdogs	5%	Ethical hardliners
Conscientious consumers	18%	More than "Do what I can" type
"Do what I can"	49%	Older, active recyclers
Brand generation	6%	Younger, less values led
"Look after my own"	22%	Lowest income, lowest interest

Global watchdogs are always well informed about the companies' commitment to social and environmental issues and their purchasing strategies are strictly based on ethical criteria. Conscientious consumers are not that active in promoting CSR of companies, but still the ethical aspects of products and the overall company behaviour matter for them. Older generation seems to be sensitized on certain issues related to social and environmental concerns, though they do not put an extra effort to boycott products of irresponsible companies, rather than that they do what they can; such as example is recycling products or select waste. Despite of the common assumption that younger people (18-35) are more value-driven than those older once above 36, the report showed that actually for younger generation it is a brand that matters the most. Last consumer type was called as "Look after my own," which represented almost one quarter of the population with the lowest income and little interest in ethical issues.

## Re-defining Brand Values under Shifting Consumer Behaviour

The first part of this paper introduces only some of these factors that fundamentally influence the business environment. The next section gives a few definitions of brand values that are often found in the marketing theories, followed by an attempt to re-define the brand value according to the new market conditions and realities using the holistic approach.

There are number of definitions that could be chosen as examples. Some authors describe brands with help of their names by which a product is known, others according to added values, image, expectation, distinctive characteristics, etc., which can be all assigned to brands. Still for some academics and business representatives, a brand value is often used as a synonym to brand equity. Both concepts are different, yet intricately linked to one another. Pedro Laboy, international marketing expert, defines brand value as "the net present value of future cash flows from a branded product minus the net present value of future cash flows from a similar unbranded product— or, in simpler terms, "what the brand is worth to management and shareholders" (Laboy, 2005). This understanding of a brand value is similar to what Feldwick (quoted in Haigh, 2005) defines as brand equity. He claims that the word "equity" is a purely financial term borrowed by marketing experts from financial management to measure the economic value of a brand. Laboy, in opposite to Feldwick, yet defines brand equity "as a set of perceptions, knowledge and behaviours on the part of customers that creates demand and/or a price premium for a branded product". In other words, "what the brand is worth to a customer." It can be also defined as "a set of elements such as brand associations, market fundamentals, and marketing assets that help distinguish one brand from another"

(Laboy, 2005). Kotler and Keller (2006) describe a brand value as “a value, which may be reflected in how consumers think, feel, and act with respect to the brand, as well as the price, market share, and profitability that the brand commands for the firm.” Armstrong and Kotler (2006) understand the real value of a strong brand in its power, which is reflected in consumers’ preference and loyalty to a brand. According to an explanation of David Aaker (2003), one of the most respected personality in the field of brands, brand value “includes all the actives (and passives) linked with the brand’s name and symbol that increase or decrease a value that product or service brings to a company and/or a consumer.” Aaker also identifies the main categories of a brand value, which includes: a) brand loyalty, b) brand awareness, c) perceived quality, d) brand associations, and finally, and e) other properties assets.

All of these authors propose models how to build a strong brand. Yet, all of them focus primarily on building associations and values with respect to a brand-product relationship, which do not include new consumers’ requirements, resulted from corporate social responsibility. Even though all these definitions and models are correct, still something is missing.

#### **Holistic Approach to an Extended Brand Value Model**

First, we need to define what we mean by a holistic approach and how this fits into the concept of brand building. Second, we give an example of the company that attempt to use such approach.

Within last fifty years an extensive academic researches have delivered a number of models for building and managing brands. Large volume of substantive knowledge in this field, coupled with empirical and case studies provide managers with the rules how to build, manage and increase brand values. As argued in the previous section, new realities governing global and national markets significantly alter the market conditions and the ways the companies do their business. As a logical extension of it, there is a need to re-think and apply new rules, which will govern the ways, how companies build their brands.

Many authors of books about environmental and ethical consumption argue that big companies, whatever efforts they do to re-position and re-brand themselves in the public mind as socially responsible organisations, often fail to do so, for a number of reasons (Crane, 2005, McEachern and Schroder, 2002). One of the critical concerns is lack of transparent and trustworthy communication about companies’ commitments and efforts to improve employees and external social groups’ well-being as well as to respect nature’s capacity to regenerate. With this respect, the authors of this paper argue that there is a need for stretching the concept of the brand. In this section the authors give a brief introduction into a holistic approach towards brand building, which can better embraces current market trends.

Holism (from a Greek word meaning all, entire, total) is the idea that all the properties of a given system (biological, chemical, social, economic, mental, linguistic, etc.) cannot be determined or explained by the sum of its component parts alone. Instead, the system as a whole determines in an important way how the parts behave (Wikipedia, Free Encyclopaedia). A brand with its product creates inherent part of a company’s system. Therefore, a company, its products and its brands cannot be separated from each other and together work as one. The other important aspect of holistic approach is the idea of evolution, which in the concept of a company is often accomplished through technical and social innovations. This is first and foremost important as paradigms - how people see the world – including norms and values evolve over time. Thus, every company that wants to survive has to adapt to a changing paradigm.

Another characteristic of such approach is that it opposes to reductionism, which in contrary to holism, is often used in science to eliminate many parts and factors in analysing complex systems. With an ever increasing complexity of social-economic system, reductionism seems to deliver solutions, which are often inaccurate due to elimination of many factors. In the concept of brand building, these aspects may be often crucial to understand and develop an appropriate brand strategy.

Holism is often seen or sometimes even interchanged with a definition of a system, which can be also applied to any company. A system is a set of entities, real or abstract, comprising a whole where each component interacts with or is related to at least one other component and they all serve a common objective (Wikipedia, Free Encyclopaedia). A company is such a system, including many different subsystems.

Gunter Pauli, an author of several famous books about a new model for a company and founder of several successful enterprises, defines a company as “a totally open economic system and a totally closed environmental system. That system involves everything we do. The products and the way we produce them. The ecological factory



where the products are made. How we communicate our message to customers. How we work with each other. Why we spend so much time on social-cause related initiatives all around the world” (personal interview, May 10, 2007). In other words, it is an open economic and social system, created and managed by humans, which uses ecological systems to its benefits to produce and deliver goods and services, but without minimum or no harm to ecosystems and people. All three different systems are in permanent interactions.

The same can be applied for brands. As there is no brand without a product or a service, every brand is both the part and the whole. The brand includes both tangible and intangible elements: product itself, but also values, images, emotions, and feelings. “Branding is about feelings and emotions. It is about our “Nature” as human beings. The power of branding comes from the fact of its ability to step out from the constraints of Reason. Trust your instinct and your heart and do not underestimate the power of aligning people behind big emotional values” (Braun, 2007). Brands create their own world.

With an increase of complexity of the market conditions, coupled with ever increasing consumers’ needs and desires, the complexity of the concept of brand goes beyond the traditional approach to brand building. As a consequence of it, a model of brand value needs to be based on holistic approach rather than mechanistic, reductionism, often too simplistic. Such model has to re-think how companies create their values, including consumers’ requirements for more environmental and social responsible companies, embraced in the company’s vision and purpose, resulted in environmental and ethical products.

As a short example of a company that manages to apply a holistic approach to their business activities could be mention Interface Corporation, one of the biggest producer and distributor of floor coverings and fabrics, designed and inspired by nature. The company’s vision says that Interface’s ultimate goal is: *“To be the first company that, by its deeds, shows the entire industrial world what sustainability is in all its dimensions: people, process, product, place, and profits - by 2020 - and in doing so we will become restorative through the power of influence”* (Interface Sustainability Web site). Such ambitious vision must be inspired and driven by visionary and committed leaders that are able to concretize “mental images” into concrete outcomes.

Ray Anderson, chief executive officer of Interface, in his bestseller “Mid-course Correction” (Anderson, 1998) writes that the 21<sup>st</sup> century companies need to have a clear vision, making the commitment to 5Ps – people, process, product, place and profits. Such a company strives to create an organization where all people are awarded unconditional respect and dignity, one that allows each person to continuously learn and develop. Important focus is put on products and services through constant emphasis on process quality and engineering, combined with careful attention to the customers’ needs, for delivering superior value to them, therefore, maximizing all stakeholders’ satisfaction. At the same time, all the industrial processes need to incorporate ecological principles into the design of products and services delivered. Such company leads by example and validates by results, including records on profits and overall increased company’s access.

Informal communicational channels such as word of mouth, working for the company or knowing family or friends, who work there, spread quickly such approach. Moreover, it seems to be the best communication strategy (Worcester and Dawkins, 2005).

Interface has to create a completely new system. The business model this company promotes is based on sustainable business practices, biologically inspired approach to industrial production, and the company’s commitment to stakeholders, including involvement in those communities of urgent need on a global scale. *“For Interface, sustainability is more than surface appearance. It’s a belief that is built into our business model. It’s an underlying corporate value, ensuring that business decisions are weighed against their potential impact on the economic, natural and social systems we touch. It’s a means for our associates to deliver superior value to our customers and to our shareholders.”* (Interface Sustainability Web site, Company) In other words, Interface is committed to continuously improve operational procedures in all of their facilities, which can be mirrored throughout high quality products with a low environmental impacts, enlightened people, and significant profits for supporting new and ongoing innovations.

## Conclusion

There are several approaches how to build, manage and increase commercial brand values. As shortly discussed in this paper, the ecological and ethical values become more embedded in consumer purchasing strategies, resulting in the implementation of social and environmental responsible management practices, which should be respectively reflected the ways how companies build their brands.

To capitalise on the holistic approach to brand building, the companies have to fundamentally re-think the ways the companies build their brand values. Consequently, investments into new areas such as the environment, employees, and local communities should be understood as opportunities rather than threats, and future profits rather than today's costs. In times of shifting consumers' preferences and changing fundamental society values and norms, particularly with regards to the natural environment and ethics, commercial brands may significantly gain and increase their value unless the companies behave and act more proactively towards the accumulation of all four capital resources: economic, natural, social and human.

On a longer term perspective, companies focusing on green and social innovations may increase the value of their brands and thus gain competitive advantages through reduced operational costs, increased company's image, improved risk management, and last, but not least, have an easier and more flexible access to external financial resources. Such a capacity requires re-defining the company vision and purpose, goals and business practices, resulted into environmentally friendly and ethically produced products and services.

Despite of numerous studies on brand building, there are no models that would question and propose comprehensive strategies how shifting consumer values and purchasing behaviour can affect future brand values and brand management. In this paper the authors introduce the basic idea of a holistic model for brand building. The proposed concept, however, needs further research in order to better incorporate fundamental changes of the market as well as new findings not only from management and leadership fields, but also from completely other areas of science and technology, which have emerged over last 20 years across the whole academic spectrum.

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# Brand Awareness and Consumer Buying Behavior in GSM Mobile Sector

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## Abstract

Living in an age of transition, one cannot help wondering about the revolutions that have taken place, and will take place in social, economic and technological areas. Technological changes have been rapid and radical in India with the use of wireless and cellular technology by companies for their global business operations. The revolution is not yet over, particularly for the Indian Telecom sector, as India is expected to have 100 million Global System for Mobile communications (GSM) subscribers by 2007-08 as compared to 26 million subscribers as on March 2004, according to Global Mobile Suppliers Association (GSA). India has been a success story for GSM as it is one of the fastest growing markets with its subscriber base being doubled in 2003. At this pace the target of 100 million users in February 2004, with GSM accounting for 80 percent of the new subscriber growth in 2003. Though, it does not resolve the increasing debate over GSM versus Code Division Multiple Access (CDMA) in mobile services arena, GSM has been a successful mobile standard with over one billion users and is an open mobile standard supporting automatic international roaming, which is a major contributor to business plans. The study is an attempt to find out the brand awareness and consumer buying behavior with regard to GSM mobile of LG in PUNE, the historical capital of the State of Maharashtra and fast growing IT city. The present study becomes more relevant and significant because LG is very new to GSM phone sector, only a year old in Pune. The finding will be useful to enhance customer value, satisfaction; retention can help the strategic and marketing planners who are concerned with the philosophy and practice of new product development to introduce better, innovative and customized products to the consumers.

## Introduction

A major revolution in communication is sweeping across business, industry, and influencing the daily lives of everyone. As an offshoot, the developments are never ending the field of Information and Communication Technology (ICT). These leads to new business models and new ways of marketing products and services. The changes are highlighted through telemetric, radio frequency identification devices, smart products. Moreover, with the presence of many players in the field of GSM, the organization has to know the growth prospect of the market so that they can be able to make their long-term strategic plan, based on the consumer buying behavior. The increased attention given to consumer behavior and research is due to the belief that, the consumer has more power than ever before, the consumer has access to more information than ever before and, Marketers can offer more services and products than ever before due to advancements in technology and digitalization. .

The researcher has attempted to study the various dimensions of consumer buying behavior of GSM mobile phone customers with reference to brand awareness level, price, battery backup and features. The findings of the study, it is hoped, will enable the companies to focus on their weaknesses and adopt corrective measures, to become the market leader. It is found that LG is the market leader in WLL mobile phone sector, but Nokia is the market leader for GSM mobile phone. About 82 percent customers are using the GSM service as compared to WLL service provider. So, there is a great potential market for GSM mobile at Pune. Hence, this study was undertaken as an attempt to find out, the consumer buying behavior with reference to GSM mobile of LG, in Pune. The results of the study, it is hoped, will be useful to enhance customer value, and satisfaction also help the market planners to strategic new marketing techniques, which are concerned with the philosophy and practice of new product development to introduce better, innovative and customized products to the consumers.

## Review of Literature

The necessity for studying consumer behavior arises because of the fact that business organizations have to operate, survive and progress in a highly dynamic economy where change is the rule, not the exception. These changes often give rise to innumerable problems and challenges to the marketers. Most of these changes are thrust on managers, who are forced to adjust their activities in order to take full advantage of favorable developments or to minimize the adverse effects of unfavorable ones. Successful organizations try to visualize the problems before they turn into emergencies. With the presence of many players in the field of GSM, the organizations want to know the growth prospects of the market so that they can be able to make their long-term strategic plans, based on the consumer buying behavior. Consumer buying behavior which refers to the buying behavior of the ultimate consumer.

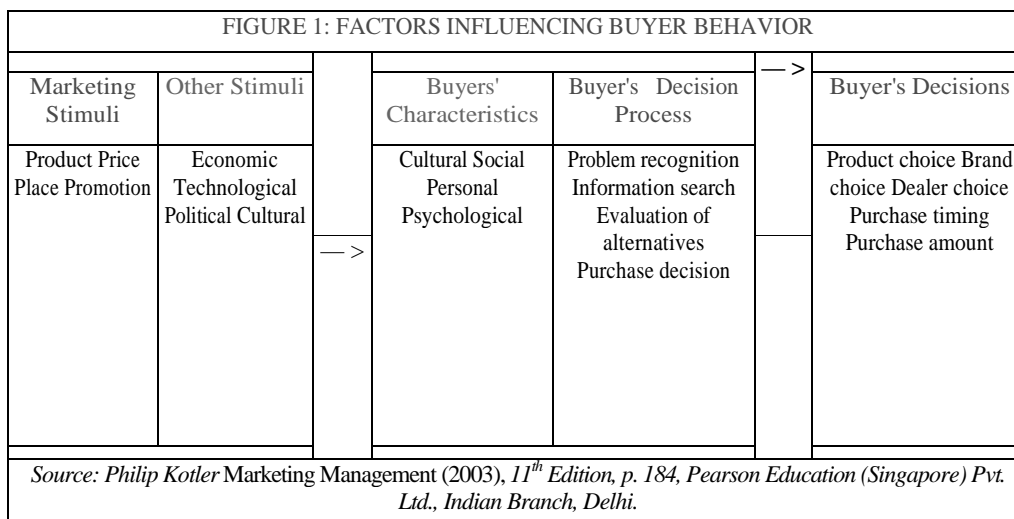
According to Schiffman and Kanuk (2003), "The process of consumer decision-making can be viewed as three distinct but interlocking stages: the input stage, the process stage, and the output stage."

The input stage influences the consumer's recognition of a product need and consists of two major sources of information—the firm's marketing efforts and the external sociological influences on the consumer (family, friends, and neighbors). The cumulative impact of each firm's marketing efforts, influence of the family, friends, neighbors, and society's existing codes of behavior, are all inputs that are likely to affect what consumers purchase and how they use what they buy.

The process stage of the model focuses on how consumers make decisions. The psychological factors inherent in each individual affect how the external inputs from the input stage influence the consumer's recognition of a need, repurchase search for information, and evaluation of alternatives. The output stage of the model consists of two closely related post-decision activities: purchase behavior and purchase evaluation.

## Factors Influencing Buyer Behavior

According to Kotler (2003), "The starting point for understanding buyer behavior is the stimulus-response model as shown in Figure 1. Marketing and environmental stimuli enter into the buyer's consciousness. The buyers' characteristics and decision process lead to certain purchase decisions. A consumer's buying behavior is influenced by cultural, social, personal and psychological factors. Cultural factors exert the broadest and deepest influence."



## Review of Some Related Studies in Consumer Behavior

Consumer behavior has become an integral part of strategic market planning. The belief that ethics and social responsibility should also be the integral components of every marketing decision is embodied in a revised marketing concept—the societal marketing concept—that calls on marketers to fulfill the needs of their target markets in ways that improve the society as a whole. Since LG is very new to the GSM phone sector, only a year old in Pune, very few studies have been conducted in this city, which is aspiring for a big leap into modernization.

Chirayath (2002) conducted a study to find out the market potential and customer attitude towards GSM Mobile in terms of price, features and quality. The study was conducted in Pune, Gumla and Hazaribag on a sample of 300 customers, 100 each from the three district headquarters. The study revealed that since Z value is lesser than 1.96 that made the investigator to accept the hypothesis. Hence, it was accepted that their reason for the low market share of LG-GSM handsets is its high price.

The study could prove to be an indicator for LG company. If the company intends to have a good market share in Pune, it should offer its product at a competitive price. Chirayath (2003) conducted a study with the following objectives in mind:

- To find out the influence of media on consumer buying behavior with regard to LG-GSM mobile phone,
- To find out the buying behavior of different segments of population based on income, age, occupation, education with regard to GSM mobile.

The study was conducted in the city of Pune with the sample of 200 customers. The study revealed that majority of the existing users had GSM phone in the price range between Rs. 5,500-10,000. These are those users whose income is in middle and high-income range. Secondly, these are old users and at that time most of the handsets were priced more than Rs. 5,500. It is evident that price range greater than Rs. 10,000 is not preferable. Hence, LG should offer its GSM phone at a price less than Rs. 10,000.

The analysis revealed that there is no potential relationship between these two variables. The r (coefficient of regression) is -0.21536, since this is a very negligible value, hence it can be said that there is no relationship between income levels of the individuals and the price of their handsets. The r coefficient has a negative sign because most of the people in high income range are in late adulthood stage of life cycle model and possess handsets which are simple to look at, and have less features, hence these handsets belong to a lower price range. Most of the young people fall in the middle and lower income range but they possess handsets which have more features and good looks. Hence, these are high priced handsets. So, to improve market share of GSM phone sets, LG should offer high-featured products targeting youth with competitive price. Saxena (2003) conducted a study to find out the market potential of LG's microwave oven in Pune, to understand the factors which influence the consumer buying decisions process of microwave ovens, and also to know the satisfaction level of consumers.

LG Electronics is the biggest manufacturer of air conditioners and microwave ovens. The study revealed that in Pune, LG is the market leader with 66 percent of the market share. Samsung was found to be the topmost competitor of LG with market share of 16 percent. BPL and Electrolux and others formed a minor market share with 5 percent, 3 percent and 10 percent, respectively. The study also revealed that more and more people were interested in buying microwave ovens because of the increasing female employment.

## Limitations of the Previous Studies

The previous studies were conducted on a sample drawn on convenience sampling. In this method, there is no appropriate representation to the various strata in the population based on occupation, income, age etc. Hence, it was decided to get a more clear picture about the population to draw the sample based on stratified random sampling and conduct a study on brand awareness and market potential. Thus, this study got materialized.

Moreover, the above studies did not mention anything about the need of creating brand awareness among people, which is the most important requirement to sell its products in the market. Hence, this study concentrates on the study of brand awareness.

## **GSM**

GSM is mostly a European system and is largely unused in the US. GSM is interesting in that it uses a modified and far more efficient version of Time Division Multiple Access (TDMA). GSM keeps the idea of time slots and frequency channels, but corrects several major shortcomings. Since the GSM time slots are smaller than TDMA, they hold less data but allow for data rates starting at 360 bits per second. Thus, a call can use as many time slots as necessary up to a limit of 13 Kilobits (KB) per second. When a call is inactive (silent) or may be compressed more, fewer time slots are used. To facilitate filling in gaps left by unused time slots, calls do "frequency hopping" in GSM, which means that calls will jump between channels and time slots to maximize the system's usage. A control channel is used to communicate the frequency hopping and other information between the tower and the phone. To compare it with the other systems, it should be noted that GSM requires one watt of output power from the phone.

### **About the Company**

LG Electronics was established in 1958 as Gold Star Company Ltd. and has been a trendsetter in the electronics industry ever since. The corporate name was changed into LG Electronics in 1995 as a part of the effort to make the company a major player in the world market. The LG Group is today one of Korea's top three conglomerates. In 1998, LG set up a state-of-the-art manufacturing facility at Greater Noida, with an investment of Rs. 500 cr. This facility manufactured color televisions, washing machines, air-conditioners and microwave ovens. In the year 2001, LG also commenced the home production for its eco-friendly refrigerators, and established its assembly line for its PC monitors at its Greater Noida manufacturing unit. This unit has been designed with the latest technologies at par with international standards in Korea and is one of the most eco-friendly units amongst all LG manufacturing plants in the world.

### **Objectives of the Study**

The study was undertaken with the following objectives:

- To study the buying behavior of customers with regard to GSM
- To study the brand awareness of GSM mobile of LG Electronics in Pune.

### **Definition of Terms**

GSM mobile sector: GSM, which stands for Global System for Mobile communication, is a part of wireless communication.

Consumer Behavior: The term consumer behavior is defined by Schiffman and Kanuk (2003), "as the behavior that consumers display in searching for, using, evaluating and disposing of products and services that they expect will satisfy their needs."

Hypotheses Tested in the Study

- Customer is not able to distinguish among the various GSM mobile phones on the criterion of 'Looks'.
- Customer is not able to distinguish among the various GSM mobile phones on the criterion of 'Battery Back-up'.
- Customer is not able to distinguish among the various GSM mobile phones on the criterion of 'Connectivity'.

### **Data Collection Methods**

- The Questionnaire is used to collect the data. A rating scale and also objective type questions are used for the market survey.

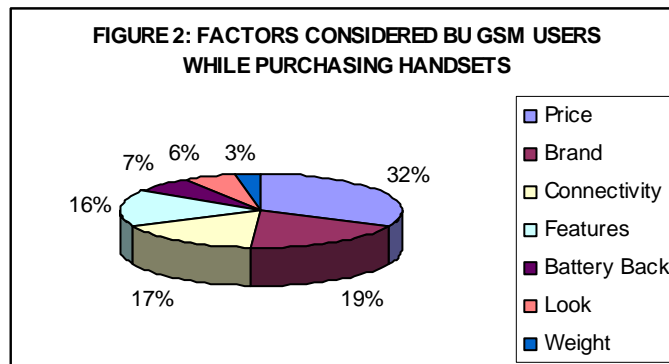
## Sampling

The sample of the present study consists of 300 customers based in various locations of Pune. Stratified random sampling technique was used to select the customers. The stratification of the customers was based on income (high, low, and middle), education (graduate, undergraduate, postgraduate and professional), and occupation (professional, nonprofessional, businessmen). Statistical Analysis, Percentage analysis, Probability Distribution, Weightage attached to buying factors, Rank analysis, Mean, Median, Mode, Standard Deviation, Hypothesis Testing, Normal distribution test, ANOVA test.

## Relative Weightage of Different Factors

An attempt was made to know how various factors considered by cell phone users for purchasing their handsets are being ranked.

Figure 2 reveals that 32 percent of the existing GSM users believe that price is the most important factor for purchasing a GSM phone. The brand comes as the second factor in consideration. It becomes clear that people first fix a price range for buying a mobile handset and in the price range they look for the alternative brands available. Table 1 shows the ranking of different factors as considered by existing GSM phone users for purchasing their mobile phones with relative weightage.



**TABLE 1 : RANKING OF DIFFERENT FACTORS WITH RELATIVE WEIGHTAGE**

Factors	Frequency of Occurrences	Weightage	Rank
Price	54	0.32	1
Brand	33	0.19	2
Connectivity	30	0.17	3
Features	27	0.16	4
Battery Backup	13	0.07	5
Look	11	0.06	6
Weight	06	0.03	7

The investigator also looked into the factors considered by WLL users and the analysis revealed that they rank connectivity as Rank 1. The results are summarized in Figure 2 and Table 2.



**FIGURE 3: FACTORS CONSIDERED BY WLL  
USERS**

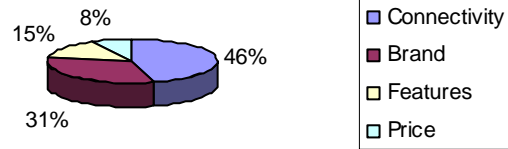


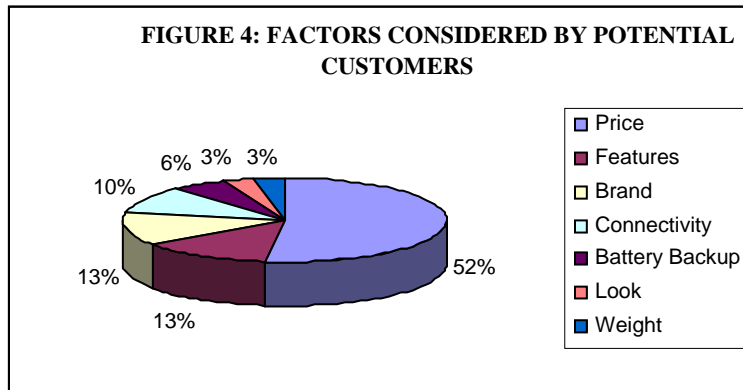
Table 2 reveals that WLL users have very narrow range to choose handsets, so they prefer those handsets which have good network connectivity, and they have given 0.46 weight age to this. As there are only few models of handsets available with significantly low price difference, hence they have narrow price range, and more or less they have to pay same piece for getting a WLL handset. Hence, price is given a low weight age of 0.08 and ranked 4. Figure 3 and Table 3 reveal the ranking of potential customers and their relative weightage.

Factors	Frequency of Occurrences	Weight age	Rank
Connectivity	18	0.46	1
Brand	12.	0.31	2
Features	06	0.15	3
Price	03	0.08	4

Factor s	Frequency of Occurrences	Weight age	Rank
Price	48	0.52	1
Featur es	12	0.13	2
Brand	12	0.13	3
Conn ectivit	9	0.10	4
Batter y	6	0.06	5
Looks	3	0.03	6
Weigh t	3	0.03	7

It has been found out that the potential customers have given highest weight age to the price. Brand and feature have got equal weight age of 0.13. During market survey it was observed by the investigator that people prefer those handsets which had more features than the brand, although both had same weight age, most of the handsets available in the market were Nokia, Samsung, Motorola, etc., and all of them have a good brand image. Hence, people go for features than the brand because they perceive all these brands as equally good. Due to coming up of high buildings in the city, people are getting connectivity problems inside their apartments, so they have given more weight age (0.10) to connectivity than battery backup (0.06).

Hence LG should offer product at competitive price with more features and good connectivity to get a good market share in the long run.



**TABLE 5: CALCULATION BETWEEN COLUMN**

N	X	X	X - X	(x-x) <sup>2</sup>	N(x-x) <sup>2</sup>
11	7	6.73	0.27	0.0729	0.8019
11	5	6.73	-1.73	2.9929	32.9219
11	7.46	6.73	0.73	0.5329	5.8619
11	7.46	6.73	0.73	0.5329	5.8619
					<b>45.4476</b>

**TABLE 4: DATA IN 10-POINT SCALE**

Nokia (X <sub>1</sub> )	Motorola (<X <sub>2</sub> )	LG (X <sub>3</sub> )	Samsung (X <sub>4</sub> )
10	7	5	7
5	3	5	7
7	7	7	7
7	5	10	3
7	7	10	7
10	3	10	7
7	7	10	7
7	7	7	7
7	5	10	10
7	3	1	10
3	1	7	10
77	55	82	82

Note: X = 6.73

### Testing of Hypothesis

To test the hypothesis “Customer is not able to distinguish between the various mobile phone handsetson criterion of looks”, data collected from the survey is converted into 10 point scale for calculation purpose and is shown in Table4. The calculation between column variables is given in Table 5.

- Between column variance = 15.15
- Variance of the first sample = 3.8
- Variance of the second sample = 4.8
- Variance of the third sample = 8.67

Variance of the fourth sample = 4.07  
 Therefore, population variance within the sample = 5.34  
 F ratio = 2.8371  
 F statistics = 2.84

TABLE 6: CALCULATION WITHIN SAMPLES											
Nokia			LG			Samsung			Motorola		
x,	x,- x.	(2X,- x.)	x,	X <sub>2</sub> - X <sub>2</sub>	(X <sub>2</sub> - X <sub>2</sub> ) <sup>2</sup>	**	x <sub>3</sub> -x <sub>3</sub>	(x <sub>3</sub> -x <sub>3</sub> ) <sup>2</sup>	x,	(x <sub>4</sub> -x <sub>4</sub> )	(x <sub>4</sub> -x <sub>4</sub> ) <sup>2</sup>
10	3	9	7	2	4	5	-2.46	6.0516	7	-0.46	0.2116
5	-2	4	3	-2	4	5	-2.46	6.0516	7	-0.46	0.2116
7	0	0	7	2	4	7	-0.46	0.2116	7	-0.46	0.2116
7	0	0	5	0	0	10	2.54	6.4516	3	-4.46	19.8916
7	0	0	7	2	4	10	2.54	6.4516	7	-0.46	0.2116
10	3	9	3	-2	4	10	2.54	6.4516	7	-0.46	0.2116
7	0	0	7	2	4	10	2.54	6.4516	7	-0.46	0.2116
7	0	0	7	2	4	7	-0.46	0.2116	7	-0.46	0.2116
7	0	0	5	0	0	10	2.54	6.4516	10	2.54	6.4516
7	0	0	3	-2	4	1	-6.46	41.7316	10	2.54	6.2516
3	-4	16	1	-4	16	7	-0.46	0.2116	10	2.54	6.4516
<b>Total</b>		<b>38</b>			<b>48</b>			<b>86.7276</b>			<b>40.7276</b>

Since the null hypothesis falls in the acceptance region hence it is accepted that the hypothesis: "Customer is notable to distinguish between the various mobile phone handsets on LOOKS" is accepted.

In Table 6, the value of acceptance (2.8371) is very nearer to 2.84 the critical value; so it can be inferred that we cannot strongly accept this hypothesis. Hence Nokia, LG, Samsung and Motorola can be distinguished on outer Looks criteria and have different weight age as perceived by the customers. Hence, there is very little chance that customers will buy handsets only by considering the influence of looks criterion. Hence, there is no need to improve the outer looks. LG should maintain the present outer looks of its GSM mobile phone as the mean value of LG's looks parameter 7.46 is greater than the grand mean.

**Testing of Second Hypothesis**

To test the hypothesis "Customer is not able to distinguish between the various mobile phone handsets on battery back up". Null hypothesis is 'Mean battery backup of all the GSM phone is same'. Data is summarized in Table 7. The calculation between columns is given in Table 8

**Between column variance = 20.03**

**Variance within the sample = 3.585**

**TABLE 8: CALCULATION BETWEEN COLUMN VARIABLES**

N	X	X	X-X	(X-X) <sup>2</sup>	N (X-X) <sup>2</sup>
11	9	7.09	1.91	3.6481	40.1291
11	5.82	7.09	-1.27	1.6129	17.7419
11	6.82	7.09	-0.27	0.0729	0.8019
11	6.73	7.09	-0.36	0.1296	1.4256
					<b>60.0985</b>

**TABLE 7: DATA IN 10-POINT SCALE FOR HYPOTHESIS**

Nokia (X <sub>1</sub> )	Motorola (X <sub>2</sub> )	LG (X <sub>3</sub> )	Samsung (X <sub>4</sub> )
10	7	7	7
10	3	5	7
7	5	5	5
10	5	7	7
10	10	10	7
10	7	5	5
5	5	10	5
10	7	7	7
7	7	7	10
10	1	5	7
10	7	7	7
99	64	75	74
Mean = 9	5.82	6.82	6.73

**Note: Grand Mean = 7.09**

**TABLE 9: CALCULATION WITHIN SAMPLES**

Nokia			Motorola			LG			Samsung		
x <sub>1</sub>	x <sub>1</sub> -x <sub>1</sub>	(2*1-*) <sup>2</sup>	x <sub>2</sub>	X <sub>2</sub> - X <sub>2</sub>	(x <sub>2</sub> -x <sub>2</sub> ) <sup>2</sup>	X <sub>3</sub>	X <sub>3</sub> - X <sub>3</sub>	(x <sub>3</sub> -x <sub>3</sub> ) <sup>2</sup>	X <sub>4</sub>	X <sub>4</sub> - X <sub>4</sub>	(x <sub>4</sub> -x <sub>4</sub> ) <sup>2</sup>
10	1	1	7	1.18	1.3924	7	0.18	0.0324	7	0.27	0.0729
10	1	1	3	-2.82	7.9524	5	-1.82	3.3124	7	0.27	0.0729
7	-2	4	5	-0.82	0.6724	5	-1.82	3.3124	5	-1.73	2.9929
10	1	1	5	-0.82	0.6724	7	0.18	0.0324	7	0.27	0.0729
10	1	1	10	4.18	17.472	-	3.18	10.1124	7	0.27	0.0729
10	1	1	7	1.18	1.3924	5	-1.82	3.3124	5	-1.73	2.9929
5	-4	16	5	-0.82	0.6724	-	3.18	10.1124	5	-1.73	2.9929
10	1	1	7	1.18	1.3924	7	0.18	0.0324	7	0.27	0.0729
7	-2	4	7	1.18	1.3924	5	0.18	0.0324	10	3.27	10.693
10	1	1	1	-4.82	23.232	7	-1.82	3.3124	7	0.27	0.0729
10	1	1	7	1.18	1.3924	7	0.18	0.0324	7	0.27	0.0729
<b>Total</b>		<b>32</b>		<b>57.636</b>				<b>33.6364</b>			<b>20.182</b>

F Ratio = 5.5872

At 3 DOF for the numerator, 40 DOF for the denominator and at significance level of 5 percent, the value of F statistics from Table 9 was found to be 2.84.

Variance within the sample = 3.585

Since the calculated value falls in the rejection region, hence the null hypothesis "Mean battery backup of all the GSM phone is same" is rejected.

The mean value of LG's battery backup (6.82) is less than the grand mean (7.09). Hence, there is need to improve the quality of its battery in comparison to its competitor Nokia with mean value 9. It could also be interpreted that LG is not considered as a phone with good battery backup; it is definitely after Nokia and Samsung.

**Testing of Third Hypothesis**

Hypothesis: "The customer is not able to distinguish between the various mobile phone handsets on network connectivity"

Null hypothesis: The mean value of the connectivity for all the GSM phone (Nokia, LG, Motorola and Samsung) are the same."

The results are summarized in Table 10.

Table 11 gives data for calculating between column variance.

TABLE 10: DATA IN 10-POINT SCALE			
Nokia (X <sub>1</sub> )	Motorola (X <sub>2</sub> )	LG (X <sub>3</sub> )	Samsung (X <sub>4</sub> )
10	5	7	7
7	5	5	5
7	10	5	5
7	5	10	3
10	10	7	7
10	7	7	7
7	7	10	7
10	7	10	7
7	10	5	7
10	1	7	5
10	7	7	3
95	74	80	63
Mean=8.64	6.73	7.27	5.73

TABLE 11: CALCULATION BETWEEN COLUMN VARIABLES\*

N	X	X	x-x	(X-X) <sup>2</sup>	N(X-X) <sup>2</sup>
11	8.64	7.09	1.55	2.4025	26.4275
11	7.63	7.09	-0.36	0.1296	1.4256
11	7.27	7.09	0.18	0.0324	0.3564
11	5.73	7.09	-1.36	1.8496	20.3456
					48.5551

Note: \* Between column variance = 16.19.

TABLE 12: CALCULATION WITHIN THE SAMPLES

Nokia		Motorola			LG			Samsung			
*i	X <sub>1</sub> -*i	(2*1-*i)	x <sub>1</sub>	X <sub>2</sub> - x <sub>1</sub>	(x <sub>2</sub> -x <sub>1</sub> ) <sup>2</sup>	X <sub>3</sub>	X <sub>3</sub> - x <sub>1</sub>	(X <sub>3</sub> - x <sub>1</sub> ) <sup>2</sup>	X <sub>4</sub>	(*4- x <sub>1</sub> )	K- x <sub>1</sub> ) <sup>2</sup>
10	1.36	1.8496	5	-1.73	2.9929	7	-0.3	-0.0729	7	1.24	1.6129
7	-	2.6896	5	-1.73	2.9929	5	-2.3	5.1529	5	-0.73	0.5329
7	-	2.6896	10	3.27	10.693	5	-2.3	5.1529	5	-0.73	0.5329
7	-	2.6896	5	-1.73	2.9929	10	2.73	7.4529	3	-2.73	7.4529
10	1.36	1.8496	10	3.27	10.693	7	-0.3	0.0729	7	1.27	1.6129
10	1.36	1.8496	7	0.27	0.0729	7	-0.3	0.0729	7	1.27	1.6129
7	-	2.6896	7	0.27	0.0729	10	2.73	7.4529	7	1.27	1.6129
10	1.36	1.8496	7	0.27	0.0729	10	2.73	7.4529	7	1.27	1.6129
7	-	2.6896	10	3.27	10.693	5	-2.3	5.1529	7	1.27	1.6129
10	1.36	1.8496	1	-5.73	32.833	7	0.3	0.0729	5	-0.73	0.5329
10	-	1.8496	7	0.27	0.0729	7	-0.3	0.0729	3	-0.73	0.5329
Total		24.546			74.109			38.182			26.182

Grand Mean = 7.09 Population variance obtained from the variance within the individual samples (within the column variance) = 4.08

F Ratio = 3.967

At 3 DOF of numerator, 40 DOF for denominator, and at 5 percent significance level value of the F statistics from the Table = 2.84

It was found that the calculated value falls in the rejection region. So, the null hypothesis is rejected. Hence, the various GSM handsets offer different types of network connectivity. It is encouraging to know that the mean value on connectivity parameter of LG is 7.27, which is more than the grand mean 7.09.

Therefore, the customer believes that LG-GSM handset phone has comparatively better network reception (connectivity) in comparison to its competitor. Only Nokia is ahead of LG. So LG should retain this parameter at its present value only with slight improvement.

## **Suggestions and Recommendations**

Based on the findings, the researcher feels proud to give the following suggestions to the company. It is recommended to tie up with GSM service provider BSNL and offer free SIM card on purchase of every LG-GSM mobile. As there is scarcity and difficulty in getting BSNL SIM card at Pune, definitely customers will give preference to buy LG-GSM in comparison to others.

Offer better after-sales service, and implement CRM to target opinion leaders as they are the most influential persons and give their opinion to buyers during evaluation of alternative brand(s).

To improve the product availability, make available the entire product range at sales counter.

During the survey it was found that dealers were not getting the whole product range of LG-GSM mobile phone. After seeing the advertisement in TV and print media, the customers are approaching the local dealers and on demand they are not getting the LG handsets. It gives a bad impression. Hence, there is a need to improve the product availability.

Offer various models at mean price range of Rs. 5,888, as it comes out from the survey that price is the most important factor for buying mobile phone. It was also found that the potential customers want to own GSM phone in price range less than Rs. 6,000.

Target people in the age group of 25-35 years, as it comes out from the survey that they are the opinion leaders. The opinion leaders have the power to influence the future buyers.

Offer better margins to dealers, so that they will take more interest in selling LG-GSM phones, and push sales will improve.

There is a need to increase the product depth, i. e., offer wide product range. LG should offer its product in all price range.

There is a need to create brand awareness, because it was found that 40 percent of people do not know about LG-GSM handsets. People know about LG-WLL handsets, but are not aware about LG-GSM phone. \*

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Contact author for the list of references

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# Corporate Social Responsibility and Global Brand Equity

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## Abstract

When viewed in a managerial perspective and not merely as a fashion or smokescreen, Corporate Social Responsibility (CSR) is an attribute of business strategy which determines a new source of competitive advantage for the company, alongside those usually featuring in the processes of value creation. Using the theoretical frameworks of “stakeholders’ theory” and “systemic approach” applied to companies, we set out to analyse the connection that exists between CSR strategy and brand equity, with particular reference to the global context. First we focus on the role of the brand image in constituting this connection, observing it as a “synthesis of a firm’s relationship competences”. We go on to outline the connection between CSR strategy, brand image and the maximising of profit, and end by analysing the differences in approach required for CSR strategy in passing from a local to a global context to ensure benefits for brand image and equity.

## Introduction

Corporate Social Responsibility (CSR) can take on many varied meanings, covering all the aspects of a company’s activity having social and environmental effects: the working conditions of employees and employment policies; the quality of products and services and features of the production processes; the drawing up of budgets and all the information made available to third parties; relations with political, administrative and social institutions in the communities where the company operates; localisation of the production activities; fiscal practice and the ways of exploiting the resources which investors hand over to the company in the form of stocks and shares; the bearing of products, services and production technologies on the ecological environment.

The scope of the issues involved in the domain of CSR is given a focus by the requirement for companies to legitimise themselves in the eyes of markets, the State and society, not only in economic terms but also in social terms<sup>1</sup>. The image of a company as a cell in the social system is not a novelty, but it has undoubtedly been given greater prominence by some recent financial and social scandals which have made the public worldwide better informed and more aware of the widespread existence of cases of “social irresponsibility” in managerial practice.

Inevitably CSR represents a strategic factor for securing competitive advantage, and it is thus a key element in the domain of management principles. The idea of analysing the connection that exists between CSR strategy and brand equity derives from the consideration of CSR as a driver in reinforcing brand image, in turn a component of brand equity, and from the question as to whether the approach to CSR at the local level can be considered valid also with reference to the global context. In this perspective we deal with the following considerations:

- brand equity is determined by material and immaterial components of the company’s offer; among these, an important impulse is the ability of the company to satisfy the demand of all the stakeholders to adopt socially responsible behaviour; this ability is reflected in the brand image;
- the theoretical frameworks which put CSR strategy and brand image in direct contact are those of stakeholder theory and the systemic approach to business studies; starting from different conceptual standpoints, these converge on the conviction that the company’s relational ability towards the external environment is a source of competitive advantage; this ability emerges in the various expectations concerning the company’s activity and the ability to render their fulfilment coherent and functional with respect to the business objectives;
- the relationship between CSR strategy and brand image and equity does not respond to the same dynamics in the local and global contexts; the difference in the predominant values in the various local contexts, and thus in CSR expectations, raises a problem of approach in their fulfilment, which has to be defined on the basis of evaluation criteria which change in passing from the local to the global context.

## The Role of Brand Image in Determining Brand Equity

Brand image, in its components of identification, product personality and perceptions elicited in the consumer (Keegan, Moriarty and Duncan, 1994), is one of the most significant immaterial resources on which the company can base its quest for distinctive elements with respect to competition.

Much well known research work done on the company's *intangible assets* has highlighted the close link that exists between the value of the brand and the competitive positioning of the company in its strategic business area, and hence the role of the brand in making the company offer distinctive and difficult to imitate in the eyes of end consumers<sup>2</sup>. This is all the more true if one considers that in today's competitive contexts the differentiation strategies available to companies are less and less based on the differentiation of technological and performance attributes of products and services, and increasingly based on the enhancement of immaterial resources (Kapferer, 1997) concerning knowledge and relations. From this point of view, the brand represents a component in the company offer which greatly influences the choices of the end consumer, because it is an asset which is directly linked to the urge to pursue, through the acts of purchasing and consumption, expression of one's own personality and life style (values, behaviour and identification). Thus the vital significance of brand has to be identified in its components of *perception* (cognitive and emotive associations evoked in the mind of the consumer) and *trust* (expectations of the consumer which are fulfilled by the company) (Howard, 1977).

In terms of our analysis it is particularly significant how the brand image determines an added value for the consumer (Aaker, 1993), reflecting the company's efforts to incorporate the stakeholder approach in its business strategy. We can also recall that recent studies (Bertoli, Busacca and Costabile, 2000) have shown how the brand image is an immaterial resource which has a particular influence on market "trust". More than other resources used in company policy, it is fundamental in reinforcing that trust. Conversely it is potentially able to diminish the degree of credit accorded to the company by the market. This is why people speak about brand "vulnerability" (Werther and Chandler, 2004), which becomes all the greater as brands become central to corporate strategy, revealing the potential of the brand to increase or reduce company equity.

In a customer-based perspective the brand image interacts with the brand identity<sup>3</sup> and brand awareness<sup>4</sup> (Keller, 1998) in determining the brand equity, and thus in enhancing the immaterial element which goes into constructing the "product offering"<sup>5</sup>. By intervening on the three elements of brand identity, brand image and brand awareness, one can extend the brand's ability to generate and increase the distinctive elements of the company's offer with respect to competitors (ability of *differentiation*); to facilitate the company's entry in new markets or segments (ability of *diffusion*); to increase and consolidate the company's cognitive patrimony (ability of *learning*).

An increasingly important objective in brand policies in our era of a "dematerialised" economy is the dissociation between brand and product that the consumer can achieve through processes of abstraction (Fournier, 1998), so as to create new associations for the brand in cognitive and emotive terms. Thus the brand image is now oriented toward creating affective associations, of psychological and social well-being and self-identification on the part of the consumer, within the system of values and material components proposed by the company.

In the new perspective for brands incorporating "real life significance", three of the functions it performs acquire greater importance: personalisation, communication and warranty (Kapferer and Thoenig, 1991). These functions are performed by the brand even independently of the product associated with it, since they relate to the set of value, symbolic and expressive elements which the company transmits to the market by means of its product offer and its economic and social behaviour.

To sum up this brief overview of the fundamental elements of strategic brand management, serving to introduce the subject of our analysis, we wish to emphasise that the dissociation between brand and product can also be viewed in the perspective of competitive strategy. In particular, it is the pivot for the strategy of competitive differentiation based on the company's "basic characteristics", meaning the distinctive image which the company seeks to create in consumer perception.

## The Brand Image as Synthesis of the Firm's Relationship Competences

In the light of these brief theoretical considerations placing the brand image in the context of the strategy of differentiation and quest for competitive advantage based increasingly on immaterial resources involving trust, another theoretical framework we can refer to is the view of a brand as "synthesis of a firm's relationship competences".

If we consider the premises and dynamics linking company and environment elaborated in the systemic approach applied to business studies, we can view the company as a "system" interacting with other systems lying outside the company, prior to investigating the links existing between brand equity and corporate social responsibility. The conceptual elaborations of the *systemic approach* (von Bertalanffy, 1968; Emery, 1974; Maturana & Varela, 1980; Cafferata, 1995; Capra, 1996; Tagliagambe & Usai, 1999; Golinelli, 2000) and *stakeholder theory* (Mitroff, 1983; Freeman, 1984; Frederick, Davis & Post, 1988; Carroll, 1989; Freeman & Reed, 1993; Donaldson & Dunfee, 1994; Clarkson, 1995) converge in the centrality of the relationships which the company manages to set up with external subjects, institutions and systems, vectors of resources which the company must succeed in exploiting in pursuing its objectives of survival and development<sup>6</sup>.

In particular, the company lies at the centre of a dense network of relations with the outside world, expressing its ability to legitimise itself, in both economic and social terms, by fulfilling the expectations and pressures focused on it by the environmental super-systems (Golinelli, 2000).

The conditions of survival and development for the company are thus to a great extent determined by the ability of its governing body to interpret and adopt the demands coming from the stakeholders, obtaining in return the provision of "resources" of various kinds.

Of course the regulation of the degree of openness of the company-system to its external environment (Maturana and Varela, 1984), controlled by the governing body, also involves a grading of the stakeholders' expectations according to "importance"<sup>7</sup>.

Among these, the resources of trust which the company manages to build up involve, in concrete terms, acceptance on the part of the stakeholders of the products on offer, the values and the track record of the company, and consequently the value of the brand which draws on the recognition by the external environment of its ability to be a cell in a system which is at once economic and social.

This is in outline the dynamic linking the company to its external environment, which is achieved through reciprocal conditioning. In the perspective of the stakeholders, the conditioning of the company consists in projecting expectations in both economic and social terms and subsequently in manifesting their degree of satisfaction by means of mechanisms of rewards and sanctions. Nonetheless it is clear that the satisfaction of the stakeholders' expectations has to be set against the need for economic, financial and organizational equilibrium (Cafferata, 1995), and thus against the expectations expressed by the sub-systems within the company. The efficacy of the governing body's action involves managing both inter- and infra-organizational relations and pursuing an overall systemic equilibrium. This equilibrium, which is thus both internal and external, is a necessary condition for the company's survival.

In conclusion, in the perspective of the systemic approach and stakeholder theory, the brand represents a "container" of values, competences and business strategies which interact with one another and influence each other; the value of this "container" is thus a function of the company's ability to coordinate the goal of maximising profit with the fulfilment of all the stakeholders' expectations (Fig. 1).

This simple diagram highlights the following three brand-related issues:

- the consideration of stakeholders' expectations is crucial to any business policy, irrespective of whether it is "finalistic" or "instrumental" and its position in the system of company goals;
- the value of the brand, drawing on brand identity, brand image and brand awareness, reflects the collocation of the company in the economic and social system, because it measures the degree of acceptance on the part of all the stakeholders (clients, suppliers, employees, public administration, trade associations, NGOs, unions, etc.) not so much of the product offer but rather of the company's track record, on the basis of multidimensional criteria (both economic and social) of evaluation;

- the competitive advantage which the company manages to secure, ensuring profitability, is highly conditioned, in the current competitive scenario, by brand policies, while the link between fulfilment of stakeholders' expectations (including those relating to corporate social responsibility) and profit is all the greater to the degree in which the competitive strategy is brand-driven.

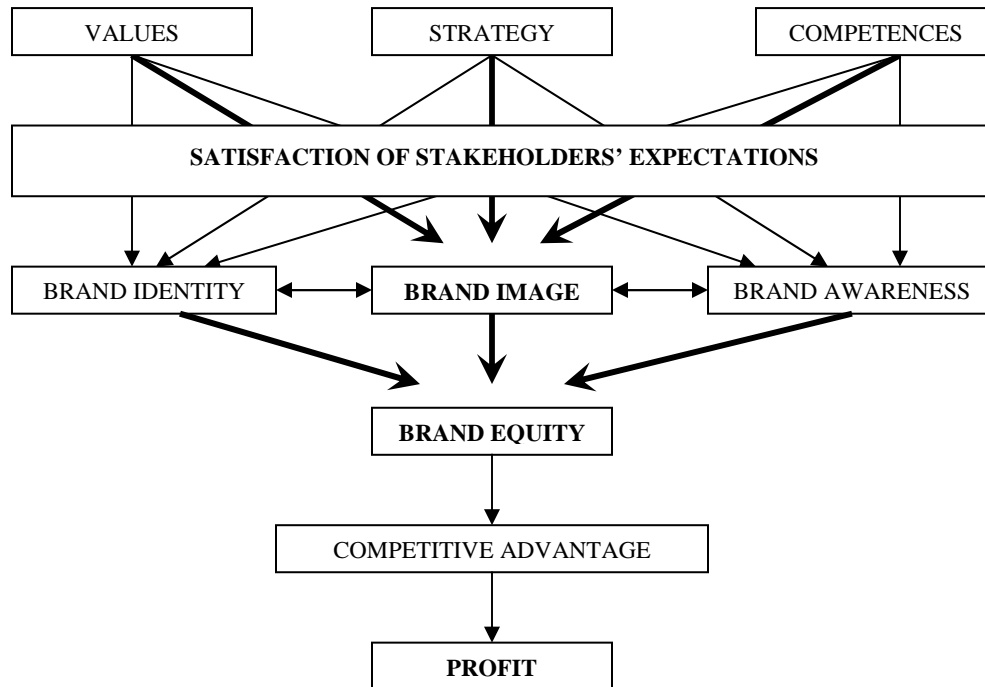


FIG. 1: THE BRAND IMAGE AS 'CONTAINER' OF A FIRM'S RELATIONSHIP COMPETENCES

## The Connection between CSR and Brand Image

The conceptual starting-point for an analysis of the connection between CSR and brand image, and by extension between CSR and the competitive advantage determining profit, concerns the widespread expectations of social responsibility in all the company's stakeholders. In other words, the expectations concerning CSR are not localised in precise points (e.g. shareholders or financiers, suppliers or clients, public administration or non profit organizations) but can be found in each typology of stakeholder (Fig. 2).

The different nature of stakeholders' expectations concerning the company's social responsibility constitutes a matrix of *multidimensional social responsibility factors* linked to economic, environmental and social issues. This means that all the stakeholders have increased expectations *vis à vis* the company, from raw results to operating modalities.

In this perspective, stakeholder theory can be seen as the outcome of a new conception of the company, to be viewed not in terms of company-market and company-State (as in the liberal economics tradition) but in the triad market-State-society (Velo, 1998). This means that the company no longer interacts only with market and State but also with society, which requires it to fulfil a functional role in the relative social system.

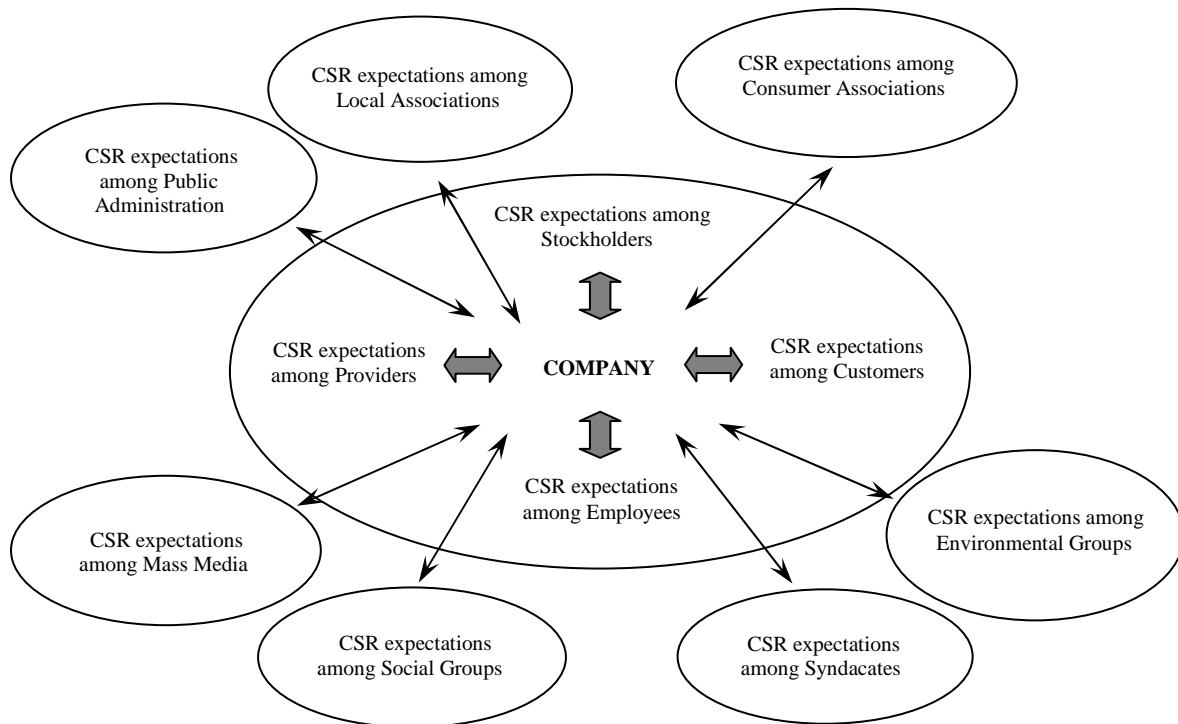


FIG. 2: THE PRESENCE OF CSR EXPECTATIONS EVERYWHERE

The rationale of the social budget is a tangible effect of this; the company must provide information to society at large on the strategic and operative modalities in which it balances pursuit of profit with a socially responsible behaviour. The recipients of this recent form of communication are no longer merely certain stakeholders, such as shareholders or financiers, but society as a whole (Zadek, Pruzan and Evans, 1997).

Furthermore CSR expectations are not only “everywhere” but also “on the increase”, associated with the pressure on companies to take a “proactive” approach to environmental and social issues, rather than merely conforming to existing legislation. The *CSR Monitor*, which annually surveys twenty countries through institutes belonging to GlobalScan, highlighted in its 2004 Eurisko report on Italy the “new” environmental and social responsibilities facing companies (Tab. 1).

TABLE 1: OLD AND NEW CSR EXPECTATIONS

The “old” CSR expectations	The “new” CSR expectations
– Do not damage the environment	– Improve environmental conditions
– Communicate financial profits honestly	– Apply high standards universally
– Treat employees fairly	– Reduce human rights abuses
– Make profits, pay taxes	– Improve education in the community
– Communicate social and environmental commitment honestly	– Reduce poverty
– Use raw materials which have been produced “responsibly”	– Orient economic stability
– Good quality / low price	– Support NGOs
	– Help to solve social problems

The historic approach of Friedman<sup>8</sup> (1962; 1970), and more recently of Sternberg<sup>9</sup> (1994), to corporate social responsibility, in which the company's only responsibility is to make a profit, now appears totally inadequate in the light of the new order of company-State-market-society relationships in the post-industrial era even if we merely consider CSR as being instrumental in the pursuit of profit. Both stakeholder theory and the systemic approach are based on this view of the company as interacting with society as a whole, with markets and the State as components. The company system (a cell of the social system) is no longer separated from the social system but is considered a component, and the mechanisms by which markets function are no longer based merely on the economic variables of price, salaries, incomes, asset values, etc., but respond to the social conventions and norms of behaviour which regulate management organizations and political and social institutions.

The shortcomings of Welfare State policies in conditioning market mechanisms have restored centrality to the "enhancement of public life"; as Adam Smith maintained, a proper functioning of society depends on the extent to which "civic virtues" have been disseminated amongst the population. These results in new responsibility for the company: as an actor in the economic and civic progress of society, it must incorporate in its underlying principles the logic of created social value, balancing it against the logic of created economic value. The economic value chain and social value chain unite in the new company mission which, as Freeman (1984) observed, is to be seen in balancing the interests of all the stakeholders.

However, we still have to confront the crux of the question: does CSR represent a manifestation of the culture of civic coexistence among subjects (companies included) featuring in society, or is it a manifestation of economic culture which, driven by economic utility and limited rationality, attributes to CSR a role which is in any case instrumental with respect to the maximising of profit in the long term?

In our opinion it is predominantly the latter perspective which guides company strategy concerning CSR, since we see companies' willingness to assume civic responsibility as being still weak or indeed in many cases non-existent.

There is a lot of empirical evidence for the fact that CSR initiatives are prompted by the advantages gained in terms of reputation and trust rather than the wish to meet stakeholders' expectations. For example the *Global CSR Study*, carried out by APCO Worldwide in 2004 using an elite research panel in 10 countries in North America, Europe and Asia-Pacific, shows that the consensus of opinion is that companies act in a socially responsible manner because it is in their business interest to do so, not because they are pressed by stakeholder demands (Tab. 2).

TABLE 2: CSR IS A BUSINESS INTEREST

	<b>Strongly agree</b>	<b>Somewhat agree</b>
Companies act in socially responsible manner because <b>it is in their business interest</b> to listen to and adapt to society's concerns	31%	29%
Companies act in socially responsible manner because internal and external <b>stakeholders place pressure</b> on companies to address society's concerns	20%	20%

Like consumers, other typologies of stakeholder are often sceptical concerning the ethical motivations behind CSR initiatives. For example, research carried out by the "Public Administration and No Profit Organizations Department" of the Bocconi University, Milan, Italy, promoted by Sodalitas (2004), showed that public institutions and non profit organizations consider that companies very often adopt socially responsible behaviour "only for reasons of image or reinforcing customers relations", and hence merely for "egoistical reasons". These two important stakeholders, public institutions and NGOs, thus show little faith in the social commitment of companies, and believe that the most effective communication tools are those guaranteed by third parties, such as certification, ethic labelling and awards for CSR initiatives, while social advertising, cause-related marketing and even ethic codes are not very credible, the latter being dismissed as "no more than declarations of intent".

On the other hand, companies have taken on board the notion that "good ethics is good business", meaning that in the long term social responsibility pays (Sciarelli, 1993). Thus we can say that social responsibility has

become an objective for companies rather than being merely a limitation on its operations, as it was under the old regime dominated by shareholders rather than stakeholders.

This appraisal, which may well sound pessimistic, also derives from my personal conviction that any “social value” can become a guide to individual behaviour to the extent to which it gauges the results obtained in relation to the effort invested. Since there are essentially two modalities of appropriation – economic enhancement in one’s own favour and enhancement of the ego – it is surely illusory if not ingenuous to maintain that this particular genus of *homo aeconomicus* (the entrepreneur) can have added a fourth “P”, Philanthropy, to the traditional three – Profit, Power and Prestige. This does not mean that the world of entrepreneurs is entirely devoid of values and behaviour demonstrating CSR, induced not by considerations of economic interest but in the perspective of psychological and social self-realisation combining with the pursuit of profit, power and prestige, but rather that the scarcity of these presences does not allow us to deny that CSR can be collocated in a position of absolute instrumentalism with respect to economic managerial goals.

We can also note, in connection with the combination of profit-power-prestige, that even if one tries to invert the order of the three objectives, considering the first two as instrumental for the third<sup>10</sup> (Sciarelli, 2002), it must be granted that this can hardly apply to the managerial function, but only to a capitalist enterprise in which the manager is also the owner. If this were not the case, we would have to identify values and behaviour based on social responsibility also outside economic systems, in particular in political and social systems at both the collective and individual levels. Only in this case could we recognise a phenomenon of reciprocal contamination between economic, political and social systems, and thus interpret CSR as a manifestation in the economic sphere of values and principles occurring transversally in all social systems.

Some commentators, of even greater severity, maintain that the irresponsible company is a “structural feature of contemporary capitalism” (Gallino, 2005: p. 17) and that forms of regulation at the international level are called for to ensure that social responsibility enters into the processes of company governance.

In any case there can be no doubt that there is widespread scepticism concerning both corporate commitment to CSR and the “credibility” of the initiatives they have announced. In this respect the research carried out by APCO Worldwide showed that only 4% believe that companies have done “much more” over the past few years, while 16% believe they have done “much less”. Moreover the “credibility” of their CSR activities is much greater when they are verified by independent third parties, like NGOs or local governments (Fig. 3).

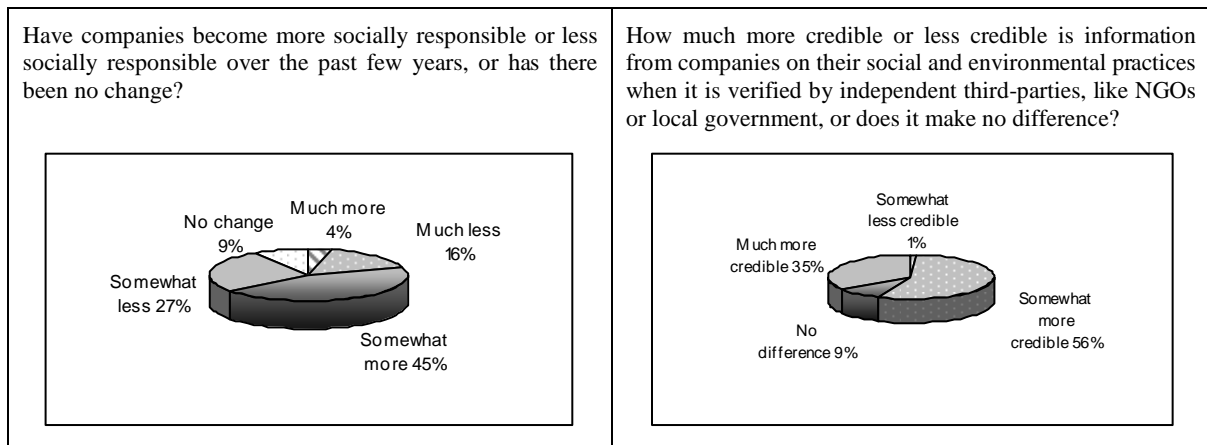


FIG. 3: CYNICISM SURROUNDING CSR PROGRESS

One further consideration is that the concept of CSR as being instrumental to profit, and hence to be included in calculating economic interest, does not necessarily diminish its intrinsic value. It is a recognition of reality, and as such no less laden with consequences for the functioning of companies. At the same time it is no less



important in moulding a new conception of them, but certainly less hypocritical, and much less illusory, than a “socially romantic” vision of managerial activity. In fact in today’s world there is a widespread, substantial demand for social responsibility; what is lacking is a response that can be evaluated without using the parameters of economic interest<sup>11</sup>.

One element which seems to confirm the instrumentality of CSR in terms of profit-making emerges from a recent investigation<sup>12</sup> of the state of application of CSR in major European companies carried out by ISTUD<sup>13</sup> in 2002-2004. In particular this revealed a trend to substantial uniformity in the approach and behaviour of the companies analysed. This “resemblance” can be ascribed to the phenomenon of “isomorphism” described by *organizational new institutionalism*, by which organizations tend to adopt similar behaviour as a result of external pressures which define the rules and relationships among subjects and tend to stabilise over time (Di Maggio and Powell, 1991).

CSR is seen as displaying a threefold isomorphism (Caramazza, Carroli, Monaci and Pini, 2006):

- *coercitive isomorphism*, caused by formal and informal pressures on the organization from other entities in the “organizational sphere”, and by the cultural expectations of the social context; this may also include pressure deriving from juridical norms or behavioural norms defined by dominant companies;
- *mimetic isomorphism*, caused by phenomena of imitation of the behaviour of other organizations; this is particularly influential in the case of CSR;
- *normative isomorphism*, caused by the “professionalisation” of CSR, implemented by professional associations and groups by means of congresses, initiatives, documentation; in the case of CSR, the diffusion of a culture and technical jargon is pursued by various organisms such as CSR Europe, Eabis, Esomar, Emac, Egos, all operating in Europe<sup>14</sup>.

As we have recognised, this appraisal may seem to some unduly pessimistic. Yet the incorporation of the values deriving from CSR among goals rather than instruments may require a transition phase, involving “gradual assimilation”, starting from the calculation of economic interest. However, this is not the right place to take this particular analysis any further. Currently CSR is unequivocally collocated amongst the managerial strategies designed to maximise profit. What instead is profoundly different with respect to a few years ago is the telescoping of the time span used when referring to profit-making. A CSR strategy is increasingly a necessary condition for obtaining profits, not only in the long term but also in the short and medium terms.

The virtuous relationship existing between economic, competitive and social performance has been perfectly familiar to both management experts and practitioners for a considerable while.

Numerous studies have shown the existence of a close link between corporate social behaviour and income performance (Murray and Vogel, 1997; Sen and Bhattacharya, 2001; Institute of Business Ethics, 2006) and, more specifically, between the former and consumers’ readiness to reward or punish (Aaker, 1990; Keller and Aaker, 1993; Speed and Thompson, 2000). In a recent article designed to evaluate *The Impact of Perceived Corporate Social Responsibility on Consumer Behaviour*, Becker-Olsen, Cudmore and Hill (2006) show that 52% of interviewees boycott products and services of companies seen as irresponsible.

There are deep cultural roots for the dual economic and social profile of a company in all the managerial cultures in the world, and there is no point in dwelling on this here. Instead I wish to stress the vector that makes this association operative, and how CSR finds in brand policies the interface between company and consumer. In this perspective, the brand takes on the role of “inter-systemic connector” between company-system and consumption-system, integrating the CSR strategy (company values and track record) and the company’s competitive strategy. In fact they are combined in the cognitive and emotive associations which the brand manages to elicit in the mind of the consumer.

In the *Global CSR Study* by APCO Worldwide, referred to above, it emerges that “opinion elites act in response to news they receive about a company’s social responsibility through their purchase decisions and influence on others. Three-quarters say they have purchased a company’s products or services in response to positive news about a company’s social responsibility”.

The connection existing between brand and CSR takes on particular significance for companies which operate on the global scale and introduces the highly complex topic, to be tackled in the next section, of diversity of

approach in global CSR strategy. In particular, the connection between global brand strategy and global CSR strategy represents in our opinion the conceptual crux for companies, characterised by having:

- a CSR strategy;
- a brand-driven competitive strategy.

These two features of business strategy pose no particular problems if referred to a company which operates in a single, specific local context (a certain country, with certain stakeholders' expectations and standard systems of ethic values). This is not the case, however, for a company which operates on the global scale and thus in various countries, with different stakeholders' expectations and different systems of ethic values.

## **How to Combine Global Brand Strategy and Global CSR Strategy?**

Referring to stakeholder theory and the systemic approach, I have outlined the theoretical frameworks required to analyse the links between global CSR and global brand strategy, which I shall now go on to investigate by projecting them onto a global dimension. The crux of the question can be expressed thus: does the construction of brand image by the assumption of socially responsible behaviour observe the same principles at the local and global levels? Or does the passage from local to global throw up new or different elements of analysis which preclude transferring our considerations from one to the other? In other terms, which vectors are available when the pursuit of a global brand strategy seeks reinforcement by assuming social responsibility?

Before trying to provide an answer to these questions, we can observe that it is not enough to say that "a global CSR strategy is necessary to reinforce the global brand image". We have to identify the contents and meaning which CSR strategy takes on at the global level.

A second preliminary consideration is that when above we viewed CSR strategy as instrumental for business strategy and maximising profit (extended to the short as well as medium and long term), we expressed scepticism concerning any hope of finding social responsibility in an entrepreneur's DNA. The profound crisis currently undermining political, social, educational and market systems, with economic and social scandals, loss of reference values, and cultural impoverishment in education at primary and secondary levels, makes us inclined to believe that CSR is the manifestation, in the economic sphere, of socially oriented values and culture that characterise the organizational systems in contemporary society.

That said, the first important difference in approach between local and global CSR concerns the "sectorial" or "systemic" formulation of the respective strategies. In particular, while the fact of operating in a local context makes it possible to "select and hierarchise" CSR expectations as a natural effect of the selection and hierarchisation of stakeholders influencing the company's action, operating in a global context requires a coordinated and comprehensive consideration of CSR expectations, in the light of the inter-dependence created between stakeholders scattered in different contexts, but always in direct contact with each other.

This question can be clarified in the following terms. In a restricted, local context, the action of the company's governing body in terms of interaction with the external environment involves the possibility of setting up a "filter" and "selection" with respect to the expectations and pressures coming from external systems and entities, according to the degree of importance perceived by the governing body in terms of the business strategies. In other terms, in the concept of a "partially open system" (Maturana and Varela, 1980) we must also collocate the possibility available to the governing body to discretionally evaluate the positioning of the company in the economic and social system, and to attribute to it the identity it considers most functional with respect to the established goals. In terms of social responsibility this results in discretionary evaluation and selection of the responses to be given to the demand for social responsibility expressed by local stakeholders, and their collocation in a system of hierarchical priorities and importance. Thus the governing body must be able to interpret what is required from the company by the specific cultural and social context in which it operates, the specific requisites being manifested in the expectations and pressures of the stakeholders (Goñinelli, 2000). For example, one context might attribute priority, in the context of "social responsibility", to the need to safeguard workers' rights; on the contrary, another local context could attribute the same priority to safeguarding the environment, perhaps because it believes that the juridical regime is sufficiently protective of workers' rights. Such a divergence in priorities is dealt with by the governing

body deciding local CSR strategy so as to respond to its stakeholders. There is support for this in the results of the above-mentioned ISTUD survey (2002-2004), which shows that stakeholders are generally handled on the basis of single projects, concerning single reference groups in a “one to one” dimension (Caramazza, Carroli, Monaci and Pini, 2006),

As a result the approach to CSR is “sectorial”, selecting and hierarchising the various CSR expectations in the light of the evaluations formulated by the governing body concerning their interdependence with the company’s contingent requisites and goals. Thus the company will formulate a response on CSR calibrated according to the specific requisites of the local context, as well, naturally, as the conditions for the company’s survival which the governing body safeguards adopting a schematic and selective approach, without proceeding to a systemic overview of all the CSR projects.

In fact the CSR strategy implemented in the specific local context sees its evaluation by the local stakeholders mirrored in the local brand image, elaborated according to the judgement – positive or negative – given by the stakeholders concerning the company’s record in social responsibility. The connection between local CSR strategy and local brand image responds to the sequence CSR local demand – CSR local response – local brand image, and in its contents also reflects the power that the local stakeholders are able to exert over the company’s activity.

In our opinion this approach is not valid when the company’s activity extends to the global level. The heart of the question is that an approach to global CSR strategy cannot be characterised by “sectoriality”, in the sense of selection and hierarchisation of CSR expectations. Operating in a global context means taking into consideration a wide variety of expectations which, while they are specific and susceptible to hierarchisation in the local contexts, at the global level constitute a single multidimensional set. As a result, all the possible declinations of the concept of social responsibility come to assume equal importance, without the possibility of establishing a hierarchic order nor the instances of a demand, failing to elicit a response on the part of the company. Thus the action of the governing body in terms of social responsibility is deprived of the possibility of “selecting” and “hierarchising” the requirements of CSR from the external environment. At most, in regulating the degree of openness of the company-system to its environment, it will decide the degree of satisfaction of expectations concerning CSR, but not an orientation towards certain issues rather than others. It must be borne in mind that in the global dimension one loses the relative power of the stakeholders *vis à vis* the company and vice versa. The overall position of the global stakeholders derives from a unitary composition of local stakeholders, by means of a dual process: *additive* and *compensative*. It is *additive* because the stakeholders whom the global company has to consider are the sum of the external entities and systems operating in the various local contexts; *compensative* because their respective powers of influence and conditioning on the company’s activity support and compensate each other reciprocally, assuming equal importance. To return to the example given above, the difference of expectations among local stakeholders concerning the contents of social responsibility (workers’ conditions, environment, transparency and reliability of information, and so on), tends to be cancelled out as a result of their intersection in the global context. As a result, the response of the company cannot be based on the selection and hierarchisation which operate locally, but has to take into account their addition and compensation in a systemic rather than sectorial approach. Independently of the various juridical systems which regulate some aspects of social responsibility in the various countries, the company must give an overall response to the global market concerning its economic and social conduct, and thus establish a CSR strategy which includes all the possible declinations.

The connection between global CSR strategy and global brand image, which also follows the sequence CSR demand – CSR response – brand image, will reflect the ability of the company to be perceived as socially responsible in terms of all its meanings. Without the possibility of operating any selection or hierarchisation, the company must show itself to be socially responsible in an overall, non-sectorial perspective.

Thus in the global context there must be an overall strategic plan which the company draws up according to a multi-stakeholder logic. Unlike the sectorial logic, its systemic counterpart consists in defining a CSR strategy taking into consideration:

- the overall set of requirements concerning CSR manifested by all categories of stakeholders;

- the relationships between the various categories of stakeholders, with specific reference to reciprocal conditioning in making positive or negative evaluations of the company's track record;
- the rapidity and scope of the inter-stakeholder communication process which, at the global level, brings about reciprocal contamination and conditioning of the various local brand images, acting as an amplifier worldwide of the judgement formulated by stakeholders on a company's social behaviour, both when this is positive and above all when it is negative.

By means of this systemic approach to CSR strategy, which goes beyond the logic of single projects in favour of joint project elaboration aimed at an overall equilibrium in relations with stakeholders<sup>15</sup>, the company can elevate CSR into a strategic asset to be exploited in global markets.

In this way the global brand image can indeed be reinforced thanks to the company's social responsibility commitment which, in a global business strategy, is not the mere sum of the responses which the company provides locally to the requirement of social responsibility.

For a company which operates at the global level, integrating CSR in strategy and operativity means creating distinctive competences which are recognisable to stakeholders worldwide and reinforce the brand image.

A concrete example of this perspective, considering stakeholders on a global rather than local level, is seen in the Sony Group, which has eliminated some chemical substances from its products, throughout the world, even though they are prohibited only in Europe. In its CSR Report 2006, Ryoji Chubachi, President and Electronics CEO, gave this summary of Sony's global CSR approach: "Although the RoHS (Restriction of Hazardous Substances) Directive restricts the use of certain specified chemical substances in electrical and electronic equipment brought to market in the European Union beginning in July 2006 Sony has eliminated these specified chemical substances from nearly all of our products shipped worldwide, not just in Europe, by March 31, 2006. I believe that special consideration for the conservation of the environment is not only a corporation's social responsibility but also a key to its competitiveness. As a global organization, we are actively endorsing the importance of compliance with the laws and standards of each country and region in which we operate, and of conducting our operations in a manner that is in harmony with accepted corporate ethics and social norms, throughout the Sony Group".

From this point of view we agree with Werther and Chandler (2005: p. 324) when they say that "strategic corporate responsibility is a global brand insurance"; on condition, however, that CSR is a component of the global business and not a strategy of "masking" or a mere "fashion", nor a contingent response made to avoid social or legal sanctions.

#### **Beyond Voluntary Action: Towards an International Regulation of CSR**

A rather different issue that arises in passing from local CSR to global CSR concerns the juridical regulation of the subject in the world and the way in which this varies from one country to another. Although this seems to be quite separate from a managerial analysis of the subject, in fact it does have major implications on the "systemic approach" which as we have seen should characterise global CSR strategy. In fact it makes it necessary to probe the requirement for CSR expressed by one particular category of stakeholder, the State, through its regulation of economic activities. The juridical and economic aspects of CSR are closely linked, and cannot be observed separately. Thus any analysis of CSR on the global scale cannot neglect, globally even more than locally, the question of juridical regulation and its implications on the action of a company's governing body.

In the light of this, in order to make global CSR accessible to companies according to a systemic rather than sectorial approach there has to be a uniform legal framework at the international level, for two reasons. First, because, in keeping with our scepticism concerning the interiorisation of CSR in a company's value patrimony, voluntary adhesion and self-regulation on the part of companies are undoubtedly weak factors in the construction of socially responsible systems and economic actors<sup>16</sup>. In particular, a widespread, genuine CSR will make headway in the world only if certain types of behaviour, actions and values concerning the social sphere are made obligatory by forms of juridical regulation, without invalidating our attempt above to collocate CSR among the management principles and sources of competitive advantage.

It comes as no surprise when findings of empirical research show how little CSR is really integrated into company strategy. An investigation carried out by the Business for Social Responsibility and the Dutch Ministry of Economic Affairs in 2005, *"Taking the Temperature of CSR Leaders"*, shows that "the degree of CSR integration into core business functions is perceived as very low across all sectors, organizational positions and countries". In

particular, among Multinational Companies (MNCs), Small & Medium-Sized Enterprises (SMEs) and Non-Governmental Organizations (NGOs) it emerged that CSR is not well integrated into the core functions and activities of business. In fact there were low scores agreeing or strongly agreeing that *“Most businesses have done a good job of integrating CSR into their core functions and activities”* across all three categories analysed (Fig. 4).

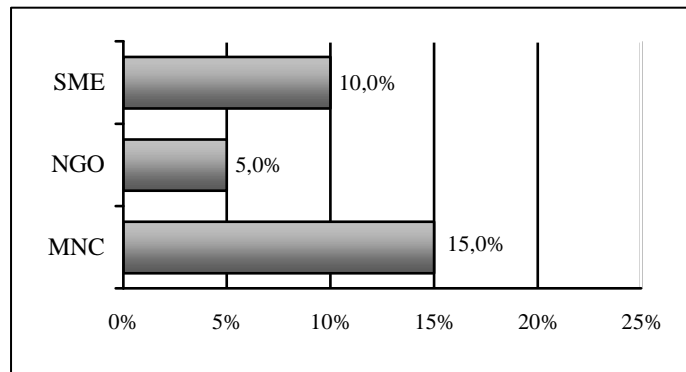


FIG. 4: LOW LEVEL OF INTEGRATION OF CSR INTO THE BUSINESS

Similarly among managers, executives and staff, many respondents believe that CSR will play a much more important role in the future. The scores agreeing or strongly agreeing that *“Five years from now, CSR will be an even more important part of business than it is today”* were very high across the three categories analysed (Fig. 5).

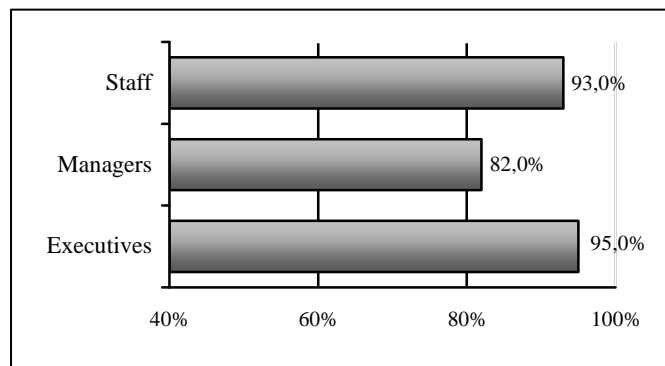


FIG. 5: CSR AS PLAYING IMPORTANT PART IN BUSINESS IN THE FUTURE

One further confirmation of the very limited insertion of CSR in business strategy emerges from findings of a survey carried out in 2005 by AIAF (Italian Association of Financial Analysts) on the environmental, social and sustainability balance sheets in the Italian companies listed on the stock exchange. In particular, it emerged that over 50% of companies do not include in their CSR balance sheet a section dedicated to future goals, and 35% merely state their objectives generically, without showing year-on-year comparisons (Fig. 6).

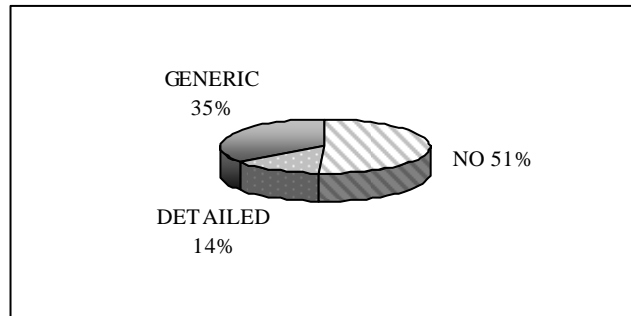


FIG. 6: PRESENCE IN CSR BALANCE SHEETS OF FUTURE GOALS

In the same source, the most disturbing finding is that in 2006 the number of companies which presented a CSR balance sheet to the AGM was down on 2005, from 23 to 20; this detail is also connected with the fact that there is no legal obligation to draw up such documents. Another survey carried out by Robert Half Executive Search, specialised in recruiting skilled personnel, based on interviews with 2700 European managers, showed that one of the chief obstacles to the spread of CSR practices is the lack of any internationally valid rules. In Italy, for example, it transpired that 48% of companies do not invest in initiatives of social responsibility for this reason.

Secondly, because the asymmetries and diversities currently found in the juridical systems of different countries constitute a factor which distorts the opportunity for free competition worldwide. It subjects companies to different restrictions (and hence costs), altering the “condition of parity” which is at the root of efficient competitive confrontation. For example, the fact that France<sup>7</sup> is the only European country to have introduced a juridical regulation which is binding for companies undoubtedly penalises French firms in global competition and, on the contrary, favours those operating in countries with no such juridical prescriptions.

Moreover, in such asymmetric conditions, the distribution of socially ir/responsible companies worldwide is bound to correspond to geographical position and the intensity of legal obligations, and in particular to the existence and intensity of legally enforceable sanctions as the real “conditioning force” behind these obligations.

From this point of view, the ambiguities and differences in behaviour among public bodies has created a climate of scepticism concerning the role they can play in promoting CSR. Referring once again to the enquiry of the Business for Social Responsibility and the Dutch Ministry of Economic Affairs, it emerges that NGOs, MNCs and SMEs are very critical about the efforts made by national and local governments to promote CSR and believe that they “are not doing enough when it comes to the promotion of CSR”.

The problem of juridical regulation also reflects the need to establish international standards framed with multistakeholders in mind. As things stand, international certification is still too sectorial: the existing standards refer to specific aspects of CSR. Without claiming to be exhaustive, the main international standards are: *SA 8000* (by the Council on Economic Priorities Accreditation Agency – CEPAA), concerning above all the supervisions of working conditions, also for minors; *BS 8800* (by the British Standards Institution – BSI) and *OHSAS 18001* (by a group of national organisms, certification bodies and experts), concerning issues of Occupational Health and Safety; *AA 1000* (by the Institute for Social and Ethical Accountability – ISEA), concerning the guiding principles for Social and Ethical Accounting, Auditing and Reporting, so as to make the findings from different sources compatibles; *ISO 14001* (by the International Organization for Standardization, in the European Community) and *EMAS* (EEC Regulation n. 1836/93) concerning Environmental Management Systems.

It is not possible here to probe further into the issue of juridical regulation of CSR, but we wished to raise it because, as stakeholders theory and the systemic approach show when applied to the study of businesses, the relations between a company and its environment must be viewed in their globality and not individually, in their inter-dependence rather than as single instances of cause and effect.

We believe that CSR represents a central aspect in company governance. In the future no company will be able ever again to consider it merely a hindrance to its action, but will have to include it among the sources of

competitive advantage, alongside the traditional attributes. However the issue of global CSR strategy does not stop at the matter of management principles, but includes delicate juridical aspects which inevitably emerge in the passage from local to global. In relation to our chosen topic, the relationship between CSR strategy and brand equity in the global context, juridical regulation can be seen as an element that conditions global CSR strategy and hence, as we have shown, the construction of a global brand image. In conclusion, the strategic valence of CSR and its juridical regulation constitute the two factors which can attribute to the connection we have examined characteristics of “concreteness and realism” rather than “theoretical abstraction and mere utopia”.

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Contact author for the full list of references.

## End Notes

<sup>1</sup> One well known analysis of CSR, Carrol (1989), features four categories: *Philanthropic*, i.e. “being a good citizen”; *Ethical*, i.e. “being in line with society’s values”; *Legal*, i.e. “obeying the laws”; *Economic*, i.e. “being profitable”.

<sup>2</sup> Kotler and Scott (1992) define “brand” as a name, term, symbol, drawing or combination of these serving to identify a company’s goods or services, differentiating them from those of its competitors.

<sup>3</sup> “Brand identity” covers both all those attributes (name, logo, symbols, jingles) by which the consumer identifies the brand and distinguishes it from alternatives in competition, and the company values which characterise a specific company in the context of the supply system.

<sup>4</sup> “Brand awareness” involves the ability of the brand to be identified by the consumer, in terms of probability (brand recognition) and speed (brand recall), at the moment of choosing and purchasing products or services in competition.

<sup>5</sup> Product offering is the set of elements perceived by the consumer which condition purchase choices, responding to the question: what “gets” to the consumer? What does the consumer see to be significant in making choices? These components are *functional* (product, customer service); *expressive-symbolic* (brand, image); *instrumental* (communication, merchandising); *economic* (price and conditions for payment).

<sup>6</sup> It has become a general consensus in business studies that the “success” of a company cannot be measured in terms of profit, but “in the degree of satisfaction of the various subjects involved in the value creation process” (Sicca, 1998: p. 8).

<sup>7</sup> According to Golinelli (2000), the “importance” of a systemic entity belonging to the external environment is in turn determined by the “critical quality of the resources yielded” and the “influence which that entity exercises on the company”, in terms of restrictions and modes of behaviour required for the company’s activities.

<sup>8</sup> In one of his most celebrated articles Friedman (1970) set out three basic concepts:

- the managers’ responsibility is merely to act in the interests of the shareholders, so that each departure from the goal of profit is an abuse and a betrayal;
- the management of social questions is the business of other institutions, in particular the State, which must regulate it properly and, where necessary, impose its policy on companies;
- only individuals, and not companies, can be invested with a moral responsibility for their actions.

<sup>9</sup> Sternberg (1994) also denies the possibility of attributing to companies forms of social responsibility, since this is extraneous to the interests of the owners. He argues that all the managers’ actions must be viewed in terms of the effects they produce on shareholders’ returns. He talks of a “Robin Hood syndrome” in saying that social responsibility is “a wrongful expropriation of the owners’ capital” (Sternberg, 1994: p. 4).

<sup>10</sup> According to this approach, the chief goal of the entrepreneur is prestige (social leadership), beside which the goals of market power (competitive leadership) and profit are merely instrumental (Sciarelli, 2002).

<sup>11</sup> We believe that CSR can be viewed in the company-environment relationship in a “reactive” logic, in that the interaction between the company and its stakeholders varies over time according to the relative importance of each *vis à vis* the critical organizational requisites that vary in the company’s developmental phases (start-up, growth, maturity, transition/renewal/decline) (Jawahar and McLaughlin, 2001). Thus the expectations of stakeholders, including ethical and social concerns, are considered by the company if and to the extent that they figure explicitly and there is some form of legal or social sanction in case of failure to satisfy.

<sup>12</sup> REBUS (Responsibility between Business & Society). An analysis of the overall results of the project can be found in Caramazza, Carroli, Monaci and Pini (2006)

<sup>13</sup> ISTUD (Istituto di Studi Aziendali) is an Italian Business School operating in Europe in the sphere of advanced professional training and research into management.

<sup>14</sup> *CSR Europe*, non-profit organisation that promotes corporate social responsibility; *Eabis*, European Academy of Business in Society; *Esomar*, European Society for Opinion and Marketing Research; *Emac*, European Academy of Marketing; *Egos*, European Group for Organizational Studies.

<sup>15</sup> It must be remembered that the quest for overall equilibrium in relations with stakeholders also requires management of the possible conflicts of interest between stakeholders, both at the local and global level, identifying which are the crucial conduct and obligations for being held responsible (Boatright, 1993).

<sup>16</sup> The numerous initiatives concerning social responsibility carried out by international organisms in the last twenty years contain, with few exceptions, only principles, recommendations, and declarations of intent, but no juridically significant constrictions, so that CSR has remained a voluntary and self-regulated matter. Among the many examples some are particularly well known: the UN ‘Global Compact’, 1999; OECD “Principles of company governance”, 1999; EU Green Paper “Promoting a European framework of corporate social responsibility”, 2001; UN “Norms on economic, social and cultural rights”, 2003.

<sup>17</sup> The law “*Nouvelles Régulations Économiques*” of 2001 and subsequent application, 2002, identify the categories of social and environmental information which must be inserted in the annual reports of French companies quoted on the Bourse.



# The Competence and Constraints of Brand-Building for Contract Manufacturers

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## Abstract

While brand-building may provide contract manufacturers with another growth opportunity, it may also give rise to the cancellation of orders from existing clients because of the potential threat of competition. What we try to put forth in this paper is that the own-brand building on the part of contract manufacturers is influenced by the interplay of two sets of forces derived from the initial decision mode of the selected OEM business. The first set of forces relates to competence, with competence in terms of the manufacturing process being concerned with product design, process development and the scaling up of manufacturing. It also influences the ability of contract manufacturers to develop their own-design products. The second set of forces has to do with the constraints, by which we mean the concentrated customer structure that will limit the extent to which contract manufacturers will want to change the way of doing business. In regard to this, we venture to suggest that while the existing manufacturing process competence of contract manufacturers will positively trigger their own-brand building, the concentrated customer structure will have moderating effects on the relationship between existing competencies and own-brand building. Furthermore, we argue that contract manufacturers can effectively minimize the threat of a concentrated customer structure and create value through various means, which include leveraging existing competence into related product lines, selecting geographic target markets cautiously, and entering such markets at the growth stage of the product life cycle.

## Introduction

Many international brand companies such as Dell, HP and Motorola in the past started to outsource some of their activities, manufacturing in particular, in view of the trend toward globalization, in an attempt to enhance their cost advantages. Accordingly, these companies cooperated with suppliers that had the ability to engage in high-quality and low-cost manufacturing (Heide and John, 1990; Quinn and Hilmer, 1994; Ziggers and Trienekens 1999). Among these global suppliers, Taiwan's original equipment manufacturers (OEM)<sup>1</sup> emerged due to their prominent manufacturing ability, especially in the electronics industry. In fact, there are widely-shared productive capabilities for which much of the Taiwan electronics industry's growth over the last decade is accounted for owing to the factor cost differences between Taiwan and the developed country markets. The implications of this are that the attractiveness of the Taiwan electronics industry was initially driven, not by firm capability differences, but rather by country-level comparative cost advantages (Porter, 1990). Although Temporal (2005) stated that many Asian businesses fall into OEM trap which often settling for complacency and short-term gains due to strategic myopia, many of Taiwan's contract manufacturers<sup>2</sup> have not only continued to improve their manufacturing efficiency based on cost advantages, but have also enhanced the scope of their own competence beyond manufacturing while in the process of cooperating with their clients.

By continuously learning and grasping the lessons from prior experiences and the best practices of either themselves or their customers (Collis, 1996; Zollo and Winter, 2002; Hobday, 1995), the scope of competence of these contract manufacturers has developed from manufacturing to product design and development. The expansion in the scope of competence has helped contract manufacturers create more value by dedicating resources to the creation of own-design and own-brand products which may be similar to previous low-end OEM products based on a better financial position as a result of the OEM business (Lee and Chen, 2000).

However, firms have to stop rigidly focusing on short-term profits and concentrate more on long-term brand building (Burmahn and Zeplin, 2005). On the other hand, branding building needs not only the sufficient resources that firms can provide but all staff must have desire to commit in. (Chernatony, 2001). Contract manufacturers who prefer

to have their own brand seem to inevitably compete against their original clients and bear the risk of lost orders. This is because the prior decision of selecting the OEM mode of doing business ultimately elicits collaboration from international brand companies that like to share their technology, manufacturing know-how and so forth. This gradually forms a customer structure where contract manufacturers and their clients share similar competence. Once the former intends to have its own-brand, it naturally threatens and contradicts the interests of the latter in that may not continue to cooperate with each other.

Contract manufacturers will need to evaluate the trade-off between OEM business and own-brand business before the decision to engage in own-brand building is made, especially when the customer structure is concentrated. Such questions have not been discussed in the existing literature because previous studies on brand development have tended to focus on the factors influencing resources and the type, limitation or development of competence (Doyle, 1990; Bansal, Gatignon and Weitz, 1990; Arnold, 1998; Mudambi, Doyle and Wong, 1997; Scherer, 2000). They, however, neglect the factor of a concentrated customer structure which is an important factor in explaining why some contract manufacturers struggle for own-brand building even though they have good competence in manufacturing and product design. Thus, our conceptualizations illustrate and emphasize that either type of competence or customer structure is derived from the initial self-selection mode of OEM business, which past research left unveiled. Furthermore, we argue that contract manufacturers can build their own brands based on their existing competence, but will inevitably face conflict with clients who have similar competence through long-term cooperation within their customer structure.

Based on the above, we argue that there are two contradictory forces in regard to own-brand building, and believe that this problem can be mitigated or resolved by adopting various approaches, including competence leveraging involving related product lines, cautious geographic target-market selection, and entry at the growth stage of the product life cycle.

By examining four cases of IT companies in Taiwan, we aim to examine, first, how the initial OEM mode taken by contract manufacturers affects the formation of manufacturing process competence and unique customer structure, which in turn influence the following decisions related to own-brand building. Secondly, we probe into how the contract manufacturers strike a balance between own brands and existing clients' benefits. This paper starts with a literature review in the next section. An explanation of the research design follows, and includes a discussion on the selection of cases and data collection. Finally, our research concludes and prepares six propositions based on our framework, analyzing and comparing each case based on our gathered information.

## Literature Review

Greiner (1972) points out that an organization's past decisions have much more influence than its current decisions or external market variations. We can see this concept as the explanation for path dependencies from the point of view of resource-based theory. Here, the present position usually reflects the organization's past pattern and emphasizes how past experiences have an enormous impact on future developments (Teece, Pisano, and Shuen 1997). Thus a firm's previous investments and its repertoire of routines will influence or constrain its future behavior. In other words, an organization's current decision in each period will be swayed by its past decisions and events, and will also stipulate its next decision. Accordingly, in this paper, we emphasize that there are two features of contract manufacturers resulting from the selection of an OEM strategy in the initial period.

### **Manufacturing Process Competence: A Competence-based View**

The resource-based view believed that the firm is a repository of resources (Penrose, 1959). A firm should build resource barriers based on its own uniqueness in order to pursue profits (Wernerfelt, 1984; Mahoney and Pandian, 1992). Nevertheless, a firm will persist in pursuing economic rents not only because it has sufficient resources but also because it has the ability to use them (Penrose, 1959). Therefore, the definitions and classification of core competence (Prahalad and Hamel, 1990) and capability (Amit and Schoemaker, 1993) are generated by the diversities of the firm's optimal resource deployment or even how it learns to deploy the bundle of assets efficiently. As mentioned above, the perspective of competence or capability and the resource-based view are fundamentally related to the firm's competitive advantage from its inner perspectives.

Although Taiwan's contract manufacturers face increasingly severe competition from their global rivals holding a relatively weak position in product technology and marketing capabilities appears to be another issue. How can it keep pursuing its growth with a fast changing environment? Sanchez, Heene and Thomas (1996) mentioned in their research that the firms must have two elements for sustaining their growth in a dynamic environment. These are, first, competence leveraging, which means that the firm will duplicate and enlarge its existing resources or specialties in order to extend their usage into possibly new fields, and, second, competence building, which means that the firm must create new assets or capabilities by overcoming learning to create new opportunities for its growth in the future. Only when it achieves a balance in terms of competence, can it contribute to a successful business operation (Sanchez, Heene and Thomas, 1996; Christensen and Foss, 1997)

In fact, if the company can strengthen its key competence by the cooperation with the international manufacturers, the stable revenue from orders of OEM business and the integrated management on its global supply chain setting, it will have sufficient capital and capability to invest in potential techniques and competence. In general, the contract manufacturer can benefit itself by making changes of resource configuration to invest in potential competence and leverages existing or new competences into another potential markets (Prahalad and Hamel, 1993).

Contract manufacturers used to specialize in low cost strategies based on their manufacturing competence. However, competence in terms of low cost manufacturing is hardly different from that of competitors, which can barely retain customers because of insignificant switching costs. To sustain a competitive edge, many contract manufacturers have started to expand the scope of their competence scope manufacturing to product design and development through learning from partners or through searching by themselves (Hobday, 1995; Lee and Chen, 2000). It is this that we define as manufacturing process competence. In doing so, contract manufacturers will engage in businesses other than OEM and will have the opportunity to engage themselves in own-design products.

As they face low cost competition from counterparts in China and Southeast and keep on learning product design and development from their international partners who have recently started to outsource everything except marketing in order to enhance their competitive cost position and pay more attention to competition in their product market dimension, there is no doubt that Taiwan's contract manufacturers will have the chance and ability to step forward and have a go at manufacturing their own-brand products.

Furthermore, due to branding is a core marketing activity (Webster Jr and Keller 2004), contract manufacturers can not only obtain higher profit margins from own-brand business but can obtain more market information regarding product design and development. Therefore, we agree that once the contract manufacturers have developed own-competence pertaining to design or key techniques, they may have a greater chance of leveraging existing competence to offer own-brand products. However, a contract manufacturer can seldom initiate this new strategic move without substantial costs, which has something to do with the unique customer structure gradually built up through the trajectory of previous OEM decision modes.

#### **Characteristics of Customer Structure**

The international brand companies adopt outsourcing modes in order to enhance its competitive cost position, in which they could achieve unique competitive edge. In such international cooperative relationships between international brand companies and global contract manufacturers, it is very easy for these two types of companies to resemble each other especially in manufacturing process competence which constitutes the unique customer structure for the latter. In other words, the unique customer structure can be seen as forms in which clients have similar products and techniques in industrial markets.

Besides the similarities in terms of the products and techniques, the discernable characteristics of customer structure are in this paper either concentrated or dispersed. A concentrated customer structure is defined based on the concentration ratio utilized to measure industry structure. The concentration ratio is expressed using the term  $CR_x$ , which stands for the percentage of orders controlled by the largest  $x$  clients (Allen, 1969). For example,  $CR_2 = 50\%$  would indicate that the top two firms control 50% of the orders. In accordance with the concentration ratio used to measure the industrial structure, we also point out that a  $CR_4$  ( $C_4$ , usually) of over 50% is generally considered to be a concentrated customer structure.

The reason why we want to classify the concentrated or dispersed customer structures is to infer the degree of dependence for contract manufacturers on their buyers. This characteristic of the customer structure will induce the use of different resources, different relationships with clients, and the ability of firms to expand their markets or develop

their technology. On the one hand, a firm with a concentrated customers strategy can gain many advantages from this kind of relationship such as meeting clients' requests on time, maintaining long-term customer relationships by offering relatively high quality service, increasing the degree of familiarity and reducing the chances of bad communication, which in turn reduce the costs and expenses associated with arranging, managing and monitoring. However, on the other hand, with a concentrated customer strategy, relatively few sources of techniques and knowledge from fewer clients limit the extent to which contract manufacturers have more chance to build their own competence which the ability or techniques of new or innovative product development, which in turn make also cause them to face more risks of an order being cancelled, cause them to lack the sources of techniques or product information and increase the costs of new knowledge creation or searching when they build their own brands. In other words, the more concentrated customer structure, and the less innovative product development by own competence. By discussing the characteristics of customer structure, we emphasize that concentrated customer structure is the main consideration for contract manufacturers due to the potential threat and risk of orders being cancelled and sources of competence being lost from cooperative relationships when contract manufacturers decide to have their own-brand products.

## **Method**

As already mentioned, our question is concerned with the question of building a brand of which the main goal is to explore the company's customer structure formed by its initial decision, and how it affects on the brand decision and how its influences can be minimized. To conduct such an exploratory research, case studies become necessary. Generally speaking, quality research with case studies can be divided into two ways: Positivism and Interpretativism (Dyer and Wilkins, 1991). The former is a method that places greater emphasis on analysis, emphasizing the use of construct-analyzing cases (Eisenhardt, 1989). The latter is interpretative in that some theoretical perspectives are used in order to make a story stand out. The method that we adopt in this research is the former because our purpose is to form and build theory based on constructs. We will state the research design as follows.

Moreover, based on Yin's (1994) case study research, we can use single and multiple cases to proceed with case study research. Although multiple case studies require a lot of resources and time-consuming efforts to apply for a key and critical factor or unique case, it has the advantage of generating theory with much complexity, and its empirical grounding is likely to be convincing (Eisenhardt, 1989). With regard to this advantage of multiple case studies, we adopt this approach of engaging in in-depth research into the four electronics industry contract manufacturers. This study interviews the key people who physically engage in the companies' operations and tracks the important strategy-making points.

### **Case Selection**

We select four electronics industrial companies that have developed their own-brand products and analyze them by means of case studies. The major considerations in relation to case selection in this study are as follows. First, all cases selected are contract manufacturers that engage in OEM business. Second, the OEM business of the contract manufacturers can be classified into many types in light of different criteria. The types of customer structure that result from different elements of OEM business seem to have different kinds of influence on brand building. Therefore, we also try to select two cases, which have different elements of customer structure among these four cases, in order to emphasize the different influences of customer structure on brand building. By doing this, in the selection of cases we rely on replication logic, rather than sampling logic (Yin, 1994). One case (ASUS) selected indicates that contract manufacturers adopt an initial strategy with their own-brand product, while another case (HTC) suggests that some companies choose to cooperate and develop competence with software companies like Microsoft. In fact, our choices of notebook<sup>3</sup> and mobile phone<sup>4</sup> firms also reflect an adequate representation of the industrial landscape in Taiwan.

### **Data Collection**

Miles and Huberman (1994) suggested that the researcher to start his analysis during the data collection stage. The selection of data collection methods is guided by the nature of case study research that requires a certain level of triangulation (Yin, 1994). The data collection of a case study research design is extensive, drawing on multiple sources

of information, including observation, interviews, questionnaire surveys, documentation, archival records, and physical artifact, etc.

The primary information used in this research is mainly conducted using secondary information<sup>5</sup> In the primary part, we refer to the open instruction and specialty reports accompanied by the research reports of the Institute for Information Industry and other relevant authorities, the TRI (Topology research institute), MIC and IDC as well as other related websites such as electronics news, global electronics news, stocks and bonds business investigation reports, etc. The sources of these materials can be collected extensively at different times and in different places, which provides a proper disclosure of the incidents recorded and the history of relevant information used in this research. Furthermore, we also use various information analysis skills including charts for this research.

## Research Framework

According to the above literature review, the present study proposes a research framework, as shown in Figure 1, to guide our subsequent research.

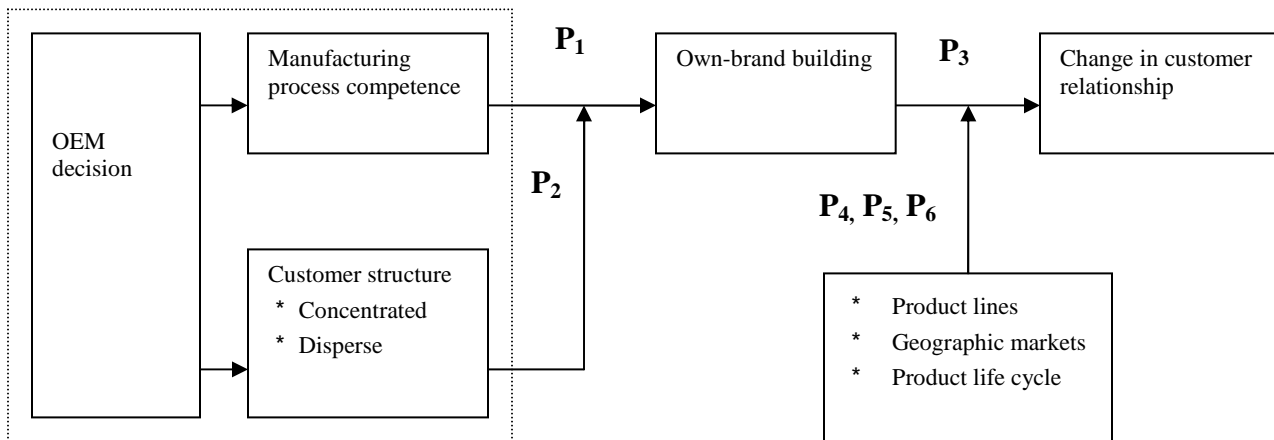


FIG 1: RESEARCH FRAMEWORK

## Findings and Propositions

Based on our data, we have identified a list of key issues, as shown in Table 1 below. We analyze the case evidence with respect to each construct of the framework, and compare the case findings against previous theoretical arguments. The company that adopts an OEM strategy in its early stages must face conflicts with clients. Among these cases, BenQ, ASUS and HTC insist on own-brand building except Quanta. Furthermore, apart from BenQ, we also can see that ASUS and HTC's later customer relationship is almost the same as the previous customer structure. The reason why we point this out is that these two companies make three choices to reduce the risks of conflicts as Propositions 4, 5 and 6 argue.

TABLE 1: COMPANY PROFILE

		Notebook		Mobile phone	
		Quanta	ASUS	BenQ	HTC
Contract manufacturers profile	Year of Establishment	1988	1989	1984	1997
	Main Product	Notebook	Motherboard Notebook	Mobile phone	PDA Intelligent mobile phone
	Source of competence	Hardware company	Hardware company	Hardware company	Software company
	Brand-Building Date	2000	1997	2001	2004
Customer structure	Clients' main product	Notebook	Motherboard Notebook	Mobile phone	PDA; Intelligent mobile phone
	Customer structure	Concentrated	Disperse	Concentrated	Disperse
	Customer structure before brand-building	International brand name notebook computer companies	Small & medium-sized regional distributors	Motorola	Palm One, HP Euro and USA telecom system providers
	Customer structure after brand-building	International brand name notebook computer companies	Small & medium-sized regional distributors Sony, Apple	Nokia	Euro and USA telecom system providers
OBM strategy	Evolution of strategy	OEM—OEM	OBM—OBM	OEM—OBM	OEM—OBM
	Product lines	Existing	New	Existing	New
	Geographic market selection	Overlap with clients	Separate from clients	Overlap with clients	Separate from clients
	Product life cycle	Maturity	Growth	Maturity	Growth

**The Accelerated Force for Own-brand Building: Manufacturing Process Competence**

Hobday (1995) found that the mode of subcontracting and OEM was an important mechanism for contract manufacturers to gain superior technology or knowledge by cooperating with ascendant firms. Many studies also have found that knowledge and the learning of techniques can be achieved through alliances or cooperation among alliances (Hamel, 1991; Inkpen, 1996; Steensma, 1996).

As for the three companies examined in our case studies (Quanta, BenQ and HTC), each was transplanted much knowledge and techniques such as the management of manufacturing efficiency and product design and development from partners. Quanta, which is the main manufacturing partner of Dell, which made great efforts to bring Quanta up when the notebook industry was not growing yet and manufacturing techniques were not mature. Asus started from a core product of motherboard, it entered the notebook market with its own brand in 1997. Although it started quite late compared to other big companies, Asus has developed its notebook computers to be the main products with its strong and continued R&D capabilities renewing. BenQ was already Taiwan's first company to develop the mobile phone. In 1996, the first type of GSM phone passed the FTA test because of its cooperation with Motorola, and was authorized to be an OEM partner in the same year. HTC cooperates with the world's leading

software company, Microsoft, and its competence building is different from other contract manufacturers of mobile phones in Taiwan. In 2000, when the Palm PDA was popular in the market, HTC retreated from the mainstream Palm-platform by choosing to cooperate with Microsoft. They consequently launched the PDA with the Pocket PC-platform of the Windows Mobile system and had a powerful capability among the PDA market.

Quanta launched its first own-brand computer "VALUE 2000" in 2000. BenQ launched its first own-brand mobile phone with a GSM system in 2001. HTC launched its first own-brand smart phone with the Microsoft Windows Mobile system in 2005. Based on these three companies, we found that all three notebook and mobile phone companies have tried to bring considerable benefit to the development of own-brand building with its manufacturing process competence being derived from learning with their clients. Therefore, the capability of manufacturing and design seem to provide the contract manufacturers with an opportunity to enhance their process knowledge by creating their own-design and own-brand products. Hence, we may state that the driving force behind manufacturing process competence for contract manufacturers' brand building may be summed up in the following proposition:

*Proposition 1 : Other things being equal, the prior manufacturing process competence developed based on an OEM strategy will have a positive effect on future contract manufacturers' own- brand building.*

#### **The Restrained Force for Own-brand Building: a Concentrated Customer Structure**

The competence of contract manufacturers is always developed and built based on their cooperation with their clients. Webster Jr and Keller (2004) also stated that industrial marketers derive a major portion of their total revenue and profit from a relatively small number of customers such as original equipment manufacturers. However, Bettis, Bradley and Hamel (1992) and Markides and Berg (1988) have also stated that the buyer may tend to be cautious in transferring design and development technology when they consider potential competition from outsourcing partners. That is to say, contract manufacturers will bear the risk of losing the source of competence and their learning objective if their clients are against own-brand building especially as their client are few. Thus, the more concentrated the customer structure, the greater the risk of losing the source of competence, which in turn reduces the willingness to engage in own-brand building.

Quanta received orders from Dell computer in 1993. The orders from Dell accounted for 35-40%, and Gateway, Apple and HP accounted for a further 40% of all orders in 2000. Furthermore, BenQ gained its initial international orders from Motorola in 1996 and became the main mobile phone manufacturer in Taiwan with Motorola's consistent orders which accounted for 60-70% of BenQ's output in 2003. As mentioned above, Quanta and BenQ's customer structure in the market in which they build own-brand is concentrated according to a concentration ratio in which a CR<sub>4</sub> of over 50% is generally considered to be a concentrated customer structure. In other words, Quanta and BenQ face the problem that they bear big risks of losing the source of competence and having orders cancelled if their few clients decide to end the cooperative relationship. Fortunately, Quanta gave up its own-brand due to its client's resistance. Contrary to Quanta, BenQ maintain its OBM strategy even though it faces resistance from Motorola which has finally resulted in its orders being passed on to other contract manufacturers. From these two cases, we can see that a concentrated customer structure has a moderating force on own-brand building.

As for the other cases, namely, ASUS and HTC, the constitution of customer structure efforts has proved to be critical for own-building as well. However, the customer structures which are formed from their initial OEM decision are different from the previous two cases. In general, contract manufacturers can be classified into two types of brand building strategy through different types of evolution (Keller, 2003). When ASUS entered the notebook market, ASUS's main tactic was to build its own brand and develop its own competence in order to try to aggressively obtain orders of OEM contracts. Because brand companies always choose to collaborate with the contract manufacturers without their own brand in order to avoid conflicts, ASUS's initial clients were mainly small and medium-sized regional distributors or smaller brand companies. Thus, this kind of customer structure-based initial OBM strategy has made ASUS not only avoid conflicts with original customer structures in the motherboard market, but ASUS has also developed its OBM in the notebook market with few conflicts because of its decentralization and smaller clients in terms of customer structure.

Besides, HTC is mastering the key techniques of PDAs and Smart phones by cooperating with Microsoft. Its customer structure in relation to Smart phone manufacturing includes many hardware companies like HP and Palm One and other Euro-US telecom system providers. Therefore, although HTC's and BenQ's cases indicate that the

competence building is enabling them to learn from international cooperation, the obstacle to the evolution of OBM business is very different. This kind of cooperative characteristic enables HTC to cooperate with many hardware companies but avoids the risk of losing future product or technology development due to the main source of competence being Microsoft which is not its competitor in the mobile phone market. We may summarize these findings as in the following proposition:

*Proposition 2: Other things being equal, the concentrated customer structure which is formed from the OEM strategy of a firm's early development will have moderating effect on the relationship between competence and own-brand building of contract manufacturers in the future.*

#### **The Relationship between Own-brand Building and Customer Relationships**

De Chernatony (1991) stated that the brand leader will adopt a plan of attack as he finds his market to have been eroded by some brand followers. This argument is in correspondence with the difficulty that contract manufacturers face when they build their own brands.

Quanta launched its brand 'VALUE 2000' notebook computer in 2000 but discontinued it mainly because of its notebook brand clients' suspicions and objections. It is obvious that the own-brand strategy created conflicts in the strategy of previous OEM. Based on these considerations, Quanta's policy is to still stick to its conventional manufacturing policy.

BenQ's customer structure is always focused on a big company - Motorola. In 2004, the year-on-year increase in BenQ's own-brand selling aroused Motorola's suspicions and the withdrawal of up to 70% of the mobile phone orders. This cancellation of orders made BenQ face the risks associated with its OEM business operations and the costs of searching and building its own competence. Although BenQ fortunately transferred its customer structure to another big company - Nokia, Nokia's consideration of its business relationship with BenQ relates to its manufacturing capability. Based on these two cases, our investigation shows that the own-brand building of contract manufacturers is more directly linked with the relationship with the customers. Hence, we may establish the following proposition:

*Proposition 3: Other things being equal, the strategy of own-brand building will induce a change in customer relationships.*

#### **Competence Leveraging into Related Product Lines**

Mahoney and Pandian (1992) stated that a diversification strategy is the way that firms can adapt to the pursuit of growth. In general, applying existing competence to different end products is what we call a related diversification, which seems to be an easy and less risky way for firms to pursue growth. This is because launching new products through the utilization of existing competence will not only be seen as the management of strategically similar business by dominant logic (Prahalad and Bettis, 1986), but it will also preserve the value of current resources or competence by transferring that competence to other product lines that are less similar to the original product lines (Mahoney and Pandian, 1992; Bettis, 1981).

We believe that contract manufacturers can move in at least two directions when developing own-brand products. The first type is to build their own-brand products based on previous and existing competence in the same product line as their original clients, such as Quanta and BenQ, which give rise to suspicion and objections from their clients. For example, BenQ's own-brand phone is mainly based on the GSM system which shares the same technical features as its original client, Motorola.

The second type relates to leveraging current competence in regard to new product lines in related markets such as HTC that built its own-brand of smart phone rather than that for the original PDA market. In doing so, HTC can leverage its competence in relation to PDA techniques to the area of Smart phone development, which also minimizing the risk of brand clients recalling orders in the PDA market when HTC tries to have its own-brand in the Smart phone market. ASUS's key competence leveraging was based on its main product, the motherboard (Prahalad and Hamel, 1990) that has a creditable brand impression, and it entered the notebook computer industry with its own-brand in 1997.

Therefore, we argue that contract manufacturers who diversify into different product lines by exploiting existing manufacturing process competence can not only avoid fairly high costs of creating new competence but also the conflicts with clients that have the same product lines. We therefore submit the following proposition:



*Proposition 4 : Other things being equal, if the contract manufacturers can master the key competence and leverage in new related product lines, this will minimize the conflicts with their original clients when they build up their own-brand products.*

#### **Cautious Geographic Target-market Selection**

The geographic market is one determining variable for market segments (Kotler, 1997). Geographic market selection in this paper refers to the choice of which contract manufacturers need to attempt to avoid conflicts with existing clients.

BenQ is aiming at the markets of China and Europe. From its distribution, the European market has the most striking sales; in the Asian distribution, there is a significant growth in the China, Hong Kong and India areas. The system applied in both areas is the GSM system. BenQ's success in these markets has had a huge impact on its GSM manufacturing client Motorola whose geographic target-markets are similar to those of BenQ.

Unlike BenQ's case that targets global markets and gives rise to conflicts with its original clients, ASUS and HTC avoided the conflicts with their customers while determining the coverage of their geographic scope. ASUS's own-brand business is based in the markets of Taiwan, China and the Asian Pacific zone. Similar to ASUS's geographic target-market strategy, the main target market of HTC's own-brand Dopod is distinguished from that of its clients. In the European market, it uses an OEM/ODM strategy for T-Mobile. While in Asia it launches its brand Dopod in Hong Kong, Indonesia, New Zealand, and Australia. We can infer from the above arguments that Taiwan manufacturers' geographic target-market is likely to prevent them from direct competition with international giants, regardless of whether their market is related to the original geographic target-market or not. Therefore, the following research proposition is propositioned:

*Proposition 5: Other things being equal, if the contract manufacturers can avoid conflicts with their original clients through cautious geographic target-market selection, this will minimize the conflicts with their original clients when they build up their own brands.*

#### **Product Life Cycle Effect**

The product life cycle suggests that the product in the market, both during and after the diffusion, will face the following different developing stages: (1) Introduction, (2) Growth, (3) Maturity, and (4) Decline. Among these stages, there are more different characteristics of customers, products, competition and manufacturing (Kotler, 1991). For contract manufacturers, the stage of growth is an opportunity to develop its own-brand, which lack product standards, manufacturing quantity and customer loyalty. The growth stage is the chance for contract manufacturers to form the consumer's brand perception including the image that consumer's form of the brand and their experience with the brand (Gelder, 2004).

In the notebook cases, according to information compiled by MIC in 2004, the global notebook product's life cycle is about 3~4 years. Meanwhile, we can take 1997 to 2001 as a life cycle of the notebook. This is because the Y2K changing PC boom had disappeared and the global economy is depressed, which in turn causes the market to decline rapidly beginning with 2000. Accordingly, Quanta launched its own-brand in 2000; and ASUS entered the notebook computer industry with its own brand in 1997. This indicates that Quanta entered the notebook market during a period of decline contrary to ASUS.

In the mobile phone cases, it was only in 2002 that BenQ formally launched its own-brand mobile phone. According to an MIC report, the number of global mobile phone users has been growing more slowly since 2001 after high-speed growth of about 50% in 2000. The annual growth rate has fallen to less than 30%. Compared to the rapid growth of the past, the mobile phone has gradually moved into its mature period. This shows that BenQ launched its own-brand into the mobile phone market, when the market was entering its mature period. Compared to BenQ, HTC announced the introduction of its first own-brand "Dopod 565" into the Smart phone market in 2005. According to an IDC report, in 2007 it is estimated that sales will increase to more than sixty-two million sets from 9 million three hundred and thirty thousand sets in 2003. Based on that, it is evident that when HTC launched its own-brand, the market was going through a growing period. Thus, we may submit the following proposition:

*Proposition 6: Other things being equal, if the contract manufacturers can enter the market in its growing period, it will minimize the conflicts with its original clients when it builds up its own brand.*

## **Conclusion**

OEM businesses rely heavily on the operational excellence on management efficiency, cost reduction, and quick responses to demand fluctuation to maintain sufficient margins. However, in viewing the value chain for value creation, brand building provides contract manufacturers with another growth opportunity. This paper argues that the initial self-selection as original equipment manufacturer has given rise to a manufacturing process competence and concentrated customer structure. Although competence is the driver for contract manufacturers to build their own brand, it is easy for contract manufacturers who build a brand based on existing competence in existing product lines to have conflicts of interest with their clients. If contract manufacturers are determined to pursue own-brand products along the same product lines, the customer relationship seems to unavoidably change in the end. In short, the decision of the initial OEM strategy that forms a unique customer structure is the main factor that decides whether the firm can rapidly enlarge its scale. However, it turns out to be a big obstacle when the firm strives to build up its own brands. If not properly managed, starting to build an own brand could cause serious concerns from the major clients and lead to orders being cancelled, which can become an immediate threat for contract manufacturers. In order to avoid or minimize the conflicts of interest, we suggest that the selection of new product lines and new geographic target-markets at the growing stage of the product life cycle have moderating effects on the relationship between own-brand building and customer relationships.

## **Research Limitation**

The findings have two limitations. First, the objectives of this paper are limited to Taiwanese firms. However, the issues that are addressed here have significance to other East Asian countries, too. Second, due to primary information, this research is mainly conducted with secondary information, and the secondhand information could give rise to false results as a result of the incomplete collection of data and the reporters' prejudices. For example, the news story may not have been specially written for a certain specific research project, and its suitability needs to be discussed by researchers. Therefore, we try to avoid this pitfall by cross checking the information and discover its advantages of stability, precision and wide scope coverage.

## **Managerial Implications**

When faced with saturated growth and thin profits, contract manufacturers start to think of the possibility of developing their own brand. However, this strategic move seems tempting but raises concerns from existing clients owing to conflicts of interest. The goal of this study is to develop a perspective for understanding the antecedents of own-brand building and finding solutions to reducing conflicts with existing clients.

We provide two significant managerial implications. First, the above discussion clearly portrays a critical lesson observed from these cases that contract manufacturers can leverage their existing competence to related product lines and build their own-brand products by focusing on competence and embedding it in the new products. Second, in order to effectively build brands, contract manufacturers should have their own-brand products in dissimilar geographic markets to alleviate the conflicts of interest with original clients. They also engage in the branding at the growth stage of the product life cycle in order to avoid fierce competition in mature products with high standardization, saturated markets, and high barriers related to customer loyalty.

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Please contact authors for the full list of references.

## End Notes

1. OEM (original equipment manufacturing): Here, the manufacturer follows the buyers' sample specifications and details of design to assemble all parts into a product and then conducts the transaction with the assigned shipping mode (Lee and Chen, 2000).
2. Contract manufacturer: In this paper, a contract manufacturer is defined as a manufacturer that has an OEM business.
3. Due to the notebook computer prices with a downward tendency, and the high-mobility characteristics, the need from its worldwide market has a stable going-up trend compared to desktop computers since year 2000 (MIC, 2004). Taiwan's notebook computer productivity predictably reached up to 80% of the global market in 2005 (MIC, 2005). Taiwan's notebook computers have been in the important position of global supply
4. In 2002, due to the ensuing capability development of Taiwan companies in mobile phone manufacturing and design, the number of phones reached up to twenty-eight million six hundred and twenty thousand sets accounting for 6.9% of global market share (MIC, 2004).
5. We also adopt personal interviews including one operations and one marketing managers in these contract manufacturers for purpose of identifying some information.

# Management of Service bundling through the Product/service Interface: Examples of Product and Package Solutions in Japan

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## Abstract

In the globalized economy, companies compete on their value-added service offer. Quality and reliability of products are the prerequisites for business, but long-term relationships are built on complex product and service interaction. Japanese firms have a long tradition of outstanding manufacturing quality. However, the Japanese service industry is less developed in comparison with other OECD countries. Services have often been bundled together with products or internalized in manufacturing firms, and because of this not been visible. We argue that this service bundling can be highly valuable in certain industries where there is a need to increase the service content to compete. The paper uses the service-interaction between product and package to show the potential strengths of the Japanese firms in terms of increasing service value-added in the value-chain. It offers a theoretical contribution to the discussion on the service-economy and gives empirical examples from industry in Japan.

## Introduction

The Japanese manufacturing industry is an example of an industry sector that early moved towards the globalization of firms by searching for new market opportunities and optimized resource utilization (Dunning, 2000; Alexander et al., 2002). Many of the world's largest corporations are Japanese (Fortune, 2006). Apart from the well-known manufacturing firms within the automotive industry and electronics, the large Japanese trading companies (*sogo shoshas*) have been important actors within international business. Nevertheless, the internationalization seen in manufacturing has not been equally successful in the service sector (Ström, 2004, 2005). The domestic Japanese market has also seen a less developed service sector in comparison with other highly advanced OECD economies. One explanation behind this development is said to be the internalization of Japanese service functions. This means that the service function might be there, but it is not visible as independent firms or even separate departments. Even the *sogo shoshas* have a very mixed and diversified service supply. These structures have formed the innovation and development within the Japanese business environment. Important aspects for these multinational firms are to provide the intended product with sufficient properties of both tangible and intangible character, from the manufacturing of the product until it is ready for use. In addition, aspects of these multinational firm's globally dispersed operations also have to be included during the development of the product to be. In order to achieve this and equally obtain competitive productivity in the global market place, the product lifecycle is important during the product development process.

Through the product life cycle perspective it is possible to handle global operations in e.g. production, simultaneous with diverse global customer preferences. Thus, the life cycle is a system for handling all aspects of importance for the intended product. In parallel with the globalization of industry and increasing complexity within supply-chains, the importance and potential of the packing industry has increased (Bramklev, 2007). This industry is also in a need for increasing the value-added of packaging in the product life-cycle. The tradition of service-bundling and internalization of service functions can be of value for the interaction of the Japanese manufacturing and packaging industries, through introducing service content in the value-chain. The fact that the Japanese service industry seems less developed in an international comparison and that service internalization characterizes the business environment make studies of the service and product interaction highly important. Packaging is in this case an excellent example of this service and product interaction. It can be part of the product, but it can also provide the product with additional service of great value for the users during the product life cycle. In contrast to pure service

firms, the service internalization and bundling approach might be of great competitive value for the Japanese manufacturing firms, giving them a holistic perspective.

## **Aim and Objective**

The paper uses the ongoing globalization of production of goods and services as a base for developing a conceptualization of the product/service offer. Customer demand and the complexity of the supply-chains have increased the need for service. We will use examples from the packaging industry in Japan, to visualize the possible value-gains that can be generated through a product/service perspective for both the packaging provider and the manufacturing firm. The conceptualization offered here is a first attempt to grasp the potential of service-bundling and internalization. For the development, competitiveness and internationalization of the service industry it has shown to be problematic. In the interface between the physical product and service, it might instead be an asset. Apart from building the conceptualization, the aim of this paper is also to develop and indicate future research agendas.

The rest of the paper is structured as follows. First, we will describe the method and analysis structure of the paper. Second, a discussion of the transforming service economy in East Asia is provided along with a presentation of the dual industrial structure in Japan. Third, we provide key-concepts and discussion and the interaction between the product and service interface. Following, we develop a conceptual model and provide four examples from the Japanese manufacturing industry. Finally, conclusions and suggestions for further research are presented.

## **A Note on Method**

The paper uses a combination of primary and secondary sources. The primary data comprises of interviews made in Japan in March 2004. They include academics working within this field and representatives from the Japan Packaging Institute and Asian Productivity Organization. Additionally, an interview was made with representatives from one of the largest packaging companies in the world (non-Japanese) in Tokyo to get a deeper understanding of how they perceive the packaging industry and its interfaces with the manufacturing industry in comparison with their other markets. The interviews also included two manufacturing companies (non-Japanese) and two academic research institutes. They have helped to establish knowledge of the Japanese product and package market. The pilot study has acted as a frame of reference in building the conceptual model in this paper. It was not intended to be a deep empirical study on which strong conclusions could be drawn. In this paper the conceptual development is mainly based on a theoretical literature review. The paper uses prior literature from relevant disciplines to develop the conceptual framework. It includes academic publications, publications from international organizations, industry associations and company material. See Table 1 below for a view of the research approach in this paper.

TABLE 1: REVIEW OF ANALYTICAL APPROACH

<i>Area</i>	<i>Content covered</i>	<i>Rationale</i>
1. Literature review; classification and definitional issues	Approaches to definitions of service and product. Review of research on the Japanese and Asian service economy.	Conceptual framing of the business environment and service economy in Japan
2. Theoretical concerns	Theoretical perspectives; international business, economic geography, management and product development.	Determine the range of theories that may be used to inform of how to develop a conceptualisation of the product and service interaction.
3. Model development	Analytical dimensions that can add to the value creation of the service production within Japanese firms.	Discussing knowledge gaps that can help to develop the analytical tools for the Japanese product/service interaction. Introduce a conceptual model that can be tested further through deeper empirical studies.
4. Empirical examples – Pilot study	Asian Productivity Organization, Japan Packaging Institute, company and research institute visits. (3 companies and 2 research institutes)	Discuss factors of importance for the service dominated economy established through the literature and theoretical review. Get an understanding of the competitive situation of the packaging industry in Japan and relations to the manufacturing industry. Locate a number of potential directions for further research.

## The East Asian Service Economy

International comparisons have revealed that the Japanese service sector lags behind many of the most industrialized OECD countries in contributions to GDP, employment share and trade and investment (Fukao & Ito, 2000; Ono, 2001). There might be several explanations behind these features, but a tightly regulated market, internalization of services within manufacturing, business organization, and the specific characteristics of the Japanese business environment are often referred to as the most important (Enderwick, 1990; Dicken et. al, 1997; Ono, 2001; Ström & Mattsson, 2005).

The Japanese economic development model shows a number of specific characteristics. One of the most debated factors is the government involvement in the economy through various forms of regulatory and support functions. The government has used an array of tools in the so-called developmental state. The most well-known measures have been the attempt by MITI to use preferential treatment for certain sectors in combination with regulation (Johnson, 1982, 1985; Okimoto, 1989). Supporting a number of potential industries for export promotion, regulation on foreign direct investment and the financial markets, and shielding domestic industries from competition are just a few examples of this government involvement. The Japanese business environment with large industrial groups, *keiretsu*, and rigid labour market worked in parallel with the regulatory environment in creating a rather unique model of rapid economic development.

A debate exists, however, on the real effects of these measures for the industry. Some parts of the economy certainly was helped by the government involvement, but there are also examples of companies going their own way or simply taking advantage of the existing favourable market conditions (Friedman, 1988). The high level of

involvement did not always create the expected outcome. The result has become a dual structure with competitive and uncompetitive firms. Today, the economy has changed and the government acknowledges the importance of foreign direct investment and the need to restructure the labour market. The life-time employment system of the high-growth era has now transformed and the labour market is now less rigid. Nevertheless, there are sectors that are in need of restructuring to compete on the international market. The service sector is one such example. The service industry has not received the same government attention as other manufacturing sectors in terms of industrial development assistance. Instead the sector has been kept shielded from international competition in the domestic market. This has created a weaker service sectors in general in Japan in comparison with other advanced economies (Ström, 2004, 2005). Apart from lower share of GDP and employment stemming from the service sector, Japanese services have a limited international success. In international trade Japan runs a large deficit in services trade. This shows a completely different picture of the Japanese economy than the usual in the case in manufacturing trade. The export ratio in services is also very low. This gives a clear indication of that the economy has primarily had a manufacturing focus. A further indication is that there has been a problem with productivity within the sector and that the Japanese companies in general have experienced low profitability (Wainai, 2001; Wölfl, 2003).

Japanese service firms found at foreign locations has primarily been following a Japanese client. The Japanese banks internationalized through the international success of manufacturing companies. The situation is similar within insurance, financial consulting and other professional business service firms. A common characteristic is that these firms had problems in expanding their client base outside their main traditional Japanese clients. The feared competition even from Japanese service firms that existed in the late 1980s proved to be much less than anticipated (Enderwick, 1990; Johansson, 1990). As the Japanese clients abroad were pressured by competition, in combination with the domestic problems in the Japanese economy, many of the service firms became forced to seek non-Japanese clients to keep their business running. This has been a very difficult task. Many Japanese service firms have chosen to withdraw from non profitable markets. Sectors such as, construction, insurance and retailing, have all seen this development (Ström, 2006). The local knowledge in combination with a long experience of the business environment helps to explain this situation. There might be several reasons behind the problems of internationalization among the Japanese firms. On the one hand, the lack of clear strategy and limited international brand recognition are important. On the other hand, services have traditionally been seen as something which should be free in Japan. There has not been the same tradition in charging for information or knowledge. Instead this should be included in a larger package, such as a product or a loan from a bank (Ström, 2004, 2005). This has created a business environment where services have been internationalized through an introvert approach, mainly using the already existing business relations to Japanese clients (Ström & Mattsson, 2005). In several manufacturing sectors, Japan has also seen increased competition from neighbouring countries. Korea has become a world leader in the automotive and electronics industry, just to mention a few. The Korean service sector, however, shows a number of similarities with the Japanese. Even though the economy has been growing rapidly over the last decades, the service sector has not developed at the same pace. Even compared to the Japanese situation the Korean service industry is lagging behind. One example is the fact that the contribution GDP by the Korean service sector was 57.2 percent in 2003 (OECD, 2005). In Japan, the contribution was 68.0 percent. Ten years before, this difference between the countries was about the same. The data shows that the Korean economy is still dependent on the international competitiveness of the manufacturing sector. Regarding the share of total employment of the service sector the difference between Japan and Korea is smaller. In 2004 67.1 percent of the Japanese labour force was found in services and 64.4 percent of the Korean (Ibid.). This is an indication of that the Korean economy is moving ahead to become a service and knowledge dominated economy, with a strong government push in this direction (Kim, 2003). The tendency to leave the manufacturing dominated economy exists in many of the East and Southeast Asian countries. Even countries like China have many areas with rapid growth, where the service industry is booming. The competition in East Asia has changed and moved into new industries apart from cars and electronics. It is now a question of which countries that can make the most out of the possibilities that new technology and the network economy can bring. With technical ability and strong innovation systems countries can leapfrog in economic development. ICT clusters in Korea and China stand strong in the new knowledge based economy (Masuyama & Vandenbink, 2008). The technological development and innovation strategies implemented by governments push competition in new sectors. Japan that for long led the way in the

manufacturing industries in East Asia has seen competition rise. The market has been pushed by the technological development.

### The Dual Industrial Structure of Japan

After the bubble economy it became clear that the Japanese economy was characterized by a dual economic structure. On the one hand, the world had seen the rise of highly competitive international companies. Many of them, world leaders in their respective industry, with industrial tools such as lean production, just-in-time and *Kanban*. During the catch-up period after the war, the entire Japanese economy was directed towards increasing the industrial out-put and concentrating on the manufacturing industry. Through the involvement of the government in the economy and a corporate culture fostering competition on production effectiveness, it was possible to establish world renowned companies (Johnson, 1982). In parallel with these multinational companies, the small and medium sized firms have played an important role in the Japanese industrial development, and it is within these sectors that most of the labour force has been employed (Whitaker, 1997). These firms have supplied the industry with machinery and other forms of equipment. The Japanese corporate model and its industrial focus have been built around a number of specific characteristics where the end goal has been to beat competition on operational effectiveness. Table 2 below shows the main factors behind this production driven economy

TABLE 2: FACTORS INFLUENCING THE JAPANESE CORPORATE MODEL

<i>Factors</i>	<i>Characteristics</i>
High quality and low cost	Superior quality at low price. Standardization, mass production and eliminating unnecessary steps.
Wide arrays of models and features	A set of standard products with a wide range of features and optional equipment.
Lean production	Total quality control, continuous improvement (kaizen), Just-In-Time planning, design for manufacturability, close supplier relationships, flexible manufacturing, rapid cycle time.
Employees as assets	Create a strong sense of community and reciprocal loyalty.
Life-time employment	Encouraged on-the-job training generalist and multi-skilled and adaptable workers.
Leadership by consensus	Consensus decision making ( <i>ringisho</i> ) for smooth implementation. Connected to the development of quality circles to enhance manufacturing efficiency.
Strong intercorporate networks	Cross-share holdings within industrial groups (keiretsu). Often centred around a main group bank. Stable long-term ownership.
Long-term goals	Market share instead of direct profit in order to sustain production at full capacity. Less pressure from the stock market.
Internal diversification into high-growth industries	Internal development in related industries.
Close government relationships	Government support for specific industries and preferential treatment.

Source: Porter et al., 2000.

This corporate model has generated a structure where the manufacturing sector has been highly effective and competitive on the world market and foreign firms have benchmarked against Japanese firms. This has also



been facilitated through long-term business relations, product development and the keiretsu structure forming complex inter-company relationships (e.g. Gerlach, 1992; Nonaka & Takeuchi, 1995; Kency, 2001).

On the other hand it was clear that, the Japanese economy had shielded many sectors from international competition through subsidies and regulation. Large parts of the service sector could be found here (Ono, 2001; Ström, 2005). In the period following the bubble economy, the first group of companies have successfully continued to compete on the global market. The most successful companies can almost all be found in the manufacturing sector. In a world where the largest share of the economy in the most advanced economies is dominated by services, Japan seems to have lost momentum in finding new prosperous sectors to develop. In fact the second largest economy in the world is lagging behind many of the most advanced OECD countries in terms of service sector share of the GDP and service sector share of total employment (OECD, 2005; Ström 2004). It gives an indication of that the Japanese economy has been far from as successful in the service industry as compared with the manufacturing sector. Even if the service sector is disaggregated into specific sub-sectors the pattern still exists. See Table 3.

TABLE 3: CONTRIBUTION TO TOTAL EMPLOYMENT BY HIGH INTERMEDIATE SERVICES, PERCENT

<i>Country</i>	<i>1990</i>	<i>2000</i>	<i>2002</i>
Canada	12.7	15.2	16.1
France	13.5	15.8	16.5
Germany	9.6	14.8	15.4
Italy	9.5	12.8	13.6
Japan	4.8	4.4	4.4
UK	15.5	19.0	19.3
US	14.2	16.8	16.7

Source: OECD in figures 2002 and 2004.

The knowledge intensive professional business service industry, which has been a strong driving force behind international success of many OECD economies, has had difficulties to successfully strengthen and move abroad from Japan (Ström & Mattsson, 2005). It is possible that internalization of services can be competitive in the interface of product and service, but that the industrial and corporate structure of Japan has not been able to generate a service sector that could be competitive and independent of the manufacturing oriented tradition. The notion of the increasing importance of services has also changed the way organizations such as the Asian Productivity Organization with 19 member countries, based in Tokyo, perceive their contribution to up-grading service productivity. Today they try to help member countries in Asia to develop knowledge of how to strengthen their service economies. From the analysis of Porter et al., (2000) there are no internationally successful Japanese services to be found on the world market other than services that have been connected to manufactured products. One example is the Japanese computer game or console industry, which was tightly connected to the development of the IC industry. There are similar potentials to be found in relation to the packaging industry in Japan.

## Conceptual Development from Related Work

In this part of the paper we would like to explain and elaborate on the terminology for the product, service and the relation between the two.

### Some Notes on the Terminology of the Product

A product may be a service or a physical object and according to Roozenburg and Eekels (1995), is used as “*an instrument in human action*” to fulfil a set of values and needs of a person or an organisation. Kotler states that the product may be either *tangible* or *intangible* (also termed *service*) (Kotler & Armstrong, 1994). However, the focus in this report is on man-made physical products, also designated as *artefacts*.

According to Ulrich & Eppinger (2003), artefacts are “...*products conceived, produced, transacted and used by people because of the properties and functions they may perform.*” In other words, customer values and

demands correspond to a number of functions that are realised as properties in the materialised product, see Figure 1 below (Roozenburg & Eekels, 1995). Common for these artefacts is that they can be classified by their product design through the combination of *function structure*, *main working principle* and *the embodied design* (Pahl & Beitz, 1996; Roozenburg & Eekels, 1995)

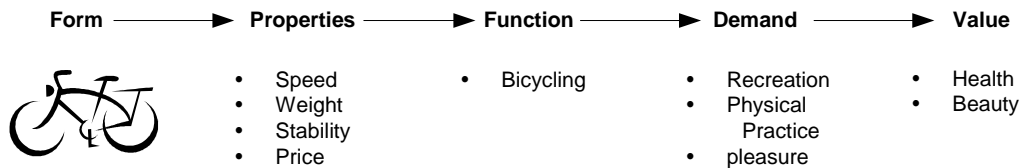


FIGURE 1: THE RELATION BETWEEN FORM, PROPERTIES, FUNCTION AND CUSTOMER DEMAND AND VALUES ACCORDING TO ROOZENBURG & EEKELS (1995).

The classification of a product through its *function structure* is a representation of the intended behaviour of the product and its parts. In other words, customer demands are transformed into functions, which are abstract formulations of the task the product shall perform to fulfil customer demands. The set of functions a product shall fulfil may vary. To make a meaningful and compatible description of the product, functions are structured into a combination of sub-functions and overall function, thus the term *function structure*. (Pahl & Beitz, 1996; Roozenburg & Eekels, 1995)

A product may also be classified by its *main working principle* (Pahl & Beitz, 1996). For example, classifying a product as *mechanical* is simply based on the fact that its main working principle constitutes the technical realisation of physical (mechanical) effect(s), or that a majority of its subsystems in turn are based on mechanical working principles.

The *embodied design* is the final description of the product, usually as a drawing or physical prototype of the product. As such, embodied design devises and describes the geometry, materials and production techniques of the product. (Pahl & Beitz, 1996; Roozenburg & Eekels, 1995)

In an additional approach, provided by Kotler and Armstrong (1994) a product may be divided into product-classification schemes based on product characteristics and consumer preferences. Two common product classifications are *consumer goods*, which are products bought by final consumers for personal consumption, and *industrial goods*, which are products bought by individuals or organisations for further processing or use in conducting a business. (Kotler & Armstrong, 1994)

#### Some Notes on the Terminology of Service Characteristics

The problem of classification of service is a well-known phenomenon. In parallel with the increased service content attached to many products and the fact that traditional manufacturing firms elaborate on extending their product portfolio with service operations, the line between the product and the service becomes blur. The intangible value for the customers is then the service.

Broadly, the distinction between producer services and consumer services is used (e.g. Perry, 1990; Marshall & Wood, 1995; Dicken, 2007). However, to obtain analytical sharpness, sub-classifications are necessary in empirical research. One possibility is to use the classifications set-up by the OECD, WTO and Eurostat (see e.g. GATT, 1989; Dicken, 2007), but overlaps exist and they do not really make the problems of conceptualization much clearer. These classifications basically use an industry approach, but it is also possible to use an occupational approach established on measurements of what employees *de facto* are working with. Often the real problem is not to fit services within these classifications, but rather to be able to distinguish unclear distinctions in terms of sub-sectors. When combining the services with goods it becomes even more complex. Sometimes it is difficult to draw the line between the service and the product. "Every definition of 'services' is slippery" according to Bryson et al. (2004:7). According to the same authors, however, there is a broad consensus on the following parts of the service economy:

1. Finance, insurance, real estate,

2. Business services,
3. Transportation and communications,
4. Wholesale and retail,
5. Entertainment and hotels,
6. Government services on different levels
8. Non-profit agencies.

**The Interface between Product and Service**

The term encapsulation has been introduced to conceptually handle the issue of the increasing interaction and complexity of product and service (Howells, 2000). It describes how services are wrapped around or are embedded in products and through which services can facilitate innovations in other sectors of the economy. Bryson et al, (2004:58) argue that this effect can influence the establishment of both new manufactured products and services. In practical terms it means that services not only are used to enhance products, but can also impact the development of additional services in the entire production system. These new forms of product and service interaction have generated a business structure where we find five types of companies, where more of the value-added activities are generated through service operations or at the product and service interaction. See table 4 below.

Because of the rapid transformation of the economy since the WWII, managing the service economy has become a vital measure for success. Today traditional manufacturing companies have large service divisions or large service content in their offer to the customers. It has become for difficult to only compete on quality, efficiency and price in the globalized economy. In order to build long-term relations with customers, the value added of the service content is growing. A larger service contribution in the total company value-added has also made company valuations more difficult.

TABLE 4: TRANSFORMATION OF THE GENERAL COMPANY STRUCTURE

<i>Company structure</i>	<i>Company characteristics</i>
Manufacturing companies	Not yet involved in service production
Manufacturing-service companies	Companies that have begun to sell services linked to their physical products.
Service-manufacturing companies	Companies that are still producing products, but the balance of their activities is shifting towards services. Through the process of servicing, manufacturing companies can learn and develop new products or redesign existing products.
From manufacturing to service companies	Companies that used to produce goods, but are no longer engaged in these activities. The company starts to sell knowledge-products but rapidly realize that the sale of such products is more profitable than either manufacturing or selling goods.
Virtual production companies	These are firms that are no longer directly engaged in the physical production of goods. They have closed or sold their plants or may never have been involved in the production process. Products are designed and marketed, but the production process is undertaken by service-manufacturing companies.

Source: Elaborated from Bryson et al., (2004).

Additionally, academics and practitioners came to understand that managing the service economy was something different from the traditional way of managing business and manufacturing operations (Grönroos, 1994; Normann, 2000). It is argued that today's service management is dependent upon an overall perspective including a

holistic organizational approach with a clear market focus. Managing quality and a stable internal development has high priority. The fact that perceived service quality is increasingly important can be seen by the impact of quality measurement (Fornell et al., 1996; Majkgård & Sharma, 1998; Anderson & Fornell, 1999). The service economy gives priority to external efficiency and quality perception, instead of overemphasizing internal efficiency, economy of scale and cost focus (Grönroos, 1994). The service concept offered by Normann (2000) suggests that firms need a specific capacity to deliver services, close linkages and social relationships, transfer of complex know-how and management and organization as a cornerstone of the service offer. Furthermore, in business service internationalization, marketing the service on offer and at the same time managing the internationalization process, in an often turbulent environment built on close connections with the customers, can be a difficult task. Combining the right a service offer with a product can be difficult. If the technical development is not followed with stringent strategies on how to manage this new business offer, the result might be poor. Studies conducted by McKinsey show these problems. "Over the past few years, as sales growth for new products has slowed and product margins have fallen, services—typically with higher margins and returns on invested capital—have become an increasingly attractive way to provide a point of competitive differentiation. However, most companies have squandered this profit potential by using poorly designed and priced service plans" (Bundschuh & Dezvane 2003). According to the same authors, the issue of incorporating services in manufacturing and the ability to compete successfully is often a difficult task to handle. "No doubt, putting a price on services is more difficult than pricing products, because the benefits of services are less tangible and they often lack well-documented standard unit-production costs as a benchmark. Service costs can vary significantly by the configuration, accessibility, and age of equipment; usage patterns; operating conditions; region; and even individual technicians" (Bundschuh & Dezvane 2003).

In trying to reveal international success among service operations, attempts have been made at studying the internationalization of services by using an integrated approach consisting of management and international marketing. Lehtinen & Välikangas (1994) have established a framework where they discuss how firms can handle internationalization by dividing services into generic, specialized and customized. They argue that these different kinds of services need specific approaches when going global. The more tailored the service is, the more the internationalization process is dependent upon narrow segments, networks and local presence (Ibid.; Sharma, 1991; Løwendahl, 2000). They also argue that the more customized the service is, the more control that is needed in the internationalization process, ranging from simple license agreements to subsidiaries following customers abroad.

According to the Service Engineering Forum (2007), the combination of service and product can be distinguished into five areas: *service science*, *service management*, *service marketing*, *service engineering* and *product-service system* (see Figure 2.)

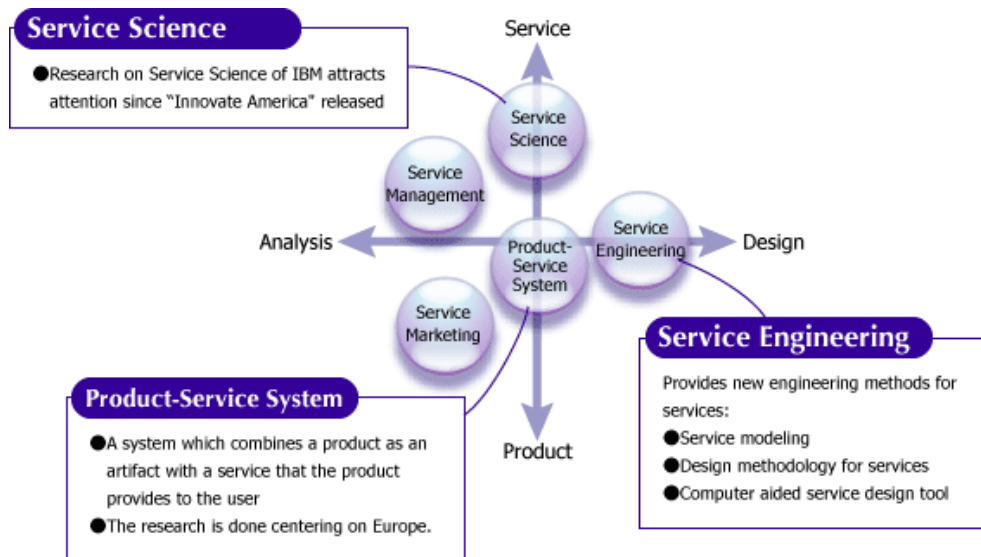


FIGURE 2: THE RELATIONSHIP BETWEEN SERVICE AND PRODUCT

Source: <http://www.service-eng.org/contents-e/about.html>

The perspective emphasised in this paper is the combination of a tangible product with a service, also called a *product-service system*. This perspective is built on the common fact that all products, intangible or tangible, are “instruments” in human action and thereby goes through a number of processes from the origination to the disposal of the product or the product materials. In engineering and product development literature, especially for the description of industrially developed products, this product lifespan is referred to as *the product life cycle* or *the technical product life cycle* (see e.g. Olsson, 1976; Roozenburg & Eekels, 1995). According to Olsson (1976) the technical life cycle consists of the phases *generation, manufacture, distribution, use and elimination*. According to the product-service system approach, throughout the technical life cycle the tangible product is accompanied with service – the two are a combined solution, a Product-Service-Solution (PSS). Figure 3 below illustrates the product technical life cycle and the accompanied service throughout the cycle.

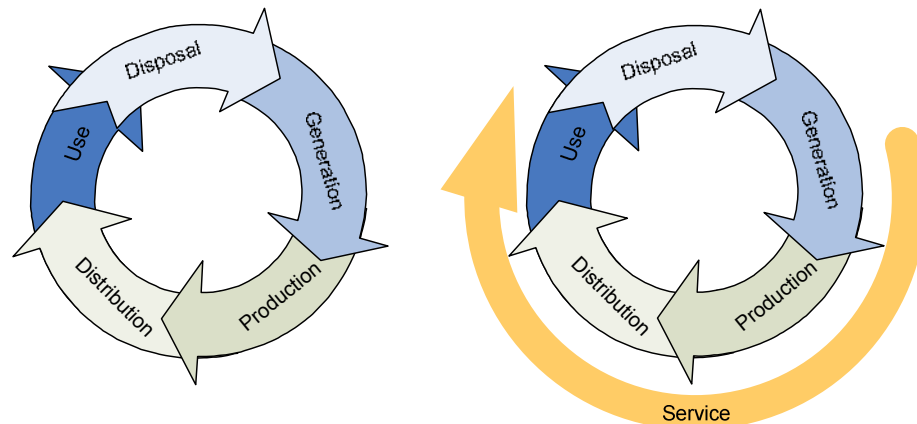


FIGURE 3: THE PRODUCT LIFE CYCLE ACCORDING TO OLSSON (1995) AND THE ILLUSTRATION OF THE PACKAGE COMPLEMENTING THE PRODUCT DURING ITS' PRODUCT LIFE CYCLE

The value-added in the product-service system is provided through the combination of service and object as “instrument” in human action, and the creation of positive effect(s) in the interface between *the object* (in this paper the service, the product or the product-service system), *the life-cycle system* (any system within the product life cycle) and *the actor* (an individual(s)). Research dealing with the development of product service systems which is at the interface of the product and service, where a system combines a product as an artefact with a service that the product provides the user, is provided by e.g. Matzen & Andeasen (2006). It can also be focused at developing features for the product life cycle (e.g. Tomiyama, 2001). There are projects dealing more with the design dimension of the product and service interaction (e.g. Matzen et al., 2007). Here the authors make a distinction between what Figure 2, labels product-service system and product/service engineering. In this paper we concentrate on the interaction in product-service system, since its main aim according to (Matzen et al., 2007) is to bring in service operations in to the product development.

Research on product-service system builds upon Olesen (1992) where he uses a theory on *dispositional effects*, i.e. the effects derived from interfaces between artefacts (man made objects) and activities in the life cycle exist. Dispositions occur in inter-functional relationships, where one decision in one functional area affects different activities in other functional areas. Olesen (1992) claims, that disposition always exist when a decision is made. Looking at a product's life cycle of different phases/systems, from development onwards, dispositional effects occur all along the cycle and should be taken into account, be controlled and exploited. They are measured ‘in terms of their effects on the universal virtues’, i.e. on cost, quality, flexibility, risk, speed, efficiency, environmental effects (Olesen et al, 1996). The effects could be measured during all phases of the life cycle, if sufficient knowledge about the parameters characterizing the system is available. In other words, all product-service system decisions and/or service decisions affect product life cycle activities and actors of the product life cycle. For example, as illustrated in Figure 4 below, the interface between *the store* (life-cycle system) selling a *filled decorated package* (the object) to a *consumer* (an actor) provides an *identification effect*. This dispositional effect is then measured against the goal, or universal virtues. By doing so one can illustrate what type of effects that dominate around product-service system in its life cycle and decide whether it is suitable to use such a solution for the product-to-be.

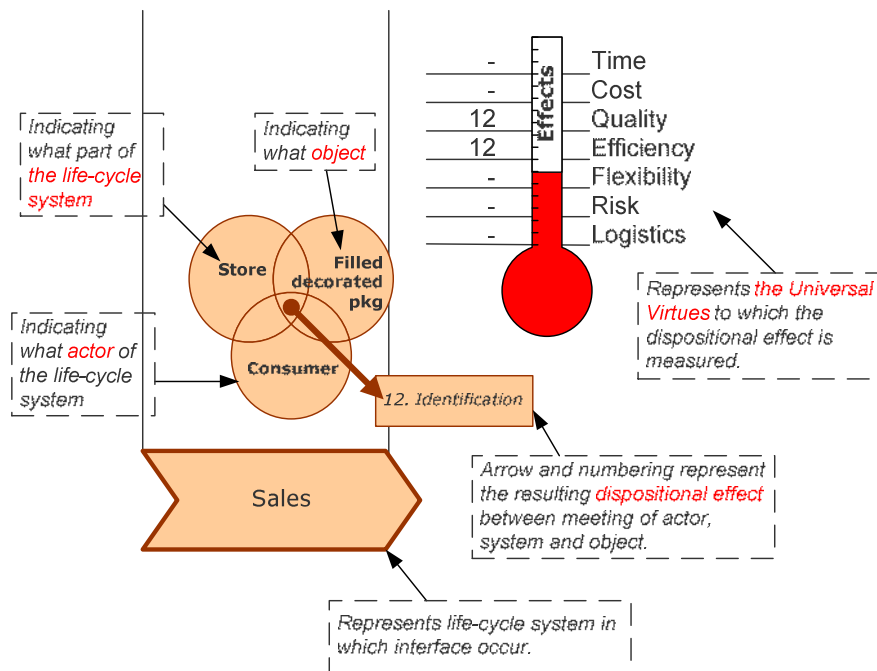


FIGURE 4: EXAMPLE ILLUSTRATING THE GALLERY TECHNIQUE.

The manifestation of the product-service-solution is different based on the level of detail one holds in analysis. Starting for the product-service-solution on a product level in a company the product life cycle perspective provides valuable insight into the operational value-added aspects of the solution. The service offer is the intangible value that a firm can encapsulate into or around the product. This can be done at different stages of the product-life-cycle or through the entire lifespan of the product

In networks of interrelated companies and industries the product-service-solution may be used differently. Brusoni (2001) discusses three different types of networks (decoupled, tightly coupled, loosely coupled) based on the network reliance on technology, product and organisation co-ordination mechanisms. By this he refers to the capability to manage the body of knowledge consisting of relationships in a dense network of internal and external relationships. We suggest that depending on the type of network the product-service solution may be used to the advantage of that network. In addition, Danilovic & Winroth (2005) discusses a tentative framework to understand and analyze the prerequisites for inter-organizational integration in a network setting. The suggested framework introduces four dimensions: the surface of integration (what), the scope of integration (who), the time horizon of integration (when) and the intensity of integration (how). To manage a collaborative network Danilovic and Winroth (2005) means that structure (work breakdown, work packages, production system design), workflow (task definition, organizational routines) and people (psychological and social boundaries) should be analyzed. Under these circumstances the combination of service and product is most important for the benefit of the integration between organisations.

Kodama (2005) discusses integration aspect in Japanese firms, stating that *strategic communities* with internal and external actors increase rapid innovation in contradiction to full control of innovation systems through conventional hierarchical mechanisms and closed autonomous systems. We argue that these strategic communities provide the knowledge base upon which the best combination of service and product are built.

## A Multidimensional Framework for Product-Service Solutions: the Conceptual Model

The theoretical discussion above is of great value for understanding the relation between product and service. However, the overview together with interviews and discussions of our pilot study indicate that it is important to deepen the analysis. Therefore, we add an additional axis of analysis to handle the problems of layers in the product/service interface.

From a company perspective, different combinations of product-service-solutions must be placed in a product portfolio and constantly evaluated and updated. Comparing industries, the product-service-solution may also differ. The product service interaction discussed from various perspectives above also works on different levels in the business environment. Company structures, production networks, agglomeration advantages and other determinants of the economic geography of firms are important (e.g. Dicken, 2007). We argue that there is a need for an added analysis axis in addition to the ones presented in Figure 2. In Figure 5 below, we introduce an additional way of making an analysis of the product/service offer at different geographical and business levels. It is the strengths and company capabilities in relation to these levels that can decide whether an increased service encapsulation will be successful.

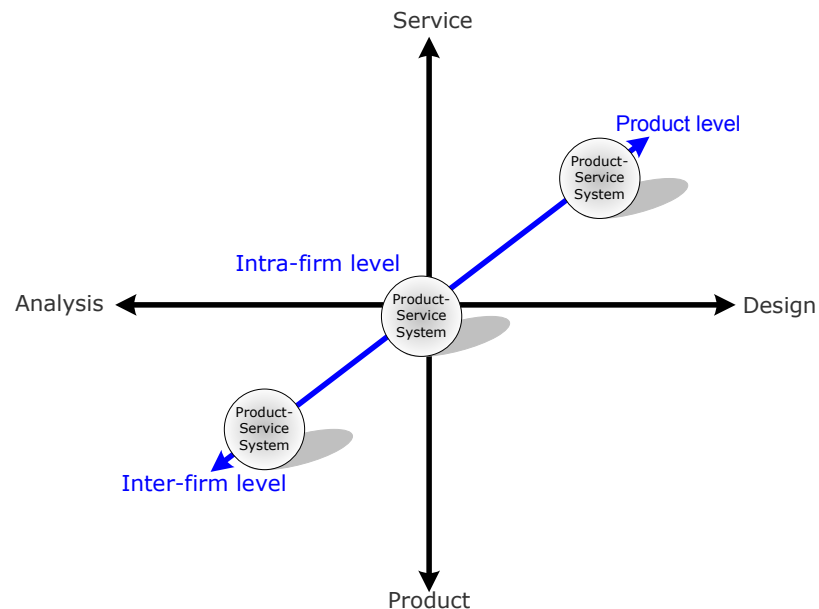


FIGURE 5: THE DIMENSIONS OF SERVICE PRODUCTION – ELABORATIONS ON THE RELATIONSHIP BETWEEN SERVICE AND PRODUCT

The first level is the product level that is found within the company. This level would be the initial phase for planning to develop products that could later be fitted with or encapsulated with service functions. This level is often connected to a specific geographical market where there is demand or market potential for launching a new product with encapsulated service characteristics. It can be seen as the second stage of company transformation that was described in table 4. The second level is more associated with the how this encapsulation can take place. Larger firms might bring in different parts of the company in making these decisions. It can include product development, marketing and finance just to mention a few. At this stage larger companies might also use their geographical scope or presence in order to test new product and service offers, but also to make use of different knowledge-pools for development. From the discussion above it is clear that this is a complicated process, but if it is conducted successfully, the result might be difficult for competitors to imitate. The third level is more related to external linkages within larger industrial groups, of which the Japanese keiretsu is one example. At this level it becomes



important to develop linkages that can be used to either enhance the capabilities of the product or add intangible value through the product/service offer. Through the development of strong linkages that can help to enhance to service offer, firms can establish a strong market position. These linkages can then help to promote the product/service offer on the global market. Therefore these inter-firm relations often span over several geographical locations to make use of various capabilities and market channels.

The Japanese companies with a strong product or manufacturing focus might be well-positioned for taking advantage of these layers in combination with a long and successful internationalization. The service internalization or services bundling within these firms enhance their international competitiveness if they take advantage of the possibilities of encapsulation of services into the product. Capabilities in product development at the first level can then be complemented with global knowledge-pools at level two and finally they can make use of inter-firm networks of which they have long experience through the keiretsu structure. Kensy (2001) goes even as far as arguing that the *keiretsu* experience in Japan is equal to the new or postmodern economy, where networks within and between multinational firms are pivotal for building long-term competitiveness. For building sustained competitiveness, however, it is vital that the Japanese firms not only continue the product and service development, but in parallel build up skills that are necessary for marketing and value the intangible content.

#### **The Conceptual Model Implications – Examples of Package-Service Solutions**

In this part of the paper we will show and discuss a number of examples in relation to our suggested conceptual model. See Figure 5. These examples are taken from Japan Packaging Institute (JPI), Packing Award 2002 and 2006. The Japan Packaging Contest is held every year under the sponsorship of the Japan JPI with the aim of promoting development and spread of high-quality packages and packaging techniques over Japan. It is evaluated based on five major features shown below:

- (1) GP Mark for Superior Package
- (2) All Good Packages to be exhibited
- (3) Excellent Examples of Appropriate Package
- (4) From Design to Logistics
- (5) Entry for Asia star and World star Contents

For further information see JPI homepage; [www.jpi.or.jp](http://www.jpi.or.jp)

Apart from the fact that Japanese firms seem to have a product life cycle perspective, and larger share of internalized service content in production and distribution, there has always been a pressure in the Japanese domestic market to consider the package both for production (e.g. Spencer, 2001) and market purposes (Fields, et al., 2000; Terhune & Kahn, 2003). This has led to a world leading position of Japanese packaging design and development (Parsons et al., 1985; Nagelberg, 1993) Working together, these aspects can create a suitable environment for establishing competitiveness for Japanese firms. In other words, the limited success in 'pure' services can be enhanced through the effective incorporation of services and product existing in parallel to fulfil customer demands over the product life cycle. A Japanese semiconductor firm and its packaging company jointly developed products and cross-licensed assembly and packaging patents to enhance the productivity of the both firms (Spencer, 2001). This means that both companies obtain important intangible service content well connected to their respective product development and production process. Additionally the product development process has become an important tool of incorporating production characteristics and customer preferences.

For the discussion we have chosen four examples: Japan Star 2002 and 2006; Japan Good Packaging 2002 and 2006. The Japan Star examples are an environmentally friendly packaging for PC set produced by Sony Corp and Chuoh Pack Industry Co. (2002) and a fold-up package for LCD-TV "AQUOS" produced by Sharp CORP. and OJI CHIYODA CONTAINER CO. (2006) – See Figure 6 below.



FIGURE 6: JAPAN STAR PACKAGING AWARD: (RIGHT) ENVIRONMENTALLY FRIENDLY PACKAGING FOR PC SET, SONY CORP AND CHUOH PACK INDUSTRY CO. (2002); AND (LEFT) FOLD-UP PACKAGE FOR LCD-TV "AQUOS", SHARP CORP. AND OJI CHIYODA CONTAINER CO. (2006)

On the *product level* for our conceptual model these package examples represent solutions to problems that the respective firms have experienced in their offer to customers throughout the product life cycle. Through the product invention at Sony, it became possible to pack both monitor and computer into the same package, which additionally increased the number of parts that could be fitted into the box. The new package greatly increased the efficiency in the distribution process. At the same time it enabled the company to make use of more environmentally friendly materials. For both distributors and end-users it is also much easier to only handle one box instead of two as before. It is an example of how a firm acknowledges a problem or unseen opportunity and seeks to capitalize on it. The 2006 LCD-TV example also shows how the combination of the package and the manufactured good can help to enhance the intangible value through the product life cycle. After the purchase of the LCD-TV, the package can be cut into two pieces and folded without using a cutter. This volume reduction facilitates the recycling process. The package helps to reduce risk of injuring individuals handling the package. However, in order to perceive the possibilities the analysis must begin at the product level. If this analysis is not correctly conducted the entire system could fail in later stages. These two examples show the increased complexity of product and service interaction, and also suggest that it is sometimes difficult to make a clear distinction of where the intangible value begins.

The next two examples are for good packaging award. They consist of a corrugated fibreboard box for scooter produced by Yamaha Motor Co. and Yamaha-Motor Taiwan Co (2002). and a packaging solution for YAMAHA Outboard Motor 9.9-15PS produced by YAMAHA MARINE CO., YAMAHA KUMAMOTO Product CO., Sasten Co. and Rengo CO. (2006).



FIGURE 7: JAPAN GOOD PACKAGING AWARD: (RIGHT) CORRUGATED FIBREBOARD BOX FOR SCOOTER AT YAMAHA MOTOR CO. AND YAMAHA-MOTOR TAIWAN CO (2002); AND (LEFT) PACKAGING SOLUTION FOR YAMAHA OUTBOARD MOTOR 9.9-15PS AT YAMAHA MARINE CO., YAMAHA KUMAMOTO PRODUCT CO., SASTEN CO. AND RENGO CO. (2006)

These two examples for good packaging are similar to the ones discussed above, since the product level drives the development of the sought intangible value. See Figure 7. In the case of the scooter the package largely reduced the material cost for transportation and at the same time simplified the packaging of the product. The package additionally reduced the working cost and highly enhanced space utilization. The outboard engine is difficult to package due to its weight balance. The engine is also sensitive to oil leakage if transported in the wrong way. Total cost reduction, quality improvement and eco-friendliness were realized through material reduction, simplified disposal and abolition of steel.

For the discussion of these examples on an *intra-firm level* one can imagine that each company has a portfolio of different product-service solutions for which the service content is similar or different. Additionally, each product-service solution has similar or different designs providing the same service content. On this level the company can make use of its various knowledge pools, i.e. working with different departments such as finance, logistics, and marketing in order to establish the potential economic outcome of the project at an early stage. It is likely that larger companies like the ones in the examples are better positioned to leverage their knowledge. It can facilitate intra-firm learning capabilities, which have been one of the key-characteristics in the Japanese company structure and product development through a quality and efficiency focus based on physical products. Companies that have presence at several geographical markets can also use them for testing purposes, for later global usage and make use of economies of scope and scale in parallel. This could mean that the firm introduces a standard for all package designs, so that same service content e.g. storage utilization, handling utility, will be provided world-wide.

For the discussion of these examples on an *inter-firm level* it is notable that different firms probably have similar, but especially interesting, different experiences on how to combine product-service solutions. Even on a higher level, one could imagine that different industries solve their value-added to customers in different ways, due to life cycle infrastructure, available technology and customer segments. In such a setting, one could probably find interesting benchmark alternatives between industries and companies for their value-added experiences. This means that external linkages are important for both spreading new product and service solutions to other firms, but also be able to absorb best-practice in the market place. Companies as Sony, Sharp and Yamaha Motor, that have multiple geographical locations can probably make the best use of analysing and compare market differences. The tradition of long-term business relationships that have been part of the Japanese business environment could be of value with interaction on the inter-firm level. Even if cross-shareholdings have been reduced in the keiretsu system, the mutual trust that exists can facilitate knowledge interaction through network linkages. Companies with a trusty relationship can assist each other in developing a product and service solution based on experiences in the marketplace.

## **Conclusion**

We are convinced that our conceptual model is a valuable tool for the description and management of the product service solution. This is also indicated through the examples provided in this paper as they visualize the possible value-gains that can be generated through a product/service perspective for both the packaging provider and the manufacturing firm. Earlier research has shown that Japanese service firms have not been particularly competitive on the global market. However, this paper indicates that service internalization and service bundling is used within Japanese companies for a combined product and service offer to establish competitiveness. For the sustained competitiveness of the Japanese companies it will be of great importance to be able to value and price their created intangible value for customers. This is something that has hindered the Japanese service industry. Additionally, for the future, the management of the portfolio of product/service solutions is of great importance.

It should be noted that for the examples in this paper, most of the service content can be found in relation to storage, handling and transport of packaged products. This is due to the purpose of the package and especially for those packages we have present here. Other examples would provide service content beyond logistics. The conceptual model presented needs to be further tested in the Japanese business environment, primarily through either a survey or by in-depth case studies. Another interesting aspect for further research would be to make comparative studies of Japanese and non-Japanese companies in the global market.

## **References**

Contact author for the full list of references

# The Interface between Market Orientation and Quality Design on New Product Development Performance: Empirical Evidence from a Developing Country

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## Abstract

Integration between departments especially marketing and operation departments in an organization is essential in the new product development to ensure customer satisfaction. Both market orientation and quality design concepts associated with these departments has been regarded as a source of competitive advantage. However, despite their importance many organizations have not fully adopted to become a market driven and quality oriented organization. This paper reviews the theoretical contribution of these two concepts and how integrating both of them can lead to better organizational performance. This paper also investigates the role of quality design in moderating the effect of the relationship between market orientation and new product development performance. The data were collected in diverse manufacturing organizations in Malaysia with a sample of 158 organizations. The results showed that quality design moderate the relationship between market focus-new product performance and market planning-new product performance.

## Introduction

The increase in competitive pressure and the need to respond efficiently to customer needs has led the organizations to seek for high organizational performance. Organizations are searching for tools that can help them survive in the face of intense competition. As customer needs and customer satisfaction have become the central aspect of business operation, the management of the organization in the industry needs to continuously redefine and re-establish the factors that will allow them to maintain their competitive edge and survival. Recent years of globalization process have witnessed a renewed importance on delivering superior quality products that meet customer needs. This is especially in the case of Malaysian business industries. As the impact of globalization, World Trade Organization and free trade agreements led to the opening up of the local market, Malaysian organizations need to adapt to the changes that takes place in the market. Tan Sri Azman Hashim, the Malaysian Industry Excellence Award council chairman identified that the key to succeed in the marketplace is innovation, branding and marketing as the marketplace is international and organizations need to compete with the best in the world (Chong, 2007).

As organizations continued to create new product innovation in tapping the opportunity in the marketplace and ensuring their survival, many of the innovation failed to perform to the expectation of the market. There have been many cases where new products was delivered to the market but failed in the marketplace due to wrong judgment in identifying the market needs. These cases highlight the importance of integration between departments in the organization especially marketing departments and operations to ensure customer satisfaction are met. Two important concept of management can be applied to the business setting to improve the integration between departments and ultimately led to higher organizational performance. The concepts are market orientation and quality design.

## Theoretical Framework and Hypothesis

### Market Orientation

Market orientation has been defined as the 'organization wide generation of market intelligence pertaining to current and future customer needs, dissemination of the intelligence across departments, and organization wide responsiveness to it' (Kohli & Jaworski, 1990). Three main activities underlying this definition are generation of

market intelligence, dissemination of intelligence, and responsiveness to market intelligence. These activities represent customer orientation and coordination elements of the marketing concept. As specified by Kohli & Jaworski (1990), 'the meaning of the market orientation construct that surfaced in the field is essentially a more precise and operational view of the first two pillars of the marketing concept – customer focus and coordination'. According to them intelligence generation should not be seen as a narrow concept, whereby an organization obtains the information on customer needs. However, the generation of intelligence should include obtaining information from other exogenous factors outside the organization system such as government regulation, technology, competitors and environmental forces. In other words, the focus of obtaining information is the market that involves end users, distributors and other external forces that affect customer needs and preferences. In addition the information obtained is not limited to the current needs but also future needs of the customer since it is important for an organization to develop a new product offering.

The second elements of market orientation, described by Kohli and Jaworski (1990), are intelligence dissemination or specifically, distributing and sharing the information obtain throughout the organization. Kohli and Jaworski (1990) suggest that dissemination of the information needs to be carried out effectively so that it will result in collaborative actions among all the departments. Besides formal distribution of information, informal discussions and horizontal communication among employees are other means of disseminating the market information (Kohli and Jaworski, 1990).

Responsiveness is the third element of market orientation, which is basically responding to market needs (Kohli and Jaworski, 1990). As a result of generating the information and disseminating the information throughout the organization, action needs to be taken by the organization to respond to the market information. All departments not only marketing, need to take action in the form of selecting target markets, designing, offering, producing, promoting and distributing products/services that meet current and potential needs (Kohli and Jaworski, 1990). The element of responsiveness is further defined to comprise of two set of activities– response design and response implementation, which means using market intelligence to develop and executing the plans (Jaworski and Kohli, 1993).

Alternatively, market orientation has been viewed as an organizational culture that force a business to achieve sustainable competitive advantage by creating superior value for customers (Narver & Slater, 1990). Thus, market orientation has been defined by them 'as the organization culture that most effectively and efficiently creates the necessary behaviors for the creation of superior value for buyers and, thus, continuous superior performance for the business' (Narver & Slater, 1990). Three behavioral components: customer orientation, competitor orientation and interfunctional coordination represent the operationalisation of marketing concept as they involves with activities in the organization to create superior value for the customer.

Market orientation has been linked to organizational performance since it provides firms with sustainable competitive advantage (Narver & Slater, 1990) and capabilities (Day, 1994) that set the organization ahead from competitors. Sustainable competitive advantage can be attained by creating the necessary behaviors to deliver superior value to customers (Narver & Slater, 1990). On the other hand, capabilities can be attained through acquiring the necessary skills, which ensure coordination of functional activities that direct the organization to anticipate and respond to changing market requirements to achieve superior performance (Day, 1994). Thus, a market oriented organization performs better in the market since the activities involved are directed towards identifying and responding to customer needs and satisfying customers (Jaworski & Kohli, 1993). Further argument also noted that market oriented organizations culture is a strong source of competitive advantage (Pelham & Wilson 1996; Pelham 2000).

Previous studies (Jaworski & Kohli, 1993; Narver & Slater, 1990; Pelham, 1997; Pelham & Wilson, 1996; Pitt, Caruana, & Berthon, 1996; Pulendran, Speed, & Widing II, 2000; Ruekert, 1992) have found a positive association between market orientation and performance. However, there are few cases that have found no linked or weak association on these relationships. For examples, Greenly (1995) identified that market orientation was not significantly related to performance.

#### **Quality Design**

According to Burrill & Ledolter (1999), quality design is 'the process of converting customer requirements into a product concept and capturing the concept in a set of product requirements that are complete, clear, and consistent'.

Quality design is regarded as one of the critical factors for successful quality management implementation (Saraph, Benson, & Schroeder, 1989). It is argued that quality design is important as it can have an impact on quality performance in terms of the delivery of product reliability, product features and serviceability (Flynn, Schroeder, & Sakakibara, 1995). The reliability of product refers to the rate of product failures in the market. On the other hand, product features refers to the ability of the organization to provide product that meet customer needs while, serviceability refers to the ease of customer handling or use of the product. Their study found out that product design process has a positive impact on the perceived quality market outcomes.

Thus, based on the argument of previous studies, it is important for organization to design product or services that meet customer requirements. It was noted that many of the product failures in the market is due to the inability of the manufacturer or the operations functions to implement activities such as product design according to customer requirements (Juran & Gryna, 1993). Hence, it is important for the organization to integrate with marketing as they can provide customer input into the design process of the product. It is argued that the whole organization needs to agree and work on achieving the customer requirement. As specified by Oakland & Sohal (1996), 'customer satisfaction must be designed into the whole system'.

One of the specific techniques or tools known as quality function deployment (QFD) is able to facilitate cross functional coordination between marketing and operation functions. QFD is a 'technique consisting of a series of interlocking matrixes that translates customer needs into product and process characteristics' (Juran & Gryna, 1993). Alternatively, QFD is also known as 'a customer-driven planning process to guide the design, manufacturing, and marketing of goods' (Evans & Lindsay, 2002). The objective of QFD is to ensure that all the customer requirements are translated into the design of product and process so that the final product produce is according to customer needs.

### **1. The Relationship between Market Orientation and Quality Design on New Product Performance**

As mentioned earlier, quality design is an important element for organization performance. Many of the product failures in the market are due to the inability of the manufacturer or the operations' functions to implement activities known as product development, research & development, engineering, or product design according to customer requirements (Juran & Gryna, 1993). However, the introduction of specific techniques or tools called quality function deployment (QFD) is able to facilitate cross functional coordination between marketing and operation functions. QFD is a 'technique consisting of a series of interlocking matrixes that translates customer needs into product and process characteristics' (Juran & Gryna, 1993). Alternatively, QFD is also known as 'a customer-driven planning process to guide the design, manufacturing and marketing of goods' (Evans & Lindsay, 2002). The objective of QFD is to ensure that all the customer requirements are translated into the design of product and process so that the final product produced is according to customer needs. It is also argued that QFD is able to operationalise the marketing concept by providing a means of identifying what is needed by customer and how these needs can be met in the development of the product (O'neal & Lafief, 1992).

This quality tool is useful for marketing as it focus on processing the information from the customer. This information can then, be translated into the design of product in the operations functions. Marketing needs the tool from quality as marketing has been criticized as not having the appropriate tools to achieve organization success (O'neal & Lafief, 1992). As specified by O'neal & Lafief (1992), QFD provides 'a comprehensive, customer-focused methodology to establish customer needs, specify the means by which these needs may be satisfied, and facilitate the use of appropriate quality technologies in the transformation and delivery processes'. Furthermore, quality has the specific characteristics of organization-wide commitment to deliver products according to customer needs.

The integration of quality design with market orientation is also in line with the system theory, which emphasis on '....adaptation and assessments of environmental trends and events' and '...organization is a unit in interaction with its environment' (Spencer, 1994). In other words, TQM through quality design, plays a role in identifying customer needs and views customers and suppliers as part of the organization processes that interact with the environment (Spencer, 1994). Figure 1 illustrates the relationship between market orientation and new product development performance being moderated by quality design.

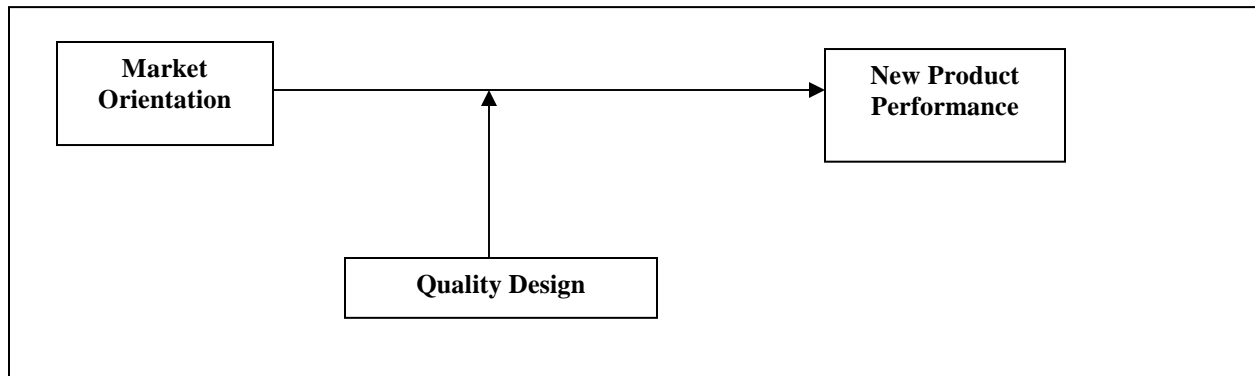


FIGURE 1: CONCEPTUAL MODEL OF THE RELATIONSHIP BETWEEN MARKET ORIENTATION AND NEW PRODUCT PERFORMANCE BEING MODERATED BY QUALITY DESIGN

Thus, quality design with market orientation together, will provide a synergistic effect at a higher organization performance. However, despite the importance of this relationship, there is limited evidence of study that investigate these variables specifically. Therefore, this study proposes that:

H1: Quality design moderate the relationship between market orientation dimensions and new product development performance

## Methods

The study used the whole organization or strategic business unit of an organization as the unit of analysis. The population of this study comprises the manufacturing industry in Malaysia. The sampling frame for the study includes the entire organizations listed by Federation of Malaysian Manufacturers (FMM) directory in 2005. There are about two thousand manufacturing and industrial services organizations registered with FMM body. Given the amount of this population size, the sample size that is taken into consideration in this study is about three hundred and twenty two to warrant a good decision model (Kejcie & Morgan, 1970). A key informant technique was employed in this study. The individual selected to answer the questionnaire in this study are assumed to have specific knowledge in both market orientation and quality orientation practices in the organization. Therefore, for this study it was assumed that quality managers or marketing managers or chief executive officer (CEO) managing director has the specific knowledge of marketing and quality practices in their respective organization. The survey method strategy was employed to collect the data with regard to market orientation and quality orientation practices and managers' perception of the organizations' performance. The method of data collection for this study was carried out using mail questionnaire survey approach. Simple random sampling was employed in the study so that it guarantees equal and independent representation of data is chosen.

### Measures

The whole market orientation practices were measured by twenty-six items instrument adapted from past studies measures of Gray et al.(1998), Kohli & Jaworski (1993) and Narver & Slater (1990). Factor analysis was carried out on these items. Five factors or dimensions with twenty-items emerged after the analysis. These dimensions were renamed as: (1) market action; (2) market planning; (3) market focus; (4) market feedback; & (5) market coordination.

Quality design is represented by one dimension of quality design itself. Quality design measures the degree of the product design process that focuses on integrating with customer requirements. The extent of quality design practices in the organization was measured by a nine-item instrument adapted from past studies measurement (Ahire, Golhar, & Waller, 1996; Badri, Davis, & Davis, 1995; Flynn, Schroeder, & Sakakibara, 1994; Samph et al., 1989).



The dependent variable, new product performance was measured with four items adapted from past studies measurement (Kaplan & Norton, 1992, 1993, 1996a, 1996b; Sim & Koh, 2001; Yenyurt, 2003). All the three variables required the respondents to answer the question on a six-item scale.

In this study, Cronbach's coefficient alpha test is carried out to measure the internal consistency reliability. It is specified that an instrument, which scores around 0.60 is considered to have an average reliability standard; while a score of 0.70 and above indicates that the instrument possesses high reliability standard (Hair, Anderson, Tatham, & Black, 1998; Nunally, 1967; Sekaran, 2003). Table 1 below reports a summary of the reliability analysis results for the main variables.

TABLE 1: RELIABILITY ANALYSIS OF THE MEASUREMENT

Construct	Cronbach Alpha Coefficient
Market Focus	0.88
Market Action	0.85
Market Planning	0.75
Market Coordination	0.75
Market Feedback	0.73
Quality Design	0.93
New Product Performance	0.80

The result of the reliability test for all the dimensions shows that the Cronbach alpha coefficients were above 0.7; hence, indicates that the measures met the high reliability standard.

Hierarchical regression analysis was carried out in the study to test the interaction effect of the moderator variables in the relationship between independent and dependent variables. Hierarchical regression or moderator regression analysis has been cited as the appropriate technique in identifying moderator variables (Anderson, 1986; Baron & Kenny, 1986; Frazier, Barron, & Tix, 2004)

## Results

Based on a 500 questionnaires sent out to selected participants, a total of 158 useable questionnaires were collected representing a response rate of 31.8 per cent of the total questionnaires distributed and 49.4 per cent of the sample size required. This overall response rate is considered quite high given the approach of data collection (mail survey) and the respondents are key personnel holding an important position in the organizations. Table 2 and 3 provides summary of the personal and organizational background of the respondents.

TABLE 2: BACKGROUND OF THE RESPONDENTS

Variable	Frequency (n= 158)	Percent (Total= 100%)
<u>Gender</u>		
1. Male	123	77.8
2. Female	35	22.2
<u>Age Group</u>		
1. ≤ 30	16	10.1
2. 31-35	26	16.5
3. 36-40	52	32.9
4. 41-45	29	18.4
5. 46-50	19	12.0
6. ≥ 50	16	10.1
<u>Years of Service in Current Position</u>		
1. 1-5 years	54	34.2
2. 6- 10 years	49	31.0
3. 11-15 years	35	22.2
4. 16-20 years	12	7.6
5. 21 and above	8	5.1
<u>Position hold in the organization</u>		
1. Director/MD/CEO/GM	24	15.2
2. Senior Manager	14	8.9
3. Manager	94	59.5
4. Senior Executive	26	16.5

TABLE 3: BACKGROUND OF THE ORGANISATION

<u>Number of Employees</u>		
1. 51-150	47	29.7
2. 151-250	34	21.5
3. 251-500	33	20.9
4. 501 and above	44	27.8
<u>Annual Sales Turnover (RM)</u>		
1. < 10 million	14	8.9
2. 10 million -< 25 million	38	24.1
3. 25 million – 50 million	33	20.9
4. More than 50 million	73	46.2
<u>Types of Ownership</u>		
1. Fully local	74	46.8
2. Majority local	29	18.4
3. Majority foreign	17	10.8
4. Fully foreign	38	24.1

Table 4 reports the results of the means and standard deviations of the variables in the study.

TABLE 4: MEAN AND STANDARD DEVIATION OF THE VARIABLES

Variables	Mean	Std. Deviation
Market Focus	5.19	.68
Market Action	4.24	.98
Market Planning	4.44	.91
Market Coordination	4.56	1.04
Market Feedback	4.63	1.17
Quality Design	4.68	.93
New Product Performance	3.83	.80

The mean score market orientation dimensions ranges from 5.19 to 4.24. The highest mean score was market focus (mean = 5.19) followed by market feedback (mean = 4.63). Quality design shows a mean score of 4.68. The scores of market orientation dimensions and quality design is not a very high score but reasonable indicating that the organizations seem to engage in market orientation and quality design activity. In terms of dependent variables, the organizations displayed an average new product performance (mean = 3.83). Table 5 displays the results of the main hierarchical regression analyses.

TABLE 5: THE MODERATING EFFECT OF QUALITY DESIGN ON THE RELATIONSHIP BETWEEN MARKET ORIENTATION AND NEW PRODUCT PERFORMANCE

Variables	Step 1	Step 2	Step 3
	Standardized Beta		
Market Focus (MF)	.164*	.106	.159
Market Action (MA)	.075	.047	.053
Market Planning (MP)	.209**	.159	.164*
Market Coordination (MC)	.174**	.148*	.171*
Market Feedback (MFB)	.032	.024	.065
Quality Design (QD)		.171	.088
MF x QD			.164*
MA x QD			.042
MP x QD			-.189*
MC x QD			.127
MFB x QD			-.095
R <sup>2</sup>	.238	.251	.292
R <sup>2</sup> change	.238	.014	.041
F change	9.357	2.718	1.657
Sig. F change	.000	.101	.149
***: significant at 0.01                  **: significant at 0.05                  * significant at 0.1			

As shown in the above table, the F change from step 1 to 2 and from step 2 to 3 was not significant. Nevertheless, upon inspection of the beta coefficient for interaction terms, there was a significant interaction between market focus and quality design and between market planning and quality design at 10% significant level. This suggests that quality design moderates the relationship between market focus and new product performance and between market planning and new product performance

In order to examine the precise nature of the interaction effect, Figure 2 and 3 displays the impact of quality design on the relationship between market focus and new product performance and market planning and new product performance respectively.

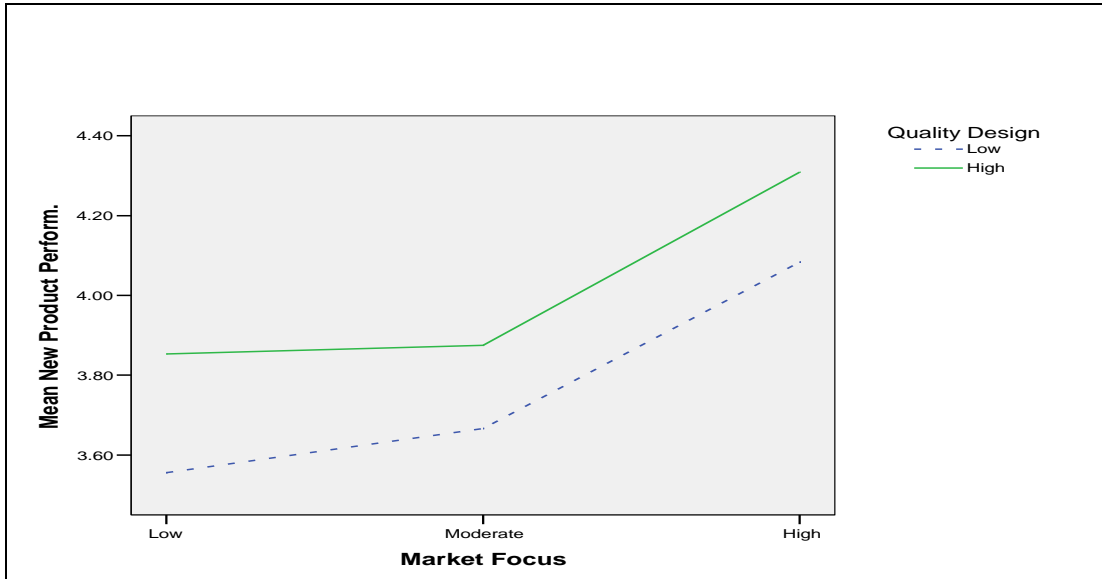


FIGURE 2: THE IMPACT OF QUALITY DESIGN ON THE RELATIONSHIP BETWEEN MARKET FOCUS AND NEW PRODUCT PERFORMANCE

It is apparent from the above graph, when the level of market focus is low to moderate; the differential impact for both organizations that focus on low and high quality design does not have a considerable impact on new product performance. However, when the level of market focus is moderate to high, there is a large impact on the level of new product performance for both organizations that emphasize on less and greater quality design. The highest new product performance is attained by those organizations that put priority on quality design and adopt highest level of market focus.

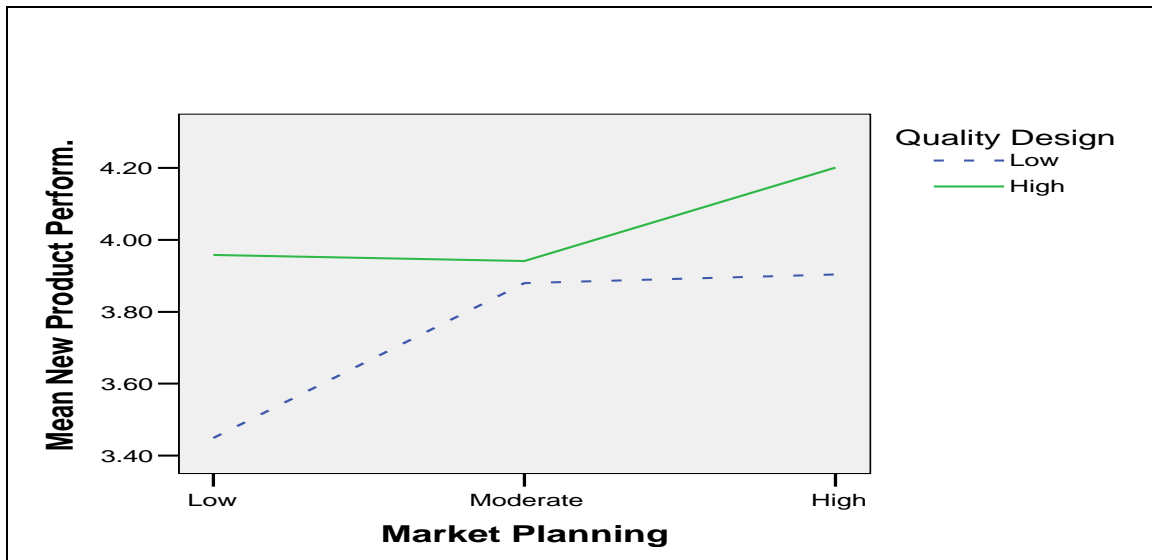


FIGURE 3: THE IMPACT OF QUALITY DESIGN ON THE RELATIONSHIP BETWEEN MARKET PLANNING AND NEW PRODUCT PERFORMANCE

Figure 3 reveals contrasting relationship between the effect of low and high quality design. When the level of market planning is low to moderate, organizations that focus on less quality design shows a positive relationship with new product performance compared to those with greater quality design. On the other hand, when the level of market planning is moderate to high, the impact of high quality design leads to greater new product performance. The maximum new product performance is achieved when organizations adopts high level of market planning with high level of quality design.

## Discussion and Conclusion

The present study attempted to investigate the interaction effect of quality design in the relationship between market orientation and new product performance. The study was carried out in the Malaysian manufacturing organizations. It has been suggested that market orientation and quality design activities in the manufacturing organizations are crucial to the organizational performance. The results partially support the proposed hypothesis. Market focus and market planning have been found statistically significant interacting with quality design, hence suggesting that quality design moderate the relationship between market orientation and new product performance. The result of the study suggests that highest new product performance is attained by those organizations that put priority on quality design and adopt highest level of market focus and market planning.

It has been reported in the literature that many of the product failures in the market are due to the inability of the manufacturer or the operations' functions to implement activities known as product development, research & development, engineering, or product design according to customer requirements (Juran & Gryna, 1993). Therefore, this study provides some evidence that organisation need to focus on quality design by demonstrating activities such as identifying customer requirement and coordination between functions in the process of product development as this can enhance new product development performance. At the same time, organization should pay attention to market focus. Market focus place an important aspect on customer orientation such as understanding customer needs, strong customer commitment and creating value for customer. Organisations that listen and understand customer needs are in a better position in the market (Shapiro, 1988; Slater & Narver, 1994b; Webster Jr., 1988). Thus, maintaining a good relationship with customer should be the main agenda in the organizations. In general, the results of the moderating effects of quality design on the relationship between market orientation dimensions and

new product performance confirm with the literature which suggests that both market orientation and quality orientation should complement each other to achieve higher organisational performance (Lai & Cheng, 2005; Longbottom, Mayer, & Casey, 2000; Sittimalakorn & Hart, 2004).

The findings contribute to the existing body of knowledge by investigating the moderating role of quality design in the market orientation-new product performance relationship. Previous studies have not examined this specific variable moderating relationship. Most of the past studies focus on the moderating role of business environmental variables (Diamantopoulos & Hart, 1993; Greenley, 1995; Jaworski & Kohli, 1993; Pulendran et al., 2000; Slater & Narver, 1994a) and there has been no consistent findings of this environmental role in the relationship between market orientation and organizational performance. Meanwhile, quality design could be considered as an internal organizational variable that provide synergistic effects with market orientation in the new product performance. Therefore, the present study contributes to the literature by introducing quality design variable as moderator for the relationship between market orientation and new product performance. This study also provides empirical evidence for practicing managers in their management practices as organizations may consider the result of the study by coordinating both market orientation and quality design in their efforts to strive for better organizational performance.

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# **An Investigation of Young Chinese Consumers' Casual Wear Buying Behaviour in Greater China**

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## **Abstract**

With a huge consumer market and an increasing spending power, Greater China is becoming an important market that cannot be neglected by many international apparel retailers. However, the conduct of apparel retailing business in this region is often regarded as a great challenge due to the diversity of market and cultural difference. In the literature, it is realized that Chinese consumers appeared to be distinctively different from Western consumers in their buying behavior, yet little attention has been put on investigating the differences among Chinese consumers who reside in different Chinese societies. As Culture is identified as an important variable in affecting consumer buying behavior and is also believed that intra-cultural variations in Hong Kong, Taiwan and Mainland China are likely to exist, consumers' clothing buying behavior in these three societies are expected to be different in some ways. Thus, the aim of this study is to investigate young Chinese consumers' casual wear buying behavior in Hong Kong, Taiwan and Mainland China. The results indicated that the most important criteria for young Chinese consumers for apparel assessment are related to price and quality aspects. Comparison of responses also revealed that the importance of clothing choice criteria, the preferred buying channels and the casual wear buying practices are quite different among the five selected cities in these three Chinese societies. **Keywords:** Greater China, Young Chinese consumers, clothing buying behavior, casual wear.

## **Introduction**

China acceded to the World Trade Organization (WTO), becoming one of the WTO's formal members in 2001. With the gradual removal of market access restrictions and liberalization of regulations for foreign investment in the apparel retailing sector linked with WTO membership obligations, more and more foreign apparel marketers will be able to gain market entry into China. In particular, the youth market segment is believed to be a potentially profitable market for international clothing marketers.

The constantly increasing living standard of consumers, the implementation of double holidays by employers and the diversification of entertainment activities in China have generated a great demand and needs for casual wear in the consumer market. According to the survey conducted by the China Textiles University in 1997, casual wear consumption was accounted for more than 50% of the total clothing consumption and young consumers who aged between 20 and 40 were the largest consuming group accounting for more than 50% of the consumption of the total population in terms of purchasing casual wear (HKTDC, 1999). Considering the large demand for casual wear in the market, many international apparel marketers have started to gain entry into this market and the apparel retailing market in China is becoming very competitive when restrictions on market access in equity, geographic area, number and form of establishment no longer apply to foreign investors (HKTDC 2001; HKTDC 2001). In light of this keen competition, equipping international marketers with a better understanding of young consumers who reside in different Chinese societies, especially their decision-making towards casual wear purchase would assist them in competing in this market. Thus, the aim of this study is to investigate young Chinese consumers' casual wear buying behavior with due consideration taken for the intra-cultural differences. Hong Kong, Taiwan and the Mainland China - the three economies of China that are influenced by Chinese culture - were chosen as the target areas for investigation. As these three places are separated geographically and to a certain extent, has each developed independently, a certain degree of cultural difference which in turn has led to greater diversification of consumer behaviour within each individual society is likely to exist, due to their dissimilar political and economic systems

(Yau 2000). Within these three societies, Beijing, Shanghai, Guangzhou, Hong Kong and Taipei were further selected as the target cities to investigate since consumers in these cities tend to act as opinion leaders for consumers in other parts of the country (Papadopoulos *et al.* 1987; Hu 1994).

## **Clothing Choice Criteria**

Clothing choice criteria are defined as the intrinsic (inherent to the product) and extrinsic (product-related, but not part of the physical product) product attributes that associated with desired benefits or incurred costs as consumers make buying decision among clothing alternatives (Davis 1985; Hatch and Roberts 1985; Eckman *et al.* 1990; Hawkins *et al.* 1995; Forney *et al.* 1999). Different criteria may have varied importance in every consumer's mind. Consumers would assign high importance on the criteria that can really reflect their underlying characteristics and experiences. Since the critical characteristics of apparel can always determine its ultimate purchase acceptance or rejection by consumers (Sproles 1979), the criteria that consumers use in clothing purchase decisions have long been regarded as an important issue for investigation in previous consumer studies. Researchers have identified many product attributes and criteria that are critical for fashion consumers in making clothing purchase. Eckman *et al.* (1990) have summarized the criteria that influence consumers' evaluation of apparel products in 21 clothing related studies into 35 extrinsic and 52 intrinsic attributes. In Zhang *et al.* (2002) study, fit, comfort, style, colour and workmanship were identified as the most important attributes in affecting Chinese consumers' casual wear purchase. In this study, 17 clothing choice criteria which were adopted from previous studies (Jenkins and Dickey 1976; Cassill and Drake 1987; Eckman *et al.* 1990; Lee and Burns 1993; Hu 1994; Zhang *et al.* 2002) were employed to investigate the perceived importance of clothing choice criteria on casual wear purchase in China. They are brand reputation, colourfastness, comfort, country of origin, durability, care, enhancement of self-image, trendiness, fibre content, fit, price, rarity, sex appropriateness, store image, style, uniqueness and workmanship.

## **Fashion Involvement**

Fashion involvement, a term frequently used to indicate involvement with the apparel product category (Fairhurst *et al.* 1989), is often regarded as a central motivational factor influencing consumer's purchase decisions in many of the consumer studies (Beatty *et al.* 1988; Zaichkowsky and Sood 1988; Kapferer and Laurent 1993). It is associated with the level of perceived personal relevance or importance of clothing products to the customer (Gottlieb *et al.* 1992; Flynn and Goldsmith 1993) and would influence consumer's general approach in making purchase decisions (Kassarjian 1981; Kim *et al.* 2002). It is often considered to be multidimensional, consisting of perceived importance, decision risk, psychological risk and pleasure dimensions (Laurent and Kapferer 1985; McQuarrie and Munson 1987). Consumers with high fashion involvement would demonstrate interest, pleasure and eagerness toward clothing products (Goldsmith 1991). Consumers' involvement with clothing products would also lead to involvement with related advertisements and purchase decisions. In addition, several behavioural outcomes were also found to be associated with high involvement, including frequent purchase and use of a product, increased acquisition of product information and frequent care of a product (Zaichkowsky 1985; Flynn and Goldsmith 1993; Dholakia 1998). Thus, it is believed that stronger insight into the dynamics of consumer decision making in terms of apparel products can be gained through consideration of fashion involvement (Kim *et al.* 2002). In the current study, 23 statements which were adapted from previous studies (Laurent and Kapferer 1985; Mittal 1995; O'Cass 2000) regarding the three major aspects, including product involvement, purchase involvement and advertising involvement were used to measure the fashion involvement level of young Chinese consumers.

## **Methodology**

Questionnaire survey was employed to collect the primary information of young consumers' buying behaviour towards casual wear in Beijing, Shanghai, Guangzhou, Hong Kong and Taipei. A well-structured questionnaire which consisted of four parts was devised for data collection. These four parts concerned about consumer's general



buying behaviour towards casual wear (7 questions), consumer's clothing choice criteria (17 questions), fashion involvement (23 questions) and the demographic characteristics (8 questions).

Before carrying out the fieldwork survey, a pilot test was conducted with 30 subjects in these cities in order to pretest the format and suitability of the questions in the questionnaire. Questionnaires were then distributed to 1,250 male and female University students with diverse majors on the campuses of three or more Universities in the five cities (250 each) in 2004. Judgmental and quota sampling was employed. In determining the sample size, a rule of thumb that the total sample size for conducting a countrywide consumer survey should range from 1,000 to 2,500 (Sudman 1976) was used. Among the distributed questionnaires, 1,118 were returned and 1,092 provided usable responses, yielding an 87% response rate.

## Profile of Respondents

The majority of the samples (70 %) aged between 20 and 24, a quarter (25%) were younger than 20, and fewer than 5 % of respondents were 25 or older. The proportion of female and male respondents in this study was 61 % and 39 % respectively. More than half of the respondents in Beijing, Shanghai and Guangzhou were single child, while more respondents in Hong Kong and Taipei had one or more siblings. The monthly personal income of most of the Beijing, Shanghai and Guangzhou subjects fell in the category of RMB500 or below, whereas the median income for the Taipei and Hong Kong respondents was in the categories of HK\$501-1,001 and HK\$1,001-2,000 respectively. The monthly household income of nearly half of Beijing (55%), Shanghai (47%) and Guangzhou (50%) respondents was RMB2,001-5,000, and more than one-third of the respondents in Taipei (34%) were in the range of HK\$20,001-40,000. The household income of the Hong Kong respondents was the highest, with 45% and 34% in the categories of HK\$20,001-40,000 and HK\$10,001-20,000 respectively.

## Findings

Six aspects regarding young Chinese consumers' casual wear buying behaviour - fashion information source, social reference, quarterly expenditure on casual wear, favourite marketing channel for casual wear purchase, fashion involvement level and clothing choice criteria for casual wear purchase were investigated and provided the main findings of this study.

### Fashion Information Source and Social Reference

Most of the respondents regarded store display (49%), fashion magazine (22%) and TV (13%) as the most influencing media on their casual wear purchase. Only a small percentage of respondents agreed that non-fashion magazine (4%), billboard and leaflet (3%), newspaper (2%), the Internet (2%) and other channels (5%) were important channels for them to gain fashion information (Figure 1). The results gained from the five cities were similar in suggesting that store display and fashion magazines were the two most common channels for sourcing fashion information. In general, young Chinese consumers enjoy shopping and like to browse for a variety of shops in their leisure time. They often gain fashion news from the window and in-store displays and they tend to conform themselves to media standards, especially the fashion magazines in casual wear selection. Compared with the counterparts in the other four cities, the influence of TV and non-fashion magazines was significantly different for young consumers in Hong Kong. Only 7% respondents in Hong Kong regarded TV as the most important media while 16% reported the importance of non-fashion magazine in affecting their casual wear purchase. This indicated that the impact of magazines, including fashion and non-fashion ones, is considerably important, while the influence of TV is comparatively low for young consumers in Hong Kong.

In addition to the non-personal reference from the media, personal reference from consumers' surrounding social groups is also important. Among the six personal socialization agents that included in the investigation, peers were reported as the most important agent for young Chinese consumers. Nearly 500 respondents (49%) regarded their friends as the most influential people in their purchase decisions on casual wear (Figure 2). About 15% respondents chose their parents, lovers and others as the major influencer on their casual wear purchase. Among the ones who selected others as the major reference, most of them stated themselves as the sole influence on the

purchase. Instead of accompanying others to go shopping, these consumers tend to shop casual attires done. Comparing the results with the other four cities, the importance of peer influence on Hong Kong respondents (39%) was relatively low, while the impact of sales assistants was significantly high. Nearly 12% of the Hong Kong respondents considered in-store sales assistants as the most important agent to affect their purchases. In addition, it is not surprising that more respondents in Beijing and Shanghai (>20%) regarded parents as the greatest influencer, since the majority of them were single-child. They often go shopping with their parents and their expenditure on casual wear is highly relying on their parents.

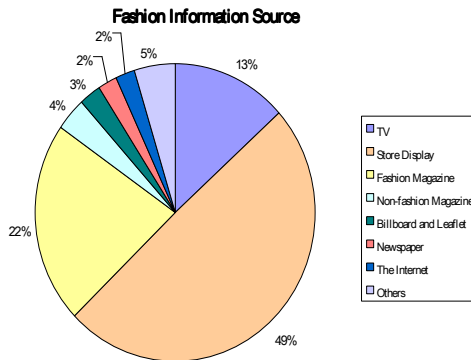


FIGURE 1:  
RESPONDENTS' MAJOR FASHION INFORMATION SOURCES FOR CASUAL WEAR

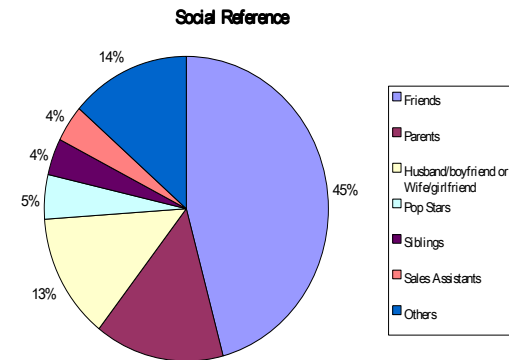


FIGURE 2:  
THE MOST IMPORTANT PERSON AFFECTING RESPONDENTS' CASUAL WEAR PURCHASE DECISIONS

#### Quarterly Expenditure and Favourite Marketing Channel for Casual Wear Purchase

Approximately two-thirds of the respondents in Beijing, Shanghai and Guangzhou had bought 0 – 6 pieces of casual wear and spent RMB 500 or less on casual wear purchases in the three months prior to the survey. About half of respondents in Guangzhou (53%) and nearly one-third of respondents in Beijing (32%) and Shanghai (34%) indicated individual stores as the most frequent shopping venue for casual wear. More than one-third of the respondents in these five cities (43%) reported their preferences for buying casual wear in individual stores (Figure 3). Around a quarter of respondents in Beijing (25%), Shanghai (26%) and Taipei (21%) regarded department stores as the major venue for buying casual wear, while 22% of respondents in Guangzhou indicated their liking for branded specialty stores. Similarly, a majority of Taipei respondents had bought 0 – 6 pieces of casual wear (89%) and spent HK\$500 or below (61%) on casual wear in the last three months. Individual stores (48%) and department stores (21%) were also identified as two major shopping venues for casual wear in Taipei. With the highest personal and household income, the clothing purchasing power for Hong Kong consumers was comparatively higher, with a median expenditure in the range of HK\$501–1,000. Nearly one-third of the Hong Kong respondents reported they would buy casual attire once per month (35%) or one every two weeks (26%), and a quarter of the respondents would shop for clothes at least once a week. More than half of the Hong Kong respondents preferred to buy casual wear in individual stores and a comparatively higher proportion (15%) preferred to purchase casual wear in discount stores.

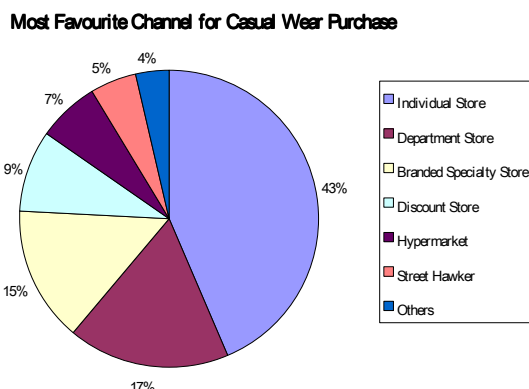


FIGURE 3: RESPONDENTS' MOST FAVOURITE CHANNEL FOR CASUAL WEAR PURCHASE

### Fashion Involvement Level

In general, the fashion involvement of young Chinese consumers is in a medium level. Most of the subjects reported that they enjoy shopping casual wears and concern about the symbolic value of casual wear for themselves. They care about the negative consequence of a purchasing mistake, thus, their purchase decision on casual wear would not be made casually. In order to determine the differences of fashion involvement level among the respondents in the five cities, analysis of variance (ANOVA) tests were conducted. Significant differences on product involvement ( $p < 0.01$ ), purchase involvement ( $p < 0.001$ ) and advertising involvement ( $p < 0.05$ ) among the cities were identified. The results indicated that the fashion involvement level of Beijing respondents was significantly higher than the others, while the subjective probability of making a purchase mistake on casual wear was relatively high for Hong Kong respondents. Beijing subjects were more likely to regard casual wear as a relevant product in their daily life and they believed casual attire as an important tool to express their identities. Unlike Hong Kong consumers who have a higher propensity for impulse purchase, Beijing consumers tend to think carefully and make more comparison before making the purchase on casual wear, thus, their likelihood to make purchase mistake is lower.

### Clothing Choice Criteria for Casual Wear Purchase

The results showed that fit, comfort, enhancement of self-image, style and price, in that order, were rated as the five most important criteria, whereas country of origin was rated as the least important criteria for consideration in the casual wear purchase by the respondents. The average scores of the top five criteria were over 3.76, while the means for all criteria were in the range of 2.43 and 4.24 (Table 1).

Results of the ANOVA tests revealed that there was significant difference ( $p < 0.001$ ) on the perceived importance of fit, comfort, enhancement of self and price among the respondents in the five cities. The average scores of comfort (3.93), enhancement of self-image (3.55) and fit (3.98) for Hong Kong respondents were significantly lower, while the mean of price (4.11) for Taipei subjects was considerably higher than that of the counterparts in the other cities. Even though fit and comfort were both rated as the most important criteria for the Hong Kong respondents, the perceived importance of these criteria for Mainland consumers was much greater. This indicated that most young Chinese consumers would often like to try on the products for checking the fit and the appearance of garments in matching their own images before making the purchase. Thus, sizing and image of the products are very important for the fashion business, especially those in Mainland China. In line with the findings of Hung's (2005) study, Taiwan consumers in general pay greater attention to price when making purchases. They usually prefer to buy less expensive garments and are discerning with an increasing demand for quality clothing at reasonable price.

In addition to these five criteria, respondents also regarded colourfastness, durability, care and uniqueness as important attributes to consider in making casual wear purchase. The mean scores of these four criteria were ranged from 3.51 to 3.63. The ratings of colourfastness, care and uniqueness were significantly lower for Hong Kong samples, while the average score of durability was considerably higher for Taipei subjects than for the

respondents in the other cities. This suggested that young consumers in Hong Kong would pay less attention on these physical attributes in the quality aspect. They care about the general feeling of comfort, style and fit more than the quality of the casual wear. Unlike the Hong Kong subjects, respondents in Taipei attached greater importance to durability than style. In general, their ratings on the quality aspects of casual wear (e.g. colourfastness, comfort, care, durability...) were higher than that of the respondents in the other four cities. This indicated that product quality is particularly important for selling casual wear in Taiwan.

TABLE 1: THE PERCEIVED IMPORTANCE OF CLOTHING CHOICE CRITERIA ON CASUAL WEAR PURCHASE

Criteria	Mean	SD
Fit	4.24	0.87
Comfort	4.20	0.92
Enhancement of Self Image	4.01	0.95
Style	3.95	0.89
Price	3.76	0.91
Colourfastness	3.63	1.02
Durability	3.53	0.97
Care	3.51	0.98
Uniqueness	3.51	1.03
Sex Appropriateness	3.38	0.98
Workmanship	3.31	1.09
Trendiness	3.26	0.97
Fibre Content	3.11	1.06
Rarity	3.02	1.14
Store Image	3.02	1.01
Brand Reputation	2.98	1.04
Country of Origin	2.43	1.02

## Conclusion

In this study, young Chinese consumers' casual wear buying behaviour in three different Chinese societies, i.e. Hong Kong, Taiwan and Mainland was investigated. Based on the results of the survey conducted in five cities, it is found that most of the young Chinese consumers would buy casual attire once a month and spend less than HK1,000 in a

quarter. They prefer to shop casual wear in individual stores, department stores and branded specialty stores. Consumers in Beijing, Shanghai and Taipei are more likely to choose department stores as the major venue for buying casual wear, while Guangzhou consumers tend to shop in branded specialty stores. In general, young Chinese consumers consider store display and fashion magazine as the important fashion information sources. They enjoy shopping casual wear and often gain fashion news from store windows and in-store displays. TV is regarded as a popular channel for the young consumers to source updated fashion information in Mainland China, whereas the importance of non-fashion magazine is greater for Hong Kong consumers. Among the personal socialization agents, friends are considered as the most influential people in their purchase decisions on casual wear. It is not surprise that the influence of sales assistants is considerably high for Hong Kong consumers, while the importance of parents is particularly great for Beijing and Shanghai consumers. The fashion involvement of young Chinese consumers is in a medium level. Among the five cities, the fashion involvement level for Beijing consumers is the highest, while the propensity of making purchase mistakes on casual wear was high for Hong Kong consumers. It is unexpected that fit, comfort and enhancement of self image are the three most important criteria that young Chinese consumers would consider when they make purchase decisions on casual wears. This finding is not consistent with the results of a large-scale study conducted by the National Bureau of Statistics (1997) with the shopping public in 72 cities in China and which states that price was the most important consideration in the apparel consumption (HKTDC 1999). Price is only considered as the fifth important criteria with a mean score of 3.76 in the present study. This appears to indicate that, unlike the whole population, this specific group of consumers (university students aged between 18 and 30) place great emphasis on the feeling of comfort, sizing and personality aspects of casual wear, and price is relegated to a lower position in their buying decisions.

The above findings implied that clothing buying behaviour for young consumers in different Chinese cities are quite different. Understanding the reactions of these customers to market stimuli can obviously help the marketers to focus or alter their product attributes to meet the requirements that perceived as critical by the consumers. It is strongly believed that this study can help the international apparel marketers to recognize the differences among these consumer segments which in turn would very likely to increase their chance of success for in developing, modifying and marketing apparel products in the Greater China.

#### **Acknowledgement**

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## Marketing and Agriculture: Some Reflections on Future Directions

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### Abstract

The objective of this paper is to try to define the area of investigation of agro-industrial marketing in order to gather the evolutionary characteristics that come closest to modern business marketing techniques. In order to do this, and after a short examination of the available literature, it has been suggested that the increasing propensity to view agricultural marketing as applications of modern marketing principles of agricultural and food business is a consequence of the evolution in patterns of food products. The subject is a relatively new one because traditionally agricultural products were sold in the form of commodities, foodstuffs or staples and where the price, which was connected to an average quality, was the most important element of the deal. Nowadays, this situation is gradually changing and we would like to point out the main implications of this change.

### Review of the Literature

To discuss agro-industrial marketing is not all that simple. It can represent an opportunity for a second, critical reading of the evolutionary path of the birth, the affirmation of the discipline, its tools and its points of view, together with well-established certainties and by welcoming the intricacies of the Italian school of thought. Firstly and more precisely, some terminological ambiguities have quite often appeared within the context of Italian academia when “agro-industrial marketing” has been discussed because the term marketing has been used as synonym of the word “market” and because it concerns the field of investigation. Secondly, it is in fact not always clear if the reference point is a particular sector, which highlights the characteristics of the primary sector, or if it is in reference to the marketing of a product that emphasises the applications of the approach of marketing to the agro-industrial company and particularly to the agricultural company as whole.

Regarding the first point and the North American school of thought the relationship between “agro-industrial marketing” and the “economy of the agro-food markets” appears to be very narrow in that the subject of agricultural marketing is developed as branch of agricultural economics. In particular, Ritson highlights how agricultural marketing can be placed within the context of marketing management decisions once the special characteristics of the marketing of agricultural commodities has been understood (Ritson, 1997).

In Italy this relationship takes on some rather mellow contours thanks to the originality and incisiveness of the scientific contributions by Luigi Guatri in the 1960s and 70s.

Guatri has the merit of having extended the “Zappiani” principles by reformulating the institutionalised paradigm “disclosure-management-organization” so as to be able to apply it to the complex phenomena that links the company to the market. Within the setting put forth by Guatri there is a constant link of marketing phenomena to other business phenomena and in particular to economic-financial elements. Significant examples regard those that are relative to proposed solutions in order to solve the problem of the relationship of costs which can be found in the company's overall nature of its productive and commercial policies. The interactions between marketing and economics go well beyond the company matrix leaving ample space to neo-classical economic theory (Chamberlain, Dean, Bain) which becomes a useful yet non-exhaustive reference point for a discipline which is applied with realistic demands of marketing. Analogies with this formulation are also recognizable within the context of Italian agricultural economics some decades ago, above-all in the works of Vito Saccomandi. Saccomandi's 1991 text, “Agricultural product market economy institutions”, is considered to be pioneering as he leans on a neo-institutional theory of agricultural markets and makes it the methodological core of the industrial economy. Accordingly, the lines between market economics and marketing become, as the author himself affirms, “(...) this method of conceiving the economy of the agricultural market would tend to make it coincide with the study of agricultural

marketing, one which can be interpreted more or less as a specialized branch of the economy of the agricultural company”.

According to the second point, Saccomandi provides a useful distinction between sector and product marketing which goes back to the categories that are present in business subjects such as micro and macro marketing. More precisely, by taking into consideration the macro marketing conceptualization as proposed by Shawver and Nickels in 1979 can be identified as the study of the exchange activities and of exchange systems from the point of view of the company. Within this context agricultural marketing is expanded in order to include "the analysis of the production-consumption path and the consequences produced from the structure of this path on the sales methods of agricultural production ". Following such guidelines then, by using a term suggested to us by Davis and Goldberg, that the term “agri-business marketing” is used. Agricultural marketing is therefore defined as “(...) the of all business activities involved in the flow of food products until they are in the hands of consumers (Kohls and Uhl, 1990)”. This line of reasoning later evolved and was initially proposed in order to analyse the link between the consumption and the marketing of the agricultural product and the structure of the agricultural market reference point. Following the formulation established by the Malassis French school of thought, the agro-industrial sector is one “of the activities which compete to perform the food function of a given company (Malassis, 1996)”.

In more recent times such a formulation placed the emphasis on the “social” aspects of marketing. This has resulted in crossing over into the world of societal and social marketing thanks also to the responsibilities on behalf of companies which goes beyond the quest of a satisfactory profit. In conclusion, agro-industrial marketing contributions developed within the context of relational marketing and of territorial marketing also take on a rather noticeable importance (relations between the various protagonists of the industry and the consumer).

## **Traditional Agricultural Market**

One of the most known models which is used for the explanation of economic phenomena is the so-called “perfect market”. Compared to the market as a whole, supply side economics in this model is formed by a large host of producers which are not able to change the price of their products due to the small size of the companies.

Hence, they must adapt to the “invisible” hand of the market. Moreover, in such a perfect market, total transparency of knowledge regarding processes reigns because technologies change slowly throughout time and enough financial means are at disposal. As a consequence, there are few barriers for new entrants into the supply side of the market. If, for instance, profit materializes in the given industry, new entrepreneurs are attracted and compete by price. Therefore, profit is eroded and in the long run it disappears altogether.

The reality of the perfect market might be lurking at the bottom of every economic activity. It seems to us though that the model was created with in mind the particular traditional market of agricultural products.

Historically, agricultural production was carried out by small and individual farmers. Technologies were widely known in the local cultures and have only been changing slowly in time: only at a century’s pace were new agricultural products introduced. Examples may be potato, tomato, tobacco, sugar and other species imported from overseas. In the meantime, few things changed during the centuries. The agricultural entrepreneur, in order to start producing, needed only to own soil, a task which was not impossible. Even today, there is still disposable soil even in inhabited areas. The small scale farmers have been partly producing for subsistence and partly for the market, obtaining low prices for their supplies and approaching the model of the perfect market as described above. Buyers of products have been in most cases middlemen and owners of storing facilities whence they sold crops to markets that were frequented by consumers. Middlemen very often obtained the most of the value added which materialized in production.

In modern times and as a consequence of democratic processes the traditional farmers in some areas were able to coalesce politically by fighting for their interests and by obtaining subsidence by guaranteed prices. These were higher than those which they would get by means of the mechanism of the mere perfect market.

Such agricultural policies happened within national states. On even a larger scale they have been present in modern regional groupings like the EU. The Common Agricultural Policy (CAP) is renowned for the agricultural interests around which the union as a whole has been formed. Until now, each year more than half of the EU’s budget is



destined to subsidize farming activities.

But lately such a policy has been put under question. See for instance the so called Doha Round as it is considered economically much more advantageous for mankind in general and in particular also for the consumers of developed countries that shift the traditional agricultural production to developing countries therefore obtaining several advantages all at once: reducing the subsidies in the developed world, lifting the financial weight from budgets, producing at lower costs, reducing financial burdens on final consumers by imposing cheaper prices, helping the developing populations by fostering the demand for products where they have competitive advantage.

But the talks connected with such changes only advance at a slow pace as they require for restructuring the agricultural activities both in the developed and in the developing world.

One of the main problems hovering over the horizon of further development in the area is the one expressed by the following question: after such changes, what would the human resources of those employed in agriculture in developed countries really do? If many products were imported from abroad which activity would they be left with? This is a question which remains as a psychological barrier on the road to a larger opening of global market integration.

We could say: wait and see but such an answer is not in line with modern sensibility. Modern thinkers like to plan, i.e., have some assurance regarding the future. In the given case we can formulate two answers:

1. The relative number of people employed in agriculture in the developed countries is nowadays already pretty low. In many of them we are speaking of percentages varying between 1 and 5 percent of the population, down from 60 to 80 percent two or three centuries ago. Therefore, the absolute number of people struck by liberalizing global agriculture markets would be low. In most cases, it would be easily handled by the welfare system of the single countries.

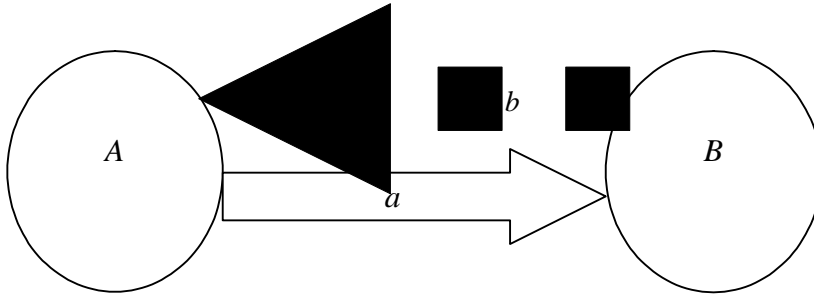
2. There is still though a certain number of people who would like to carry out agricultural activities in the face of adverse odds. It has also been taken into consideration that the supply of agricultural products cannot be satisfied completely by imports. Some products will always be produced domestically for reasons regarding transportation, stocking, conservation, freshness and quality.

So the real question is the following one: without subsidies, how can the battle with cheaper imported products be won by a given entrepreneur who would like to express himself in the area of agricultural production?

## **Modern Agricultural Markets**

The answer to such a question we can find in art or in the science of marketing as defined by the technique by which the subject *A*, who is offering *a*, tries to convince the subject *B* to accept *a*, getting in return *b*, as an exchange for it. *a* is in general a product but can be entirely and generally-speaking also a service, a product plus a service, a program, or an idea ( Fig.1).

Fig. 1.



$b$  is normally a financial reward but it can be also a vote, an adherence, an attendance, or a participation. It is important to understand that  $B$  is not compelled to accept  $a$ , but he/she is free to do it. In most situations, he/she has also the choice to accept  $a$ , or  $a_1, a_2, \dots, a_n$ , or a substitute of it  $\square$ , offered by suppliers  $C \dots N$ . In the field of agriculture  $a$  is an agricultural product and may be also a connected service: for instance, cauliflower with a cooking recipe. If  $q_a$  is the quantity of  $a$  and  $q_b$ , the quantity of  $b$ , then

$$p_a = \frac{q_b}{q_a} \quad (1)$$

is the price of  $a$ .

Hence, the art, technique, or science of marketing is about how to convince  $B$  to accept  $a$ , giving in exchange  $b$ , where  $B$  is free to do it. In order to obtain this result  $A$  has at its disposal the knowledge of the so called “marketing paradigm” by which what he tries to do is to differentiate the offer of  $a$  in a way that it becomes convenient to  $B$  to accept it, becoming thus he willing to give to  $A$  the reward  $b$  in return.

Why is it necessary to differentiate  $a$ ?

The very reason is connected to the considerations which we took into account at the beginning of this paper when we spoke about the “perfect market”.

The truth is that for  $A$  the situation of the perfect market is unbearable as it doesn’t provide profits. Therefore,  $A$  tries to escape from the perfect market in a market which is non-perfect as much as it is possible. Such an operation is carried out by means of differentiation.

The problem is that real markets are part of a super-system or an environment and this environment is always changing step-by-step in time.  $A$  must adapt to these changes if he/she wants to continue to stay in the market, i.e.: offering a desirable  $a$  to  $B$ . In other words, he/she must adapt. But adaptations cost. It is difficult to forecast exactly how much he/she will have to adapt and how much the adaptation will cost to him/her. The profits are needed to get a reserve in order to cover the risky costs of adaptation.

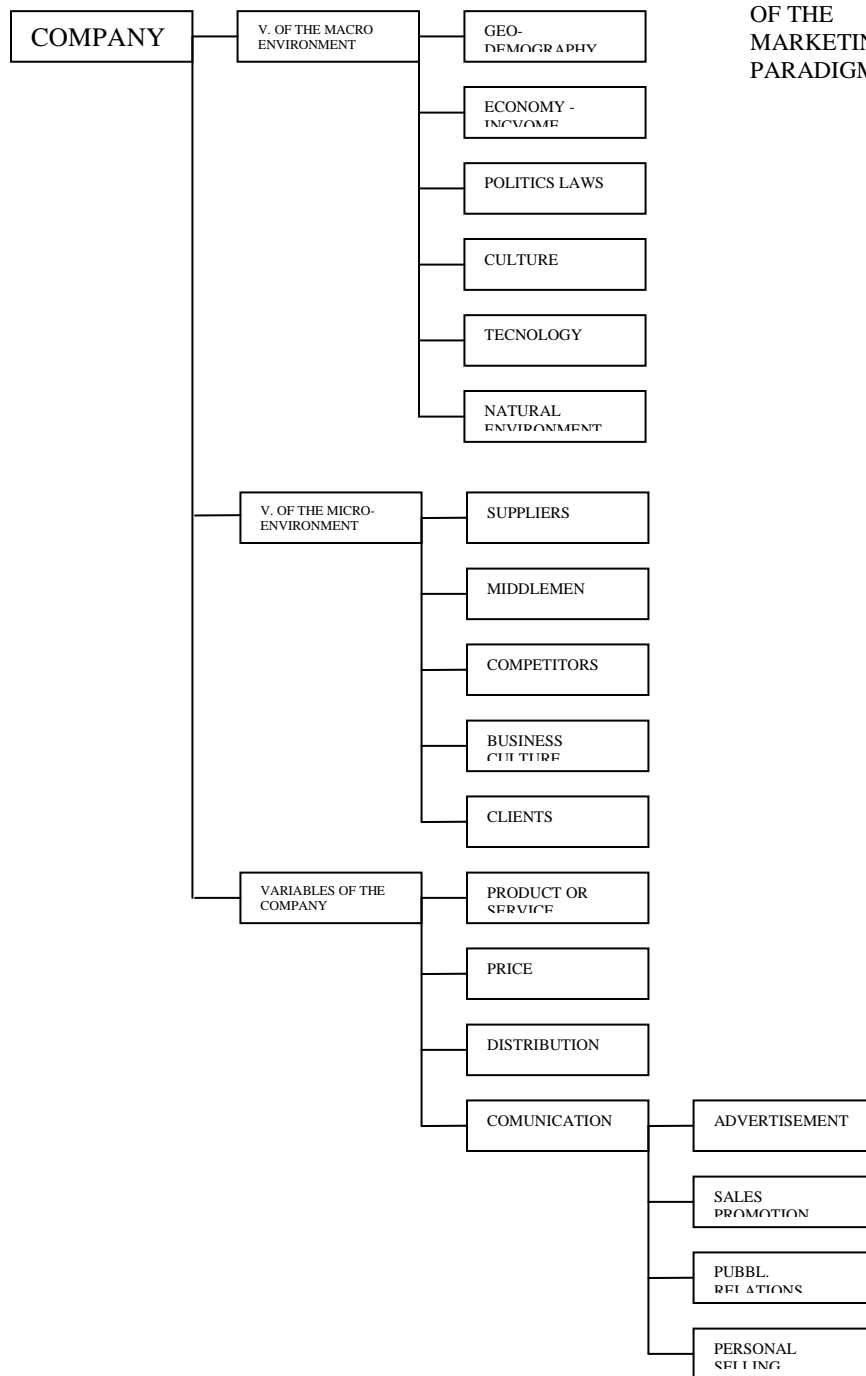


FIG 2 VARIABLES OF THE MARKETING PARADIGM

For instance, at the beginning of globalization in another industrial area such as the automotive one some producers like the Italy's Fiat experienced a troubled situation. Due to certain historical reasons it is possible to sustain that they were caught by surprise by the phenomenon. Initially, it looked like they wouldn't be able to carry out the adaptation asked for by the muted circumstances. But the final result was positive and today the Italian carmaker is showing a successful adaptation to the globalization phenomenon.

The adaptation was possible because in earlier times the owners of the company accumulated enough financial reserves to be able to hand off a guarantee for the financial exposures extolled by the environmental change.

The marketing paradigm is expressed by the so-called marketing variables as shown in Fig.2. There are several kinds of marketing variables: the passive variables of the micro and macro environment and the active variables of the company which are divided into the so-called marketing and communication mixes. In every particular case the use of the variables makes it possible to devise a strategy thus enabling the company to reach its activity goals.

## Differentiation Strategies

So the real problem is: how to differentiate? The first answer to this question is that the possible strategies of differentiation are numerous as they may depend on all the elements depicted in Figures 1 and 2.

We can start with *a*, the offer which takes into account its M-Mix, the famous 4 Ps of marketing: Product, Price, Place and Promotion. Differentiating amongst them but also making combinations of them and combining them with the environmental variables.

Let us make the following case: we would like to sell oranges which are produced in a totally natural manner and without additives and other treatments. In this case, we offer an agricultural product *a*, the oranges, which become differentiated with respect to other oranges. The average oranges sold in the markets are treated for conservation purposes but the oranges which are used in our case are not treated, therefore having a superior taste and a superior natural environmental quality. We differentiate the product by taking into account one of the variables of the macro environment: the modern sense or culture for natural features and environmental aspects. The differentiation attracts customers who are willing to buy the product giving in return a higher price than normally. Moreover, for such oranges we might choose a name in order to create a brand, let us say: ARNOTRADIS. Afterwards, we must follow a strategy in order to support and implement the brand on the market and thus consolidate the differentiation strategy.

But we can start also with *B*, the consumer, differentiating with respect to him/her: for instance, the supplier can choose a particular segment or a niche of consumers where competition is not so strong. In such a case he/she did differentiate in respect to consumers and not products, satisfying nevertheless the scope of the company in order to obtain a good economic result.

The field of possible differentiation strategies is extremely wide but some basic strategies may be the following ones:

- 1 Selling to a single consumer: this is the strategy of handicraft production. The Saville Road tailor is producing his/her clothes on commission for single, personal consumers.
- 2 Selling to a market segment or niche: this is the strategy where we choose in the market as a whole a group of consumers whose desires and needs are to some extent homogeneous. It is similar to the strategy *a*, with the exception that we don't have only one customer but rather a certain number *n* of them.
- 3 Selling to a homogeneous market. It is the strategy of mass production: the product is the same for everybody. For instance: a bank opens a counter where everyone can do any type of operation. Un-differentiated products and services can compete only by price *p*, hence, in this case we return to the condition of the perfect market. If there is a new potato producer but his/her potatoes do not differentiate in any way with respect to other potatoes on the market then in order to beat the competition he/she can succeed by lowering the price.
- 4 The biggest differentiation of a product is carried out by innovation: traditional products are totally substituted by new ones and are better fit for demand and circumstances. Nowadays, in the product industries' office

the use of computer plus printers is almost completely substituted by typewriters which were used ages ago.

Of course as we pointed out above: the possibilities of differentiation are “legion” and they depend very much on the fantasy and ingenuity of the entrepreneur working on the market. He/she can change a lot of things with the scope of convincing the consumer to purchase his/her products. There are cases of producers who have succeeded by changing products and their accessories, prices, sales locations, promotions by selecting particular consumers in the market and also taking into account the changes of the macro and micro-environment as we have seen in the examples shown above.

## Analytical Aspects

The above ideas may be also shown from an analytical point of view in the following way: in the long run, company  $A$  must be in equilibrium.  $R$ ,  $T$  and  $U$  are vectors regarding  $A$  shown as a system (Fig. 3):  $R$ , the revenue,  $T$ , the total cost and  $U$ , the profit, or capital reward. We assume the following convention: input vectors of the company have a positive sign and output vectors have a negative one.

$$R - T - U = 0 \quad (1)$$

From expression (1) it is easy to find the form (2):

$$U = R - T \quad (2)$$

the usual form of the equilibrium equation of the company, meaning that profit  $U$  is given by the difference between revenues  $R$  and the total costs  $T$ . But we know that revenue  $R$  is the product of price times the quantity  $q$ :

$$R = pq \quad (3)$$

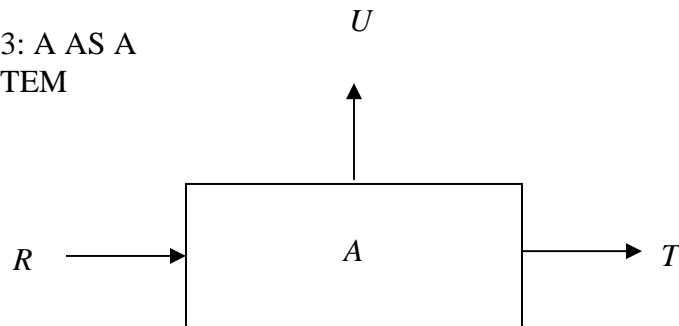
Combining (2) and (3) we get, remembering that total cost  $T$  is also a function of  $q$

$$U = pq - T(q) \quad (4)$$

As we have already pointed out in a perfect market  $p$  is constant as it is determined by the “invisible hand” of the market and cannot be changed by the company. In that case the condition of maximum profit  $\max U_q$  yields:

$$\frac{dU}{dq} = U' = p - \frac{dT(q)}{dq} = p - T' = 0 \quad (5)$$

FIG 3: A AS A SYSTEM



From expression (5) we can calculate the price

$$p = \frac{dT(q)}{dq} = MTC = T' \quad (6)$$

In the perfect market price is equal to marginal total cost,  $MTC$ , or  $T'$ . Combining expressions (6) and (4) we can calculate  $\max U_{\Pi}$ , the maximum profit in the perfect market:

$$\max U_{\Pi} = T'q - T \quad (7)$$

In the case of differentiation of the product we get a differentiation situation which is a situation in the direction of a monopoly situation. In such a case price is not constant with quantity:

$$p = p(q) \quad (8)$$

and the profit function becomes

$$U = p(q)q - T(q) \quad (9)$$

The extreme is:

$$U' = p'q + p - T' = 0 \quad (10)$$

$$p = T' - p'q \quad (11)$$

and the price is:

$$p = T' - p'q \quad (11)$$

Applying this expression in (9) we get

$$\max U_m = (T' - p'q)q - T = T'q - p'q^2 - T \quad (12)$$

If a company shifts from a pure market condition into a differentiated one it may obtain a maximum increment in profit of

$$\Delta U = \max U_m - \max U_{\Pi}$$

which is, considering equations (7) and (12):

$$\square U = T'q - p'q^2 - T - (T'q - T) = -p'q^2 \quad (13)$$

Considering now that elasticity is given by the expression

$$\varepsilon = -\frac{p}{qp'} \quad (14)$$

we can calculate  $p'$  as a function of the elasticity price versus quantity

$$p' = -\frac{P}{q\varepsilon} \quad (15)$$

and introducing  $p'$  in (13) we get

$$\Delta U = \frac{pq}{\varepsilon}$$

remembering that  $pq=R$ , we get

$$\Delta U = \frac{R}{\varepsilon} \quad (16)$$

the advantage of differentiation is given by the revenue  $R$  which  $A$  gets divided by the elasticity of price and which is the very measure of differentiation. If it is large, at least  $\infty$  the product is not differentiated at all and there is no advantage under the form of profit difference. If it is small, at least 0, the difference is big, at least  $\infty$ . If  $\varepsilon=1$  the difference is given by the revenue.

So everything therefore depends on the elasticity of the products which we introduce by differentiation: to have an advantage they must have a low elasticity, meaning that the price is not influenced very much by the quantity which is offered. For instance, when the new product computer + printer was offered initially in competition to the typewriter people preferred it and bought it even if it was much more expensive because the advantages offered by the combination of the two products were immensely superior to the old product, the typewriter. Therefore, in this case the price bore a low elasticity mark.

But we must make another consideration: in order to produce differentiation or even in an extreme situation innovation, costs have been borne by the company for the development of the differentiation. These particular costs must also be considered if we want to carry out a fair estimate of the innovative strategy.

Moreover, we must take into consideration that all this happens stochastically in the sense that differentiation not always succeeds. There is always a probability of not being successful. If we put  $P$  as the probability of success of the differentiation trial of the company and  $K$  as the total costs of R&D the average economic effect  $M(DIFF)$  of the differentiation trial would be:

$$M(DIFF) = P\left(\frac{R}{\varepsilon} - K\right) + (1 - P)(-K) = P\left(\frac{R}{\varepsilon}\right) - K \quad (17)$$

(17) is an expression by which we may estimate the advantage of a given differentiation measure and strategy.

## Conclusion

Nowadays marketing is becoming important in the agro-business industry, as there is a trend to shift traditional agricultural production to the developing world.

Also for agriculture "an effective macro marketing system is necessary for economic development, improved marketing is often the key to growth in less developed nations" (McChartey and Perrault, 1993). Marketing is both a set of activities performed by individual organizations (micro marketing) and a social process which determines the development status of economies (macro marketing).

According to Bartels and Jenkins micro and macro marketing can be understood in a normative and in a positive way. Positive theory explains the practices of management and the function of the marketing system as a whole. Normative models involved in the setting of objectives are indispensable for the management process. On the one hand, micro marketing in a positive theory lets us understand the behaviour of food consumers. Its normative models are an application of marketing principles for companies in the food marketing sector. On the other hand, positive macro marketing concerns the study of the behaviour of agricultural and food markets and its normative models are an application of structure-conduct-performance approach to the food sector.

It can be deduced that a modern approach to marketing is very important for agriculture. In particular, the producers of the developed world would be then compelled to use marketing concepts and techniques in order to

supply products by carrying out differentiations, in order to better convince consumers to buy differentiated products at a premium price.

The most important way to differentiate is innovation. In this article we have discussed about the essence of the differentiation process of the products. From the point of view of the neoclassical economic theory we have elaborated an analytical expression which could serve to estimate the convenience of the differentiation effort by a given producer.

## **References**

Contact authors for the list of references





## **Section 6: Global Pharmaceuticals and Healthcare Business**

# The Emergence of the Pharmaceutical Industry in the Developing World: Implications for MNE Strategies

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## Abstract

Although a handful of developed countries remain the source of innovation in the global pharmaceutical industry—just seven countries account for 90 percent of pharmaceutical patents, with the U.S. alone accounting for over 50 percent—local firms specializing in the production and marketing of generic drugs in such developing countries as India and Brazil have come to dominate first their domestic markets and then challenge the first world's multinational enterprises (MNEs) in their home markets. This paper, focusing on the rise of the Indian pharmaceutical industry—in the context of The Agreement on Trade-Related Aspects of Intellectual Property Protection (TRIPs), the changing structure of pharmaceutical innovation, and concern over the high cost of prescription drugs—addresses two related issues rather broadly: i) the strategic response of Indian pharmaceutical companies to the new patent regime that recognizes and enforces product patents; and ii) its implications for MNE strategies—with respect to collaborations, outsourcing and pricing, for example—vis-à-vis the developing-country market. The paper calls for the MNEs to rethink their traditional approach to R & D including greater focus on the neglected diseases and implement differential pricing strategies.

## Introduction

The global pharmaceutical industry stands at the center of the *health of nations*—rich and poor nations alike. Drugs are often substitutes for other more costly means of treatment such as surgery. The innovation of new drugs and their rapid diffusion at affordable prices have been a major source of the phenomenal increase in longevity of the human race over the last hundred years. However, in market economies there is always a tension between the need to preserve incentives for innovation by granting temporary monopoly power to the innovation of new drugs and the need to keep the price of such drugs affordable. The rapid rise of the pharmaceutical industry in the developing countries such as India and Brazil is, in part, driven by this tension.

Although a handful of developed countries remain the source of innovation in the global pharmaceutical industry—just seven countries account for 90 percent of pharmaceutical patents with the U.S. alone accounting for over 50 percent (Lanjouw 2003)—local firms specializing in the production and marketing of generic drugs in such developing countries as India and Brazil have come to first dominate their domestic markets and then challenge the first world's multinational enterprises (MNEs) in their home markets. This paper, focusing on the rise of Indian pharmaceutical industry—in the context of The Agreement on Trade-Related Aspects of Intellectual Property Protection (TRIPs), the changing structure of pharmaceutical innovation, and concern over the high cost of prescription drugs—addresses two related issues rather broadly: i) the strategic response of Indian pharmaceutical companies to the new patent regime that recognizes and enforces product patents; and ii) its implications for MNE strategies—with respect to collaborations, outsourcing and pricing, for example—vis-a-vis the developing-country market.

## A Brief Historical Context

The Indian pharmaceutical industry has a century-old history starting with the formation of Bengal Chemical and Pharmaceutical Works in 1903. However, not much happened in terms of local production until 1947, when the government of independent India began to emphasize self-sufficiency and invested heavily in the public-sector pharmaceutical production. Multinational enterprises were allowed to continue their presence as marketers of drugs developed and manufactured in their home countries (Felker 1997; Smith 2000). The establishment of Hindustan Antibiotics Ltd. (HAL) in 1954 and Indian Drugs and Pharmaceuticals Ltd. (IDPL) in 1961 with the assistance of

the then Soviet Union gave concrete shape to the goal of self-sufficiency in pharmaceuticals. Although the establishment of HAL and IDPL helped make the necessary infrastructure for pharmaceutical production—relevant know-how and skills, for example. The real push that jump-started the local industry came from the 1970 Patent Act, which recognized patents on processes but not on products. As a result, local firms were able to legally reverse-engineer, manufacture, and market generic copies of drugs patented by the MNEs in their home countries. The prices charged by the local Indian firms were but a small fraction of MNE prices for the same, albeit branded, drugs at home and abroad. The domestic industry grew from a few MNEs in 1970 to some 20,000 licensed pharmaceutical companies today. The leading Indian pharmaceutical companies not only captured the bulk of the domestic market, but they also began aggressively competing first for the share of other developing-country markets and later for the developed-country markets (Table 1).

TABLE 1: INDIAN MARKET SHARE OF MEDICINES, MNEs vs. INDIAN COMPANIES, SELECTED YEARS, 1970-2004

<b>Year</b>	<b>MNEs</b>	<b>Indian Companies</b>
1970	68 %	32 %
1978	60	40
1980	50	50
1991	50	60
1998	32	68
2004	23	77

*Source:* Adapted from Mitra (2006).

Meanwhile, other developing countries such as Brazil, Thailand, and Indonesia developed capabilities similar to India's and began to erode the MNEs' competitive position in the developing-country markets. More important, they began to present a significant threat to the MNEs in the developed world's markets as well. In 2003-2004, North America and Western Europe alone accounted for almost 40 percent of the total Indian pharmaceutical and chemical exports (Sampath 2006b). It was against this background that the pharmaceutical MNEs began to push for the TRIPs agreement under the World Trade Organization (WTO) trading system. The viability of TRIPs, in its current form, has been a subject of a vast literature and continuing debate among scholars, especially in terms of its effect on the price of drugs in poor countries (Hall 2001; Kremer 2002; Lanjouw 2003 and 2005; Rao 1998; Rao and Ghauri 2004, for example). Despite the continuing controversy, India and other developing countries became signatories to TRIPs in 1994. TRIPs provided a 10-year transition period to developing countries to comply with its provisions on pharmaceutical product patents. January 1, 2005, marked the end of the transition period. Pharmaceutical MNEs as well as other firms—local and foreign—can obtain patents on their products in major developing-country markets such as India. The Indian government is committed to preventing local firms from manufacturing and marketing generics copies of MNEs' or any other pharmaceutical firms' patented drugs. Against this historical context, with the aid of secondary data, this paper addresses two related issues rather broadly: the strategic response of Indian pharmaceutical firms to the new patent regime that recognizes and enforces product patents, and its implications for MNE strategies vis-a-vis the developing-country markets. We begin with basic some facts about the Indian pharmaceutical industry today.

## Basic Facts about the Indian Pharmaceutical Industry Today

According to the data provided by the Organization of Pharmaceutical Producers of India (OPPI) and cited by KPMG (2006), some basic facts about the Indian pharmaceutical industry in 2004 are summarized below:

Number of firms in the organized sector:	250 to 300 (account for 70% of products with top 10 firms representing 30%)
Sales:	\$6 billion (1% of the \$550 billion global industry)
Exports:	\$3.72 billion (to more than 65 countries, U.S. being the largest customer)
Imports:	\$985 million
Share of world bulk drug production:	\$2.1 billion with over 400 bulk drugs and 60,000 formulations in 60 therapeutic categories
Capital investment:	\$1.2 billion
Employment:	5 million direct and 24 million indirect

Note that the very small share of the global market held by the Indian pharmaceutical industry belies the dynamics of its growth and rapidly changing strategies. For example, between 1994-1995 and 2000-2004, exports have grown at a compound annual rate of over 16 percent and the ratio of exports to imports has increased by three times, from 1.43 to 4.63 (Table 2).

TABLE 2: VALUE OF IMPORTS AND EXPORTS OF DRUGS AND PHARMACEUTICALS  
1994-1995 to 2003-2004 (dollars in millions)

Year	Exports	Imports	Exports/Imports
1994-1995	\$ 682.94	\$478.59	1.43
1995-1996	688.08	549.70	1.25
1996-1997	1,138.16	656.18	1.73
1997-1998	1,394.49	697.64	1.99
1998-1999	1,456.27	721.35	2.02
1999-2000	1,640.79	340.87	4.81
2000-2001	1,893.27	440.79	4.29
2001-2002	2,185.89	538.59	4.06
2002-2003	2,504.72	231.57	10.82
2003-2004	3,179.09	687.12	4.63

Note: Data reported in rupees were converted to dollars based on average annual U.S.-India exchange rates published by the Federal Reserve Board. Last column of the table is author's addition.

Source: Sampath (2006a).

Generic drugs account for virtually all of Indian exports of pharmaceuticals. It is estimated that, currently, the Indian industry accounts for 22 percent of the world market for generics. India has the largest number of U.S. Food and Drug Administration (FDA)-approved manufacturing facilities outside the U.S. Indian firms account for over a third of Drug Master File applications and a quarter of all U.S. Abbreviated New Drug Application (ANDA) filings submitted to the FDA. And the number of generic drug launches in the U.S. by Indian firms in 2008 is expected to increase by nearly three times over its 2003 level, from 93 to 250 (KPMG 2006).

Indian firms are also poised to become serious players in the area of biogenerics. Biopharmaceuticals account for 60 percent of India's total biotechnology market estimated at over \$700 million. The domestic biopharmaceutical sector holds a commanding 76 percent of the local market (Financial Express Report 2005).

## Relative Functional Capabilities of Indian Pharma Companies

Table 3 presents a snapshot comparison of the functional capabilities of Indian firms vs. the MNEs (Smith 2000). On the average, Indian companies are competitive with MNEs in all key areas—discovery, clinical trials, bulk manufacture, formulation manufacture, and distribution—in the *domestic market*. They excel particularly in domestic marketing and distribution. By contrast, Indian firms lag behind MNEs in global markets in all areas. Note that the MNEs' domestic capabilities may be understated to the extent the MNE subsidiaries draw upon parents' resources.

TABLE 3: FUNCTIONAL CAPABILITIES OF INDIAN PHARMACEUTICALS vs. MNEs

	Indian average (8 firms)	MNE average (4 firms)
<b>Discovery</b>		
India	1.88	1.00
Global	1.13	2.75
<b>Clinical Trials</b>		
India	0.63	0.25
Global	0.50	3.00
<b>Bulk Manufacture</b>		
India	2.63	2.50
Global	1.88	3.00
<b>Formulation Manufacture</b>		
India	2.00	2.00
Global	1.38	3.00
<b>Marketing &amp; Distribution</b>		
India	2.75	2.00
Global	1.63	2.25

Source: Adapted from Smith (2000).

Note: 0 = none; 1 = minimal; 2 = moderate; 3 = extensive.

Global ratings for MNEs relate to parent companies of Indian subsidiaries interviewed.

A number of factors explain the rise of the Indian pharmaceutical industry. First, as noted earlier, non-recognition of pharmaceutical patents for three and half decades since 1970 enabled local firms to develop strong reverse-engineering skills and become players in the global generic drug market. Second, heavy public-sector investment in HAL and IDPL, inefficient as they were said to be on a stand-alone basis, produced significant positive spillovers into the private sector via the development of human and physical capital. Thus, when one takes into account the spillover benefits, social rates of return on public-sector investments in pharmaceuticals may have far exceeded the "private" rates of return on HAL and IDPL. Third, the high cost of MNE-patented prescription drugs combined with the ability to reverse-engineer cheaply allowed the local firms to gain significant competitive advantage in terms of price. Forth, as Smith (2000) notes, once firmly established, the local firms began adding value through novel delivery systems (e.g., AKT-4 kits by Lupin Labs, which combined four anti-TB drugs) and increased their ability, vis-a-vis the MNEs, to adapt to the Indian market and similar other emerging markets in all aspects: production, packaging, and marketing.

## Compliance with the TRIPs Agreement

A series of amendments to the 1970 Patent Act since 1999 culminated in a final set of changes—all intended to fully comply with the TRIPs Agreement—in the Indian Patent Amendment Act, 2005. Some of the important changes, as Sampath (2006a) notes, include:

- A system of exclusive marketing rights (EMRs) to be retroactive from January 1, 1995. However, if a generic firm within India has made “significant” investment it can continue to produce drugs patented between 1995 and 2005 by paying a “reasonable” royalty.
- Extension of patent term from 14 to 20 years.
- Reversal of the burden of proof from patent holder to alleged infringer.

It is estimated that 10 to 15 percent or about \$1 billion to \$1.5 billion of the Indian production will be affected by patent protection. Note that Indian pharmaceutical firms produce 22 percent of all generic drugs in the world (Verma 2005). The categories of drugs most likely to be affected are antibiotics and anti-infectives (e.g., anti-malarial, ARVs) where there is rapid development of new products/variations and cancer and diabetes drug classes where there is little competition (Grace 2005).

## Response of Indian Firms to the TRIPs Enforcement

Sampath (2006b) examined this issue at length with the aid of data derived from a survey of 103 Indian pharmaceutical firms categorized into three groups: group 1 consists of 31 large-scale firms, both Indian and MNE-held; group 2 is 27 medium-sized operators who are either generic producers or specialists in niche areas of contract research; and group 3 is 45 small-scale units that manufacture drugs for the bigger firms within India. Not surprisingly, Sampath’s analysis of the survey data suggests that the response of Indian firms to the TRIPs agreement varies with the group. A summary of emerging strategies is presented in Table 4.

TABLE 4: EMERGING STRATEGIC FOCUS OF INDIAN FIRMS: A CATEGORIZATION

Firm group	Drivers	Strategic Focus	Relative Risk and Return
Group 1 – large size (e.g., Ranbaxy, Dr. Reddy’s Labs)	Need to strengthen product portfolios to compete in global market	Greater investment into R & D; higher innovation in generics, new products and processes and bulk drugs.	High
Group 2 – medium size (e.g., Matrix Labs, Ajantha Pharma)	Need to strengthen competitive advantages to make use of CRAM opportunities.	Active supply of off-patent generics to the semi-regulated and unregulated markets; establish themselves as niche players for contract research.	Medium
Group 3 – small size (e.g., Radico Remedies)	Survival in light of India’s full-fledged TRIPs compliance	Upgrading facilities to continue manufacturing for group 1 and group 2 companies.	Low

Source: Adapted from Sampath (2006b).

All these groups are driven by the need to close gaps, post-2005, in their respective competitive positions as well as leverage on their strengths. Note that firms in all three groups are global players, albeit in varying degrees. The group 1 companies are moving or have moved towards the traditional pharma MNE model with a high degree of forward integration into R & D as well as backward integration into marketing and distribution. Potentially, it is a high-risk and high-return strategy. The firms in group 2 will continue to leverage their skills in reverse engineering focused now on off-patent drugs without violating the TRIPs agreement. The risk-return profile of these companies

tends to be in the medium range. By contrast, group 3 companies, which specialize in manufacturing for group 1 and group 2 companies, are in the low-risk and low-return range. However, it is important to note that companies in all three groups have become or could become global players. This view is supported by the group-level evidence on local and foreign collaborative links presented by Sampath (2006a). While foreign collaborative links are greater for group 1 firms, group 2 runs a close second to group 1 and group 3 to group 2. Moreover, as shown in Table 5, the specific competitive and cooperative strategies adopted by Indian firms run the entire gamut from new chemical entities to novel drug delivery systems to in-licensing arrangements to collaborative R & D to contract research.

TABLE 5: MAIN COMPETITIVE AND COOPERATIVE STRATEGIES ADOPTED BY INDIAN FIRMS

<b>Competitive Strategy</b>	<b>Examples</b>
<i>Specialty generics</i>	Both Cipla and DRL are actively focusing on the development of specialty generics.
<i>No infringing processes</i>	Matrix Laboratories has developed its own non-infringing process on Citalopram and is the sole exporter of the API to Europe at present.
<i>Novel drug delivery systems</i>	Ranbaxy has licensed its NDDS on ciprofloxacin to Bayer AG that is under consideration in the U.S. right now.
<i>New chemical entities</i>	Dr. Reddy's licensed molecule for the treatment of Diabetes (Balaglitazone) to Novo Nordisk had to be dropped from clinical trials due to toxicity issues.
<i>In-licensing arrangements</i>	Nicholas Parimal and Roche agreement on launching Roche's products dealing with cancer, epilepsy and AIDS in the local market.
<i>Collaborative R &amp; D</i>	GlaxoSmithKline (GSK) and Ranbaxy have a collaborative R & D arrangement for the development of new drugs in the areas of infective diseases and diabetes.
<i>Contract Research</i>	Avestagen Laboratories, a biotechnology firm, performs R & D for European pharmaceutical companies.

*Source:* Adapted from Sampath (2006b).

## **R & D and Patenting**

Average R & D expenditures in the pharmaceutical sector in India have been growing at 18 percent per year over the past five years. Although the sectoral R & D is still only 1.9 percent of sales, as shown in Table 6, the top-tier group 1 firms are in the 8 to 13 percent range similar to that of the MNEs (Sampath 2006a; Mitra 2006). According to the WHO-INTECH survey results presented by Sampath (2006a), the emerging R & D strategies by the Indian firms appear to focus on collaborative research, clinical trails, and generics. This is true of all three groups, albeit in varying degrees.

TABLE 6: INDIAN DRUG RESEARCH SPENDING, SELECTED FIRMS, 2003-2004  
(dollars in millions)

Company	R & D	R & D as percent of sales
<b>Ranbaxy Laboratories</b>	\$ 60	7.80 %
<b>Dr Reddy's Laboratories</b>	49	12.99
<b>Sun Pharmaceuticals</b>	23	10.20
<b>Cadila Healthcare</b>	19	7.52
<b>Wockhardt</b>	13	7.89
<b>Nicholas Piramal India</b>	12	3.90
<b>Lupin</b>	12	3.90
<b>Torrent Pharmaceuticals</b>	9	8.90
<b>Orchid Chemicals &amp; Pharmaceuticals</b>	9	5.56
<b>Glenmark Pharmaceuticals</b>	8	9.67
<b>Dabur Pharma</b>	4	8.50
<b>J B Chemicals &amp; Pharmaceuticals</b>	2	2.20
<b>Total</b>	<b>218</b>	<b>7.73</b>

*Source:* Adapted from Mitra (2006).

As might be expected, patenting is a relatively new phenomenon in the Indian pharmaceutical sector. Cipla, Ranbaxy, Dr. Reddy's Labs, and Matrix Labs are among the leading patenters. These companies engage in positive patenting (i.e. to secure worldwide intellectual property rights on their innovations) as well as defensive patenting (i.e. to prevent others from obstructing their R & D activities). Morel Carlos et al (2005) provided an interesting statistic concerning India's rank in patenting. When the top 25 countries are ranked in order and analyzed for all U.S. patents issued where at least one inventor is from a given subject country, India ranked third highest after U.S. and Japan. They further find that the number of U.S. patents per GDP per capita held by India is 0.912, second only to U.S. and Japan. Thus, it appears that TRIPs compliance could, in the longer term, have a beneficial effect of shifting the Indian pharmaceutical industry from mere producers of generics drugs to innovators of new drugs.

### **Off Shoring and Outsourcing**

Indian pharmaceutical companies already have significant presence in clinical development, which accounts for about 40 percent of the MNE R & D budget, and as noted earlier, are increasingly entering into drug discovery, which accounts for about 30 percent of the budget. Overall, Bangalore, Mumbai, and Hyderabad have become the hubs for clinical development, especially clinical data management. The pharma outsourcing market is valued at



\$0.6 billion in 2006. Indian companies are increasingly focusing on Contract Research and Manufacturing Services (CRAMS). Contract research includes:

- Drug discovery and development services
- Custom syntheses
- Process development
- Pre-clinical trials
- Clinical research and clinical trials

India becomes all the more attractive for outsourcing because all phases of the pharma business—discovery, development, manufacturing, and marketing—are increasingly linked with IT services. For example, GSK is seeking not only a full range of services related to discovery, development, and contract manufacturing but also IT application development and infrastructure.

## **Major Strengths and Weaknesses of the Indian Pharmaceutical Industry**

A number of authors—Smith (2000), Sampath (2006a) and KPMG (2006), for example—have cataloged a long list of strengths and weaknesses of the Indian pharmaceutical industry as it stands today. A summary of major strengths and weaknesses of the industry is provided below.

### **Strengths**

- Overall, well-positioned to adapt to the post-2005 environment and compete in multiple areas—several phases of drug discovery, manufacturing, off shoring and marketing.
- Cost competitiveness: estimated production costs are almost 50 percent lower, while R & D costs are about one-eighth and clinical trial expenses about one-tenth of Western levels.
- Strong manufacturing base with the largest number (74) of U.S. Food and Drug Administration (FDA) - approved production facilities outside the U.S.
- Access to pool of highly trained scientists (122,000 chemists and chemical engineers, with 1,500 PhDs graduating every year).
- Strong marketing and distribution network.
- Strong ground for clinical trials, given rich biodiversity and plentiful naïve patients combined with low cost.
- Very strong reverse engineering skills with competencies in chemistry and process development.
- Fast-growing biotechnology and health care industries.

### **Weaknesses**

- Relatively low investment in innovative product R & D relative to the MNEs. Produce patent regime poses serious challenge to domestic industry unless it invests in research and development.
- Underdeveloped financial market—especially venture capital—to compete with MNEs for new drug discovery research and to commercialize molecules on a worldwide basis.
- Lack of strong linkages between industry, research institutes, and academia.
- Low healthcare spending in the country faced by the industry.
- Lack of high-quality research in the universities.
- Lack of adequate regulatory enforcement of production standards across the industry.
- Lack of adequate patent-related legal training.
- Persistence of spurious/counterfeit drugs.

## **Implications for MNE Strategies**

### **Rethinking the Traditional Approach to R & D**

The MNEs' traditional approach to R & D is to integrate it vertically into the firm. This is true of the MNEs in all industries, not just the pharmaceutical MNEs. However, the geographic location of MNE R & D is kept close to

home. When R & D is performed abroad it is generally located in other developed countries. In 2003, Africa, Asia-Pacific (except Japan), and the Middle East combined accounted for 0.5 percent of worldwide U.S. pharmaceutical MNE (PhRMA 2005). Theoretical explanations for this phenomenon are provided by Williamson's (1975) transaction cost theory and Buckley and Casson's (1976) internalization theory. However, the information and communications technology (ICT) revolution of the last two decades—combined with cost pressures in the home markets, increasing innovativeness of emerging markets, and improvement in IPRs, among others—has helped the process of developing R & D from manufacturing in almost all industries including pharmaceuticals (Rao 2001). Thus, off shoring R & D through collaborations and contract research organizations (CROs) is becoming increasingly common. Typically, clinical trials and related data management, which are labor intensive, are the first R & D activities moved offshore. In terms of the business model, pharma companies are using the full spectrum of business models ranging from contract research to co-development to captive subsidiary depending on a number of factors, including the relative cost of each option, internal experience in outsourcing/offshoring, and the like (IBM 2006).

#### **Research Focus on Neglected Diseases**

It is well known that the first world's MNEs do not invest in research on life-threatening diseases unique to poor countries such as malaria and tuberculosis (TB) for several reasons, including the ability to pay and the market failure resulting from positive externalities associated with vaccines. As noted earlier, the high cost of MNE-patented prescription drugs gave rise to the low-priced copycat generics and the creation of a formidable pharma industry in India today.

It should be noted that even with rigorous enforcement of the TRIPs agreement, the developing world's pharma companies will continue to find ways to develop, produce, and market needed drugs at affordable prices. Therefore, the MNEs need to collaborate with the emerging countries to provide solutions to serious health issues. The U.S. drug maker Immtech's pursuit of oral drugs for the treatment of infectious diseases in the developing countries—with half the funding from public sources—is a case in point (IBM 2006).

#### **Creative Pricing Strategies**

Differential pricing strategy, as a rational way of providing access to the much-needed drugs at affordable prices to the poor countries, has been advocated by several scholars (Rao 1998; Kremer 2002). This involves selling the same patented drug at different prices in different countries depending on what the market bears—lower prices in developing countries where demand is relatively price-elastic and higher prices in the developed countries where the demand is relatively price-inelastic (note that there is a problem of gray markets via re-exports).

The recent case of Sanofi-Aventis' anti-malarial pill is highly instructive (McNeill Jr. 2007). The pill, called ASAQ, is the result of a two-year partnership between Sanofi and the Drugs for Neglected Diseases initiative founded by *Médecines Sans Frontières*. Sanofi has decided not to seek patents. Sanofi will give incentives to pharmacies in the poor countries to sell the branded drug, coarsucam, at two different prices—\$1 to very poor customers and \$3 to \$4 to wealthier ones. Packaging of the cheaper version will be different. The drug will be sold only in Africa, Indonesia, and the Philippines, but not in the U.S. or Europe.

## **Conclusion**

The change in the new IPR regime since January 2005 by India presents opportunities as well as threats to both domestic pharmaceuticals as well as the MNEs. Overall, the Indian firms appear to have well positioned themselves to compete and collaborate globally in a number of areas—discovery and development of new drugs, clinical trials, manufacturing, and the like. Broadly, three groups of firms have emerged, each with a different strategic focus—the large firms on discovery and development of new drugs, and medium and small firms on producing off-patent generics and manufacturing, respectively.

It is important to note that firms in all groups, regardless of their strategic focus, appear to have developed multiple competencies to compete and collaborate globally. However, the new IPR regime poses serious threat to the large firms competing on the basis of innovation of new drugs—not withstanding their cost advantage—unless they invest heavily in R & D on diseases in the Indian market neglected by the MNEs and develop strength in niche

markets for the traditional drugs. Note that focus on neglected diseases would require much greater degree of public-private partnership than either the Indian firms or the MNEs are used to.

As noted earlier, the MNEs' opportunity lies in rethinking the traditional approach to R & D with focus on collaboration through alliances, off shoring and contract research. Moreover, investing in research on neglected diseases through public-private partnerships offers the MNEs the opportunity to strengthen the collaborations with the developing-country firms. The greatest threat to the MNEs lies in continued price competition from the developing-country firms, regardless of the enforcement of TRIPs agreement. The MNEs could mitigate this problem with differential pricing strategies.

Finally, given the importance of the pharma industry to the *health of nations*, there is a little doubt that pharmaceuticals firms in rich and poor countries alike will continue to come under public pressure to develop and market the needed drugs at affordable prices. Ultimately, firms that deliver solutions to serious health issues at prices that are *affordable* and *profitable* will succeed.

## References

Contact author for the list of references.

## End Notes

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# Service Quality Challenges of Public Health Care in South-Africa: a Comparison between In- and Out-patients

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## Abstract

Quality and value are currently convergent concepts in healthcare. The existence of the South African Constitutional and Patients' Rights charter which focuses on the importance and rights of patients, is putting increasingly more emphases on quality health care management and value delivery. Consequently, public health care decisions can be facilitated through the acquisition, selection and use of relevant and accurate information about resources, services and patients needs satisfaction. Evaluating the service quality of public hospitals has become critical in order to offer efficient and effective healthcare services in South Africa. This paper examines and measures service quality provided by a provincial hospital in South-Africa. Empirical research was used to compare the expectations and perceptions of in-patients and out-patients across two dimensions of service quality, namely, reliability and assurance. Quantitative research was conducted and a total of 583 patients were personally interviewed by means of structured interviews. In the reliability dimension, the availability of doctors and prescribed medicine are seen as the most important variables. Patients regard personal safety, friendliness and courtesy of staff as the most important issues in the assurance dimension.

## Introduction

Public health care organisations all over the world are increasingly concerned about their insufficient financial resources and their ability to meet social obligations (Ramani, 2004:212). Increased funding alone will not improve health care systems, but drastic restructuring with sound government and management principles need to be implemented. The organizational structures of public health care providers must facilitate the delivery of a responsive and flexible health care system that is people centred with the interest of the public, patients and clients guiding the decision making at all levels (Downey-Ennis & Harrington, 2002:316). In reaction to patients and other role-player's increasing expectations regarding the quality of health care this industry implemented more business-like practices (Robinson & Lefort, 2000:112). Health care organisations in developed (Willcocks & Conway, 2000:310) as well as developing countries (Andaleeb, 2001:1360; Raghavan-Gilbert, Phillips & Gilbert, 1998:792) seem to realize that marketing principles and concepts could and should be embraced.

Management's ability to improve customer service is essential to bring about real transformation in the public sector (Downey-Ennis & Harrington, 2002: 320). Empirical research on the quality of health care are essential and the relationship between patients' perceptions and expectations of quality of care and the utilisation of health services need to be appreciated (Baltussen, Haddad & Sauerborn, 2002:43). It is necessary to understand what leads to an effective health care service in order to develop and improve existing health care management approaches and practices.

This article reviews the relevant literature on service quality with the focus on health care, followed by a discussion of the research methodology applied to determine the service quality delivered in a government-controlled hospital in South Africa. The main results of this study are summarised and relevant management implications are highlighted.

## **Literature Review**

The next section presents an overview from an international perspective and background information on the South African health care environment. Thereafter the construct of quality as conceptualised in the service literature and the measurement thereof are presented. Reliability and assurance are the two dimensions of service quality that are analysed for the purposes of this paper and relevant international and local health care literature is discussed accordingly.

## **Health Care Management in Developing Countries**

The literature suggests that health care provision in developing countries across the world face similar challenges in terms of cost to quality ratios and has an impact on the perceived quality of services rendered to patients (Ramani, 2004:208; Mostafa, 2005:516). Patients' expectations and priorities with regard to health care vary among countries and are highly related to cultural background and the local health care system (Salomon, Gasquet, Mounir & Ravaud, 1999:509).

South Africa, as a developing country with a heterogeneous population consisting of several cultural groups has faced particular transformation challenges characterised by rapid changes to achieve the goal of providing equitable access to health services to the majority of the population, since the end of apartheid in 1994. Despite South-Africa's attempt to transform health care, the public health care system is still under-resourced and over-utilised. Aids and other poverty-related diseases, such as tuberculosis and cholera, are placing a tremendous strain on the country's health care system. The shortage of staff, basic equipment and medication, basic fundamentals (water, telephone access and reliable electricity) and long patient waiting times are often reported as obstacles in providing quality health care in South-Africa (Mahomed & Bachmann, 1998:123).

Ovretveit (2004:370) advocates the improvement of health care quality in the developing countries for the following reasons: increasing patient dissatisfaction with higher costs (mainly private hospitals), low quality in public health care services, raising service quality in order to possibly increase income of health workers, the necessity to increase the efficiency and effectiveness of health care management and adhering to basic humanitarian principles. It is thus evident, that acceptable health care service delivery directly influences patients' satisfaction levels and is discussed next.

## **Service Quality and Satisfaction in Health Care**

The state is the primary provider of health services in developing countries and it stands to logic that the patient of a government-controlled hospital is the primary client. Consequently, the evaluation of those services provided by state hospitals and recommendations made in terms thereof, would enable managers and policy makers of those institutions to adequately provide the services in terms of their customers' expectations, bearing in mind the difficult balance between cost and quality in health care provision in developing countries (Ramani, 2004:212). Much has been written about the effects of service quality and satisfaction on health care delivery systems and the importance of the patient's perspective in assessing the quality of health care is often emphasized (Andaleeb, 2001:1364; Mostafa, 2005:517; Ramani, 2004:208). Grönroos (1990:97) distinguished between functional and technical quality. Technical quality in health care is the accuracy of diagnosis and procedures and functional quality refers to the manner of delivery of health care. Sohail (2003:198) is of the opinion that service quality is primarily shaped by functional quality, because patients often find it difficult to assess the technical quality.

Several studies in the services sector have looked at relationship between service quality and customer satisfaction (Parasuraman, Zeithaml & Berry, 1994; Cronin & Taylor, 1992; Johnson, 1995). Parasuraman, Zeithaml and Berry, (1988:16) are of the opinion that perceived service quality is the overall evaluation of a service over a period of time, while satisfaction is a transaction specific evaluation and conclude that perceived service quality is the result of incidents of satisfaction over time. Agreement can be found in the literature, that satisfaction refers to the outcome of individual service transactions and the overall service transactions, whereas service quality has a

broader meaning and refers to the overall impression of the acceptability of the organisations and its services (Johnson, 1995:56). Zineldin (2006:61) remarks that service quality and the closely related customer satisfaction constructs are of vital concern for health care organisations. The responsiveness towards patients and the continuous improvement of healthcare services and doctor-patients relationship are shaping patient's satisfaction.

## **Measuring Service Quality**

The constant funding crisis in the public health care industry has generated considerable interest in measuring quality as a tool for allocating scarce resources (Raghavan-Gilbert, Phillips & Gilbert, 1998:799). The inherent features of intangibility, co production, and simultaneity of production and consumption of services make service quality measurement inherently difficult (Grönroos, 1990:88; Parasuraman et al., 1985:42). Service quality is a concept that has aroused considerable interest and debate in the research literature, because of the difficulties in both defining it and measuring it with no overall consensus emerging on either (Parasuraman et al., 1985:43). There exist significant differences between government and private health care providers across the globe (Jabnoun & Chaker, 2003:293), even more so especially when taking the developmental status of countries into consideration. The level of aspiration in terms of service delivery, especially, becomes more problematic and political. It is therefore important to consider a wide spectrum of literature, while at the same time remaining focused on the core issues of measuring service quality in health care and achieving this through a universally accepted and standardised measuring instrument of service quality.

The most popular model of service quality is SERVQUAL, a set of 22 structured and paired questions designed to assess customers' expectations of service provision and the customers' perceptions of what was actually delivered. This instrument is structured in five dimensions, namely: tangibles, reliability, responsiveness, assurance, and empathy (Parasuraman et al., 1988:35-43).

This study does not include a detailed discussion of the scale reliability and validity of SERVQUAL for the sake of brevity, but readers can refer to Parasuraman et al. (1985, 1988, 1994). Although SERVQUAL has been criticised for its conceptualisation, generalisability and dimensionality (Babakus & Boller, 1992; Cronin & Taylor, 1992; Lam & Woo, 1997; Buttle, 1996), it is widely used by academics and practitioners to measure service quality (Wong, 2002; Youssef, Nel & Bovaird, 1996:22; Sewell, 1997; Jabnoun & Chaker, 2003). Numerous studies on service quality in the health care utilised and adopted the SERVQUAL instrument with diverse findings on the dimensions identified (Butler, Oswald & Turner, 1996:14; Sohail, 2003:201), as well as the relative importance of the dimensions of service quality (Wong, 2002:210; Youssef, Nel & Bovaird, 1996:18; Sewell, 1997:22; Jabnoun & Chaker, 2003:295).

Although all five dimensions were measured for the public hospital in this study, only the reliability and assurance dimensions are analysed for the purposes of this paper. Therefore, an overview of relevant literature on reliability and assurance is presented hereafter, with specific reference to health care.

## **Reliability and Assurance**

Performing a service consistently and accurately is central to services marketing excellence (Berry & Parasuraman, 1991). Over the past decade, studies examining how customers make service quality evaluations have concluded that service reliability is the most critical dimension (Berry & Parasuraman, 1991; Berry Zeithaml & Parasuraman; 1988; Youssef, Jones & Hunt, 1996; Sewell, 1997; Jabnoun & Chaker, 2003). Unlike pure goods, pure services are co-produced with customers and the production involves more human involvement, it adds greater inherent variability to the service production process. Thus the reliability construct should be treated as very important (Grönroos, 1990). Consistent, reliable service quality offers an important benefit to consumers inasmuch it limits their expectations by reducing the need for and occurrence of service recovery (Berry & Parasuraman, 1991).

The assurance dimension in SERVQUAL refers to the knowledge and courtesy of employees and their ability to inspire trust and confidence (Parasuraman et al., 1988:40). The inseparability of production and consumption and the co-production of services (Grönroos, 1990:101) imply that the people providing the service

play a significant role and therefore the perceptions of the assurance dimension will influence the overall perceived service quality. Health care is a high-involvement service and all contact between health practitioners and patients is important and complex (Bansal, 2004:186). This interpersonal aspect of health care is also noted by several other authors (Orava & Tuominen, 2002:680). The assurance perceived by patients can enhance this interpersonal relationship with health practitioners.

The findings on the assurance service quality in terms of importance and perceive performance varies from study to study. Private patients from hospitals in Malaysia had generally low expectations for the assurance dimensions, especially the item of ability to deal with problems. Their perceptions scores for the performance exceeded their expectations for all of the items (Sohail, 2003:202). In the current study it was found that of the five dimensions, responsiveness and assurance, patients have relatively high expectations and it is important to note that the personal safety was the most important item of the assurance dimension. Similar high expectations for the assurance dimension were measured in study for NHS hospitals in the West Midlands region, UK. It was found that the overall highest expectation was in the assurance dimension, namely, that patients would feel secure in receiving medical care, whereas two of the lowest expectations illustrate, that patients do not have a high expectation of individual attention or access to management (Youssef, Nel & Bovaird, 1996:17).

## **Purpose of the Research**

The purpose of this study is threefold namely:

- To determine if equality exists between in- and out-patients in terms of **expectations** for service reliability and assurance related variables in a government controlled hospital in South-Africa
- To determine if equality exists between in- and out-patients in terms of **perceived performance** for service reliability and assurance related variables in a government controlled hospital in South-Africa
- To determine whether the expectations of in- and out-patients on how hospital staff responds to their needs in terms of the reliability and assurance variables are met (satisfaction).

In-patients refer to patients admitted in the hospital and out-patients refer to patients who receive medical consultation and/or treatment without being admitted.

## **Research Methodology**

The research methodology that was followed for the investigation is consequently explained. The data analysis illustrates the levels of importance and perceived performance of two dimensions of service quality for in- and out-patients of the hospital namely, tangibility and assurance. The non-parametric test is used to determine whether significant differences exist between expectations and perceived performance for both in- and out-patients with regard to assurance and tangibility.

## **Hypothesis**

Three primary hypotheses are tested namely:

### *Hypothesis 1*

Ho: There are no significant differences between in- and out-patients with regard to reliability and assurance related expectations respectively.

Ha: There are significant differences between in- and out-patients with regard to reliability and assurance related expectations respectively.

If the Ho hypothesis is accepted then it can be assumed that equality exists amongst in- and out-patients and that all patients expect the same level of treatment with regards to reliability and assurance. On the other hand, if the Ho hypothesis is rejected then, it is assumed that in- and out-patients inequality exists in terms of their expectations.

### *Hypothesis 2*

Ho: There exist no significant differences between in- and out-patients with regard to the perceived performance of the hospital in terms of reliability and service assurance.

Ha: There exist significant differences between in- and out-patients with regard to the perceived performance of the hospital in terms of reliability and service assurance.

#### *Hypotheses 3*

Ho: There exist no significant differences between in- and out-patients' satisfaction with regard to the service reliability and assurance variables.

Ha: There exist significant differences between in- and out-patients' satisfaction with regard to the service reliability and assurance variables.

If the Ho hypothesis is accepted then it implies that the expectations of patients are met, leading to a feeling of satisfaction. On the other hand, if the Ho hypothesis is rejected, then it is assumed that patients expectations are not met which may lead to a feeling of dissatisfaction.

The null hypothesis is tested at a 0.05 significance level.

## **The Sample Framework and Data Collection**

A service satisfaction survey was conducted amongst patients treated at a provincial hospital in Gauteng, South-Africa. The attitudes of the patients were tested regarding certain pre-identified service quality aspects related to health care. A total of 583 in- and out-patients were personally interviewed during the research. Although an attempt was made to select the patients randomly it was not always possible due to patients that were not able and/or willing to complete the questionnaires. In such cases substitutes were selected to overcome the problem of no responses.

## **The Measuring Instrument**

The measuring instrument was designed in such a manner as to enable the researchers to test the formulated hypothesis based on the two formulated assumptions. Only the most important dimensions are reported on in this paper namely:

- The perceptions of patients regarding their expectations of the hospital's reliability and assurance and
- The perceptions of patients regarding the hospital's reliability and assurance performance.

The two dimensions represented a mirror-image of each other. A five -point Likert type scale was used to measure the levels of perceived performance of the hospitals as well as the expectation levels of the patients.

Respondents were asked to indicate their evaluation on the scales in which:

1 = Very important (Excellent)

2 = Important (Good)

3 = Not important nor unimportant (Neither good nor bad)

4 = Not important (Not good)

5 = Not important at all (Not good at all.)

A total of 14 items were used to measure the service reliability and the assurance of the hospital. An item analysis was carried out to test the validity and the reliability of the questionnaire and an overall Cronbach coefficient Alpha of 0.9369 and 0.9053 were measured for expectations and performance respectively.

## **Data Analysis**

Data was captured by a trained assistant and analysed using the SPSS version 12 statistical package. Data was analysed after grouping the list of 53 pre-identified service related variables into five service related groupings. The overall importance mean for reliability (1.67) and assurance (1.82) was significant higher than for Assurance, Empathy and Courtesy: Only the two most important dimensions were analysed for the purpose of this paper.

A non-parametric test, the Kruskal-Wallis test was done to test the null hypothesis and the alternative hypothesis of the three hypotheses.



## Findings

Tables 1 and 3 are indicated to illustrate the importance of the respective reliability and assurance constructs in order to compare them with the perceived performance.

The patients reported fairly high expectations on all the reliability variables (table 1). This clearly signals that all patients demand excellent reliability levels. The three most important issues (in terms of their expectations) for patients in general were:

- Availability of prescribed medicine (Mean: 1.41)
- Availability of doctors (Mean: 1.46)
- Proper medical treatment (Mean: 1.52)

TABLE 1: NON PARAMETRIC TEST FOR DIFFERENCES WITH REGARD TO EXPECTATIONS ON RELIABILITY

Reliability:	N	In-patients		Out-patients		Total patients		Sig*
		Mean	SD	Mean	SD	Mean	SD	
Availability of prescribed medicine	583	1.52	0.84	1.27	0.64	1.41 1	0.76	0.0001 Ho: rejected
Availability of nurses	583	1.7	0.84	1.38	0.69	1.55 4	0.79	0.0001 Ho: rejected
Availability of doctors	583	1.56	0.79	1.33	0.72	1.46 2	0.77	0.0001 Ho: rejected
Proper information on condition and treatment to patients	583	1.75	0.86	1.45	0.73	1.64 7	0.81	0.0001 Ho: rejected
Proper medical treatment	583	1.67	0.92	1.33	0.65	1.52 3	0.83	0.0001 Ho: rejected
Competence of medical staff (General trust in medical staff)	583	1.78	0.9	1.41	0.67	1.61 5	0.82	0.0001 Ho: rejected
Dependability of medical staff	583	1.73	0.86	1.47	0.82	1.62 6	0.85	0.0001 Ho: rejected
<b>Total Reliability</b>		<b>1.67</b>	<b>0.86</b>	<b>1.38</b>	<b>0.71</b>	<b>1.54</b>	<b>0.81</b>	

\*Significance on 0.95 level

SD= Standard deviation

Table 2 indicates that the variable that is overall perceived best in the reliability category is proper medical treatment by the hospital and was perceived better by out-patients. Significant differences between in- and out-patients' perceptions are measured. This variable is also rated as the most important variable by out-patients in this category the availability of doctors is overall rated second in terms of perceived performance. No significant differences between in- and out-patients are measured. The third best perceived variable is the dependability on the medical staff with Out-patients perceiving it better. However no significant differences are measured. The variable that is overall perceived in the last position is the availability of prescribed medicine with out-patients having a more negative perception. However no significant differences are measured between the two groups. Interesting to note is that this variable is rated most important by the patients in general.

TABLE 2: NON PARAMETRIC TEST FOR DIFFERENCES WITH REGARD TO PERCEIVED PERFORMANCE OF THE HOSPITAL ON RELIABILITY

Reliability:	N	In-patients		Out-patients		Total patients		Sig*
		Mean	SD	Mean	SD	Mean	SD	
Availability of prescribed medicine	583	2.22	1.47	2.34	1.31	2.28 7	1.4	0.53 Ho: accepted
Availability of nurses	583	2.3	1.25	2.11	1.13	2.21 6	1.2	0.08 Ho: accepted
Availability of doctors	583	2.01	1	2.17	1.27	2.08 2	1.14	0.53 Ho: accepted
Proper information on condition and treatment to patients	583	2.14	1.02	2.07	1.17	2.11 4	1.09	0.8 Ho: accepted
Proper medical treatment	583	1.99	0.78	1.92	1.1	1.96 1	0.94	0.002 Ho: rejected
Competence of medical staff (General trust in medical staff)	583	2.26	1.57	1.98	1.07	2.14 5	1.37	0.002 Ho: rejected
Dependability on medical staff	583	2.12	0.99	2.08	1.01	2.1 3	1.1	0.41 Ho: accepted
<b>Total Reliability</b>	<b>583</b>	<b>2.15</b>	<b>1.19</b>	<b>2.11</b>	<b>1.15</b>	<b>2.13</b>	<b>1.176</b>	

\*Significance on 0.95 level

SD= Standard deviation

## Assurance

Table 3 indicates that the patients reported fairly high expectations on the majority of the assurance variables, The findings are consistent with those of Youssef, Nel and Bovaird (1996), while Sohail (2003:202) reported generally low expectations for the assurance dimensions for private hospital patients in Malaysia. This suggests that all patients demand excellent assurance related service levels. The three most important issues (in terms of their expectations) for patients in general are:

- Personal safety (Mean: 1.59)
- Friendliness and courtesy of staff (Mean: 1.64)
- Communication at an understandable level (Mean: 1.65)

TABLE 3: NON PARAMETRIC TEST FOR DIFFERENCES WITH REGARD TO EXPECTATIONS ON ASSURANCE

Assurance:	N	In-patients		Out-patients		Total patients		Sig
		Mean	SD	Mean	SD	Mean	SD	
Treatment with dignity and respect by staff	583	1.74	0.92	1.15	0.87	1.664	0.9	0.007 Ho: rejected
Friendliness and courtesy of staff	583	1.67	0.75	1.16	0.88	1.642	0.81	0.016 Ho: rejected
Confidentiality of treatment	583	1.9	1.01	1.11	0.74	1.695	0.92	0.000 Ho: rejected
Communication in a language that I can understand	583	1.83	1.03	1.14	0.89	1.664	0.99	0.0001 Ho: rejected
Communication at a level that I can understand	583	1.78	0.98	1.11	0.79	1.653	0.91	0.0001 Ho: rejected
Personal safety	583	1.7	0.85	1.12	0.75	1.591	0.81	0.0001 Ho: rejected
Safety of facilities	583	1.8	0.92	1.13	0.76	1.664	0.87	0.0001 Ho: rejected
Safety of personal belongings	583	1.72	0.93	1.17	0.92	1.653	0.93	0.008 Ho: rejected
<b>Total Assurance:</b>	<b>585</b>	<b>1.77</b>	<b>0.93</b>	<b>1.51</b>	<b>0.83</b>	<b>1.65</b>	<b>0.89</b>	

\*Significance on 0.95 level

SD= Standard deviation

In table 4 it can be seen that the variable that is overall perceived best in the assurance category is communication at an understandable level and was perceived better by out-patients. No significant differences between in- and out-patients' perceptions are measured. This variable is overall rated as the third most important variable in this category.

Communication in an understandable language is overall rated second in terms of perceived performance. Significant differences between in- and out-patients are measured with out-patients perceiving it significantly better compared to in-patients. The third best perceived variable is the personal safety of patients while no significant differences are measured between the two groups. This variable was overall rated as the most important variable in the assurance category. The variable that is overall perceived in last position is the safety issues of the facilities with in-patients that have a significantly more negative perception. Interesting to note is that this variable is rated fourth most important issue by the patients in general.

TABLE 4: NON PARAMETRIC TEST FOR DIFFERENCES WITH REGARD TO PERCEIVED PERFORMANCE OF THE HOSPITAL ON ASSURANCE

Assurance:	N	In-patients		Out-patients		Total		Sig*
		Mean	SD	Mean	SD	Mean	SD	
Treatment with dignity and respect by staff	583	2.42	1.62	2.03	1.07	2.24 6	2.24	0.0009 Ho: rejected
Friendliness and courtesy of staff	583	2.28	1.1	2.11	1.1	2.2 5	2.20	0.03 Ho: rejected
Confidentiality of treatment	583	2.11	0.98	2.08	2.77	2.09 4	2.09	0.0008 Ho: rejected
Communication in a language that I can understand	583	2.0	1.09	1.86	1.18	1.94 2	1.94	0.03 Ho: rejected
Communication at a level that I can understand	583	1.94	0.99	1.88	0.9	1.91 1	1.91	0.74 Ho: accepted
Personal safety	583	2.07	1.03	2.06	1.17	2.06 3	2.06	0.32 Ho: accepted
Safety of facilities	583	2.46	1.2	2.08	1.04	2.29 8	2.29	0.0001 Ho: rejected
Safety of personal belongings	583	2.32	1.48	2.22	1.27	2.27 7	2.27	0.88 Ho: accepted
<b>Total Assurance:</b>	<b>583</b>	<b>2.2</b>	<b>1.22</b>	<b>2.04</b>	<b>1.37</b>	<b>2.13</b>	<b>1.32</b>	

\*Significance on 0.95 level

SD= Standard deviation

## Satisfaction

A non-parametric test procedure is used to compare the means of the assurance expectations variables with the actual performance of the assurance variables as experienced by the sample as a whole (this was also done for the reliability related variables). The test computes the differences between the mean values of two variables for each case and tests whether the average differs significantly from 0. This test could be used as the observations for each variable pair was made under the same conditions. The aim was to determine whether performance on both assurance and reliability matches the expectations of patients or not.

Table 5 indicates that significant differences exist between expectations and perceived performance for both in- and out-patients on all reliability variables. This is an indication that expectations have not been met. The overall smallest deviation between expectations and perceived performance is measured in terms of proper medical treatment where Out-patients are less satisfied with the particular service. This variable is overall rated third in terms of importance. The second smallest deviation between expectations and perceived performance is measured in terms of dependability of medical staff. However this variable is overall indicated as relatively unimportant. The biggest overall deviation between expectations and perceived performance is measured in terms of availability of prescribed medicine. This variable was prioritised in terms of importance.

Table 6 indicates that significant differences between expectations and perceived performance exist for both in- and out-patients on all assurance variables. This is an indication that expectations have not been met in terms of any of the variables. The overall smallest deviation between expectations and perceived performance is measured in terms of communication at a level that can be understood. The second smallest deviation measured is communication in a language that can be understood per explanation of hospital procedure. Both these variables are rated fairly high in terms of importance.

TABLE 5: TEST FOR SIGNIFICANT DIFFERENCES BETWEEN EXPECTATIONS AND PERCEIVED PERFORMANCE OF RELIABILITY

Reliability:	Inpatients				Out-patients				Total patients		
	Em	Pm	Gap	Sig	Em	Pm	Gap	Sig	Em	Pm	Gap
Availability of prescribed medicine	1.52	2.22	-0.7 7	0.0001	1.27	2.34	-0.69 4	0.0001	1.41	2.28	-0.87 7
Availability of nurses	1.70	2.3	-0.61 6	0.0001	1.38	2.11	-1.07 7	0.0001	1.55	2.21	-0.66 6
Availability of doctors	1.56	2.01	-0.45 4	0.0001	1.33	2.17	-0.72 5	0.0001	1.46	2.08	-0.62 5
Proper information on condition and treatment to patients	1.75	2.14	-0.39 2	0.0001	1.45	2.07	-0.84 6	0.0001	1.61	2.11	-0.50 3
Proper medical treatment	1.67	1.99	-0.32 1	0.0001	1.33	1.92	-0.62 3	0.0001	1.52	1.96	-0.44 1
Competence of medical staff (General trust in medical staff)	1.78	2.26	-0.48 5	0.0001	1.41	1.98	-0.59 2	0.0001	1.61	2.14	-0.52 4
Dependability of medical staff	1.73	2.12	-0.4 3	0.0001	1.47	2.08	-0.57 1	0.0001	1.61	2.1	-0.49 2
<b>Total Reliability:</b>	<b>1.67</b>	<b>2.15</b>	<b>-0.48</b>		<b>1.38</b>	<b>2.11</b>	<b>-0.73</b>		<b>1.54</b>	<b>2.13</b>	<b>-0.59</b>

*Em = Expectations mean Pm = Perceived performance mean  
Significant on 0.95 level*

Finally, a regression analysis was performed to determine which variables contribute significantly to the overall satisfaction with the hospital. With regard to in patients, the following variables contribute significantly with the overall satisfaction of the hospital.

- Availability of doctors
- Reasonable waiting time to receive medicine and
- Availability of prescribed medicine
- Treatment with dignity and respect
- Communication at a level that can be understood

TABLE 6: TEST FOR SIGNIFICANT DIFFERENCES BETWEEN EXPECTATIONS AND PERCEIVED PERFORMANCE OF ASSURANCE

Assurance :	In-patients				Out-patients				Total patients		
	Em	Pm	Gap	Sig	Em	Pm	Gap	Sig	Em	Pm	Gap
Treatment with dignity and respect by staff	1.74	2.42	-0.68 8	0.0001	1.57	2.03	-0.45 3	0.0001	1.66	2.24	-0.58 6
Friendliness and courtesy of staff	1.67	2.28	-0.61 6	0.0001	1.59	2.11	-0.51 4	0.0001	1.64	2.2	-0.56 5
Confidentiality of treatment	1.9	2.11	-0.21 3	0.0017	1.45	2.08	-0.62 7	0.0001	1.69	2.09	-0.40 3
Communication in a language that I can understand	1.83	2	-0.17 2	0.03	1.46	1.86	-0.41 2	0.0001	1.66	1.94	-0.28 2
Communication at a level that I can understand	1.78	1.94	-0.16 1	0.02	1.5	1.88	-0.38 1	0.0001	1.65	1.91	-0.26 1
Personal safety	1.7	2.07	-0.37 4	0.0001	1.45	2.06	-0.61 6	0.0001	1.59	2.06	-0.48 4
Safety of facilities	1.8	2.46	-0.66 7	0.0001	1.5	2.08	-0.59 5	0.0001	1.66	2.29	-0.63 8
Safety of personal belongings	1.72	2.32	-0.6 5	0.0001	1.57	2.22	-0.65 8	0.0001	1.65	2.27	-0.62 7
<b>Total Assurance:</b>	<b>1.77</b>	<b>2.2</b>	<b>-0.43</b>		<b>1.51</b>	<b>2.04</b>	<b>-0.53</b>		<b>1.65</b>	<b>2.13</b>	<b>-0.48</b>

*Em = Expectations mean Pm = Perceived performance mean  
Significant on 0.95 level*

## Conclusion and Management Implications

The study proved that the perceived performance of the hospital are not meeting or exceeding the expectations of the patients. Consequently, when applying the gap model, patients experience a sense of dissatisfaction with regard to the services rendered. Regardless of this finding, it is important to take measures towards improving the health care services provided by the hospital under examination.

It was determined that amongst the six constructs that were measured, reliability constructs were pointed out as the most important. With regards to the reliability category, the availability of prescribed medicine is regarded as the most important variable, but is perceived worst in terms of performance amongst all the variables. In addition, the overall calculated gap is the biggest amongst all the variables within the category. Although the second most important variable, the availability of doctors, is also rated second in terms of perceived performance, the gap between the two is fairly high and proved to be insufficient. The literature states clearly that good relationships with medical staff should be prioritised in order to create a good healthcare environment. Although the gap between expectations and perceived performance is fairly small in terms of proper information on condition and treatment to patients, it is rated least important in the category.

Expectations have also not been met for any of the variables in the assurance category. Personal safety is regarded as most important variable overall in the assurance category. However, it is rated fourth in terms of

perceived performance. The safety of facilities and the safety of personal belongings are rated as third and fourth most important variables but are rated last and second last in terms of perceived performance the in this category.

Even though it appeared as if certain variables almost met the expectations, it seems as if they are applicable to relatively unimportant issues. From the findings it is clear that surrounded by a climate of dissatisfaction, the main concerns are medicine and medical staff related. Management should therefore respond immediately by putting measures in place to attend to issues like the availability of prescribed medicine and see to it that sufficient doctors are available to attend to the needs of the patients. Although this issue may be significantly influenced by external conditions like governmental funding, it should be subject to high levels of negotiations. The high prevalence of HIV and AIDS may have a decisive influence on this need and has been proved problematic over the last years.

In conclusion, the findings of this study clearly identifies important positive and negative perceptions regarding the health care services provided by the hospital under examination and substantiate the conclusion that it is imperative the hospital management take the necessary measures to improve the perceived performance of the hospital.

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# Japan's Health-Care Service Quality and the Death-Valley Strategy of Biotech Start-ups

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## Abstract

Japan has an aging population as a near future critical problem. One of start-up functions is more rapid commercialization of life science than large corporations. However, its innovation depends on the inefficiency as the fecundity and many deaths. In Japan, the number of biotech start-ups exceeded more than 300, mainly due to the national reform of the system of technology-transfer from universities. At the same time, the expansion of M&A activities of pharmaceutical corporations can increase the partnership opportunity with them. But so far, only more than ten biotech start-ups achieved the IPOs. Then, this paper will especially examine the survival strategy or approach of drug-discovery start-ups during the Death-valley as a negative cash flow period, from a viewpoint of real options analysis.

## Introduction

As study backgrounds, there are the production concept, biotech innovation, and start-up. Firstly for an analytic framework, this paper wishes to try a high-dimensional expansion of an input-output system concept, from the standard manufacturing or operations to the product development and further to the incubation. Secondly, the innovation of biotechnology seems to be useful for the quality of healthcare service to aging population:

$Q = f(a \text{ product/service for customer satisfaction, a system stably producing high quality output, an environmental infrastructure to promote a system evolution, and a luck for an opportunity increase of innovation})$ . Thirdly, a start-up seems a critical method of technology transfer to fulfill a vacancy between the medical schools as investment targets for basic researches by the government and the large pharmaceutical corporations concentrating major resources on the clinical development.

Even if a promising drug discovery is depending on a basic research, it needs a long term and huge cost of development. Then such a start-up is risky project, because its resources are limited. So how can an innovative drug-discovery start-up survive and overcome this critical death-valley, the negative CF (Cash Flow) period?

As main keyword definitions for objective re-evaluation of entrepreneurship instead of a cultural perspective, firstly a biotech start-up is defined as a decision making system about risk management, in transforming a research idea of life science into a company. Secondly death-valley is definable as a critical threshold period for affecting the success or failure of a radical innovation.

MOT (Management of Technology) is a framework for a guideline and system for reasonable decision making on the innovative and promising but risky developmental investment as the commercialization of results from basic research. In particular, even if operations management for manufacturing and service did traditionally have the static and incremental improvement measures for productivity as quality, cost and delivery time, it did not so for scales as risk and CF on innovative and radical investment under uncertainty. Therefore as MOT has an aspect as an investment of development projects or patents in transforming a technical idea into a new product or service, operations management and finance had always a necessity to be integrated at innovation. In this article, based on MOT which means production of a sort of service as development, we will examine a theoretical trial on integration between operations management and finance, and a methodological ROA (Real Options Analysis) meaning the application of concepts and tools of financial derivatives to real assets.

As research objectives, through seeking a more clearly decision-making guideline on reasonable tolerance to the negative NPV with an innovative project, we will examine the method that can make a drug-discovery start-up survive during an early critical period and the financial valuation technique to be effective for promotion of the risky but innovative project.

## Trial for General Theory of Operations Management including Innovation and Service

As precede main studies, Sipper (1997) on operations management as supply-chain management, Kenny (1986) for biotechnology as emerging industry with academic-private cooperation, and Mun (2003) on Real Options Analysis are useful and representative. But, a connection between operations management and finance seem to be necessary for production of the innovative idea, service, or company. Especially, for survival of start-up as a technology transfer mechanism during death-valley period, the valuation of patent or start-up firm is considered to be possible by using ROA. Then, first of all, theoretical scheme will be examined for new combination of existing elements.

In exploring such approach, this paper examines a theoretical trial of the integration between operations management and finance in the development of a health-care service product, through the application of method of ROA (Kulatilaka, 1988) as a conceptual tool for applying the financial derivatives (Black, 1973, 1976; Merton, 1973; Ross, 2003; Hull, 2006) into the real assets. The research presented in the following section, aimed to gain insights to guide decision-making about reasonable tolerance levels to a negative net present value (NPV) in an innovation project of case study. The method used promotes the survival of a drug discovery start-up during an early critical period, and the financial valuation technique (Rubinstein 1976; Margrabe, 1978; Copeland, 1982; McDonald, 1986; Teisberg, 1994) deemed as effective for the promotion of a risky, but innovative project.

### Input-Output Mode (Phase Transition)

When physically transforming input into output, phase transition is possible within a physical energy frontier of 3 phases of Atom, Bit, and Life. In addition, the added value of physical transformation is measured with a common standard of CF at both sides of input and output (see Fig.1). The output/input ratio in specific time horizon is less than 1 in the case of energy, but must be equal or more than 1 ( $NPV \geq 1$ ) in CF, for survival or growth. But there still remains a problem how to value a long term of high risk but high return project in which NPV is a minus value in the short term, but can become a plus value finally.

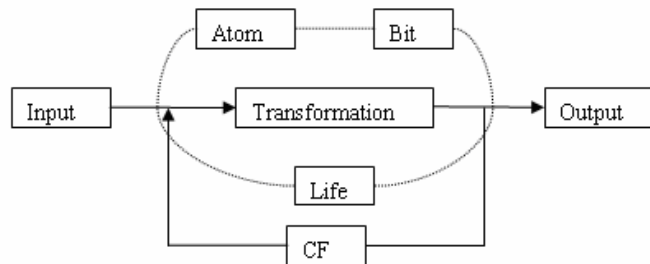


FIG.1: INPUT-OUTPUT MODEL (PHASE TRANSITION)

### Type of Input-Output System

As each typical pattern of Atom, Bit, Life, or CF, there can be indicated; the steady-state operations based on a manufacturing function transforming materials into products as Atom, the entrepreneurial added value breakthrough based on an imagination function transforming resources into intangible service with sensitivity as Life, the commercial innovation based on a business model transforming an innovative but conceptual idea into a technically feasible information as Bit, and the investment decision maximizing a positive NPV through transforming CF to CF. Even if it is assumed that the manufacturing is included in the service due to finally appealing to the sensitivity of customers, the decision making to control the investment risk in innovation becomes necessary for reasonable productivity improvement within a physical energy frontier.

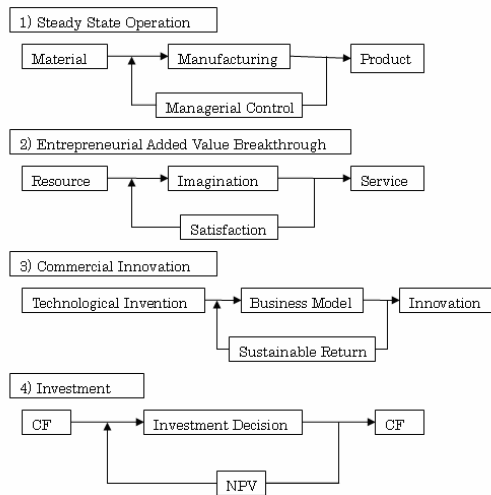


FIG.2: TYPES OF INPUT-OUTPUT SYSTEM

**Change Level of Transformation**

As each type of productivity improvement in transformation of an input-output system, according to change level, there is, at first, the incremental improvement in an existing transformation system as production system converting materials into a product or service, secondary, the product development transforming an idea into a new product as a radical model change of output, and thirdly, the founding or incubation for transforming an idea into a new firm as innovation of system in itself.

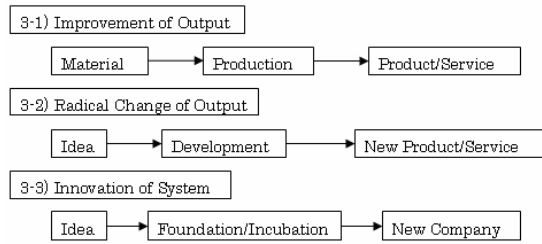


FIG.3: CHANGE LEVEL OF TRANSFORMATION

**Drug Development Partnership**

As for the drug development to be connected directly with health care service, it becoming the tendency that development is done as the open innovation among some organizations rather than by only one company. For example, in the U.S.A., about 50% of basic research budget are invested into medical schools. Otherwise, large pharmaceutical corporations are seeking more R&D money by M&A and concentrating the resources on later stage of the process as clinical development. The development situations become resemble even in Japan. Then, in this situation, because a blank stage occurs between the basic researches and the later stage of drug development, even for a meaning to mediate such a gap, the application development by biotech start-up including drug discovery becomes inevitable to promote commercial technology transfer.

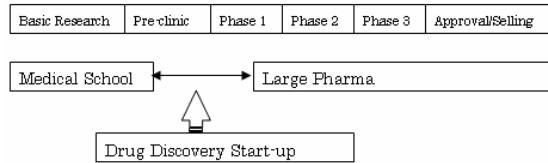


FIG.4: DRUG DEVELOPMENT

## Japan’s Population Aging and Quality Sustaining of Healthy Care Service

### Population Dynamics

From Japan’s population aging, men’s average life span is 78.32 years old and women’s is 85.23 years old, and a distribution ratio of both genders’ equal and more than 65 years old is 18.5%, and its counterpart of equal and less than 14 years old is 14.2% in 2002 (Yano, 2002). Hereafter, even if the second baby boomer period faced the peak, the following problems are still forecasted as the population’s aging behind prolongation of an average life span, the declining birthrate by women’s society involvement, and the decrease of the whole population. In particular, the aging of population suggests future importance of healthcare industry as a service.

### Healthcare Industry as Service

To understand the weight of healthcare industry, from a change of the distribution ratio of work force by industry, the distribution ratio of the first industry (the agriculture, forestry, and marine products industries) in the country suddenly fell after 1955. The second industry (the manufacturing, construction, and mining industries) radically raised the ratio since 1955 to 1970, but afterwards has continued the stable period. The third industry including service (the other industry) has raised the ratio constantly after 1949. As a result, as of 2000, each distribution ratio becomes the first industry 5.1%, the second industry 30.7% and the third industry 64.2% (Yano, 2002).

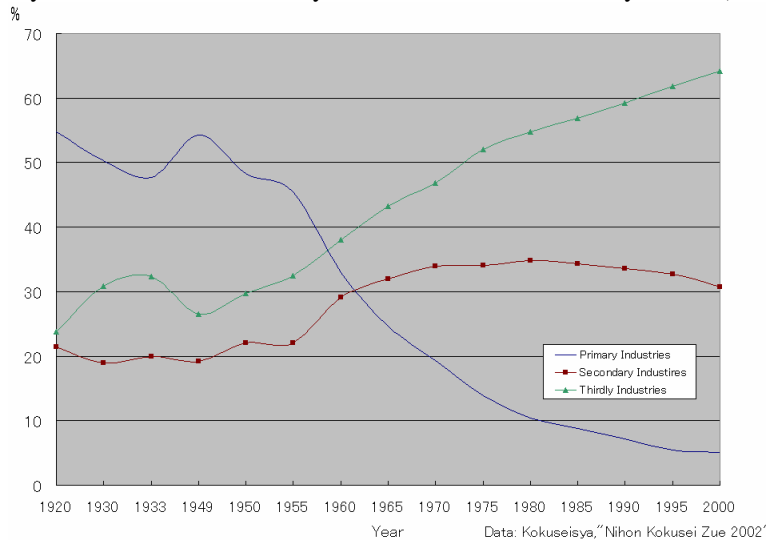


FIG.5: TREND OF JAPAN’S EMPLOYEE RATIO BY INDUSTRY

The service industry has deep relationship with the third industry. When looking at the distribution ratio by industry of 43,786,000 work force of the third industry in 2001, the three main sub-industries are the service 40.3%, the retail, wholesale, and restaurant business 40.2% and the traffic and communication business 8.6% respectively (Yano, 2002).

By the business area distribution ratio of 12,990,000 workers in 2001, main 5 categories are the health care 24.2%, the education 17.1%, the professional service 14.1%, the cleaning and hair salon 9.5%, and the social insurance and welfare 9.4%. In this way, the healthcare has the possibility to grow up into a main industry, reflecting social needs, even in the service, of which weight of work force is increasing.

#### Drug Expenditure in the Healthcare

According to the average household expenses (331,199 JYN/Month) in 2002, the weight of health care expenditure is only 3.2%. However, by the trend of household expenses for 1980-2002, the health care that rose by 1.84 times in 2002 and is anticipated still increasing in the future attracts attention, in addition to the education rapidly rising by 2.19 times by 1992 and afterward being relatively stable, the housing rapidly arriving at a peak to 2.16 times in 1996, then making a sudden drop, and the traffic and communication at the top by 2.16 in 2002 and still of a rise tendency. Thus, a rise of health care is expected in the household expenses.

At a breakdown of medical cost of 30.2 Billion JYN in 2001, drug cost is only 10.8%, in addition to the outpatient treatment costs 42.4%, the hospitalization treatment cost 38.2%, and the dentistry treatment costs 8.6%. However, for a change of 1980-2001 of medical cost, the shift of drug cost rises to 19.93 times in 2001, while a change of each treatment costs of outpatient, hospitalization, and dentistry remains within a range of 2.39-2.03 times. In particular, the drug cost recently soars since 1990.

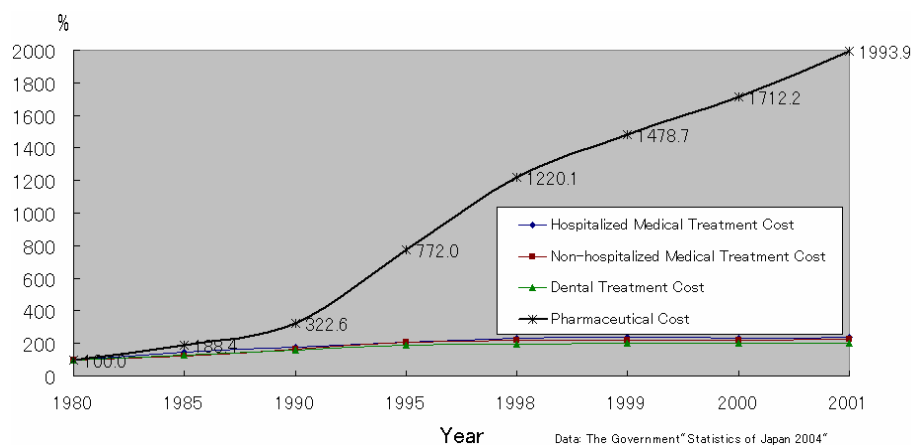


FIG.6: TREND OF MEDICAL COST

#### Drug Development Cost

As for the rise of drug cost under the review of standard prices for drugs, the relationship with the new drug development cost is considerable, apart from merely quantitative increase. Both numbers of the application of initial clinical trials during 1993-2001 and each year's application of clinical trials have the falling tendencies (Jiho, 2003). For example, the application of initial clinical trials fell from 160 cases in 1993 to 43 cases in 2001. The application of clinical trials likely fell from 1200 cases of 1993 into 434 cases in 2001 (Jiho, 2003). In particular, the hollowing out of domestic clinical trials is occurring, with the regular price re-calculation of new drugs in 1996, the official announcement for new GCP (Good Clinical Practice) at International Conference of Harmonization (ICH) in 1997, and the full enforcement of new GCP and the receiving expansion of foreign clinical data in 1998 (Jiho, 2003). Reflecting hollowing out of clinical trials of new drugs, the average R&D cost of domestic top ten sales firm rises from 26.3 Billion JYN in 1990 to 48.8 Billion JYN in 2000, and the ratio of R&D cost to sales of these rises from 10.8% in 1990 to 14.3% in 2000 similarly. This means that one of challenges is to restrict the rise of R&D cost.

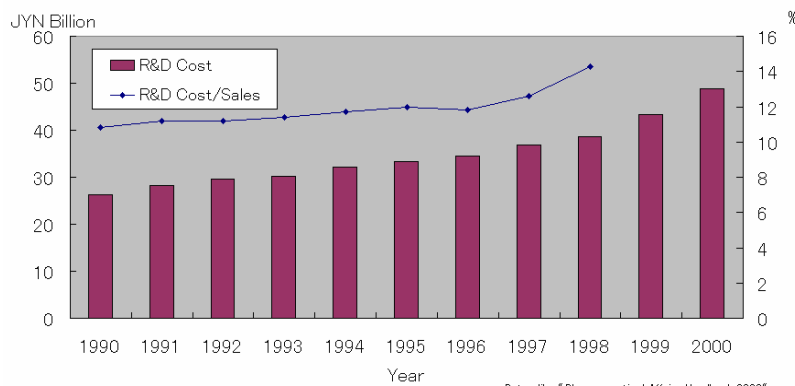


FIG. 7: AVERAGE R&D COST OF PHARMACEUTICAL COMPANIES (JAPAN'S TOP SALES)

Thus, in order to response to the coming aging, restrict the remarkable rise of drug development costs, and quickly transfer the technology from basic research of life science invested increasingly and considerably by the government into much higher quality level of drugs or medical technologies, it is more urgent matters to pay attentions to start-ups able to challenge a high risk R&D even to niche markets rather than large pharmaceutical firms only focusing on block buster drugs for big markets.

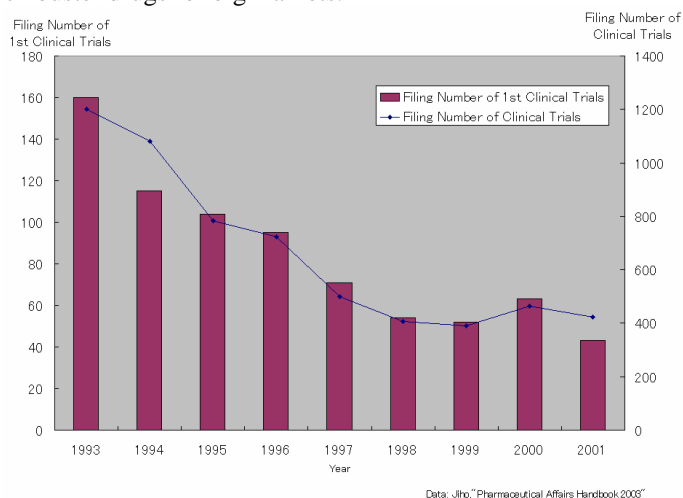


FIG. 8: TREND OF CLINICAL FILING

### A Pioneering Case of Academic Biotech Spin-off: AnGes MG

It is said that about 300 companies could achieved IPOs among about 3000 biotech start-up in the U.S.A., and further the number of companies being in the black seems limited to a few dozens of top sales rank. In Japan, the situation is such that only 14 companies achieved IPOs in the about 300 biotech start-ups. In this way, Japan's biotech start-ups are in the process of aiming at catch up to the U.S.A.

TABLE 1: IPO BIOTECH START-UPS

Company Name	Date of IPO	Capital Market	Date of Foundation	Business
MBL	Feb.2,1996	JASDAQ	Aug.1983	Clinical Diagnostics
Intec Web and Genome Informatics	Dec.19,2000	Mothers	Mar.1989	Bioinformatics
PPS	Feb.29,2001	Hercules	Jul.1985	DNA Extraction Device
AnGes MG	Sep.25,2002	Mothers	Dec.1999	Gene Therapy
Trans Genic Inc.	Dec.10,2002	Mothers	Apr.1998	Knockout Mouse
MediBic	Sep.18,2003	Mothers	Feb.2000	Bioinformatics
Medinet	Oct.9,2003	Mothers	Oct.1995	Medical Treatment Support Service
Onco Therapy Science	Dec.9,2003	Mothers	Apr.2001	Genetic Cancer Drug Discovery
Soiken	Dec.18,2003	Mothers	July,1994	Test of Functional Foods
DNA Chip Research	Mar.19,2004	Mothers	Apr.1999	DNA Chip
Sosei	Jul.29,2004	Mothers	Jun.1990	Drug Development
LTT Bio-Pharma	Nov.25,2004	Mothers	Apr.198	DDS
Takara Bio	Dec.7,2004	Mothers	May,1995	Gene Therapy
Effector Cell Institute,Inc	Mar.29,2005	Centrex	Jun.1999	Drug Discovery Support Device/Service

In such Japan's biotech public companies, at the summarized information of AnGes MG as a pioneer, employee number is R&D 50, development of research reagents 13, and other management sections 19, among 82 as number of employees (89 as of December 31, 2005). And the company value is about 61.2 Billion JYN.

Three cases of the clinical trial stage in HGF gene therapy projects have alliances with Daiichi Pharmaceutical of Daiichi-Sankyo group. In NFκB decoy oligo projects, two cases of pre-clinical trial stage have alliances with Seikagaku, and one of pre-clinical trial has partnership with Goodman. A HVJ-E vector project, as a chemical reagent on the market for gene analysis, has cooperation with Ishihara Sangyo. For all other projects, potential for partners are open.

TABLE 2: R&D PROJECTS

Project	Target	Development Status	Corporate Partner
HGF Gene Therapy	Periphery Vascular Disease(Japan)	Phase 3	Daichi Pharmaceutical (Daichi-Sankyo Group)
HGF Gene Therapy	Periphery Vascular Disease(USA)	Phase 2	Daichi Pharmaceutical (Daichi-Sankyo Group)
HGF Gene Therapy	Coronary Heart Disease(USA)	Phase 1	Daichi Pharmaceutical (Daichi-Sankyo Group)
HGF Gene Therapy	Parkinson's Disease	Pre-clinical	Openness
NFκ B DecoyOligo	Atopic Dermatitis	Pre-clinic	Openness
NFκ B DecoyOligo	Psoriasis	Pre-clinic	Openness
NFκ B DecoyOligo	Arthrosis Rheumatism	Pre-clinic	Seikagaku
NFκ B DecoyOligo	Osteoarthritis	Pre-clinic	Seikagaku
NFκ B DecoyOligo	Vaso-reconstruction Prevention	Pre-clinic	Goodman
HVJ-E Vector	Reagent for Genetic Analysis	On the Market	Ishihara Sangyou
HVJ-E Vector	DDS	Pre-clinic	Openness

According to the business model, as the input side, this company in-licenses the master patents as basic research results from Osaka University Medical School where a medical professor as founder and a science adviser belongs to, and pays royalty of the compensation. Otherwise, as the output side of process, the business model is specialized in application research, with seeking the upfront money, the fund for development assistance, the milestone money with development alliances through stages such as the pre-clinical trial, clinical trial, and sale approval, and after the sale of products, the royalty by out-license of the sale right.

As main financial indices for 2001-2005, the sales of 1300.6 Million JYN of 2001 rises to 2430.4 Million JYN in 2005, but otherwise, the net income of 142.6 Million JYN in 2001 falls in -1905.1 Million JYN in 2004. Then, this drug-discovery start-up faces typical death-valley, as negative cash flow period. But as the market evaluates the technological potential, the cash on hand of 1299.4 Million JYN of 2001 expands into 5179.1 Million JYN in 2004.

Consequently, if drug-discovery start-up faced the death-valley due to its innovative project, the method to appropriately evaluate a technology or a project becomes necessary for continuing a long-term R&D in spite of net loss.

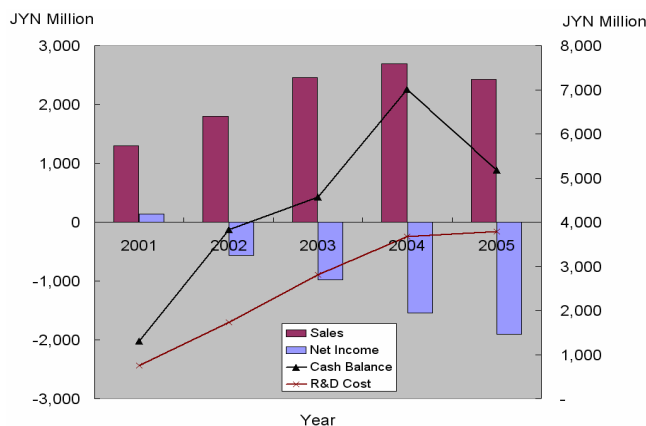


FIG.9: MAIN FINANCIAL INDICES OF ANGES MG

## Model Building for Overcoming the Death-Valley with ROA

As one of the techniques to cope with death-valley, ROA attracts attentions.

### DCF model

We start from building a hypothetical DCF model that assumed a start-up as an academic biotech spin-off facing death-valley.

It is supposed that the time horizon is five years, and sale forecasting is calculated by annually multiplying a ratio of 1.37 of 2001 sales/2002 sales by 2430.4 Million JYN of 2005 sales after this year of AnGes MG, for high volatility reflecting potential characteristic of ROA.

Referring Mun's DCF model and considering competition environment as state variables, input data include the competition intensification with rivals, the competition between company projects, and maturity in a market of own product (Mun 2003). Selling cost as commission is assumed as 0.25 of sales, and operating cost is as 0.30 of a gross margin. In order to continue a drug discovery project, it is supposed that an investment of 1100 Million JYN annually is needed, and depreciation 700 Million JYN, and payment interest 100 Million JYN are annually constant.

Based on a business model assumed here, a decision variable is given as the royalty for patents in-licensed from a university. In a contract agreement between both parties, the royalty rate is set with a range of minimum 5% and maximum 10% in the first two years, a range of the minimum 10% and maximum 15% in next two years, and a range of 10% and maximum 20% in the last year. Tentative values for a decision variable are provided as 7.5% in the first two years, 12.5% in next two years, and 15% in the last year.

As the account titles reflecting CF as return, tax shield of royalty processed as expense is considered for the intellectual assets formation to own company's balance sheet, in addition to depreciation. For calculation of NPV, the discount rate of CF as return is given 15%, and the discount rate of inside investment is given risk-free rate 5% as capital cost from an already decided policy of a constant investment of every year. As a result, in this business model, NPV becomes -306 Million JYN or rejected possibility of the investment decision in regardless of sales rise tendency. But since the volatility from logarithm approach to return CF is 9.59 % and relatively large, there is prospective room of a risk hedge effect depending on an optional design.



Input Parameters		Results	
Discount Rate (Cash Flow)	15.00%	Present Value (Cash Flow)	¥4,457
Discount Rate (Impl. Cost)	5.00%	Present Value (Impl. Cost)	¥4,762
Tax Rate	50.00%	Net Present Value	¥306

Year	2006	2007	2008	2009	2010
Revenue	¥3,330	¥4,562	¥5,009	¥5,500	¥6,039
Adjustment to Revenue	¥200	¥456	¥902	¥1,293	¥1,751
Cost of Revenue	¥833	¥1,141	¥1,252	¥1,375	¥1,510
Royalties Paid	¥250	¥342	¥626	¥688	¥906
Gross Profit	¥2,048	¥2,623	¥2,229	¥2,145	¥1,872
Operating Expenses	¥614	¥787	¥669	¥644	¥562
Depreciation Expense	¥700	¥700	¥700	¥700	¥700
Interest Expense	¥100	¥100	¥100	¥100	¥100
Income Before Taxes	¥634	¥1,036	¥760	¥702	¥510
Taxes	¥317	¥518	¥380	¥351	¥255
Income After Taxes	¥317	¥518	¥380	¥351	¥255
Non-Cash Expenses	¥825	¥871	¥1,013	¥1,044	¥1,153
Cash Flow	¥1,142	¥1,389	¥1,393	¥1,395	¥1,408
Implementation Cost	¥1,150	¥1,150	¥1,150	¥1,150	¥1,150

Adjustment to Revenue:	2006	2007	2008	2009	2010
Competitive Effects	1.00%	2.00%	3.00%	4.00%	5.00%
Cannibalization Effects	5.00%	8.00%	10.00%	12.00%	14.00%
Market Saturation	0.00%	0.00%	5.00%	7.50%	10.00%

Adjustment to Revenue:	2006	2007	2008	2009	2010
Royalty Rate	7.50%	7.50%	12.50%	12.50%	15.00%
Minimum Rate	5.00%	5.00%	10.00%	10.00%	10.00%
Maximum Rate	10.00%	10.00%	15.00%	15.00%	20.00%
Maximum Total Rate	50.00%		Minimum Total Rate		20.00%

Volatility Measure:					
Logarithmic Returns		0.1962	0.0029	0.0009	0.0097
Volatility	9.58%				

Modification from Mun (2003)

FIG. 10: DCF MODEL

### Two types of Real Options by Binomial Lattice Model

Here, by option value of strategic flexibility (Bower, 1970; Pindyke, 1991; Dixit, 1994; Trigeorgis, 2000), the possibility is examined to change a minus value of original NPV into a positive expanded NPV. The types of real options dealt are a sequential compound option and a chooser option, both based on binomial lattice model (Cox, 1976).

#### Sequential Compound Option

The option treated here is the compound option as option of options (Geske, 1979), consisted of second option derived from underlying assets, and first option derived from second option. As a unit period for a half year, it is a milestone form of options consisted of the first option with 3 years of maturity, and the second option with later two years of maturity (the fifth year of expiration from start).

Input Assumptions		Intermediate Calculations	
Present Value of Future Cash Flows (asset)	¥4,457	Time Step (dt)	0.50
Implementation Cost (cost)	¥4,762	Up Jump (up)	1.0702
Volatility (volatility)	9.58%	Down Jump (down)	0.9344
Maturity (maturity)	5	Risk-Neutral Probability (prob)	0.6695
Risk-Free Rate (rf)	5.00%		
Binomial Lattice Steps (steps)	10		
Second Phase Implementation Cost (cost 2)	¥238		
Time to Second Phase (time 2)	6		

Results	
Binomial Lattice Result(KENPV)	¥649

¥4,457	¥4,769	¥5,104	¥5,462	¥5,846	¥6,256	¥6,695	¥7,165	¥7,668	¥8,206	¥8,782	
	¥4,164	¥4,457	¥4,769	¥5,104	¥5,462	¥5,846	¥6,256	¥6,695	¥7,165	¥7,668	
		¥3,891	¥4,164	¥4,457	¥4,769	¥5,104	¥5,462	¥5,846	¥6,256	¥6,695	
<b>Underlying Asset Lattice</b>			¥3,836	¥3,891	¥4,164	¥4,457	¥4,769	¥5,104	¥5,462	¥5,846	
				¥3,398	¥3,636	¥3,891	¥4,164	¥4,457	¥4,769	¥5,104	
					¥3,175	¥3,398	¥3,636	¥3,891	¥4,164	¥4,457	
						¥2,967	¥3,175	¥3,398	¥3,636	¥3,891	
							¥2,772	¥2,967	¥3,175	¥3,398	
								¥2,590	¥2,772	¥2,967	
									¥2,420	¥2,590	
										¥2,262	
	¥838	¥1,023	¥1,236	¥1,479	¥1,752	¥2,054	¥2,386	¥2,747	¥3,138	¥3,561	¥4,020
		¥528	¥669	¥839	¥1,040	¥1,273	¥1,540	¥1,838	¥2,165	¥2,520	¥2,906
			¥282	¥376	¥495	¥646	¥831	¥1,054	¥1,316	¥1,611	¥1,933
<b>Equity Lattice</b>				¥115	¥162	¥229	¥320	¥443	¥606	¥818	¥1,083
					¥26	¥41	¥62	¥95	¥146	¥223	¥342
						¥0	¥0	¥0	¥0	¥0	¥0
							¥0	¥0	¥0	¥0	¥0
								¥0	¥0	¥0	¥0
									¥0	¥0	¥0
										¥0	¥0
	¥649	¥820	¥1,023	¥1,258	¥1,525	¥1,822	¥2,148				
		¥352	¥471	¥624	¥813	¥1,041	¥1,302				
			¥137	¥199	¥287	¥413	¥593				
<b>Valuation Lattice</b>				¥23	¥35	¥53	¥82				
					¥0	¥0	¥0				
						¥0	¥0				
							¥0				

Modification from Min (2003)

FIG. 11: SEQUENTIAL COMPOUND OPTION

The exercise price of the second option is the present value of a total investment amount of money of a DCF model to get final result of the project. And the exercise price of the first option is arbitrarily supposed as 5% of the exercise price of the second option. Then, at each last node of the second option, whether the difference of the exercise price of second option from the project value as underlying asset corresponding to each state is above or equal zero is the decision standard. In addition, it is a decisive factor of a payoff for each last node of the first option, whether a difference of the value of the second option corresponding to the node from the exercise price of the first option to get it by exercise is positive or not. Furthermore, the initial value of the first option is the payoff to choose bigger value between the holding value of the first option as the discounted expected value calculated backward from the value just after target and the return of immediately exercised time as the difference of the exercise price of the first option from the initial value of the responding second option. This is the expanded NPV by this sequential compound option.

For example, the second option value at the highest and last node is

$$\begin{aligned}
 C_{2u^{10}} &= \max \left[ u^{10}V_0 - X_2, 0 \right] \\
 &= \max \left[ 1.0702^{10} \times 4457 - 4762, 0 \right] \\
 &\approx 4020,
 \end{aligned} \tag{1}$$

Where volatility  $\sigma = 0.0959$  a unit period of the lattice model  $dt = 0.5$ , up step-size  $u = \exp(\sigma\sqrt{dt})$

$= \exp(0.0959\sqrt{0.5}) \approx 1.0702$ , an initial value of underlying asset  $V_0 = 4457$ , an exercise price of second option = present value of accumulated investment amount of money = 4762.

The payoff of second option at the second period from final and highest node, from comparing discounted expected value with exercised performance by hedge portfolio method, is

$$\begin{aligned}
 C_{2u^9} &= \max \left[ u^9 V_0 - X_2, \{ p C_{2u^0} + (1-p) C_{2u^9d} \} \right. \\
 &\quad \left. \exp(-r_f dt) \right] \\
 &= \max [8206 - 4762, (0.6695 \times 4020 \\
 &\quad + 0.3305 \times 2906) \times 0.9753] \\
 &\approx \max [3444, 3561] \\
 &= 3561,
 \end{aligned} \tag{2}$$

where down step-size  $d = 1/u = \exp(-\sigma\sqrt{dt}) \approx 0.9344$ , risk neutral probability  $p = \frac{\exp(r_f dt) - d}{u - d}$   
 $= \frac{\exp(0.05 \times 0.5) - 0.9344}{1.0702 - 0.9344} \approx 0.6695$ , and risk free rate  $r_f = 0.05$ .

From this result, the value of second option at initial node is

$$C_2 = 838. \tag{3}$$

Otherwise, the valuation of first option at final period and highest node is

$$\begin{aligned}
 C_{1u^6} &= \max [C_{2u^6} - X_1, 0] \\
 &= \max [2386 - 238, 0] \\
 &= 2148.
 \end{aligned} \tag{4}$$

The payoff of first option of initial node, from hedge portfolio method and the characteristic that underlying asset of first option equals second option, is

$$\begin{aligned}
 C_1 &= \max [C_2 - X_1, \{ p C_{1u} + (1-p) C_{1d} \} \exp(-r_f dt)] \\
 &= \max [838 - 238, (0.6695 \times 820 + 0.3305 \times 352) \\
 &\quad \times 0.9753] \\
 &\approx 649 \text{ (Million JYN)}.
 \end{aligned} \tag{5}$$

This  $C_1$  is responsible to the expanded net present value (ENTV) by such sequential compound option, because of reflection for exercise price  $X_1$  with newly enjoying first option in addition to the value of second option by investing in the exercise price  $X_2$  to project return as underlying asset.

Thus, for this sequential compound option, a milestone form of option is set with two periods. As a result, while being one point of estimate method, the expanded NPV reflecting the flexibility with an option could be changed into a plus value from a minus NPV of original project. However, although the exercise price of second option was supposed here as the present value of a total accumulated investment amount of money for the convenience of a calculation, its time value essentially should be changed with each node location.

#### **Chooser Option**

Next, it is tried to design the option to choose or chooser option as the scheme of combination of simple options as the expansion, contraction, and abandonment options (Myers, 1990), and including the case of non exercising options.

Comparing with previous sequential compound option, total periods of binomial lattice model were reduced from 10 to 5. Then a unit time was changed into  $dt = 1$ . As the result, some basic parameters became  $u = 1.1007$ ,  $d = 0.9085$ , and  $p = 0.7429$ . The change of underlying asset also became into each middle range value of the final and highest node from  $u^{10}V_0 = 8782$  to  $u^5V_0 = 7200$ , and of the final and lowest node from  $d^{10}V_0 = 2262$  to  $d^5V_0 = 2759$  respectively.

Firstly, at the expansion option as a component of the chooser option, expansion factor=1.38, exercise price=600, secondly, at the contraction option, contraction factor=0.88, exercise price = 2000, and finally at the abandonment option, exercise price = 5930. Among these simple options, expansion option is call option, and contraction and abandonment option are put options.

For ENPV of a two lattice model, after calculation of total return of cash flow through comparing each simple option's payoff at final nodes, the present value of total accumulated investment amount of money is subtracted.

The payoff of chooser option of binomial lattice model at final and highest node is

$$\begin{aligned}
 C_{u^5} &= \max[\text{Expansion Factor} \times u^5V_0 - \text{Expansion Cost}, \text{Contraction Factor} \times u^5V_0 \\
 &\quad + \text{Saving, Salvage}] \\
 &= \max[1.38 \times 7200 - 600, 0.88 \times 7200 + 2000, 5930] \\
 &= \max[9336, 8336, 5930] \\
 &= 9,336.
 \end{aligned}
 \tag{6}$$

And the payoff at second from final and highest node, including holding option, is

$$\begin{aligned}
C_{u^4} &= \max \left[ \text{Expansion Factor} \times u^4 V_0 - \text{Expansion Cost}, \right. \\
&\quad \left. \text{Contraction Factor} \times u^4 V_0 + \text{Saving}, \right. \\
&\quad \left. \text{Salvage}, \{ p C_{u^4 s} + (1-p) C_{u^4 d} \} \exp(-r_f dt) \right] \\
&= \max [1.38 \times 6541 - 600, 0.88 \times 6541 + 2000, 5930, \\
&\quad (0.7429 \times 9336 + 0.2571 \times 7601) \times \exp(-0.05 \times 1)] \\
&= \max [8426, 7756, 5930, 8456] \\
&= 8456
\end{aligned} \tag{7}$$

Similarly, the selection tree of each option is also showed. The decision tree of option selection locates each selection guideline as the expansion option for favorable conditions, the abandonment option from early time for adverse conditions, and the contraction option for middle range between the expansion and the abandonment options.

As a result, the initial option payoff as return cash flow not including investment cost equals 5955 Million JYN, the option value which subtracted the present value of underlying asset from the value equals 1498 Million JYN, and the expanded NPV which subtracted the present value of the accumulated investment 4762 Million JYN from the initial payoff becomes 1192 Million JYN.

Therefore, even in a chooser option reflecting flexibility, the expanded NPV changed into a plus value from the original negative NPV by one point estimation method after parameter setting including the policy of each option exercise responding to conditional variables.

However, both the sequential compound option and the chooser option here are based on one-point estimation method, still being necessary to inspect the more general-purpose or versatile propriety by simulation.

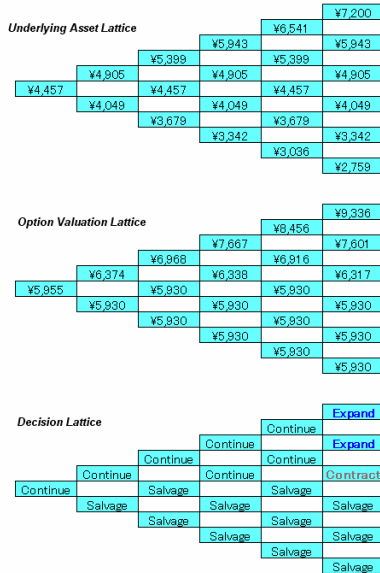
Assumptions	
Asset Value (¥)	¥4,457
Maturity (Years)	5.00
Risk-free Rate (%)	5.00%
Dividends (%)	0.00%
Volatility (%)	9.59%
Lattice Steps	5
Expansion Factor	1.38
Expansion Cost (¥)	¥600
Contraction Factor	0.880
Contraction Savings (¥)	¥2,000
Salvage Value (¥)	¥5,930

Intermediate Calculations	
Stepping-Time (dt)	1.0000
Up Step-Size (up)	1.1007
Down Step-Size (down)	0.9085
Risk-neutral probability (prob)	74.29%

Results	
Lattice Results	¥5,955
Option Value	¥1,498
Expanded Net Present Value	¥1,192



Modification from Mun (2003)  
 FIG. 12: CHOOSER OPTION

**Evaluation of Option Value by Simulation**

Continually, as a result of 100,000 trials of Monte Carlo simulation with Crystal Ball (Mun, 2003; Boyle, 1977), the volatility based on original DCF model became a lognormal distribution. The comparison of distributions among the NPV of a project without options, the ENPV of a project having a sequential compound option and the ENPV of a project to have a chooser option become a following figure 6.14. As a result, the distribution of NPV of a project without options had the average = -301.90 Million JYN, and about 75 per cent of the distribution was confined to the negative area. The distribution of ENPV of the sequential compound option had the average = 727.92 Million JYN. Further, the distribution of the ENPV of the chooser option had a much bigger average = 1,341.39 Million JYN. Fig.13 shows a lognormal distribution of the volatility simulated.

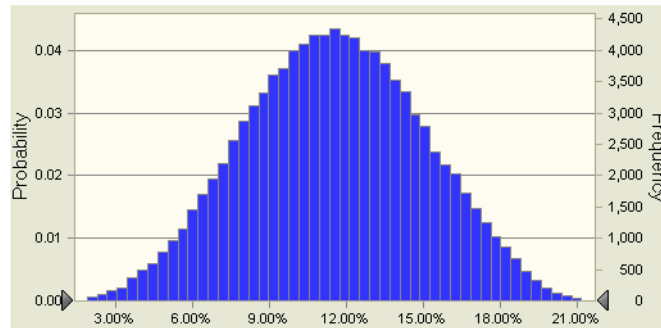


FIG. 13: VOLATILITY

The comparison of distributions among the NPV of a project without options, the expanded NPV of a project having a sequential compound option and the expanded NPV of a project to have a chooser option become a following figure as Fig.14.

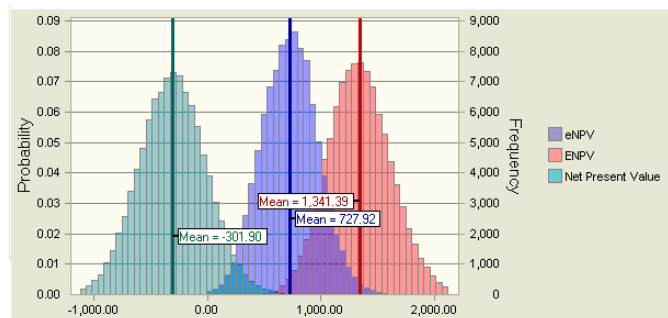


FIG. 14: OVERLAY CHART OF 3NPVs

As a result, the distribution of NPV of a project without options had the average = -301.90 Million JYN, and about 75% of the distribution was confined to the negative area. The distribution of ENPV of the sequential compound option had the average = 727.92 Million JYN. And the distribution of ENPV of the chooser option had much bigger an average= 1341.39 Million JYN.

In particular, for the comparison between both distributions of the NPV of a project without options and of the ENPV of a project with a chooser option, although major part of original NPV distribution belonged to a negative region, most part of ENPV distribution belonged to a positive region and reduced the standard deviation from 291.65 to 277.24.

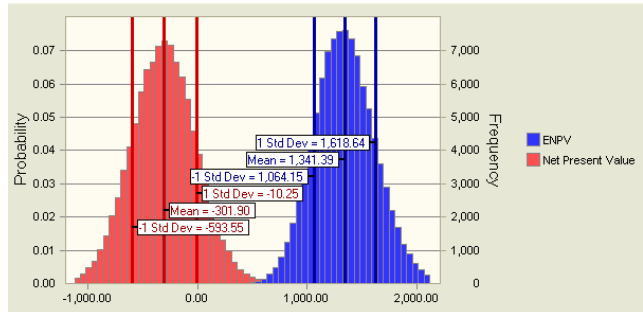


FIG. 15: OVERLAY CHART OF 2NPVs

In this way, by using ROA, even an innovative but risky project with a minus NPV has a potential to change the EVPV into a positive value and also to reduce the standard deviation as a risk. In other words, ROA makes possible an expansion of return while reducing a risk.

**Royalty Payment Decision of ENPV Maximization by Stochastic Optimization**

Next, simulation of stochastic optimization of royalty payment as the decision variable is showed, in order to maximize ENPV of a project having a chooser option in a range set as a contract condition, when biotech start-up pays royalty to universities.

Optimization is Complete							
Simulation	Maximize Objective ENPV:2 Mean	Requirement Net Present Value 150 <= Percentile (95)	Royalty 2006	Royalty 2007	Royalty 2008	Royalty 2009	Royalty 2010
1	1341.29	158.389	7.5000E-02	7.5000E-02	0.125000	0.125000	0.100000
3	1388.92	159.238	5.0000E-02	0.100000	0.100000	0.150000	0.100000
183	1389.65	159.316	5.0053E-02	0.100000	0.101065	0.148882	0.100000
Best: 210	1389.66	160.870	5.0373E-02	0.100000	0.101557	0.148071	0.100000

FIG. 16: ROYALTY SOLUTION

According to a result of simulation of stochastic optimization for 10 minutes, as a method to maximize the ENPV into 1912.88 Million JYN and make original NPV without an option more than 100 Million JYN in 95%, it was found to set the royalty of the first 2006 in 0.050141 and watch the result, then make 0.09930 of royalty in 2007, similarly 0.100147 in 2008, 0.149920 in 2009, and 0.10041 in 2010 respectively.

In addition, it is understood not to expect a solution of a big difference from this result in an objective function, even if there was a deviation from this solution, from a performance graph by a simulation of more than 121 trials. In other words, it is considered that an opportunity cost is small, because the improvement of a solution more than this is almost impossible.

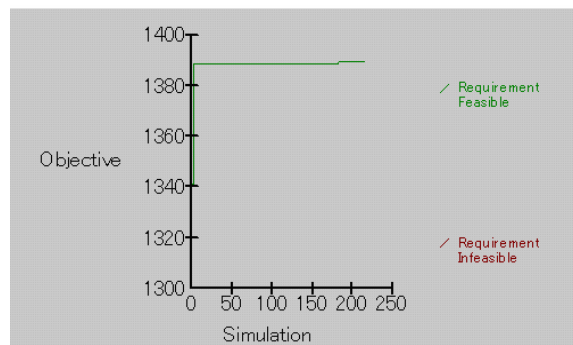


FIG. 17: PERFORMANCE OF STOCHASTIC OPTIMIZATION



## **Conclusion**

When our lives are based on LOHAS (Lifestyles of Health and Sustainability), the academic biotech start-up can become a strategic factor for technology transfer in a meaning to utilize the basic research results as the resource.

ROA can improve, within an extent, the NPV of a project or academic drug-discovery start-up that is innovative but risky then tends to face the death-valley as a negative cash flow period. There is also a case that ROA can simultaneously reduce a risk as volatility. Therefore, ROA has a potential to assist the radical innovation exceeds over the threshold at initial critical period as a death-valley.

As the future prospect, it will be more necessary to study the strategic application of game theory to competitive situations(Smit, 1993; Tirole, 1990), and search more deeply in the possibility that can scientifically solve the practical problems at Technology Licensing Office and Venture Capital (Lerner, 1994).

Thus it may be said that ROA is an important technique of decision making for the improvement of quality and productivity of Japan's health care service to the aging progress.

However, otherwise, there are some skeptical experts in using ROA for the reason that life science has too many assumptions and is changeable in the progress. For practitioners, ROA or Monte Carlo simulation may be considered to be separated from useful and simple technique. However, if the meaning of ROA and its software penetrates and the usage simplifies, the understanding and use may spread over.

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## **References**

Contact author for the list of references.

# Factors Influencing Quality of Healthcare in the Private Hospitals in Malaysia: from Patients Perspectives

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## Abstract

Many public and private hospitals are working to improve and expand health care quality efforts. The goal is to make these efforts can influence the quality of healthcare and be helpful to consumers making health care choices. This paper aims to identify and investigates the relationships among factors that influence the quality of health care in private hospitals. In this study, SERVQUAL model was used to measure the quality in the healthcare. Towards this goal, a sample consisting of 100 patients in private hospitals in Penang, Malaysia was obtained. The factors studied were Structure of Building, Professional Expertise, Nurse Caring, Billing Procedure, Image of the Hospital and Support Staff Skills. Results indicated that the impact of healthcare factors on professional expertise, nurse caring and support staff skills have strong impact to the quality of healthcare provided and have played an important role in service quality, from patients perspectives. The fact is that quality of healthcare is always in the heart of every patient, somehow or rather all these patients are looking forward to get the best service and understand the value of service quality. Key words: *Quality in Healthcare, Private Hospitals and Malaysia*

## Introduction

In many countries in this world the quality of life become the major issue to be discussed. Most of the government strives to increase the standard of living of the country's citizens and to improve the quality of life. One of the most important factors that contribute to this aim is the quality of healthcare in that country. The expression "quality" usually related or usually is defines in term of excellent product or service that fulfills or exceeds the expectations (Besterfield, 2004). Based to the definition from American Society for Quality (2004), quality in health care is defined as doing the right thing, at the right time, in the right way, for the right person, and having the best possible results. It is assumed that every health plan, doctor, hospital, and other provider gives high-quality care, however, this is not always so because quality varies, for many reasons. As a consequence to this, there are scientific ways to measure health care quality purposely to check on and improve the quality of care they provide.

Many public and private groups are working to improve and expand health care quality measures. The goal is to make these measures more reliable, uniform, and helpful to consumers making health care choices (Brannon & Feist, 2004). There are two main types of quality measures that can help you choose quality health care: consumer ratings and clinical performance measures. Consumer ratings or consumer satisfaction is focused on the information that looks at health care form the consumer's point of view. For example, do doctors in the plan communicate well? Do members get the health services they need? Clinical performance measures, sometimes also called "technical quality" measures, look at how well a health care organization prevents and treat illness.

Today, the ways people view health in also become the major part for healthcare providers to concern. It will lead them the best way to serve their service consumers or patients. Quality plays an important role in influencing the satisfaction of customer and affecting their loyalty. Many organizations are investing their money in order to fulfill their customers' need with undertaking the quality programs such as customer care programs and so on. It is important for one company to improve the quality of services and through these continuously improvement will give lots of benefits to the company. This improvement is an intangible value that will give big impact to the organizations.

According to Rahman (2001), the health care industry in Malaysia has begun to adopt many concepts from the manufacturing industry, especially in meeting customers' needs. So, the healthcare providers must be very concerned about quality healthcare and provide the best quality services. Due to rapid change in healthcare environment and the consciousness of health service consumers, healthcare quality becomes the major considerations of the healthcare provider. As a human being, people want and need anything that fulfills their satisfactions. It is essential for a provider to increase the level of quality in healthcare and it is the right thing to do. Understanding the key factors will lead to the best quality of healthcare and help the health care provider to success in this competitive world. The demand for healthcare continues at staggering rates as the world entering the globalization era. Consumers need more and want more to fulfill their satisfaction. Their satisfactions lead to their loyalty.

According to the 'Code of Ethics' of the Association of Private Hospitals in Malaysia (1993), private hospitals form a part of the service industry of the country and address in particular, the medical needs of the country. The main hospital customer is their patient. Although patients may not know anything about quality but patients could easily classified whether the services they obtained are excellent, average or poor. Sometimes, patients will doubt the efficiency of the services provided by the hospital and they will expect to deliver the best quality of treatment. A patient requires some politeness from the hospital staff, comfortable and welcoming environment, and the hospital procedure in treatment.

Quality has become a focus of competition among organization. Improving the health care quality becomes the mission of the health care providers and they are eager to improve quality of their hospitals. Continuous improvement is the key to gaining a competitive edge in today's market place. The patients have the right to receive the service excellent. According to Parasuraman et al, (1988), the customer's overall assessment of quality of a product based on perceptions of what is received and what is given. Therefore, service quality, customer satisfaction and value are three elements that is very important to service firm to be striving to provide to their customer (Caruana et al, 2000).

The aim of this study was to identify and understand the factors that influence the quality of health care and examine the relationships among factors in private hospitals in Malaysia. The study is hoping to contribute to the hospital committee to manage their staff, physician and all the services they have provided to produce the best health care quality. To achieve this aim, this paper is organized as follows: First, we briefly review the literature that outlines of factors that influence the quality of health care and service quality model. The subsequent sections provide details of research methodology and data analysis. This paper closes with discussion and concludes with hospital committee implication.

#### **Private Hospitals in Malaysia**

According to the Association of Private Hospitals in Malaysia (1993) there are several objectives of the hospital, which guide the members of the association. Objectives of the hospital are: - (a) To provide the best possible care, including accident and emergency care at affordable cost for the sick and injured at all times irrespective of race and religion. (b) To constant upgrade and improve methods for the care, cure, amelioration and prevention of diseases. (c) To further the practice of medicine by physicians consistent with the acceptable quality of patient cares. (d) To encourage research and teaching and assist in the advancement of scientific knowledge. (e) To foster relationship between hospitals and other health related organizations. (f) While it is accepted that profits is amongst the objectives of private hospital, they should not be the only consideration.

The private sector, health commercial sector is at similar level as in most Western European countries. Most of the registered doctor in Malaysia are trained and educated abroad. The equipment of the private hospitals and clinics is often luxurious and is matching Western standards (Market Watch Malaysia 2006-The Healthcare Sector). The following table shows the number of private hospital in Malaysia over the few last years.

TABLE I: THE NUMBER OF PRIVATE HOSPITAL IN MALAYSIA

Year	Number of Private Hospitals	Beds	Number of Registered Med. Personnel (Doctors and Dentists)
1980	50	1,171	Not Available
1985	133	3,666	Not Available
1995	197	7,192	11,358
1996	203	7,471	11,996
1997	219	8,963	16,113
1998	216	9,060	17,607
1999	225	9,498	17,412
2000	224	9,547	17,763
2001	224	9,949	18,371
2002	211	9,849	19,739
2003	219	10,405	20,609
2004	218	10,542	20,796

Source:Ministry of Health (*Market Watch Malaysia 2005 – The Healthcare Sector*)

Tan Sri Dato' Dr. Abu Bakar bin Suleiman (2001), President Malaysian Medical Council, urge all medical practitioners to adhere to the guidelines laid down in Duties of a Doctor - Good Medical Practice booklet, at all times. And there are the ten golden rules of good medical practice as a guide to the medical practitioners to meet the standard of care professionalism set out by the Malaysian Medical Council: (a) Practice with Kindness, Ethics and Honesty. (b) Upgrade Professional Knowledge and Clinical Skills. (c) Maintain good Patient Records. (d) Maintain good Communication with Patients and Relatives. (e) Maintain Doctor-Patient Confidentiality. (f) Allow Second Opinion and Referral to Colleagues. (g) Maintain good Working Relationship with Colleagues. (h) Be conscious of Cost of Healthcare. (i) Avoid Publicity, Self-promotion and Abuse of Position. (j) Be a Partner in promoting Global Health.

## Literature review

### Healthcare Quality Factors

#### (a) Structure of Building

According to Warner (2005), hospital design has gone through several upheavals over the decades, moving from the sterile institutions of the 1950s to, most recently, "patient-centered care." Designing building structures involves the consideration of wide range of factors. Patients and employees satisfaction are some of the factors to be considered while designing a hospital. Facility services integrate with and support the work of the hospital. Butcher and Madrid (1996), define the structure is one of many subsystems in the building and must co-exist with the subsystems for electrical power and lighting, plumbing, heating, vertical transportation and so on. While building is a structure enclosing a space and providing protection from elements; typically includes wall; roof and other components.

#### (b) Professional Expertise

A professional is a person who does an activity which in return they will receive payment. As a professional their profession usually requires some expertise. According to Wikipedia, the free encyclopedia behaving professionally would indicate that the person's actions remain in accordance with specific rules, written or unwritten, pertaining to behavior, dress, speech, etc. By extension, professional identifies somebody recognized for expertise or skill in a craft or activity. Expertise can be defined as properties of a person or of a system. As a person an expert is someone who has skill, knowledge and excellence in his or her particular field. It is also an important expression of the power derived from knowledge (Wikipedia). Therefore, as a professional expertise who serve the patients at the hospital they have a strong correlation to the quality of healthcare produced by the hospital. Professional expertise has direct and indirect relationship with patients which they will affect the patients' satisfaction through their quality of services.

*(c) Nurse Caring*

Nurse is a person who engaged in the practice of nursing. Nurse can be considered as healthcare professional. They are responsible for the treatment, safety, and recovery of the patients. They are also responsible to be the health maintenance of the healthy and treatment in wide range of healthcare settings. Nurses involved directly to the patients. It is important to understand how nurses could affect the patients. Therefore, in delivering the best quality in services nurse caring will give the big impact on patients' satisfactions. Patient care is part of a nurse's role in implementing a care plan. Usually, nurses will perform patient assessment and evaluation of care while doing their patient care. The nursing staff must be neatly dressed, courteous and sympathetic in their handling of the patient and the accompanying persons. They must be efficient and be able to prioritize patients and their problems, so that the doctor will be able to see the more ill patients earlier (Wikipedia).

*(d) Support Staff Skills*

Support staff contributed directly to the quality of services provided by the hospital. A support staff skill is needed whenever it is needed. Quality has always been an integral part of patient care services and for various reasons all hospitals must pay special attention to the quality issue today. Patients do not only expect the best quality of treatment given but also require some degree of politeness from hospital staff (Rahman, 2001). The upgrading of practical skills is an essential additional requirement. Considerable responsibility is required on his part to utilize all available components of continuing medical education, including self-study and distance learning, to achieve these objectives.

*(e) Billing Procedure*

The challenge lies in providing good quality medical care to increasingly high expectations of the population, while ensuring health costs are affordable to the nation. (Rahman, 2001). Today, the health industry is facing governmental and public pressures in undergoing unprecedented changes. The need to cope with the advance in medical technology and to deal with sophisticated laboratory tests and equipments have led to an increase in hospital costs. Increasing hospital operational costs means a larger portion is absorbed by the government, in the case of public hospitals, and even higher in the case of private hospitals. By paying more, patients expect better quality of services.

Money is most valuable for customer. It is a judgment emerges from the comparison between what the customers gives up and what he gets. This statement shows that quality is something beyond the production of defect-free goods and services. It also become major determinant whether the customers' expectation were met, that is, customer satisfaction. Billing procedure becomes a subjective evaluation of the changes, which it is the price the customer pays for the product and whether it was a fair one. Poor performance and service provided will affect the customer satisfaction. Good services and performance may be considered for the customer as good value for money. Therefore, billing procedure and healthcare quality could be correlated positively from the patients' perception.

*(f) Image of the Hospital*

Consumers and payers are increasingly asked for the best value of healthcare services they received. This will reflect the image of one hospital. If the cost is increasing but the quality is reported to be poor, patients will not continue to get the healthcare services at particular hospital. There are many ways to be obtained desired patient outcomes to improve the healthcare value. The best medication, the least waiting time and fast recovery are the ultimate concern of all patients (Rahman, 2001). The place of practice is part of important aspect to be considered, as the hospital wants to satisfy their patients and build the image of the hospitals. According to Association of Private hospital in Malaysia (2001), there are certain reasonable expectations of the appearance of the clinic and consultation rooms, which must appeal to the patient. Such as: (a) The clinic signboard. (b) The waiting room should have a calm, soothing and reassuring ambience. The seating must be comfortable. (c) The consolation room should be roomy, neat and tidy, and soothing to the eyes and pleasant to the nose. In general, image of the hospital will give the impact to patients' perceptions. They will easily put their own perception on quality of services provided. If the surrounding is not satisfying them, the image of the hospital will be poor but if it is satisfying, it can contribute to the good image of the hospital.

**Perceived of Healthcare**

*(a) Administration Perspectives*

According to Alexandra (1994), due to rapid change of healthcare environment and the awakening consciousness of health service consumers, healthcare quality becomes a major concern of hospital administrators at providing a better system for monitoring medical care quality for the long run. Management must put emphasis on service so they can achieve their target. It must start at the top where the leaders know that service is important, and they need to develop practical ways to make it happen. Patients need to be treated with respects and understanding their need would be the key to become a competitive advantage in the healthcare industry.

*(b) Nurses Perspectives*

As the nature of care has change – increased patient expectations from increasingly sicker patients’ conflict with shorter hospitals stays. Nurses have to put full effort to encounter this problem. They play an important role, as they are the closest person to the patients in the hospital after the patient’s family.

*(c) Patients Perspectives*

Patients usually will complaints about behavior. How they are treated and how healthcare practitioners response to their request and demand. Most patients may not know what quality is all about, but they can easily judge whether the services obtained are excellent, average or poor. In patient care, quality should not be looked at as just the outcome on the treatment provided, but also viewed through the process of giving treatment. Good Medicine should come together with good care and vice versa (Rahman, 2001).

## **Service Quality Model**

There are service quality models that have been established in the literature review. Among them that will be discussed in this study are: -

### **SERVQUAL Model**

The most currently used model to measure hospital healthcare quality is by using SERVQUAL model. Studies by Parasuraman, Zeithaml and Berry (1988) support the notion that service quality as perceived by consumers, stems from a comparison of their expectation of the service they will receive with their perceptions of the actual performance of firms providing the service. Therefore, the higher perceptions are than leads to higher expectations and the higher is the level of perceived service quality of healthcare consumers. The 10 determinants or criteria of service quality are tangibles, reliability, responsiveness, competence, courtesy, credibility, security, access, communication and understanding the consumer. It was found that service quality as perceived by the consumers’ results from a comparison of perceived service with expected service.

Parasuraman et al. (1988) developed a 22-item instrument known as SERVQUAL, which has become widely used. The instrument items represent the five dimensions explain as follows: (a) Responsiveness is the dimension where it refers to the willingness to help customers and provide prompt service there will be unnecessary negative perceptions of quality if the customers have to wait without reasonable excuse. (b) Empathy refers to level of caring and individual attention that the firm provided. It involves the understanding of customer needs, customers’ personal attention, the operating hours that are convenient and the impression that the firm has the customer’s best interest at heart. (c) Tangibility refers to the physical facilities, equipment and appearance of personal characteristics. Tangible characteristics of service quality are concerning the appearance of employees, physical facilities and communication materials or equipment. (d) Assurance refers to knowledge and courtesy of employees and their ability to convey trust and confidence. It can be showed with politeness and respect for the customer, effective communication with the customer, and the attitude that the server has the customer’s best at heart. (e) Reliability refers to the ability of one organization to perform the service dependably; includes keeping customer’ record accurately on time, in the same manner and without errors every time.

The performance outcome variable in the above studies was perceived service quality. There are 22 items measured to integrate these variables into one model. While the Structure of Building, Professional Expertise, Nurse Caring, Support Staff Skills, Billing Procedure and Image of the Hospital are developed based from the SERVQUAL model. While customer service has been emphasized in American business and industry in recent years (Zeithamal, Parasuraman, and Berry 1990; Jones and Sasser 1995; Reichheld 1996; Berry and Parasuraman 1991; Berry 1995), few training modules are specifically targeted toward physicians and healthcare professionals.

The study on healthcare factor was adopted from Career Management Competencies Model. Although many factors related to competencies, 7 variables were selected; there are initiative, innovative, interpersonal skills, personal credibility, ethical standards, technology usage and accountability as independent variable. These independent variables will be examined on the relationship with Perceived Service Quality as an independent variable.

To test the nature of relationship between healthcare factor and quality of healthcare in private hospital, the study proposes the following hypotheses:

- H1: There is positive relationship between healthcare factors and quality of healthcare in private hospital.
- H1a: There is positive relationship between structure of building and quality of healthcare in private hospital.
- H1b: There is positive relationship between professional expertise and quality of healthcare in private hospital.
- H1c: There is positive relationship between nurse caring and quality of healthcare in private hospital.
- H1d: Support staff skill of the employees is positively related to quality of healthcare in private hospital.
- H1e: Billing procedure is positively related to quality of healthcare in private hospital.
- H1f: Image of the hospital is positively related to quality of healthcare in private hospital.

## Methodology

The population of this research consisting of all outpatients in the five identified private hospitals in Penang. A simple random sampling has been used as sampling method for this study, in which 100 respondents were selected randomly. A descriptive study of factors influencing the quality of healthcare at private hospital in Penang was undertaken. Patients were randomly sampled in all provinces. The sampling frame consisted of 100 patients. Patients were approached and asked to answer the questionnaires given by the author. The questionnaires consist of 42 questions related to the research objectives. Patients were interviewed face-to-face using a standardized questionnaire that consisted of questions. The questionnaire contained five sections: information on the demographic of respondent.

The unit of the analysis in this study is the individual, which are the outpatients. The author utilizing a 38-item questionnaire to identify key factors in customer satisfaction conducted outpatient satisfaction surveys. This survey instrument was validated on a sample of 100 patients. Questionnaires are distributed by the author hand-delivered to outpatients of the selected hospital. This study is measured on a five-point likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). Service Quality constituted the dependent variable. It consisted of 22 items completed by patients that have been receiving healthcare services at private hospital in Penang. The responses were based on 5 likert scale ranging from 1 (strongly unfavorable) to 5 (strongly favorable).

## Results

In this study, respondents consist of 46% male and 54% female which they have received healthcare services at private hospital in Penang. Most of the respondent is age below 30 which is 51%, 14% between 31 to 35 years old and age 36 to 40 years while there is about 21% above 40 years old. In terms of races, 44% are Malays, 40% are Chinese, and 10% are Indian and 6% others. While for level of education, 15% of the respondents are SPM/MCE holder, 13% STPM/HSC holders, 24% are Diploma, 36% Degree holder, 8% Master holder and only 4% have others highest education level holder. This finding shows that, most of the respondents are degree holder. Occupation is described in Table II, 29% of the respondents are students, 11% are executives, 11% is business person, both teacher and lecturer are 7%, 6% housewives, and the remaining are sales officer, doctor, lawyer, manager, purchasing officer, working at private sector, marketer, not working and others.

In Table III below, Cronbach alpha reliability coefficient was 0.866 for structure of building, Cronbach alpha for professional expertise and nurse caring are 0.915 and 0.930 respectively. Cronbach alpha for support staff skills is 0.856. Meanwhile Cronbach alpha for billing procedure is 0.799. Image of the hospital and service quality are 0.908 and 0.852 respectively. Nurse caring shows a high Cronbach alpha that is 0.930. This is perhaps due to the adopted of dependent variable is from an established variable which has been measured before. Table III shows that all the reliability coefficients are more than 0.700 therefore all the reliability is good and accepted. Nurse caring

variable has the highest coefficient which is 0.930 where else the billing procedure has the least coefficients which is 0.799.

Mean and standard deviation were obtained for all 7 variables. From Table III, it can be seen the means for all 7 variables are quite close, which is around the range of 3.29 to 3.66. The variable professional expertise was the highest with a mean of 3.66, followed by nurse caring of 3.66. While the support staff skills variable has the lowest mean which is 3.29. According to the findings, professionals' expertise plays important roles to the patients to make them satisfy with the quality of healthcare they received from the particular private hospitals. The R square value indicated that 60.9% of variance in Quality of Healthcare could be explained by Healthcare Factors ( $R^2=0.609$ ;  $F=152.509$ ;  $p<0.05$ ). The regression result in Table IV shows that healthcare factors is significant to perceived service quality ( $\beta=0.531$ ;  $p<0.05$ ). The R square value indicated that 45.8% of variance in Perceived Service Quality could be explained by the 6 variables ( $R^2=0.623$ ;  $F=25.569$ ;  $p<0.05$ ). The regression result in Table IV shows that Structure of Building, Professional Expertise, Nurse Caring, Support Staff Skills and Billing Procedure are significant determinants for perceived service quality, except for Image of the Hospital ( $\beta=0.004$ ;  $p<0.05$ ) is not significant to perceived service quality.

Table V shows that the highest standard coefficients is billing procedure variable, which is 0.292. Furthermore, the Durbin-Watson value is 2.028 that proved that there is no autocorrelation problem because it is in range 1.50 to 2.50. In this test, it shows that there is 62.3% variations ( $R^2$ ) can be explained by all the independent variables while there is 37.7% of the variations cannot be explained by all the independent variables. Standard Coefficients (Beta) for billing procedure is 0.292 ( $p<0.01$ ) gives the most impact to quality of healthcare at private hospital in Penang. Besides, the Standard Coefficients for image of the hospital has the lowest impact to the quality of healthcare at private hospital in Penang which is 0.004 ( $p<0.01$ ).

TABLE III: RELIABILITY AND DESCRIPTIVE STATISTICS

Variables	Cronbach's Alpha	Mean	Standard Deviation
Structure of Building	0.866	3.55	0.590
Professional Expertise	0.915	3.66	0.683
Nurse Caring	0.930	3.59	0.716
Support Staff Skills	0.856	3.29	0.792
Billing Procedure	0.799	3.50	0.667
Image of the Hospital	0.908	3.44	0.621
Service Quality	0.852	3.41	0.553

TABLE IV: MULTIPLE REGRESSION ANALYSIS

Model	R	R Square	Adjusted R Square	F	Sig
1	0.780 <sup>a</sup>	0.609	0.605	152.509	0.000 <sup>a</sup>
Variables	<b>B</b>	<b>Std. Error</b>	<b>Beta</b>	<b>t</b>	<b>Sig</b>
(Constant)	.459	.244		1.882	0.000
Healthcare Factors	0.531	0.066	0.634	12.349	<b>0.000</b>

IV: Healthcare Factors DV: Quality of Healthcare



TABLE V: MULTIPLE REGRESSION ANALYSIS

Variables	Standard Coefficient (Beta) Quality of Healthcare
Structure of Building	0.071
Professional Expertise	0.274
Nurse Caring	0.088
Support Staff Skills	0.182
Billing Procedure	0.292
Image of the Hospital	0.004
R <sup>2</sup>	0.623
Adjusted R <sup>2</sup>	0.598
F	25.569
Sig F	0.000
Durbin Watson	2.028

*IV: Healthcare Factors DV: Quality of Healthcare \* p<0.01*

## Discussion and Conclusion

This study on Structure of Building, Professional Expertise, Nurse Caring, Billing Procedure, Image of the Hospital and Support Staff Skills do support the researched done on quality of healthcare. Carol et al. (2003) and Robert and Rob (2002), reported that individual initiative or people initiative was successful in achieving service quality. This report is related to this research where the standard coefficients value of professional expertise, nurse caring and support staff skills are high and have strong impact to the quality of healthcare provided from patients perspectives. In terms of personal credibility Steven et al. (2001) indicated that employees with personal credibility lead to service quality. Again this statement is supported by the results obtain from the study. It was noted that all variables are significant except Image of the Hospital appear to be not significant. It was realized later that 51% of the patients who respond to the questionnaire are below than 30 years old.

This indicates that, most of the respondents do care about billing procedure. They are working and some of the respondent is still studying. Thus it is important for them to have the most reasonable price and procedure of paying the bill. The private hospital could develop a service team that focusing on patient registration, co-pay and collections to make the billing procedure easier. They can make a financial counselor available to patients to discuss a payment plan. The counselor must be visible to patients when they were ready to be discharged. However, the image of the hospital is not so important from patients' perspectives that they are more emphasizing on the billing procedure and the healthcare practitioners' quality. This study also reveals that factor like Professional Expertise, Nurse Caring, and Billing Procedure and Support Staff Skills private healthcare sector. Patients were concern with services provided and the billing procedure of the services provided.

The concept of customer loyalty important and is closely tied to the likelihood of a patient or their family returning to that healthcare institution. As the focus on outcomes management, it is important to take into account the effect that customer service skills have on patients' perceptions of quality and outcome. Healthcare practitioners could be major contributor to the satisfaction of patients. Doctors, nurses and support staff should have some special skills such as interpersonal to treat their patients. This study somehow supported research done by Barry (2003) that interpersonal skills could manage change towards better service quality, and (Boshoff and Allen, 2000) stated that employees without interpersonal skills failed to provide satisfactory service quality. It shows that employee has used

their interpersonal skills in terms of maintaining confidentiality, tactful, compassionate and sensitivity in dealing with customers towards achieving a good service quality.

The implications of the higher ratings of the skill of the physicians and nurses are intriguing and could have an impact on healthcare. The strongest implication is that perceived skill stands as a marker for quality and/or outcome in the mind of patients and their families. It has been shown repeatedly that patient compliance increases with confidence in the physician (Frances, Korsch, and Morris 1969; Sharfield et al. 1981; Waggoner, Jackson, and Kern 1981; Schmittiel et al. 1997). It certainly appears that patients rated the skill of the healthcare providers as a key quality characteristic in this survey.

The fact is that quality of healthcare is always in the heart of every patient, somehow or rather all these patients are looking forward to get the best service and understand the value of service quality. Billing procedure has carried more weight on quality of healthcare, because the lower and the easier the payment procedure it can effect the quality of healthcare from patients' perceptions. As a conclusion this research question is answered and indicated that the impact of Healthcare Factors on Quality of Healthcare has played an important role in service quality.

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## **Health Tourism: A Golden Opportunity to Market 'Destination India'**

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### **Abstract**

Health and medical tourism is perceived as one of the fastest growing segments in marketing 'Destination India'. The country offers a unique mix of indigenous systems such as yoga, ayurveda and meditation and even western medicinal systems like allopathy. India benefits from a large staff of world class experts and the ultra-competitive cost advantage it offers. On an average, prices here are 1/5 to 1/8th of those in the United States and there is not one operation that cannot be done in some of our hospitals and which is done abroad. To become the global health destination, the country would have to improve its healthcare infrastructure, connectivity between major cities and streamline immigration procedure for medical visitors. Accreditation of Indian hospitals is also essential for attracting such tourists. This paper is an effort to investigate the prime advantages that India offers as a destination for health tourism and to elaborate the major concerns in this area.

### **Introduction**

The Indian healthcare sector has been growing at a frenetic pace in the past few years, ever since the developed world discovered that it could get quality service for less than half the price. Industry estimates believe that there are at least 10000-12000 medical tourists coming to India every year from Western countries. India could potentially be sitting on a medical tourism goldmine because of the low-cost, high value medical care available on tap across not one or two, but several geographical pockets across the country.

In 2002, the National Health Services (NHS) in the UK started a pilot scheme for 'overseas treatment' to see if surgery services abroad could be bought to shorten the waiting lists. The project focused mainly on facilities available in the European Union, in countries like Spain and Netherlands. However, there was a waiting list, though shorter, in these countries too. So, a number of British patients started taking the initiative to seek their own treatment abroad. Patients from the US followed, as their insurance companies entered into tie-ups with private Indian hospital chains.

Health tourism can be broadly defined as provision of 'cost effective' private medical care in collaboration with the tourism industry for patients needing surgical and other forms of specialized treatment. This process is being facilitated by the corporate sector involved in medical care as well as the tourism industry - both private and public. In many developing countries it is being actively promoted by the government's official policy. India's National Health policy 2002, for example, says: "To capitalize on the comparative cost advantage enjoyed by domestic health facilities in the secondary and tertiary sector, the policy will encourage the supply of services to patients of foreign origin on payment. The rendering of such services on payment in foreign exchange will be treated as 'deemed exports' and will be made eligible for all fiscal incentives extended to export earnings".

### **Health Tourism**

Today's health and wellness consumer seeks to look and feel better; to lose weight; to slow the effects of aging; to relieve pain or discomfort; to manage stress; or to partake in the use of natural supplements like vitamins and minerals to improve their health." Health and wellness programs respond to the growing consumer demands for fitness level improvement; for healthy lifestyle education; for nutrition counseling; for healing; for preventative medicine; for solving personal problems like stress or depression; and for holistic, naturopathic, alternative or eastern medicinal practices/therapies. Combining the consumer's quest for health and wellness with travel, leisure, and fun (products of the travel industry) is simply stated, "spa, health and wellness tourism." It follows that since

people take part in recreational, cultural, entertainment and educational activities while on vacation, “tourism is a perfect vehicle for promoting wellness.”

## **Medical Tourism**

The most recent trend in privatization of health services is medical tourism, which is gaining prominence in developing countries. Globalization has promoted a consumerist culture and this has had its effect on the health sector too. Corporate run institutions are seized with the necessity to maximize profits and expand their coverage and go beyond the limited domestic "market" for high cost medical care. This is the genesis of the "medical tourism" industry. India is a recent entrant in the field of medical tourism. According to a study by McKinsey and the Confederation of Indian Industry, medical tourism in India could become a \$1 billion business by 2012. Most common treatments done in India are heart surgery, knee transplant, cosmetic surgery and dental care. Since India is also one of the most favorable tourist destinations in the world, medication combined with tourism has come into effect, from which the concept of Medical Tourism is derived.

## **The History**

Health Tourism is actually thousands of years old. In ancient Greece, pilgrims and patients came from all over the Mediterranean to the sanctuary of the healing god, Asklepios, at Epidaurus. In Roman Britain, patients took the waters at a shrine at Bath, a practice that continued for 2,000 years. From the 18th century wealthy Europeans traveled to spas from Germany to the Nile. Countries that actively promote medical tourism include Greece, South Africa, Jordan, Malaysia, Philippines, Singapore, Cuba, Costa Rica, Hungary, Israel, India and Thailand. Belgium, Poland and Singapore are now entering the field. South Africa specializes in medical safaris – tourists visit the country for a safari, with a stopover for plastic surgery and a chance to see lions and elephants.

## **The Indian Health Care Industry**

India will spend US\$ 45.76 billion on healthcare in the next five years as the country, on an economic upsurge, is witnessing changes in its demographic profile accompanied with lifestyle diseases and increasing medical expenses, says a CII (Confederation of Indian Industries) - Mckinsey study on 'Health in India'. Revenues from the healthcare sector account for 5.2 per cent of the GDP and it employs over 4 million people. By 2012, revenues can reach 6.5 to 7.2 per cent of GDP and direct and indirect employment can double, it said.

Private healthcare will continue to be the largest component in 2012 and is likely to double to US\$ 35.7 billion. It could rise by an additional US\$ 8.9 billion if health insurance cover is extended to the rich and middle class. Coupled with the expected increase in the pharmaceutical sector, the total healthcare market in the country could increase to US\$ 53-73 billion (6.2-8.5 per cent of GDP) in the next five years. Here are some facts-

- At the current pace of growth, medical tourism, currently pegged at US\$ 350 million, has the potential to grow into a US\$ 2 billion industry by 2012.
- Healthcare spending in the country will double over the next 10 years. Private healthcare will form a large chunk of this spending, rising from Rs 690 billion (US\$ 14.8 billion) to Rs 1,560 billion (US\$ 33.6 billion) in 2012. This figure could rise by an additional Rs 390 billion (US\$ 8.4 billion) if health insurance cover is available to the rich and the middle class.
- The voluntary health insurance market, which is estimated at Rs 4 billion (US\$ 86.3 million) currently, is growing fast. Industry estimates put the figure at Rs 130 billion (US\$ 2.8 billion) by 2005.
- With the expected increase in the pharmaceutical market, the total healthcare market could rise from Rs 1,030 billion (US\$ 22.2 billion) currently (5.2 per cent of GDP) to Rs 2,320 billion (US\$ 50 billion)-Rs 3,200 billion (US\$ 69 billion) (6.2-8.5 per cent of GDP) by 2012.
- Healthcare spending in India is expected to rise by 12 per cent per annum through 2005-09 (in value terms)
- Expected to scale up to about 5.5 per cent of GDP, or US\$ 60.9 billion, by 2009

- The healthcare industry employs over four million people, making it one of the largest service sectors in the economy. Other estimates suggest that by 2012, healthcare spending could contribute 8 per cent of GDP and employ around 9 million people

- **Why India?**

As already stated India has a huge potential of attracting medical tourists and medical tourism will contribute around USD 2 million by year 2012. India is one of the most touted destinations in the world for medical tourists. With a good amount of investment in the private sector, the growth of Indian healthcare is inevitable. India indeed has the competitive advantage of price, outstanding human resource, state-of-the-art hospitals equipped with latest equipment, alternative medicine like Kerala's health retreat, naturopathy and yoga, 5000-year-old civilization, traditional art and crafts, and geographical landmarks and coastlines. According to analysts, over 180000 people traveled to India during 2004 for their medical requirements. Medical Tourism is finally coming of age.

India has top-notch centers for open-heart surgery, pediatric heart surgery, hip and knee replacement, cosmetic surgery, dentistry, bone marrow transplants and cancer therapy, and virtually all of India's clinics are equipped with the latest electronic and medical diagnostic equipment. India offers highly cost-competitive medical treatment and technological advances in areas such as cardiology, cosmetic and orthopedic surgery, dentistry, eye care and preventive health checks. India offers world class cardiac bypass surgery, hip replacements, organ transplants, cosmetic, dental surgery and vision correction. From a pan-India perspective, presently there are more than half a million doctors employed in 15,097 hospitals. Additionally there are 0.75 million nurses, who look after more than 870,000 hospital beds. During the previous decade, the number of doctors has increased by 36.6 per cent. An estimated 30 per cent of medical practitioners hold specialist qualifications.

India have a lot of hospitals offering world class treatments in nearly every medical sector such as cardiology and cardiothoracic surgery, joint replacement, orthopedic surgery, gastroenterology, ophthalmology, transplants and urology to name a few. The various specialties covered are Neurology, Neurosurgery, Oncology, Ophthalmology, Rheumatology, Endocrinology, ENT, Pediatrics, Pediatric Surgery, Pediatric Neurology, Urology, Nephrology, Dermatology, Dentistry, Plastic Surgery, Gynecology, Pulmonology, Psychiatry, General Medicine & General Surgery. Escorts Hospital, for instance, is one of the only handful treatment facilities worldwide that specialize in robotic surgery.

Most patients from countries like USA and UK travel to developing countries such as India for treatment because India offers some of the cheapest pricing options of treatment, offers a good holiday, there are no waiting lists or queues to stand in, the doctors are comparable to anyone in the world and finally, language does not pose a problem as most people speak English. Moreover, India's infrastructure and technology is at par with those in USA, UK and Europe. India has some of the best hospitals and treatment centers in the world with the best facilities. Moreover, Indian Hospitals also provide more personalized care than available in west. Some Indian medical centers even provide services that are uncommon elsewhere. For example, hip surgery patients in India can opt for a hip-resurfacing procedure, in which damaged bone is scraped away and replaced with chrome alloy--an operation that costs less and causes less post-operative trauma than the traditional replacement procedure performed in the U.S.

Probably no country has been in the news for medical tourism than India in 2005-06, and the government and private hospital groups both seem committed to a goal of making the subcontinent a world leader in the industry. Price advantage is a major selling point. The slogan, thus is, "First World treatment at Third World prices". The cost differential across the board is huge: most estimates claim treatment costs in India start at around a tenth of the price of comparable treatment in America or Britain. Costs of comparable treatment in India are on average one eighth to one fifth of those in the West.

- A Cardiac procedure costs anywhere between US\$ 40,000 - 60,000 in the United States, US\$ 30,000 in Singapore, US\$ 12,000 -15,000 in Thailand and only US\$ 3,000 -6,000 in India.
- Open-heart surgery could cost up to \$70,000 in Britain and up to \$150,000 in the US; in India's best hospitals it could cost between \$3,000 and \$10,000.

- Knee surgery (on both knees) costs 350,000 rupees (\$7,700) in India; in Britain this costs £10,000 (\$16,950), more than twice as much.
- Dental, eye and cosmetic surgeries in Western countries cost three to four times as much as in India. Likewise, the associated costs of surgery are also low. Not only are skilled Indian surgeons available for less, they are also less susceptible to costly litigation. The cost of malpractice insurance in New York is around US\$ 100,000 but only US\$ 4000 in India. This brings down the overall cost of treatment. With diagnostic tests in India being inexpensive, India also has the potential to emerge as a hub for preventive health screening.
- At a private clinic in London a health check-up for men that includes blood tests, electrocardiogram tests, and chest X-Rays, lung tests and abdominal ultrasound costs around £350. In comparison, a comparable check-up at a clinic operated by Delhi-based healthcare company Max Healthcare costs US\$ 84.
- A Magnetic Resonance Imaging (MRI) scan costs US\$ 60 at Escorts Hospital in Delhi, compared with roughly US\$ 700 in New York.

The overall cost of travel and treatment in India is still far less than the expense of just the medical treatment in many western countries. A study by the India Brand Equity Foundation (IBEF) in 2004 shows how competitive India is in comparison with Thailand, another leading medical tourism destination. Thailand has a cost advantage over India in only two categories: plastic surgery and breast augmentation. Although the cost difference between treatment in India and Thailand is not much, India offers what you call a language advantage - a patient would surely prefer a country where English is widely spoken. Also, it is believed that the facilities in India are more suited for International patients.

Cost is not the only factor that is important for international medical tourists. Indian healthcare sector has a high success rate and a growing credibility. Indian specialists have performed over 500,000 major surgeries and over a million other surgical procedures including cardio-thoracic, neurological and cancer surgeries, with success rates at par with international standards.

- The overall success rate of cardiac bypasses is 98.7 per cent in India, as opposed to only 97.5 per cent in the United States.
- India's success in 110 bone marrow transplants is 80 per cent.
- The success rate in 6,000 renal transplants is 95 per cent.

The reason patients travel to India for treatment varies. Many medical tourists from the United States are seeking treatment at a quarter or sometimes even a 10th of the cost at home. From Canada, it is often people who are frustrated by long waiting times. From Great Britain, the patient can't wait for treatment by the National Health Service (NHS) but also can't afford to see a physician in private practice. For others, becoming a medical tourist is a chance to combine a tropical vacation with elective or plastic surgery. Patients are coming from poorer countries such as Bangladesh where treatment may not be available.

The emergence of low-cost, high value, specialist, medical-care territories in India has been noteworthy. For instance, New Delhi has emerged as a prime destination for cardiac care, as has Gujarat. Similarly, Chennai has established a niche for quality eye care, while Kerala and Karnataka have emerged as hubs for state-of-the-art ayurvedic healing. These "medical hotspots" are beginning to witness an influx of health tourists from non-traditional geographies. For example, in April Madras Medical Mission, a Chennai-based hospital, successfully conducted a complex heart operation on an 87-year-old American patient at a reported cost of \$8,000 (€7,000, £4,850) including the cost of his airfare and a month's stay in hospital. The patient claimed that a less complex operation in America had earlier cost him \$40,000.

Due to the surge in medical tourism, some of the major corporate hospital groups in India such as Apollo, Fortis, Max, Wockhardt and Manipal have made significant investments in setting up state-of-the-art hospitals in major Indian cities.

- Dr. Trehan, one of India's ace cardiac surgeons at Escorts Heart Institute is establishing a MediCity by 2007 on the outskirts of Delhi with the single objective of promoting medical tourism. The US\$ 250 million project proposes to integrate super specialties such as cardiology, neuro-sciences and oncology under one roof with 2,000 beds.

- Artemis Healthcare has been promoted by the majority shareholders of Apollo Tyres Ltd, a leader in the Indian tire industry. The initial foray of Artemis would be to develop a tertiary care, 500-bed, multi-specialty hospital in Gurgaon, close to New Delhi's international airport. The hospital is expected to become operational by August 2007. The hospital will focus on Cardiology, Cardio- Thoracic and Vascular Surgery, Orthopedics and Oncology, besides state-of-the-art Diagnostic Services, Ambulatory Care services and support of all specialties. Artemis is also setting up a clinical research organization with ultra-modern laboratory facilities.

Hospital chains are offering special packages, which include airport pickups, visa assistance and boarding and lodging. Apollo Group of hospitals for instance has a full fledged international patients department, which offers assistance to patients from the time they land in India to the time they depart. Apollo has about 14 healthcare facilitators, besides tie ups with two travel agents. Similarly, Escorts Hospital (now a part of the Fortis Group) has an in-house hospitality department that provides all pre and post-treatment assistance, including receiving patients at the airport, arranging accommodation and travel packages to various tourist destinations in the country.

With an increasing number of Indian hospitals offering services at the cutting edge, there is a growing acceptance of India-based medical care among global insurers. For instance US-based private health insurers Blue Cross and Blue Shield and British health insurer Bupa now insure clients treated at a number of private hospitals in India. Tie-ups and alliances are taking interesting forms. Manipal hospital has tie-ups with the governments of Tanzania and Mauritius. The respective governments cover the health expenses of Tanzanians and Mauritians in Manipal Hospital. Further, the hospital's agreements with foreign travel insurance providers give it significant international exposure.

Medical Tourism companies in India such as Health Line have introduced several packages for patients traveling to India which include holidays and hotel stays during their travel apart from other basic requirements such as airport pickup, meetings with doctors, post and pre-surgery etc. Such packages make it convenient for the patient to have peace of mind during travel without the tension of what to do next. Leisure Tourism is already very much in demand in India as the country offers diverse cultural and scenic beauty. India has almost all sort of destinations like high mountains, vast deserts, scenic beaches, historical monuments, religious temples etc.

From a pan-India perspective, presently there are more than half a million doctors employed in 15,097 hospitals. Additionally there are 0.75 million nurses, who look after more than 870,000 hospital beds. During the previous decade, the number of doctors has increased by 36.6 per cent. An estimated 30 per cent of medical practitioners hold specialist qualifications.

## • **Accreditations and Ratings**

Apart from being in step with changing healthcare technology, leading Indian medical care facilities are increasingly complying with stringent quality standards and queuing up for international accreditations.

- India's independent credit rating agency CRISIL has assigned a grade A rating to super specialty hospitals like Escorts and multi specialty hospitals like Apollo.
- NHS of the UK has indicated that India is a favored destination for surgeries.
- The British Standards Institute has now accredited the Delhi-based Escorts Hospital.
- Apollo Group - India's largest private hospital chain and Escorts Hospital are now seeking certification from the US-based Joint Commission on Accreditation of Healthcare Organizations.

## **Global Forays**

Indian healthcare is all set to go global with a host of domestic hospital chains busy scripting overseas expansion plans. On the radar are destinations as far as the US, the UK and Mauritius, with countries in west and south-east Asia in between.

- The Apollo Hospitals group has drawn up plans to set up or manage hospital projects in Mauritius and Fiji. These would be in addition to the group's existing overseas facilities in Colombo and Middle East.

- Max Healthcare, another leading hospital chain, is trying to enter the US, UK and far-east markets. This is besides the expansion of its operations in neighborhood countries like Bangladesh and Afghanistan.
- Wockhardt is also eyeing markets in Europe, particularly the UK, as part of its growth strategy. The company is already building its brand presence through tie-ups with leading healthcare insurance providers in the US, UK and Singapore.

## **Government Support: Policy Initiatives**

The big Indian private healthcare providers such as Apollo, Fortis, Wockhardt and Max have been creating their brand awareness in overseas markets through tie-ups with insurance companies and patient facilitation centers. Looking at the huge potential, a number of smaller healthcare providers have started working in collaboration with the Government to launch a comprehensive program to promote medical tourism. These efforts include putting in place an accreditation system for domestic hospitals and healthcare providers, drawing up a price band for superspecialty services offered by Indian hospitals, adoption of country-specific marketing strategies, opening of overseas facilitation centers and tie-ups with overseas insurance companies. Allowing 100 per cent FDI subject to approval by the Foreign Investment Promotion Board under the Department of Industrial Policy and Promotion in the Ministry of Industry and Commerce has assisted in opening up the Indian healthcare market for international investors.

The National Accreditation Board for Hospitals and Healthcare Providers (NABH) set up by the Ministry of Health under the aegis of the Quality Council of India is currently finalizing the guidelines for accreditation of hospitals and other healthcare service providers. The Government of India has formed a task force consisting of experts from the Ministries of Health and Family Welfare, Tourism, Railways, External Affairs, Civil Aviation, and the Director-General of Health Services. This task force has been set up with the objective to suggest policy measures and norms for the National Accreditation Board to provide accreditation to all public and private hospitals to ensure quality and timely health services. The draft on standards of healthcare accreditation, prepared by the technical committee of National Accreditation Board of Hospitals and Healthcare Providers (NABH), is ready. The draft would ensure uniform access, assessment, care of patients and protect patient's rights. The Ministry of Health and Ministry of External Affairs have reached a policy decision so that 'medical visas', which are issued to overseas patients seeking medical care in India, are granted within a month or in even lesser time to all incoming patients.

## **Healthcare BPO**

Spiraling healthcare costs, unbearable squeeze on margins, process inefficiencies, acute talent shortage and an aging population are compelling healthcare establishments in the US and Europe to look at Indian healthcare BPOs. Figures reveal that outsourcing healthcare business processes to Indian service providers can result in cost savings to the tune of 20-30 per cent. The global market for outsourced services from the healthcare industry was estimated to be worth US\$ 3.6 billion in 2004 and is projected at US\$ 24 billion in 2008. The estimated opportunity for India is US\$ 4.5 billion by 2008, employing about 200,000 people.

The types of services being offered by Healthcare BPOs in India include:

- Data capture– include reporting of diagnostic tests and radiology reporting
- Documentation– data coding, medical transcription, billing and data migration
- Commercial– invoicing, disbursal, expense reporting, procurement, cash management, general ledger and receivables management
- Administration– claims processing, adjudication, mailroom services and records management
- Human resources– employee assistance, training and payroll
- Customer care– dispatch and activation services, technical support
- BPOs are also involved in various functions such as converting existing data to HIPPA format (Health Insurance Portability and Accountability Act), USA, administrative functions, billing and coding tasks,



processing forms, including scanning written documents, converting them into an electronic format, and sending them back.

The Apollo Group was one of the early entrants in the healthcare BPO business. Its IT and BPO division – Apollo Health Street (AHS) is even set to expand to other countries. Having invested about US\$ 3 million in its BPO operations, Apollo is now planning to expand its US operations and is actively looking at a Greenfield venture in the UK. The company is currently doing about US\$ 100 million worth of transactions. AHS has a US\$ 6.7 million multiple year contracts from a 600 bed hospital in New York. Apollo Health Street's back office work for the provider is primarily revenue cycle management, which includes billing and coding services. The company is also doing billing and coding work for three more providers in the US.

Manipal Education and Medical Group (MEMG) provide medical billing and coding services to US hospitals. Trained US-approved coders in India work with hospitals to prepare patient bills formatted in a manner required by US insurance companies. Other firms such a Hinduja TMT work with insurance companies on the other side of the chain doing medical claims verification.

## **Foreign Healthcare BPOs in India**

Integreo Inc., an Atlanta based healthcare BPO, is in the process of ramping up its operations in India. Integreo India was formed with the acquisition of Symphony Data in February 2005. The company plans to invest US\$ 10 million in its facility at Hyderabad. Integreo is establishing a 60,000 sq. feet facility in Hyderabad and it expects to increase its headcount to 3,000 people by January, 2008. It is further planning to set up a second centre in India, which is expected to be in Pune.

Bangalore-based healthcare BPO HealthScribe, which is a fully owned subsidiary of Spheris, a US-based medical transcription company, has opened its facility at the TPI IT Park in the Kumaraguru College of Technology campus at Coimbatore under its new name - Spheris India Pvt Ltd. The Coimbatore-arm is the second location for Spheris in India. The company has invested about US\$ 2.2 million on this facility, which covers an area of 35,000 sq feet. The company is planning to add another 15,000 sq feet. The company expects to see a 30-50 per cent growth over the next two years, consequent to expanding its operations.

## **Development Issues for Medical Tourism in India**

The enormous potential in the healthcare business is not free of problem areas. Government and basic medical insurance often does not pay for the medical procedure, which means that the patient has to pay cash. Moreover, there is little follow-up care. The patient usually is in hospital for only a few days, and then goes on the vacation portion of the trip or returns home. Complications, side-effects and post-operative care are then the responsibility of the medical care system in the patients' home country.

Most of the countries that offer medical tourism have weak malpractice laws, so the patient has little recourse to local courts or medical boards if something goes wrong. Also, there are growing accusations that profitable; private-sector medical tourism is drawing medical resources and personnel away from the local population, although some medical organizations that market to outside tourists are taking steps to improve local service. Problems they may be, but with rising costs in the \$2 trillion US health care system they do not seem insurmountable.

## **HR Issues in the Healthcare Industry**

Despite the overwhelming consensus on the positive impacts of medical tourism in India, this is still a relatively new industry, and one that is growing fast as previously mentioned, Experts have claimed Indian Medical tourism industry will have to address the consumers' concern and HR issues to further expand and grow as expected.

### **Need for Professionalism**

At the forefront of the development of the health and medical tourism industry in India, one thing emerges as a priority: this industry requires a more than average attention to professionalism. This is due to the intimate nature of many of the services included in this tourism niche; services that impact on the physical, emotional, psychological and spiritual levels. For example, these services include massage therapy and other treatments that require an acute attention to how people feel about their “personal space.” Services also include activities that involve attention to emotional well being and which may require an attention to how “safe” people feel when sharing ideas, thoughts and feelings about those things that are most important to them at a deeply personal level. And as this industry is expected to expand rapidly, thus the need of expertise, its availability and its sustainability becomes more crucial. Thus, there is a need for this industry to pay special attention to professionalism, both in terms of its overall approach, and in the delivery of its specific activities.

### **Need to Build and Sustain Knowledge Workforce**

In healthcare industry, it is said that a satisfied patient is the best source of referral to the hospital. In case if our hospitals wish to become leaders in medical tourism and achieve competitive advantage, it is very important that quality service is provided on clinical dimensions as well as hospitality component. To achieve service excellence, it is important that delivery of service is on the lips of everyone in the workforce. Patient’s wants are related to behavioral aspects of service like: spontaneity, warmth, concern, friendliness and attention to individual needs.

From showing empathy and optimism to extreme self-awareness to knowing what’s going on around them, people competencies are an integral part of a progressive hospital. The use of these skills is what elevates healthcare organizations above the competition. In today’s working environment, where medical tourists are demanding more, instilling the use of people competencies in the service team members is highly crucial. Indian hospitals do not face problem with the technical skills as they are acquired through education and training but the difficulty lies in leveraging the soft skills of the employees. Soft skills are the underlying principles that trademark a hospital for professionalism and excellent customer service.

### **Workforce Competencies**

The key workforce competencies that are required for the healthcare professionals are Positive attitude, Ingenuity, Initiative, Loyalty, Maturity, Team spirit, Interpersonal skills, Appearance and Bearing. One approach can be to hire employees with these competencies to meet the requirement of the organization. HR heads should focus on development of a recruitment tool that helps in the measurement of available degree of these competencies in the prospective employees.

It should be very clearly understood that people with desired competency come at a cost and therefore entire manning plan and the compensation budget should be re-used. Another approach can be to nurture these competencies in the workforce and align individual competencies to the requirement of the organization.

### **Continuous Training**

Ongoing training programs are very beneficial as none of the hospitals is free of attrition rate. Exodus of well trained staff to Middle East, the US and the UK cannot be stopped because of massive requirement in these countries. However, when an employee joins an overseas hospital, his identity is always linked with the past employer. Continuous training programs on communication, attitude and personality development should be carried out and mechanism should be set to analyze the impact of these programs. Competencies and strengths vary from people to people and all the employees are never the same. Hospitals have to leverage their strengths and differences because these are the facts that will help distinguish organizations from the competition and give them a new identity.

### **The Mentorship Program**

HR department along with the line managers should identify senior people who can be used as mentors for coaching and development. The identified mentor should communicate effectively, know the job profile thoroughly, demonstrate trust in improvisation, help individuals as and when needed. Since he knows the constraints and the requirements of the job, he can empathize better with the concerned employee. He can also act as a role model and foster a feeling of constructive competition in other employees. The identified mentor has to train other employees and lead by example. It is the responsibility of the HR department to sensitize him with issues related to training and coaching of healthcare employees.

## **Career Opportunities in Health Tourism**

According to a recent research, it is the peripheral services that are important to the international patients. The capabilities of Indian medical professionals are acclaimed worldwide. It is the quality of allied services, infrastructure and hygiene that need to be emphasized and marketed well. From a career point of view, there are two aspects - being a clinician and being an administrator involved in medical tourism.

Most of the large-scale healthcare service providers and travel agencies have tie-ups with various airlines, hotels, car rentals, Ayurvedic spas, et al, to offer specialized health and travel packages to these patients. These special packages include airport pickups, visa assistance and board and lodging, among other facilities. All this means tremendous growth in the requirement for world-class spa therapists, managers, public relations personnel, travel advisors, insurance facilitators, and so on.

Following are some of the areas that are likely to witness huge growth in the coming years-

### **Marketing**

Apollo Hospital markets its services through the Internet, healthcare facilitators, and personal visits to patients abroad. It employs marketing professionals either from the healthcare industry or service sector. Training is provided in-house, on-the-job at various locations. Asian Heart Institute also takes marketing very seriously. It has created a separate company - Asian Health Assist Worldwide – to cater to their international patients and associates. Through this company, it focuses on developing international business by exploring tie-ups with corporate, insurance companies and governments in different countries.

### **Linguistic Services**

For patients coming from non-English speaking European, African and West Asian countries, translation services are critical since they need to understand the protocols around their medical treatment. There is a growing need for interpreters/translators for such patients and knowledge of any foreign language can provide a lot of opportunities in this industry.

### **Back Office Operations**

There is a need for as many people from the non-medical background as from the medical background. In the service sector, the back office functions are very demanding on talent with good communication and interpersonal skills as the baseline requirements.

### **Hospitality Professionals**

While high-end clinical acumen is the foundation for good healthcare, there is immense demand for service and managerial talent too. Similar to the hospitality sector, healthcare is experience and interaction-driven. Anyone who is keen to be in the hospitality field will find healthcare equally interesting. The prospective candidate needs to have a flair for international business and should be well-read and well-versed with different cultural/ demographical backgrounds. He should be able to quickly adapt to the people coming from different parts of the world. Knowledge of foreign languages or knowledge of the tourism industry is an added advantage. As of now, there are no specialized courses in medical tourism per se, but students in the fields of marketing, PR, travel and tourism are gaining favor in employment with organizations offering medical tourism.

## **Future Outlook: The Path Forward**

India is, indeed a relative newcomer to medical tourism, but is quickly catching up with competitors, and recent estimates indicate that the number of foreign patients is growing by 30 percent each year. India's healthcare industry is competitive on both cost and quality. It is widely believed that there is not a single surgery/procedure, which is done abroad but cannot be done in India. Unlike many of its competitors in medical tourism, India also has the technological sophistication to maintain its market niche, and Indian pharmaceuticals meet the stringent requirements of the U.S. Food and Drug Administration. India boasts of several good private owned hospitals with best doctors and facilities second to none. India is promoting the "high-tech healing" of its private healthcare sector as a tourist attraction. Indian healthcare is amongst the best in the world but to attract medical tourists it has to come up with world class infrastructure and simultaneously focus on optimum utilization of the talent pool. If it is done, the projected medical tourism market of USD 40 million can be easily achieved.

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# Content Validation of Total Quality Service Constructs for Hospitals: Observations from a Study

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## Abstract

The central theme of all healthcare systems is “Quality”. Operationalization of the concepts of quality at the organizational level has led to implementation of the philosophy of Total Quality Management. The study identified thirteen quality constructs critical to Total Quality Service (TQS) in hospitals viz, Leadership and Management Commitment; Strategic Planning; Human Resource Management and Development; Health Care Service Design and Improvement; Process Management; Service Culture; Servicescapes; Administrative System; Measurement, Information and Analysis; Supplier Quality Management; Customer Focus & Satisfaction; Key Results; and Social Responsibility, based on literature analysis. Content validation of these quality constructs was carried out through an empirical study using open-ended questionnaires and in-depth interviews of hospital managers. Content analysis of quality management practices in Indian hospitals confirmed the appropriateness of the TQS constructs. Further, a field study for assessing the reliability and validity of the proposed 13 TQS constructs for hospitals is indicated. Key words: Total Quality Service, Quality Constructs, Key Success Factors, Content Analysis.

## Introduction

Healthcare industry is among the most rapidly growing services industry in the world economy. Continuous changes in technological, social, political, regulatory and economic contexts of healthcare sector have made management of the organizations very challenging. Now, ‘quality’ has come to be recognized as a strategic tool for attaining operational efficiency and improved business performance. Traditionally, healthcare services have been provider-centric with professionals making major decisions about what is good for the patients owing to their technical knowledge and expertise. Improving quality along with cost reductions is not an easy task, but the organization's survival may depend on managers' ability to do so. In the light of increasing globalization, deregulation, and competition, organizations striving for competitive success have searched for and adopted new management forms and philosophies. Operationalization of the concepts of quality at the organizational level has led to several innovations in quality management, from the traditional Quality Assurance (QA) to implementation of the philosophy of Total Quality Management (TQM). In healthcare, QA mechanisms are conformatory in nature and professional dominated in general. Such methods do not always take into consideration the patients' perspective nor do they provide specific inputs for continuous improvements (Collingwood, 1996; Brown & Bell, 1996; Walshe et al., 2001).

## Total Quality Service in Hospitals

Contributions of the quality gurus namely, Deming, Juran, Crosby, Feigenbaum, and Ishikawa have had a great impact on quality management of manufacturing and service industries (Krüger, 2001; Logothetis, 2003; Mohanty & Lakhe, 2006). Similarly, the works of Donabedian, Berwick, Blumenthal, Kazandjian, McLaughlin, Kalunzy and others are of great interest to healthcare quality management (Kazandjian, 1997; McGlaughlin and Kalunzy, 1999; Haigh, 2000). A new way of thinking in terms of evidence based medicine, health technology assessment, customer orientation and cost effective services are on the quality agenda of every healthcare professional (Øvretveit, 1997). TQM is a new approach to quality improvement encompassing all systems and processes, clinical and non-clinical, with actions directed towards processes to improve the quality of all services and products for customers (Gaucher

and Coffey, 1993, p. 20). A plethora of healthcare quality literature indicates that TQM in healthcare would work and result in enhancing the organization's overall performance as a healthcare provider as well as a business enterprise (Gaucher and Coffey, 1993; Kohli et al., 1995; Anderson et al., 1996; Moody et al., 1998; Klien et al., 1998; Bharat et al., 1999; McLaughlin and Simpson, 1999; Singhal et al., 2000; Chow-Chua and Goh, 2002; Chang and Cheng, 2003).

Many researchers have identified the need for investigations of measurable variables associated with each of the TQM critical factors using data inputs from large number of healthcare organizations to allow for generalizations (Lin and Clousing, 1995; Counte and Meurer, 2001; Adinolfi, 2003; Øvretveit and Gustafson, 2003). The present research incorporated the general Quality Management (QM) constructs from the empirical works by Saraph et al. (1989); Ahire et al. (1996); Black and Porter (1996); Ang et al. (2000); Zhang et al. (2000) and service specific ones based on the research by Sureshchandar et al. (2001a, b). Further, it included the healthcare specific elements based on the analysis of research by Huq (1996), Kunst and Lemmink (2000), and Meyer and Collier (2001). In addition, from extensive literature review spanning over 100 articles in Quality Management, organizational behavior and healthcare quality research 13 TQS constructs (& with 118 measurement items) were identified as critical to QM in healthcare organizations (Manjunath & Bhat, 2006). The constructs so selected can be broadly classified under three categories:

The dimensions that are generic to Quality Management of organizations belonging to different sectors but which have been extensively studied in the manufacturing sector and later found to be valid to services too including healthcare. These factors are *Leadership and Management Commitment, Strategic Planning, Human Resource Management & Development, Process Management, Management of Information & Analysis, Supplier Quality Management, Customer Focus & Satisfaction and Key Results.*

The factors that need to be specially considered for service organizations namely *Servicescapes and Service Culture.*

The factors, which are critical to healthcare organizations, *Healthcare Service Design, Administrative System and Social Responsibility* are included as separate factors. The Patient Care Service Design (labeled as Healthcare Service Design in this research) is recognized specifically by MBNQA healthcare criteria. Administrative System is an important part of hospitals in terms of integrating various functions of a hospital and providing basic support to all operations. Social Responsibility was found to be a critical factor in research by Kunst and Lemmink (2000) in healthcare and Sureshchandar et al. (2001) in services. Also, health care is considered a social good and a basic right of individuals. Therefore the construct is included as a separate factor.

In order to validate the contents of the thirteen TQS constructs identified from literature analysis it was decided to first understand and analyze if 'quality' was indeed considered as key to success of hospitals and two to analyze quality management practices among reputed hospitals. The present paper details the content validation of the 13 TQS constructs through qualitative analysis of inputs from hospital managers.

## **Methodology**

This study is exploratory in nature and content analysis of inputs from hospital managers was undertaken. A survey questionnaire containing different questions on hospital profile, technologies adopted, challenges faced, organization vision, mission and core values, quality policy, quality practices and barriers to effectively implement quality management in hospitals were developed. The questions and the checklist were selected so as to elicit relevant answers with a focus of 'quality practices' in hospitals. In addition, 25 senior hospital managers participated in depth interviews which gathered data on key success factor for hospitals, quality management practices and specific TQM principle based techniques that the organizations are using. Hospitals with more than 100 beds were chosen for the study as large hospitals have quality management practices/systems in place. In all, managers from 38 hospitals participated in the study and the data analysis is presented in the next section.

## Results and Analysis

In general, the hospital population composed of multi speciality/super speciality acute care hospitals in India located across the north, south, east and western regions. Most of the hospitals included in this study are located in metro cities and only some are in towns or smaller cities. The hospitals have high reputation and hence considered to be providing high quality services (by virtue of being listed as major hospitals in yellow pages). The above criteria of hospital selection allowed for making generalizations on quality management criteria as they represent best practices in the industry and hence appropriate for validating quality performance factors. The data was analyzed under the following sections, namely, challenges faced by hospitals, key success factor for hospitals and content analysis of quality management practices.

### Challenges Faced by Hospitals

Based on the inputs of managers the challenges can be classified under five major categories namely:

1. *Competition among hospitals*- was found true for almost all hospitals irrespective the type of hospital namely corporate, trust run or private or medical college hospital. Pricing, quality of services and specialists, use of technology and ability to provide a stimulating working environment as well as benefits for staff were seen as important.
2. *Disease trends/ epidemiology and disease management*- For instance, it was specifically mentioned that the challenges are to find specialists e.g. oncologists for hospitals given the fact that there is an increasing trend of carcinoma. Disease management of life style diseases such as asthma, diabetes, kidney and heart as well as stress related diseases were reported to be very challenging owing to their chronic nature.
3. *Providing services with cost effectiveness*- Opening up of departments in new speciality areas calls for huge investments and changes much faster than ever before. Given the limited resources, management of new projects was reported as challenging. In the context of decreasing patient share (market share) and profits, cost effectiveness of expensive medical technologies were major concerns for hospital managers.
4. *People focus and human resource management* -Another important area of concern for hospital was manpower recruitment, training and retention especially retention of nursing staff. Physician involvement and their almost unquestioned autonomy is another area of challenge for hospital managers especially while implementing newer management methods like TQM.
5. *Changing trends in healthcare sector*- The growth of health insurance sector is reportedly leading to increased documentation. In addition, demands by various customer groups for better services and value for money are seen as a threat in a sector which was predominantly provider-centric. Professional management and marketing of services once not so common in the industry are currently considered as crucial for survival in a competitive industry. One hospital manager mentioned that the implementation of organization wide TQM is a big challenge for hospital managers.

### Key Success Factors for Hospitals

Table 1 shows the content analysis of the key success factor for hospitals as reported by the managers. Majority of hospitals mentioned "quality" as a key success factor for hospitals. Most often quality of professionals and medical technology is reported to be very important for the success of hospitals. The fact that these hospitals are of high repute strengthens the assumption that customers' perception of hospitals and managers' view that 'quality' is critical to success are congruent in nature.

TABLE 1: KEY SUCCESS FACTORS FOR HOSPITALS

S.No.	Key Success Factor	Number of Hospitals*	Specific Contents that highlight the Factor
1.	Quality of Medical Care and Services	20 hospitals specifically mentioned "Quality" as a major success factor.	<ol style="list-style-type: none"> <li>1. Quality of Medical Professionals</li> <li>2. Quality of Medical Care &amp; Services</li> <li>3. Human Care</li> </ol>
2.	Medical Technology and Procedures	14 hospitals attributed the success to advanced technologies. 8 hospitals mentioned specialized care they provide as key to their hospital success.	<ol style="list-style-type: none"> <li>1. Medical procedures and use of technologies including state-of-the-art technology.</li> <li>2. Specific care facilities such as round the clock emergency, trauma care, laboratory services, total cancer/heart care, focused care, e.g. ophthalmic, orthopedic, neurological care.</li> </ol>
3.	Staffing	12 hospitals attributed the success to excellent staff.	<ol style="list-style-type: none"> <li>1. Dedicated Nursing Staff</li> <li>2. Excellent Consultants / Doctors</li> <li>3. Personal involvement and passion</li> <li>4. Team Effort</li> </ol>
4.	Access and affordability	6 hospitals	<ol style="list-style-type: none"> <li>1. Affordability of specialized services</li> <li>2. Ability to cater to a specific poverty ridden geographical region the hospital is located.</li> </ol>
5.	Other factors	One hospital each mentioned the reasons listed in the next column.	<ol style="list-style-type: none"> <li>1. Brand Image</li> <li>2. Medical Research</li> <li>3. Corporate tie-ups</li> <li>4. Insurance</li> </ol>

★ There were multiple responses and therefore the numbers do not add to the total number of hospitals in the study.

#### Content Analysis of Quality Management Practices

All hospitals included in the study are formally carrying out some *form of quality management programmes*. They are using a range of quality practices, which incorporate the principles of TQM. Cost efficiency and effectiveness is recognized to be very important by most interviewed.

The study explored how *leadership and management commitment* is manifest in hospitals with special reference to quality management practices. Leadership vision, mission, and clearly articulated values in general, indicate the leadership and management commitment to provide quality services to patients. Fig. 1 shows the percent hospitals which have shown commitment to quality and professional management

The vision statements were analyzed for content and themes. Expansion of network of hospitals, excelling in all medical specialties, achieving patient satisfaction and providing high quality medical care with warm and professional service were major themes in vision statements of hospitals. The main theme of mission statements was to provide ethical and quality care to all (one hospital has stated that it wants to provide medical care of international standards).



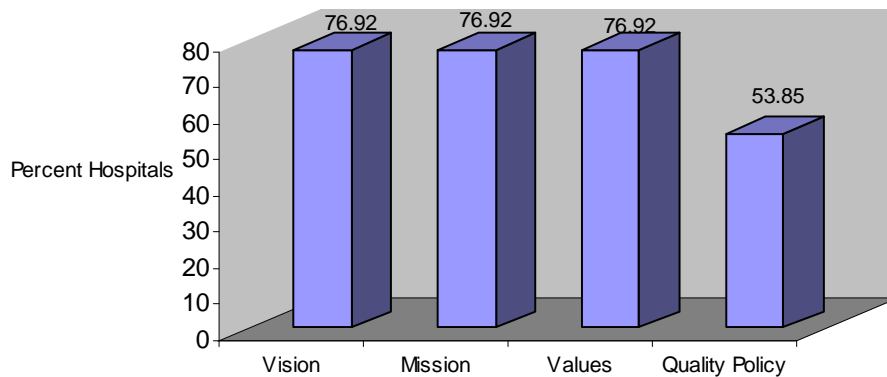


FIG.1: LEADERSHIP & MANAGEMENT COMMITMENT

'Quality' appeared in vision, mission and value statements repeatedly; 'quality at all levels' is another value mentioned as important. Among the most important values mentioned in the survey are: Quality, Compassion, Integrity, Technical Excellence, Respect, and Enthusiasm, Discipline, Customer Satisfaction, Equality, Honesty, Openness, Commitment and Hard Work. Quality policy was developed in only 53.85 per cent of hospitals in the study. A total of 15 hospitals in the study have obtained ISO certification, five hospitals have Quality Assurance Departments.

Fig. 2 shows that majority of the hospitals use more than one form of quality management methods. Further, it can be seen that Medical Audit (including medical records check) is the most common *quality management* procedure implemented in hospitals. Many hospitals also carry out *Customer and Employee Satisfaction* surveys, the former being more frequently used than the latter. Check list indicated that only two hospitals were ISO certified. Benchmarking and 360 degree appraisal are the least frequently reported practices presently but one respondent said that with increasing levels of awareness and information disclosure, such methods would be more frequently used in the future.

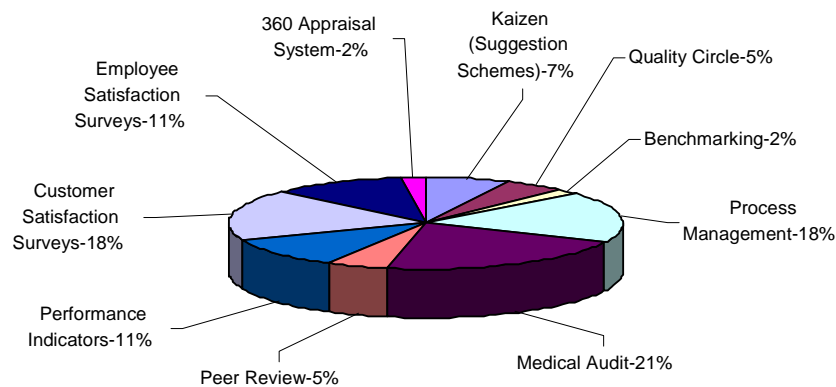


FIG.2: QM PRACTICES IN HOSPITALS SURVEYED

In addition to the checklist, respondents were requested to comment on the methods used for quality management in their respective hospitals. The following major points emerged from such qualitative information: Monitoring of Hospital Acquired Infection rates, Mortality rates and Morbidity rates are used to monitor quality of care. The respondents said that process improvement was very important in achieving total quality. Such practices include standard process manuals/protocols for all departments and standard operating procedures (SOPs) for key processes as well as support services. Only Laboratories of 12 hospitals in the study are enrolled in external quality assurance and accreditation process by National Accreditation Board for Laboratories (NABL). Training in quality, customer satisfaction surveys, periodic peer reviews, and weekly appraisal through clinical society meetings are some of the other QM programmes carried out by the hospitals surveyed. Tools such as histograms, charts/tables, brainstorming techniques, and data analysis, cause-effect diagram are used by respondent hospitals for data analysis in various departments/units. This survey clearly indicates that these large hospitals are implementing quality management and formalizing the practices.

Responding to an open ended question on additional inputs on 'Quality' of healthcare services provided by hospitals, the respondents included that *hospital ambience*, cleanliness, and friendly atmosphere aspects important for patients, their families as well as for the staff. Staff *training and professional management* were also noted as crucial for enhancing efficiency and acquiring new knowledge. Appendix A shows the detailed content analysis of quality management practices among Indian hospitals. This analysis clearly confirmed that the 13-construct TQS framework for hospitals is appropriate and useful.

A number of barriers were identified in the successful implementation of quality management such as lack of top management commitment, resources, and staff resistance to change, physician involvement, diversity of working patterns and protocols, apathy of government sector, lack of accreditation standards for Indian hospitals and pharmaceutical competition. A lacuna exists in assigning responsibility-accountability in areas of problems and that hospitals continue to be highly centralized in authority relations is noted as a major barrier. Some managers opined that "*More means better*", and that physicians and hospitals with time and facilities tend to do more tests, procedures, and use more advanced technology. Other managers reported that patients consider low price as a signal of poor quality and price sensitivity of patients is not always linear in a sector where pricing issues are not resolved. It was found that added features, 'hotel like' services have brought early successes in quality improvements

(particularly based on perceptions of customers) but has pushed the costs of providing care. There should be incentives for healthcare professionals to improve *health rather than increase the use of medical procedures is what a manager noted*. Some feared that without real measure of outcomes, state-of-the-art facilities become focus of healthcare competition and not necessarily appropriateness of medical procedures and outcomes. Some managers complained about ISO certification being flaunted by a few hospitals. Documentation and patterns of unusual rate of use of certain procedures (e.g. C-section deliveries or number of hysterectomies-severity adjusted rates) are not rigorously carried out by many hospitals. These barriers along with challenges (Appendix A) in QM indicate that TQS implementation is rather in the initial phases. Evidence based clinical and non-clinical practices have to be further improved.

## Conclusions

The Quality Management practices are becoming more prevalent in the Indian context and evolving rapidly in major hospitals. The healthcare managers consider 'quality' as a very important competitive strategy in a fast growing industry. Quality management practices vary but basic principles of TQM such as customer orientation, improvement of technical quality based measurement and evidence is increasingly seen as important. The thirteen TQS factors chosen through literature review analysis namely, *Leadership & Management Commitment, Strategic Planning, Administrative System, Supplier Quality Management, Process Management, Human Resource Management & Development, Healthcare Service Design and Improvement, Servicescapes, Service Culture, Measurement, Information & Analysis are systems, Customer Focus & Satisfaction, Key Results and Social Responsibility* are found appropriate for implementing organization-wide quality management. Most hospital managers in the study reported that they are aligning resources, training employees and implementing programmes along those strategies.

### Future Scope of Research

A field study for assessing the reliability and validity of the proposed 13 TQS constructs for hospitals is judged to be highly relevant. Assessing reliability would be best achieved using the internal consistency method (Cronbach's alpha) as it requires only one administration in a field study. Factor Analysis can be carried out for validation of TQS constructs. Bivariate correlations between the TQS constructs based on the ratings on implementation levels of various quality constructs in hospitals in comparison to industry best practice would throw light on their relative importance.

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## Appendix

APPENDIX A: DETAILED ANALYSIS OF QUALITY MANAGEMENT PRACTICES AMONG INDIAN HOSPITALS

Construct	Quality Management Practices	Challenges
<b>Leadership &amp; Management Commitment</b>	<ul style="list-style-type: none"> <li>Communicating mission statement and quality policy through various channels like meetings, displaying at various places, trainings etc.</li> <li>Form core committees, open forums and proactive planning for ensuring quality practices.</li> <li>Allocate resources for quality management programmes</li> </ul>	Some managers reported that lack of leadership and management commitment is a major barrier for organization wide TQM implementation.
<b>Strategic Planning</b>	<ul style="list-style-type: none"> <li>Strategic partnerships with insurance companies, corporate contracts for providing services (e.g. Executive Health Check service package).</li> <li>Expansion of services based improved data from external and internal environment in some hospitals.</li> </ul>	It was noted that strategic planning was not carried out very systematically in Indian hospital sector till recently.
<b>Human Resource Management &amp; Development</b>	<ul style="list-style-type: none"> <li>Enhanced training programmes for all level staff (e.g. from house-keeping, security to executives)</li> <li>Internal Quality Audits for HR (especially in ISO certified hospitals).</li> <li>Continuing Medical/Nursing Education Programmes, sabbatical leave, training abroad used for Continuous Learning.</li> <li>Hospitals are addressing employee motivation and satisfaction more rigorously (e.g. rotation of HOD's in a department, career development etc)</li> <li>Compensation, support programmes, environmental-health-safety plans family support programmes, promotions.</li> </ul>	<p>Not all hospitals have job specifications and requirements formally written for all jobs.</p> <p>Staff retention continuous to be high especially among nurses (e.g. some managers said that the attrition rates are as high as 40%).</p> <p>One expert from a highly reputed medical college hospital said that employee training needs and actual training is still a 'token gesture' and</p>

		lots need to be done. Physician autonomy not given up yet.
<b>Healthcare Services- Design and Improvement</b>	<ul style="list-style-type: none"> <li>• Patient needs and requirements are considered for designing the services.</li> <li>• A number of evaluation methods (especially performance indicators such as hospital infection rates, mortality and morbidity rates, clinical case discussion outputs)</li> <li>• ICD and ICMR disease coding is used for streamlining the disease management. One hospital reported the use of DRG system.</li> <li>• Specific indicators for assessing diseases do not exist.</li> </ul>	Cost effectiveness of procedures and Procedural appropriateness based on data is very limited.  Physicians' unquestioned autonomy.
<b>Process Management</b>	<ul style="list-style-type: none"> <li>• Many hospitals have identified core and support process.</li> <li>• Standard Operating procedures, departmental/clinical/nursing protocols, work instructions and procedure manuals have helped reduce variations in services.</li> <li>• Integration and streamlining of the various services.</li> <li>• Measurement of processes and results need to be addressed.</li> </ul>	Ethical issues not strongly addressed (e.g. ethical committees not very common especially for professional and patient care related activities but may be found.  Not all hospitals in the study have SOPs for all departments.
<b>Servicescapes</b>	<ul style="list-style-type: none"> <li>• Hospital ambience and physical infrastructure being constantly improvised.</li> <li>• Cleanliness, hygiene and comfort for patients and employees are taken care of..</li> <li>• Sign boards, ease of moving patients, stretchers, wheelchairs, paid due attention.</li> <li>• Hotel like services improved with coffee shops, appealing front desks, attractive lounges, improved layouts, flower/book store, parking facilities etc.</li> </ul>	Presently a lot of investments are made to improve 'hotel like' services.
<b>Service Culture</b>	<ul style="list-style-type: none"> <li>• Friendly staff, a number of hospital representatives to help patients and families while being serviced.</li> <li>• Social work departments to assist patients with understanding treatment plans/procedures, payment options etc.</li> <li>• Training staff in service culture, team work, helping nature and quality interactions.</li> </ul>	Establishing quality culture and team work needs to be strengthened.
<b>Administrative System</b>	<ul style="list-style-type: none"> <li>• Integrating administrative and clinical processes.</li> <li>• Payments, billing, collection, claims and interdepartmental coordination given special attention.</li> <li>• Feedback from staff and patients/families on administrative procedures incorporated to improve services.</li> <li>• Regulatory mechanisms, forming committees for quality assurance set up.</li> <li>• ISO certification, accreditation by National Board of Examination, hospital registration procedures etc. are rigorously carried out.</li> <li>• Documentation and follow up of medico-legal cases streamlined in many hospitals.</li> </ul>	Coordinating various clinical and non-clinical processes in hospitals is reported to be lacking.
<b>Measurement, Information &amp; Analysis</b>	<ul style="list-style-type: none"> <li>• TQM practices such as Kaizen (suggestion schemes), quality circle, root cause analysis &amp; benchmarking implemented in some hospitals.</li> <li>• Data driven tools and techniques implemented in Cardiac surgeries, ICUs, OT/equipment utilization etc to improve</li> </ul>	Data for benchmarking is not extensively available for Indian hospitals, published data for U.S. hospitals are used as benchmarks in many instances for example hospital

	<p>quality.</p> <ul style="list-style-type: none"> <li>Data analysis and measurement of indicators such as post-operative infection rates, hospital acquired infection rates, ventilator-pneumonia days etc are utilized to monitor quality of care.</li> <li>Utilization rates, lab turn-around-time, medical record retrieval.</li> <li>Medical records check and quality of documentation done regularly.</li> </ul>	<p>acquired infection rates.</p> <p>Information Technology based hospital information system are still being developed in most hospitals.</p>
<b>Supplier Quality Management</b>	<ul style="list-style-type: none"> <li>Pharmacy supplies and just-in-inventory are implemented.</li> <li>Quality checks on products and supplies well established in many hospitals.</li> <li>Annual Maintenance Contract for medical and other equipments.</li> <li>Vendor evaluation and raw material analysis for quality and costs carried out to ensure quality at reasonable costs.</li> <li>Long term relationships with vendors established.</li> </ul>	<p>Making 'quality' the most important criteria for vendor selection.</p>
<b>Customer Focus &amp; Satisfaction</b>	<ul style="list-style-type: none"> <li>Customer satisfaction surveys are conducted on a regular basis. Developing a Customer Satisfaction Index.</li> <li>Motto of some hospitals "Customer is the King" and "Comfort to family"</li> <li>Handle grievances in a systematic manner.</li> <li>Provide complaint boxes for customers to provide feedback on services.</li> <li>Some hospitals have published "Bill of Rights for Patients"</li> </ul>	<p>Improving the validity of customer satisfaction surveys needs to be researched.</p>
<b>Key Results</b>	<ul style="list-style-type: none"> <li>Profits, cost per procedures, bed occupancy, average length of stay are measured.</li> <li>Reputation of hospital, employee performance considered important indicators of overall organizational performance.</li> <li>Number of in-patients &amp; out-patients regularly monitored.</li> </ul>	<p>Only rarely formal performance measurement techniques such as Balanced Score Card are used.</p>
<b>Social Responsibility</b>	<ul style="list-style-type: none"> <li>Discounts to poor patients, free clinics in adopted villages, health camps to address issues of affordability.</li> <li>One cancer hospital reported that treatment is not denied for lack of payments and a number of help is sought for patients.</li> <li>Corporate citizenship and community involvement regarded important. Unique programmes run by some hospitals in improving community awareness (e.g. health quiz for school students).</li> <li>Telemedicine to improve accessibility to remote/rural people by some hospitals.</li> <li>Improving environmental pollution through safe disposal of hospital wastes. Most hospitals follow Government of India Gazette Guidelines for hospital waste management.</li> </ul>	<p>Increasing cost of medical care and use of high technology is affecting affordability factors.</p> <p>Difficult to balance social equity issues with profit orientation given the high costs of technical care.</p>

## **Reengineering of the Public Healthcare System in an Institutionally Non-Regulated Surrounding – The Study of the Case of Serbia**

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### **Abstract**

The healthcare system of Serbia has been facing great problems since the beginning of the eighties of the last century. In the framework of vague and nontransparent transition a strange mixture of quasipublic, quasimarket and administrative regulation mechanisms has occurred – which has made the need for existence of a public healthcare system practically purposeless. In that sense, Serbia needs a total reform; an ambitious, radical, quality and innovation based methodology, that will, on the basis of a developmental vision, determine the direction of institutional changes and various reformative actions aiming at a radically new public healthcare system – oriented towards prevention and maintenance of health capabilities (of the total national population) based on the development of an adequate system of life and work, while cure of most of illnesses, especially those for which sophisticated and expensive technologies are used, should be left to the private sector based on individual participation. The key of implementation lies in a new definition of the content of the paradigm “equity”.

### **Introduction**

This paper explores the problem of management of a public healthcare system in an institutionally non-regulated surrounding. The original motive for this research is a difficult situation in the system of healthcare in Serbia, and at the same time it is an attempt to explore a realistic model for improvement of its performances in the sense of providing necessary (health) services of adequate quality without financial barriers for the entire population in very limited (general) institutional and material limits. Majority of politicians, researchers and experts, including the foreign factor, too, see a solution for improvement of performances of public health system, on one hand in revitalization of existing capacities on basis of reconstruction of the existing premises, supply of new equipment, sale or rental of surplus space and rationalization of the staff, and defining a new model of payment to the providers of the services of healthcare, on the other hand [14]. The basic characteristics of the official strategy are: (1) An attempt to, following certain models of reform of the system of public healthcare realized in other (post) socialist countries, members of the European Union, open a space for reduction of public expenditure for health protection in the gross social product (from 6.6% in 2006 to 5% in 2009) and (2) Exclusion of the private sector from the public program for providing healthcare. Belief in a quick and efficient realization of this reform results from the fact that within the preparatory work for European integration in those countries a radical reconstruction and rationalization of public system of healthcare has been made on basis of formal implementation of so-called European standards. However, on the other hand, there is no information how much those reforms really influenced the quality of public health services and fulfilled expectations of beneficiaries (the sick, users who are deprived of super specialized services and the most vulnerable segments of the society – the elderly, persons with disabilities, Gypsy population). No doubt those so-called European public protection standards have real and scientific foundations and that the reforms in the public healthcare system in Serbia are necessary, however there is no guarantee that its implementation will radically improve the performances in a short term period. In fact, the process of the social and economic development of Serbia so far have indicate that much better (scientifically determined and empirically confirmed) models of management of production (of public resources – author's remark) have not been accepted by (national) practice, in other words, there is a question “Why the practice does not use much bigger possibilities that have been offered?”.

The basic hypothesis of this paper is that production of healthcare services as public goods, even in the conditions of market income model, has been going on in an administratively hierarchical surrounding. Simplified, in that surrounding there is a center or a commanding organ which determines: “What, in what quantity and under which conditions should be produced?” Management of the healthcare institutions is authorized in those limits to produce more and more rigorously observe the imposed limitations. In accordance with that, the essence of efficiency is that the institutions for providing public health services, act in an institutionally regulated surrounding which determines: (1) The minimum of healthcare services to be provided, (2) Quality standards of healthcare services, and (3) Prices and conditions of their extended production, as basic elements of causal interactions, which need to be given solutions for social and economic phenomena, such as, (4) Assessment of demand for healthcare services in short, medium and long period, (5) Choice of the level of satisfying of the demand for public healthcare services on the national, regional and sub-regional and local level, on basis of the criterion that their distribution is done on the level of individual in accordance with his minimal needs, (6) Assessment of the status and possibilities in usage of capacities for providing healthcare services and (7) Defining the relation between the national, regional, sub regional and local investment policy. In this context, reforms of public system of healthcare give more superior solutions in economic and social sense only if adequate combination of institutionally regulated surrounding and market mechanism is ensured. In that sense, according to the opinion of the author, the essential task of the reform strategy of the public healthcare system is seeking the answer to the questions: (1) “What are the main characteristics of the institutional non-regularity?”, (2) “What should be done in order to improve the performances?” and (3) “How to ensure more intelligent efficiency of public regulation in the sphere of improvement of their performances?”.

In this context, the main characteristics of the process of finding the real goals and actions within the reform of the public healthcare system are: (1) Multi-criteria approach to the problems to be solved, (2) A better understanding of the transitional phenomena, especially the resistance towards the changes that marks the process of reconstruction and advancement of performances and (3) Instability of social preferences in determining the scope, structure and quality of public healthcare services. On the other hand, advancement of their performances is a complex social-economic phenomenon. At the same time it is connected with decision making about distribution of rights to (the minimal) conditions of life and work, that is, business of public and commercial subjects, fiscal pressure, public expenditure, changes in the structure of reproduction, that is, personal consumption, employment, modernization of technology, public and private investments, import and export. In accordance with that, the problem of advancement of performances of the public healthcare system is, first of all, a matter of human creation, that is to say its essence is in understanding the risk that is implicit in each (public) decision. The advancement of the performances of the public healthcare is not possible to achieve without building an efficient infrastructure for public regulation and integral marketing system. However, the advancement cannot wait for their completion and structural adjustment. Development of public and market institutions and advancement of performances is to be achieved in a parallel ongoing process. In accordance with that, the authors have chosen an approach, according to which the main task of the public factor in advancement of the performances of the healthcare system is elimination of barriers preventing the adjustment of so-called soft (software) elements, such as: (1) Changes in the power structure between the inner and outer factors, with accent on making a precise, public and transparent framework for public regulation of behavior of the organizations that act in a regime of administrative monopoly, (2) Improvements in regulation circles and games rules for performing the key processes in production of public health services, (3) Adjustment of general frameworks by which the role and economic position of the employees in the public healthcare system is defined and (4) Development of the culture of the organization (production of health services as public goods – author's remark) by which a quality of contents of characteristic behavior rituals of employees would be ensured in order to meet the needs of users of public healthcare services in a more efficient way. Before a more detailed elaboration, a short review of the status of the healthcare system in Serbia and open questions in its implementation will be presented.



## Crisis of the Healthcare System in Serbia

Serbia entered the transition with a developed model of a “welfare state”, which, in the limits of existing material possibilities, provided a high level of social and healthcare to the entire population. The national version of the “welfare state” was marked by socialist character of political and economy system, but its foundations reach back far in the past and are linked with the results of the revolution that took place at the beginning of the 19th century. Within the national liberation from the Ottoman rule, a social revolution took place by which a feudal system was repealed and foundation institutions of so-called “peasant economy” were established. In order to maintain and advance the national independence, the political elite gradually developed institutional and physical infrastructure, which, even in the surrounding of general poverty due to underdeveloped economic basis, managed to provide a minimum of healthcare for the majority of Serbia’s population<sup>1)</sup>. Very early Serbia accepted the so-called “Bismarck’s model“, too. In the period after the Second World War, the system of healthcare went through several phases in its development<sup>2)</sup>, so that in 1970, an equal scope of healthcare for all citizens with very wide range of rights and under general conditions guaranteed by the state by compensation of lacking funds from the budget.

Deterioration of the health system began at the beginning of the eighties of the last century, in the process of more or less invisible deterioration of socialist started. Due to the ways, in which public expenditure was financed, the healthcare continued with illusionary development, but as soon as the end of that period a gap between normed rights to healthcare and capability of their financing from public sources became visible<sup>3)</sup>.

Political and economic fall of socialism in the beginning of the nineties of the twentieth century brought about the falling apart of Yugoslavia, civil wars, various international political and economic sanctions, NATO aggression and restoration of capitalism, causing: (1) Aggravation of health state of the population due to living under great stress, expansion of economic and social hopelessness, a tide of risky behavior and generally social and personal carelessness about health and (2) Decline of scope and quality of public health services due to the lack of resources in the health insurance funds and devastation of curative and preventive infrastructure. Personal participation in financing costs of healthcare increased and a significant part of health services production was privatized. In order to improve their material position, employees in the public sector looked for additional sources of income by working illegally (“black market”) in private offices and hospitals or they illegally privatized public resources. A widespread opinion of corruption in the public system of healthcare exists in general public, however it has never been proved. In fact, a threefold healthcare system was created. The first, private, financed directly by the users, in which, after seventeen years, a high quality of health services is provided; the second, in which users provide health services on irregular basis within the public curative infrastructure (for example: by purchasing medicines, medical care, hygiene and other materials and by paying privately to the medical staff) and the third, the public one, coping with periodical breaks in supply of necessary medicines, medical care and other materials and inability of timely performing complex diagnostically examinations and urgent operations.

The paralysis of the public healthcare system hit the socially most vulnerable segments of population in particular: children, the old, and persons with disabilities, women, and the Gypsy population being absolutely excluded from it. In the circumstances of mass unemployment and poverty, expansions of contagious and noncontiguous diseases occur, especially in children. Those diseases were believed to be extinct, but recur as consequence of bad quality and structure of food, personal hygiene, housing, water supply, improper drinking water quality and, of course, worsened conditions of medical treatment.

In the period after 2000 a number of documents were imposed and numerous proposals and drafts of documents formulated as an attempt to define a health policy and development strategy of public healthcare system. Among other things, in 2002 the Law on Healthcare of 1992, passed within institutional reform for demontage of institutions of the social system, was thoroughly innovated, and in 2005 a totally new law was passed, for which it has been claimed that it has been mostly adjusted to the currently valid instructions and positive practice in the European Union. However, little has been done in their implementation, even less on improving the situation, and almost nothing has been achieved in reaching the European standards of health services. All the time, it has been pointed out that the main reason for poor functioning of the healthcare system is the lack of financial resources<sup>4)</sup>.

The presented research shows that institutional reforms and partial privatization and commercialization in the last 17 years have not resulted in revitalization of the healthcare system. It means that great expert zeal and scientific thorough approach should be devoted to a deeper analysis of the structural disorders and problems related with the role of the public sector in managing the system of healthcare. Otherwise, sooner or later a question will impose itself: "What is the use of institutional reforms, privatization and deregulation in production of healthcare services according to the European Union, if they do not result in advanced health of the entire population and their education to face the problems and stresses of restoring capitalism, accepting individual responsibility for creation of decent conditions for life and work and challenges of the integration to Europe?". In that way three key problems of the historical heritage and vague, nontransparent and manipulative transition have been introduced and placed in the center of healthcare system reforms. The first is a consequence of socialization of economic risks of illnesses at work. In spite of nominally high ethical standards of protection of life and health, a large number of work posts and the micro-surrounding in which work processes took place, were created in such a way that they did not in the least contribute to maintaining health at work place. In fact, the system of health and social care did not contain realistic economic motives and administrative force, which would force economic subjects and employers to reduce healthcare risks at work places into socially acceptable limits by application of technically advanced equipment and specialized education, especially according to the very exact standards and norms from the relevant surrounding from which ideals were taken for designing the healthcare system (Scandinavian countries in particular, which often were, explicitly and implicitly, pointed out as a model to be followed in the process of creating the national version of the "welfare state"!)

Analyzing the current reforms of the healthcare system, this problem should be dealt with in three contexts. The first one is the moral and institutional obligation of a modern state to protect the right of each individual to work under the conditions which will not ruin their health and life in the surrounding of great disbalance of power between the employer and employee at the labor market. The second, integration into the European Union implies, among other things, implementation of very rigorous standards of protection of employees' right to a healthy and safe work place, as well as the right of users to receive a healthy safe product. The third and the most essential one is the existence of needs that demand creation of adequate work conditions in industry, construction industry and agriculture (where the work conditions are the hardest) for engaging workers from fifty to seventy years of age. Due to demographic regression, young labor power will not be interested in sufficient measure, nor will the system of individual life preferences and labor movement freedoms offered by the European model of market economy direct them to seek their prospects in those work fields within Serbia.

The second has come as a result of development of super specialized secondary and tertiary (meaning very expensive) infrastructure for healthcare in the public sector<sup>5</sup>). The division into sectors shows in practice a whole range of defects: (1) Fragmentation of the healthcare service and too wide introduction of clinical specialty, (2) Nonexistence of continuity of production of healthcare services (3) Very no equalized quality of services, (4) Overuse of higher levels of healthcare (5) Formal approach to health promotion and illness prevention, especially alcoholism, suicide, food related illnesses, smoking related illnesses, drug abuse and AIDS, (6) Neglecting family as a significant factor in health prevention, (7) Extremely low level of doctors working in primary healthcare from the aspect of internal and external reputation of the medical profession and so on.

The third is a consequence of an unclear, foggy and manipulated transition, that is to say, lack of state support to the public healthcare privatization. The growth of private practice in Serbia is going on in the surrounding of the so-called "passive privatization", demanded by the needs for higher quality of services than the ones provided by the public sector. Strengthening of the private practice has been induced, first of all, by budget limitations in providing services defined by law. A wish to make a fortune quickly and poor control of work and income of the private sector has resulted in rise of number of private out patient clinics, dental and pharmaceutical institutions and super specialized clinics. There is very little relevant information about their effects on the healthcare, but it is undoubtedly clear that accessibility and equality in healthcare have been endangered by that situation, especially because of the mass phenomenon that medical doctors and other medical staff, while working within the system of obligatory insurance, identify and redirect patients into their own private practice, although it is evident that they could be served equally well and with lower expenses in the official working hours.

On the whole, a conclusion can be made that the change of the currently present ideology that took place in the beginning of the nineties years of the last century as well as the restoration of capitalism in case of overcoming the crisis of the healthcare system in Serbia has proven themselves as nonproductive, as everything else has remained the same – working methods, approach, values and attitudes. Its main feature is institutional non-regulated surrounding – consequence of unclear, foggy and manipulated transition. Reflections onto the public healthcare system are multifold. First, a space has been opened for a wild privatization of a part of the public healthcare system and development of an irregular system of partnership between the public and private sector in production. Second, a favorable milieu has been created for forming a distribution-oriented coalition<sup>6)</sup>, which, by skillfully using their political and any other influence, in the limits of the historical heritage, tends to have this situation maintained, thus blocking the necessary structural changes in the public healthcare system and regular development of the private sector. Third, in the framework of an unclear and nontransparent transition, a strange mixture of quasi-public, quasi-market and administrative regulatory mechanisms - practically making the need for existence of the public healthcare system purposeless. However, prior to a detailed interpretation of the essence of the institutional non-regulated surrounding in Serbia, an attempt will be made to put more light on some crucial aspects in relation to the management of production of public goods, which have not been accepted nor implemented in national practice, because the public infrastructure for providing healthcare services, formally and de facto belongs to the regime of public administration, and not the public service, as it should be in the light of globalization and introducing market mechanisms in the management of public goods production.

### **Basic Elements of Healthcare System Management as a Public Service**

Management of the healthcare system as a public service, like in any other human organization, is based on knowledge and beliefs about its way of functioning and what and how should be done in order to get from it the very thing that is the reason of its existence, in this case those are concrete healthcare services, in whose reproduction system, parallel with a system of economic criteria, exist also some wider, human and social and political factors which determine scope, quality, prices and production costs as well as dynamics of investment. Therefore, an institution producing (public) healthcare services is characterized by a specific in relation with the alternative production in the private sector. The problem of visioning and making a strategy as an essential statement about the future and the consequences of that choice has been dislocated out of the healthcare system, as in the modern society the decision whether a healthcare service is a public goods or not is in the first place a result of political fight among interest groups, not a result of an optimal process of social decision making. However, independent from this fact whose meaning has been neglected both in theory and practice, for efficient management of production of healthcare services in a regime of a public service, there must be a clear social vision, which explicitly defines: (1) Basic values (leading principles and rules, culture of life and work), which are unchangeable and are expression of the basic beliefs set through a consensus of all relevant options, (2) Purpose expressing clearly the basic reasons of existence of a certain socio-economic system and (3) Mission which is a statement of a clear and motivating goal the majority of the population tries to achieve. Naturally, it must be accepted that the science, at least in the dominating perception of its substance, cannot successfully develop methods and mechanisms for solving problems in the sphere of determining a social vision. Thereby, in fact, in the last consequence, some essential existential issues of production of healthcare services in the regime of a public service, no matter if we want it or not, have been left to voluntarism of politicians. That voluntarism is far from something that could be called the best achievable result (“best practice” principle) even in societies with a developed democratic decision-making in the sense of ensuring righteousness in approaching concrete healthcare services and high level of political competence. On the other hand, possession and utilization of: (1) Specific knowledge and skills, (2) Ability of genuine understanding of problems and coping with complex and unstable circumstances and in particular (3) Specific abilities of producing solutions and persistence in their realization, can lead to a successful solution of this problem. That is the reason two facts must be stated. The first one is that there is neither direct nor final answer to the question: “How to manage the production of healthcare services in a public service regime?” And the second one is that the failure of the public healthcare system is, above all, result of incompetent (political) management.

When seeking an answer to the above stated question, one should understand the essence of the purpose of managing production of healthcare services in a public service regime, such as: (1) Achievement of the outer mission (not only providing healthcare services in a certain structure, scope and price, but also a great number of other phenomena, such as: employment, reduction of public expenditure, technological development, protection and advancement of the surrounding, etc.) and (2) Own survival and development (which are not in linear connection, but are based on interaction between (healthcare) institutions, as organizations formed by the people bringing in their individual contributions and needs on one hand, and social preferences which determine, through a process of political competition, if a healthcare service has a status of public goods on the other hand). One of the solutions is that management, besides actions on solving problems, should create an adequate ambiance for achieving the purpose of management. In accordance with the above, the author believes that a well structured management of production of healthcare goods in a public service regime should contain the following elements: (1) Efficient planning and decision making, (2) Good organization, (3) Good motivation of employees, (4) Efficient control of the work process and (5) Development of positive culture and image in public. Let us see what should be scientifically recommended content of those elements in structuring a public healthcare system as a public service.

Planning means matching the resources (material, financial, human, time and so on) which ensures: (1) Desired (optimal) efficiency which is in our case measured by realization of the scope and quality of healthcare services within the demanded dynamics and (2) Effectiveness in using limited resources, and they are in the first place, prices of healthcare services and the degree of engagement of public finances for participation in expenditures of their production and expended reproduction. Planning is in its essence an attempt to introduce determinism in a development process (healthcare system in this case – author's remark). However, as it is never possible to have access to all data which can influence the realization of the set plan, its realization has elements of a chaos. In this context, decision making can be observed in two ways. According to the classical approach, decision making is a choice between in advance known and rival planned projected alternatives, and at that point an issue is opened, of course, who makes the decision on which of the alternatives is going to be selected. However, today in the practice of management of healthcare services production, another approach should have priority, and that priority should be analysis of decision making as a process of creation of solution to the problem. According to this concept, planning is seen above all as an attempt to set a goal to which our efforts will be directed, and which has both the past and the present as a starting point. However, interpretation of the past and present is burdened by subjectivity and can be interpreted in different ways, that is to say, it is relative. In that sense, planned setting of each goal must be taken as fluid, and the path towards its realization as a process subject to corrections in which determinism and stochastic are interwoven.

Organization of production of healthcare services in a public service regime is analyzed in this paper first of all in a context of a phenomenon that the organizational structure which is formed with an intention to serve in realization of a strategy of healthcare, always stays away more or less from a normative regulation and starts producing its own strategy. This phenomenon is a result of the fact that in production of all public goods, including healthcare services, only two generic organizations are used: (1) Voluntaristic bureaucratic organization and (2) Professional bureaucratic organization. Both these organizational structures are marked by hierarchy as result of work division and the need for their coordination, but also behavior in accordance with the axioms of so-called bureaucracy of economy, according to which it acts as organizational structure, which: (1) Obtains income from sources which are in no way connected with the sale of results of their activity, (2) Acts as a maximize of the state budget and (3) Tends to make money by using its position and role in the process of realization of functions of production healthcare services. In this context it is essential to keep in mind that it is impossible to imagine and realize perfect health institutions. Therefore it is necessary to reduce the number of hierarchy levels in order to minimize those phenomena, but also develop a new configuration of organizations for production of healthcare services, founded on so-called missionary organizational structure, whose main point is, in the first place, in the phenomena of culture development and adequate image.

Good motivation of employees in process of public goods production is connected by various authors, first of all, for its management. In accordance with mostly noncommercial features of public goods production, a concept “new public management” has been developed, meaning a mixture made from theoretical achievements of constitutional economy and usage of theory and practice of creating conditions for rise of motivation. Its basic

characteristics are: (1) Introduction of a principle of contract management in practice of management, (2) Application of marketing mechanism in public sector and (3) Making a relation between employees' salaries with results of their work and business. However, in case of healthcare services production, the issue of employees' motivation, medical staff in particular, must be brought onto the same level, if realistic advancement of their efficiency is desired. There are no ready-made recipes for solving this problem, but it is in relying of the surrounding that each healthcare institution should look for answers to the following questions: (1) "What is the main purpose of management of production of healthcare services in a public service regime?" and (2) "What does success in actual content of managing production of healthcare services depend on in order to advance efficiency?".

Control should ensure that achievement of aims, tasks, decisions etc are measured. The purpose of control is to find out what stimulates and what limits realization of set norms in order to make corrections in case it is needed – so that they would be realized, or, if it is necessary and acceptable, changes in their contents made. By that we come to one of the most controversy topics in management of production of healthcare services in public service regime. Norms for evaluation of success of their production depend, above all, on the relation of power among the leading socio-economic groups. According to that, assessing of success in healthcare services production is most of all a subjective and comparative procedure. Subjectivity of assessment comes from the fact that any of the marks can be rejected, if the norm it is based on is given up. The norms can be posted also in form of an ideal standard (based on an optimal theoretical calculation) or on the basis of a fixed empirically established alternative. On the other hand, application of the concept of total quality and orientation towards meeting the needs of patients and other users, in case of adequate implementation, they provide a more objective and active way for turning the control results into a required managerial or other action.

Culture of an organization is connected first of all for the content of the strategy and policy of structuring of organization of healthcare services production. These figures can be in various relations – from agreement to antagonism, when functions of production of healthcare services are organized with the help of corruption, threats, and other socially unacceptable instruments. That is why forming of the culture of an organization must be the basic infrastructure of management of production of healthcare services in the regime of public service. In accordance with that, the culture of an organization should include: (1) A way of communication with the outer surrounding, especially patients and other users, (2) Ways of communication with the center or commanding body, (3) Level of knowledge and expertise of the employees and the attitude towards patients and other users, (4) The main symbols. The measure of success of the communication with the surrounding and the center or the commanding body is the image, that is the picture or perception the public has about the concrete organization for production of healthcare services.

At the end, it is important to present the circumstances in which it is very difficult to ensure in wider scope conditions for satisfactory management in production of healthcare services in a public service regime. From the point of the goal of this paper, the following factors should be taken out: (1) Social-economic surrounding in which the following elements dominate: subjectively discount rates of makers of central managerial decisions, a short time horizon of decision making and the evaluation system of success which stimulates deceit or fraud, (2) Absence of altruism and antagonistic relation between the cultural values and ethical norms of the economic-political elite and the real social-economic reality in which the majority of population live and (3) Domination of interest of the distribution – oriented coalitions in formation of the structure of public income and expenses. Thereby we enter in the domain of the problem of institutional non-regularity, as the key factor for (in) efficiency of the healthcare system.

## **Institutional Non-regulated Surrounding and New Paradigms for its Improvement**

In order to precisely assess the influence of the (current) institutional non-regulated surrounding on the structural adjustment of the healthcare system, it is necessary to understand the basic social – economic challenges which its functioning in Serbia has to cope with. They are: (1) Changes in demographic structure of population, which have caused certain movements in the structure and scope of individual and public expenditure and demand. A stressed tendency of aging of the population has as consequence a dynamic increase of demand for specific goods in the

health and social care, which cannot be distinctly and precisely distinguished between those two sectors; (2) Changes in the pattern of living and consuming, a bigger stress is put on the issue of quality and contents of healthcare services in accordance with specific needs of individuals and their possibilities of individual participation, so the communication, in the sense of recognizing the real needs and possibilities of an individual and specific social-economic groups has become one of the key factors for efficient production of health services; (3) Deregulation has removed administrative barriers for entrance of the private sector into the system of healthcare and opened space for partnership of the public and private sector, as well as for increase of personal participation in financing the costs of production and extended reproduction; (4) Rising innovational and software contents, as well as the problem of complex connection between causes of bad healthcare condition due to no synchronicity between new healthcare needs and challenges and public and market regulation of healthcare, educational and social sphere are in great extent narrowed the possibility to provide healthcare services on the principle “equal rights for all”; (5) Strict functional and territorial division of work in production of healthcare services is replaced by their integration and specific forms of horizontal and vertical decentralization; (6) Great social-economic changes, chaos and absence of ethical norms have opened space for expansion of “shadow” economy, corruption and various misuses and deceits; (7) In order to respond to the challenges from (1) to (6), organization and management of the institutions of public care, modeled for long ruling economy and uniform content of corresponding healthcare service, should be replaced by organization and management for the economy of flexibility, scope, time and innovation. Because of that, the barriers between certain functions of strongly structured organizations of healthcare have become less and less sharp and clear, so that creative way of performing work and introduction of multidisciplinary connections with educational and social sphere become basic criteria for measuring efficiency, and development of strategic, technological and other alliances on local, sub-regional and regional level on foundations of cooperation of public and private sector has become a necessity.

Since a reform creates something new, (in this case a change of the system of healthcare with the aim to adjust itself to the demands stated earlier), a certain wider social-economic and technical ideal should be established as a system we aim at and which should represent a focal point of the goals. On the other hand, achievable reform activities should be performed by competent expert services on a principle of projecting technically feasible alternatives. From the point of view of other participants in the healthcare system, their initiatives become object of expert study and evaluation only after they have been totally defined. However, it is not the case with ideally established goals of a reform. First, each ideal goal is defined neither entirely precisely, nor clearly. Second, each decision maker defines for himself ideal definition of contents of goals of a reform, meaning that they contain many meanings. In fact, by this we come to the essence of the decision making issue. Reforms are the problem with more criteria, so the choice (decision making) is comparison of real alternatives and the ideal, that is, between something that is achievable at present and possibilities which are only vaguely achievable, but are very much desirable for decision makers. Although it is probable that, due to a specific situation in Serbia, not a single existing model of a healthcare system can be fully realized, we believe that some of the existing models from the European territory should be accepted as an ideal and as such taken as a starting point (of reforms). At the same time we must be aware that the goals established in that way will be realized only partially, never in total extent, and that there is a permanent threat of cosmetic actions, which do not touch actual essence of functioning of the system of healthcare. In this context it is possible to make a comparison between ideally structural models of regulation of institutional infrastructure necessary for efficient functioning of the system of healthcare and real current situation in Serbia (TABLE 1).

TABLE 1: IDEAL VERSUS REAL INSTITUTIONAL NON-REGULATED SURROUNDING

Ideal model of regularity of institutional infrastructure:	Existing state of regularity of institutional infrastructure in Serbia:
Legal state based on respect of human, social and economic freedoms	Undeveloped legal state
Clear political and economic concept of development of modern market economy based on the concept of economic freedoms and creation of real conditions for everyone who wishes and can work to get a job with income sufficient for at least physical reproduction	Unclear political and economic concept loaded by interest of broker-oriented entrepreneurship elite and numerous distribution-oriented coalitions
Clear political, economic, social and administrative concept of the role of the state in the sphere of production of public goods based on the general consensus of all relevant social, economic and political options and confirmed through all-inclusive citizens' opinion on its content, and goals, on basis of precise, clear and transparent standards, defined on basis of the concept: "minimal rights for all, the rest according to the needs and abilities of an individual to finance them"	Great gap between by norms regulated and existing rights to usage of public goods Irregular relations between public and private sector in production of public goods Significant presence of "shadow" economy element, corruption, misuse and fraud in public sector Domination of monopoly interest and distribution-oriented coalitions on the bidders' side
Clear political and administrative concept of horizontal and vertical decentralization of resources for production of public goods in state (public) ownership regime, adapted to specific regional, sub regional, and local healthcare, social, cultural and ethnical characteristics	Unevenly distributed production of public goods in the regions, sub regional and local units
Efficient and professional public administration system and services management, oriented to users (individuals, their families and specific social – economic groups)	Politics driven, inefficient and bureaucratic system of public administration and services management

In the presented methodological approach – the notion of institutional infrastructure is defined as a collection of active elements of the outer surrounding in which subjects of the healthcare system act.

The presented taxonomy resulting from an analysis of the official concept of Serbia's preparations for European integration [13, 14] shows that the problem of the reform of the healthcare system is possible to be solved only within a total social – economic reform in the sense of building democratic society in which citizens are free, competent and responsible. In the presented context a question is asked: "What should be a starting point in determining the role of the state in the sphere of healthcare in Serbia?"

The presented contents of the institutional non-regularity shows that in order to increase effectiveness of the healthcare system it is necessary to make relatively radical changes in the power structure and society without delay. The key of those changes is establishing a consensus between the political and economic elite and the majority of population of Serbia about the role of the state in the sphere of healthcare. Potential interest of the political and economic elite is, by increase of efficiency of healthcare, to ensure political and economic stability needed for their legal stratification. On the other hand, interest of the majority of the population of Serbia is, in the given material context, to ensure the best possible conditions for healthcare. However, the real situation shows that within the economic and political elite, those who do not see their interest in establishing a precise and transparent concept of reform of the healthcare system in Serbia prevail. Without going deeper at this point in the structure of interest standing behind this constellation, a hypothesis can be made that for realization of a successful reform of the healthcare system in Serbia, a total reengineering - an ambitious, radical, quality and innovation based methodology is necessary, which would, on the basis of a development vision, determine the direction of institutional changes and various reformatory actions with an aim to set up a radically new public healthcare system – oriented towards prevention and maintenance of healthcare capabilities (of the total national population) based on the development of adequate life and work, while treatment of diseases asking for sophisticated and expensive technologies should be left to the private sector with personal participation. The key of the implementation is in a

new definition of content of the paradigm “equity”. A paradigm that public healthcare insurance should provide the best healthcare is false and financially unsustainable even for societies much wealthier than Serbia. On the other hand, righteousness means a need to provide healthcare in the framework of public, transparent and precise minimal standards for all (meaning that nobody will die because he is not insured, because he has not money for cure or, simply, as often happens in Serbia, because he do not know relevant people) In this sense, according to the opinion of the author, in order to create conditions for liberal structure of the contents of division of expenses of production of healthcare services between the public and private sector, and which would be accepted by the population as a legal replacement for their existence according to the concept of the state of prosperity, it is necessary to substitute the factor of institutional non-regularity – by a more intelligent action of the public factor in function of advancement of micro efficiency in their production.

## **Total Reengineering as a Way out of the Current Status of the Healthcare System**

The idea of total reengineering of the healthcare system in Serbia and the policy for its operationalization may seem pretentious. However, the (cruel) reality shows that the problems in the healthcare system are consequences of the slave like following the old ideas and attitudes in the public sector and society in general, in the managing the state, political work and everyday public and business management. In that sense, lessons can be learned from the past. In the last two centuries in Serbia, radical changes of the actors in the political power, that were nor followed by freedom of individual creativity, has already several time proved to be nonproductive, because everything else stayed the same – work methods, attitudes, values and beliefs.

On the contrary, each liberation in the field of creativity and initiative, even with no big political changes, yielded a dynamic modernization. That is why Serbia needs a total reengineering as an ambitious, radical, quality and innovations based methodology, which will on the basis of a vision of development as well as the increase of the degree of creative freedom determine the direction of the institutional changes, and a more productive concept of goals and actions of the adequate policy, which would wake up the healthcare system from the dead, on the basis of a platform of a macro surrounding that guarantees equal chances for all as well as consistent strategy of integration of Serbia in the desired European surrounding. In that sense, we are going to define more closely what of the reengineering techniques should be used in the reform of the healthcare system in Serbia. Generally speaking, the term reengineering stands for such actions in the organization and design of the system (in our case in the system of healthcare in Serbia, and in the policy for its operationalization) which result in essential and quality changes in its functioning. In that sense, reengineering should consist of actions towards improvement of the basic processes, as well as an attempt to adequately define real needs for engaging leading staff and other employees in realization of the process on basis of the criteria of maximal satisfaction of the users of a certain healthcare service. So, the basic elements of reengineering are the processes and the employees who are required to identify easily and quickly introduced changes that will enable them and the entire service or function to be more efficient. Three basic factors are essential for a successful reengineering: staff, planning and results.

Success of each reform depends on cadre potential. Systems, tools, techniques and standards of organization of a system of healthcare, that is, forming contents of goals and actions of a healthcare policy, for example according to the criteria of the European Union, can be very useful, but only actors of public regulation and management are capable of their implementation and form an adequate institution, that is to say, carry out efficient realization of the set goals (of healthcare policy). Thereby the importance of two factors is put forth. The first one is that processes in a public institution are as good as their actors (implementers) with the least enthusiasm in them. Well, let us see what potentials are at our disposal in this sphere. For realization of changes a fresh motivation is necessary. The radical change of the economy system and two essential changes of actors on the political scene of Serbia in the last seventeen years have created excellent predispositions for development of new and more efficient methods of public regulation, and thereby opening of space for reengineering of the system of healthcare and policy for its operationalization. However, it seems that those predispositions had been used up before essential changes in the model of functioning of national capitalism were made, so others should be looked for. One of potential areas for development of fresh motivation for changes is, indeed, the program of integration of Serbia in the European



integration flows. But, certain precaution is needed here also. Optimism about quick integration has been, partially though and influenced by a foreign factor, replaced by (more realistic) views about a long and hard way which the society and economy of Serbia must pass in order to be integrated into the European Union. In accordance with that, what Serbia really needs is a clear, public and precise determination for integration into European flows that should be the foundation for creation and implementation of exact, transparent, precise, public standards for measuring the effectiveness of certain political options, institutional adjustment and public regulation, and only after their promotion and establishing a social consensus for their implementation, the dynamics of realization and deadlines can be taken into consideration. Another, a more important factor is the fact that for opening a space for changes, there must be a wish for learning, meaning a positive attitude to adequate implementation of other people's experiences, interest in foreign languages and cultures of life and work, as well as a wish to learn from the best foreign examples, all accompanied by a good information flow. Activation of a wish for learning depends on two factors – systems of continual education and a wide spread culture of management. As a matter of fact, current situation in these two areas suggests being cautious when determining a real wish for learning in function of radical social-economic changes. It is certain that Serbia has a quantum of cadres with adequate of education and certain managerial abilities, however, their number is insufficient to initiate a mass wish for learning in accordance with the above stated motto – saying that success of each reform change depends on those who have least enthusiasm.

The second crucial factor is planning. In the beginning of the eighties of the last century macro and micro planning in Serbia became a ritual with no substance, and practically it was forgotten at the beginning of restoration of capitalism. It is clear that modern planning has nothing in common with total or self management style of planning from an earlier period. The character of this paper requires us to interpret only two models of planning that should find their place in the system of healthcare in Serbia. Since the beginning of 2001, a program of revitalization of the system of public healthcare in Serbia has been going on partially financed by donations from abroad and long term credits. However, six year later its expenditures and results are not clear to the users and population. It is evident that the whole program was approached without public, precise and transparent concept and without planning by which key health, social, personnel and technical problems and time frame dynamics for its implementation would be analyzed. Looking from a time distance it is clear that those actions should not have been undertaken without adequate plans. On the other hand, planning of the reforms of the healthcare system and the healthcare policy demands certain space in which institutional foundation, practice of public regulation and behavior of subjects in the healthcare system could develop, change and adjust both to each other and to changeable circumstances. It was the talent for improvisation in action, as majority of actors learned to use the moment and employ creative improvisation in the chronically undeveloped infrastructure and poor normative and organizational institutional frame of life and work, and those are the key values of reengineering.

The third factor is results. In order to decide in favor of radical reforms of the healthcare system, some results must be achieved as soon as possible. Actors of the political and economic changes of 2000 were aware of that, so some results soon became visible – material situation of the staff in the public system of healthcare improved, supply of medicines, sanitary and other materials also became better, also hygiene, and food in hospitals, waiting time for operations became shorter, and revitalization of the existing equipment and procurement of the new one have improved the conditions for timely diagnostics of complex illnesses. However, it soon became clear that it was not enough to keep the reform enthusiasm up neither in the staff nor in users. A rational explanation for quick lessening of (the total) enthusiasm for reform should be sought in a fact that the majority of population of Serbia very soon found out that they had lost much more than they gained by the reform actions that had taken place. In fact, the increase of unemployment and social instability and thereby automatic limitation of access to healthcare services as well as absence of activates aimed at elimination of corruption and illegal mixture of public and private factor in the healthcare system influenced the change of the attitude towards reforms.

In any case, reengineering should be treated as a technique whose aim is to improve the processes with bad outcome by the principle step by step, in order to make the advancement and results visible almost on daily basis. No doubt that reengineering must rely on radical visions and be a component of big, long term projects, but its application should ensure that continual improvements of smaller scope are achieved. Thereby we come to the very essence of reengineering – it is not the technique that ensures radical changes in a long term, but a technique that seeks radically new solutions in a short term, which cannot be solved by application of some of the known

techniques. The main idea is to direct the whole system to the inner restructuring by initiating macro projects for verification of the system of public healthcare according to the standard of quality management according to ISO 9000:2000. This idea is based on the standpoint that restructuring of public healthcare system must be initiated from “bottom to the top” and not from “top to the bottom” as it has been in the current reform. In this context the project of re-engineering is divided into four levels:

The first, initial and the lowest level is, of course, *business reengineering*, whose activities are located on the micro level and oriented towards rationalization and redesigning of business and similar processes.

The second level is *managerial reengineering* which means introduction of new approaches in management of business and other processes.

The third level is *mental* or *educational reengineering* whose basic function is education and change of attitudes of participants in any business or similar process.

On the fourth, the highest level is the *total reengineering*, as a synthesis of all previous ones, which enables functioning of the whole, (in our case it is the system of healthcare and policy for its operationalization)

In order to realize this project, it is necessary to define a vision, what is desired to be achieved by reengineering in form of a clear, precise and public list of wishes and goals for whose realization the majority of participants do their best, as much as they can. The vision naturally must be based on solutions of the problems of the system of healthcare in Serbia copes with. Here are the most important ones: (1) How to create conditions to stop the process of deterioration of healthcare status of the population? (2) How to ensure the balance in public income and expenditure for healthcare within so-called “Bismarck model” and make redistribution of the public expenditure funds for the benefit of healthcare in the surrounding with strong interior and exterior pressures for lesser participation of the state in redistribution of the gross social product? (3) How to continue the process of revitalization and modernization of the healthcare system in a more effective way? (4) How to start up and realize a process of partial privatization and transformation of ownership in order to use up one part of the existing resources? (5) How to improve management and rational functioning of the public system of healthcare? (6) How to include personal funds of the population into the public healthcare system in a regular way? (7) How to realize the partnership between the public and private sector in the framework of the system of primary, secondary and tertiary healthcare? (8) How to attract fresh capital and know how for a partial privatization of the development of the healthcare system in the domain of high technologies? (9) How to get and use international help? (10) How to make a rationalization and improvement of the cadre education system (for example, Serbia's system of high education is too big in relation to its needs) – those are only a few of the urgent issues of the current (Serbian) reality.

If there was a clear and precise (developmental) vision of the system of healthcare of Serbia, then determining the structure of actions in reengineering on each of the said levels would be only a matter of technique. In that case, for example, partial transformation of ownership would not be a goal per se, but a means of revitalization, modernization and development of a corresponding component of the healthcare system. At the same time we must be aware that a privatization, carried out in various ways, automatically leads to a concrete goal (for example, although privatization of the system of healthcare in Serbia in the previous period was not clearly, precisely and transparently defined in social and economic sense, in practice it was going on in a form of a wild privatization of public resources, work on a “black market”, corruption, irregular public – private partnership, so that the final result it had the consequence that the basic capacities and employment in the public sector formally more or less preserved, of course, the price being (real) perception of users that this kind of system is unnecessary, but also a negative perception about existence of private sector). The situation with other mentioned problems is similar. The structure of actions in reengineering for overcoming each of them can be labeled as good, bad, desirable, and unacceptable, only if it is measured in relation with contribution to the realization of the goals contained in the (development) vision. Well, what is really the goal of the transition of the healthcare system in Serbia?

This question has been waiting for an answer for the last seventeen years. In the meantime the initial premises about transition as a way towards an “ideal” vision of capitalism adapted to poor circumstances (illustrated by the initial paradigm Serbia like “Sweden”) has been transformed into a new one “Serbia in the European Union”. However, this one, like the initial one, in its essence was fruitless and idle. European integration for Serbia is, above all, a goal, not the means for its realization. What Serbia really needs is finding the answers to the questions in what kind of society, in respect of economic and social issues, shall we live in ten or twenty years and how shall we

survive a year after a year until the minimal economic and social conditions are created before we reach the goal. As the (development) vision is missing, many elements of political, economy and social reality seem elemental, poorly designed, wrong, premature. Means are proclaimed goals, and the goals means. Only that which in a certain moment suits the dominant political and/or economic option, but not the entire nation – is good. It seems that we are not able to determine (development) vision, because too much energy is being used for maintaining or conquering pure power and the tantieme coming from it. And its basic result is general fall of motivation, apathy, fatalism, a dynamic “brain drainage“ and young population, demographic regression, and turning Serbia in to a country of hopeless old people. In this context another question can be asked - if the healthcare system is actor or victim of the current state. At this place we do not dare give our explicit contribution to the content of (development) vision of Serbia. However, in accordance with the above stated content of the paradigm “equity”, we are going to try to explain methodology of its application. The presented methodology is not only an attempt of implementation of its technology, but it also relies on comprehensive analysis of historical experience, where explicit application of this technique, like in the developed European surrounding, on the basis of individual initiative and self learning, radical reforms of the system of healthcare have been realized even without a precise social vision. Actors of reengineering are divided into three basic groups according to their functions:

1. *Management Committee* - which should define the content of the reengineering strategy and ensure supervision in realization. The main tasks of the Management Committee are: defining concrete processes which should be radically redesigned, starting the initiative for redesigning and provide support for redesigning.

2. *Reengineering team* which should consist of at least five, maximum ten persons with a mandate to realize reengineering of a certain process. The main task of the team is to define the meanings of the managing rules that will lead the process in a desired way. In order to avoid subjectivity in defining the rules, its output should be placed in the center of the process by defining concrete user (for example, procure preventive healthcare for children up to 6 years of age) and a degree of adequacy and the quality level of the health services that should be provided with detailed procedures about what activities should be undertaken further on, with corresponding pricelist and dynamics of settling public obligations. Adequacy of the contents and the quality level should be determined on the basis of good practice in the world and attempts to build own standards of functioning adapted to the economic abilities of users. In any case, the process which is to be redesigned must be observed through the eyes of a user of a certain healthcare service. That is why members of the team for realization of the reengineering should be selected on the criterion: two to three members from within (from the process which is subject of redesigning) on one exterior member - in order to ensure objectivity and different views on the process which is being redesigned. The team for reengineering should manage itself and have independence in its work, while its work should be based on free communication, consensus and stimulation of innovative ways. In any case, the leader of the reengineering team should behave like the first among equals in accordance with premises that policy must be in slave of expertise and knowledge and not vice versa, as our current practice is.

3. *Leader of reengineering* is coordinator of the process being redesigned. Leader of the reengineering team can be but need not be leader of the reengineering of the concrete process. In fact, practice has proved that it is best to select natural leaders for leaders of reengineering who have already proved their qualities within the reengineering team because they are usually able to motivate other actors to act for change.

In this sense, according to the author's opinion, there are three elementary directions of the reform of functions of public factor in strategic management of the business and development of healthcare: (1) decentralization and deconcentration of functions of public administration in charge of realization of regulation of behavior of public and commercial organizations for production of healthcare services trying to get closer to users and ensure flexibility in work. The main challenge is how to organize central coordination and work control without violating work freedom of lower organization levels of power; (2) Introducing a system of continual advancement of quality of healthcare services in function of satisfying differentiated needs of users – taking over business techniques and orientation towards individual expectations and additional resources for their realization; (3) Advancement of regulative mechanisms – improvement of quality of legal regulation of the public and private sector, reduction of expenses of implementation and advancement of the monitoring and control system – by taking over adequate business techniques.

The following instruments should be used for realization: (1) Human resources management (based on scientifically established programs of cadre selection, introducing them to work, education, development of the cadres and improvement of motivation); (2) Modern information and telecommunication technologies – in order to provide better quality, faster access to (public) healthcare services as well as control of process of their reproduction; (3) Market mechanism – characteristic examples: (a) formation of internal markets (for example operationalization of the right of users to choose doctor, a group of doctors and healthcare organizations for certain services – which would introduce a direct competition among doctors and hospitals financed from public funds, (b) existence of partnership between the public and private sector in providing healthcare services and (c) total privatization of providing some healthcare services.

## **Conclusion**

The public healthcare system of Serbia since the beginning of the eighties of the last century, when more or less unnoticed decline of socialism started, has been coping with great problems. They became almost impossible to solve as the time went on, due to slave like clinging to the old ideas and approaches to the goals, organization and management of state and public sector, political work and everyday public and business management. The change of existing ideology, that took place at the beginning of the nineties of the last century, and restoration of capitalism has proved itself to be nonproductive, because everything else stayed the same – work methods, approaches, values and attitudes. Its essential characteristic is institutional non-regularity – as consequence of vague, misty and manipulative transition. Reflections on the public healthcare system are multifold. First, space was opened for wild privatization of a certain part of public healthcare system and development of irregular system of partnership between the public and private sector in production of healthcare services. Second, favorable conditions were created for complex distribution – oriented coalition, which, in the framework of historical heritage, very skillfully using its political and any other influence, tries to maintain such situation and stop necessary structural changes in the public system of healthcare and regular development of the private sector. Third, in the limits of misty and nontransparent transition a strange mixture of quasi public, quasi market and administrative regulation mechanism has occurred– which has made the need for existence of a public healthcare system practically purposeless. That is why solving the problem of the healthcare system crisis in Serbia is, above all, a matter of genuine understanding of the problem, and only after that creation of certain solution. This paper tends to show that a deterministic concept, in which the issue of financing the system of healthcare is the elementary focus of public action, cannot be a key foundation for reforms. Functioning of the system of healthcare as a big social-economic system is at the same time predictable and unpredictable, stochastic and determinable. In this context, the existential and development problems of the healthcare system can be dealt with only by all-inclusive analysis of all available solutions and a careful choice of the optimal one. In that sense, Serbia needs a total reengineering – an ambitious, radical, quality and on innovations based methodology, which would, on basis of a development vision, determine the direction of institutional changes and various reform actions in order to build a radically new public healthcare system – oriented towards prevention and maintenance of healthcare capability (of the entire national population) on basis of development of adequate system of life and work, while treatment of majority of illnesses, especially those for which sophisticated and expensive technologies are used, should be left to the private sector on basis of personal participation. The key of implementation is, in the author's opinion, in a new definition of contents of the righteousness paradigm. A paradigm that public healthcare insurance should provide best healthcare is false and financially no sustainable even for societies much wealthier than Serbia. On the other hand, righteousness means a need to provide healthcare in the framework of public, transparent and precise minimal standards for all (meaning that no one should die only because he/ she is not insured, because he/she has no money for treatment or, simply, a very common situation in Serbia, because they do not know right people). In accordance with that, the presented concept of a total reengineering of the system of healthcare in circumstances of institutional irregularity, is based on active approach in which the public factor, in accordance with basic division of responsibilities in administrative, hierarchical surrounding, should find out the right solutions for: (1) improvement of the external and internal system of management and control, (2) restructuring of the inner organizational structure, (3) improvement of quality of

labor, (4) withdrawing those activities which can be organized on commercial basis and (5) formation of a needed capital base for revitalization and modernization – so that business will be rationalized, and the quality of healthcare services risen on a socially acceptable level. This gives a high level of subjectivity to the whole process of increasing the efficiency of the healthcare system. In this context, the problem of improvement of efficiency of public healthcare system in Serbia stays open and will depend, above all, on changes in perception of political and economic elite and advancement in creating a concept of their social responsibility to the (minimal) European norms.

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## End Notes

<sup>1)</sup> In Serbia and Yugoslavia (whose constituent part Serbia was from 1918 to 2002) for a long time there was no explicitly defined healthcare policy with clearly and precisely defined obligations of an individual, state and healthcare services (the first explicit healthcare policy was formulated as late as 1968!). The development of public healthcare service went an elemental manner, and in most cases above real economic possibilities (mostly because of dominant culture of egalitarianism and incapability of the social – economic elite to replace it by a culture of economic freedoms in a propulsive developmental surrounding, and also very strong individual and group initiatives for advancement of public healthcare, because many of the key actors of the political stage of Serbia until 1914 were medical doctors by profession). It often resulted in development of too big and inefficient infrastructure, neglect of primary and overstressed secondary and tertiary healthcare, irrational usage of capacities, hyper production of cadre, etc. On the other hand, frequent changes of normative regulation were made causing from time to time confusion and acceptance of temporary solutions. Thus, seen as a whole, until the beginning of the eighties of the twentieth century, the development of the healthcare was moving, except in war periods, along a rising path and the population believed in a continual growth of its efficiency and rise in quality, following models of much more developed countries.

<sup>2)</sup> In former Yugoslavia (comprising Serbia) in forty years (from 1950 to 1990) there were 8 reforms of the healthcare system and healthcare insurance.

<sup>3)</sup> In the period from 1980 to 1990 in Serbia (without territory of Kosovo and Metohija) gross social product was reduced for -3%, while participation of expenses of healthcare in the gross social product increased from 4,2 to 6,4% or really for 47, 8%, i.e. around 352US\$ per capita according to the current value domestic purchasing power of the national currency.

<sup>4)</sup> Regression of the system of healthcare in Serbia is result of a disproportionate increase of participation of expenses for those purposes in gross social product. According to official data, expenditures for healthcare in Serbia have been significantly increased after 2000. In 2004 they were around 300 US\$ (209 US\$ in public and 91 US\$ in private sector) per capita according to actual foreign currency rate and participated with around 10% in gross social product of Serbia. Preliminary research shows that those relations have remained in 2005 and 2006. According to estimation, gross social product in 2006 reached 65% of the scope realized in 1990, and the number of population has somewhat reduced, so a conclusion can be drawn that in 2006 the level of expenditure for healthcare per capita is bigger than the one in 1990. Therefore there is a justified doubt that the basic reason of (ill) functioning of the national health system is only of financial nature.

<sup>5)</sup> Hospital and stationary healthcare in the public sector in Serbia is provided by 42 general hospitals, 15 specialized hospitals, 23 independent clinics and institutes, 5 clinic-hospital centers and three clinical centers and 59 institutes. Those stationary institutions had at disposal in 2002 46,547 beds or 6.2 beds per 1,000 inhabitants. Less than 40% beds are in general hospitals and almost as many (38%) in highly specialized institutions – clinics and clinic-hospital centers.

<sup>6)</sup> This term means a group of special interest – which, by means of joint activities, ensure their better position in the distribution of gross social product and wealth without adequate their personal contribution to its maintenance and enlargement. The elementary social – economic features of distribution – oriented coalitions are: (1) a tendency towards creation of monopolistic political, social and economic structures, (2) weakening of interest in adapting to social, economic, and cultural changes in the surrounding, (3) inclination towards (ab)use of administrative – hierarchy evaluation and allocation mechanisms, instead of implementing market oriented ones, (4) inclination towards stimulating development of distribution- oriented coalitions on lower levels of social – economic organization, in order to cover up in that way real intentions of actors of key special interest groups . Basic causes of existence and development of distribution – oriented coalitions in Serbia and their role in blocking social reforms have been discussed in detail in: Adžić, S. and Popović, D. (2005). Fiscal system and fiscal policy – their contribution to advancement of competitiveness in economy: Case study Serbia. *Ekonomija/Economics*, br 1/2005, 173 – 200.



**Section 7: Creativity and Innovation in Arts and Design: Global Business Imperatives**



## Trust in Innovative Business

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### Abstract

Innovative business is less stable and more risky than the routine-loving one. It requires more holism and hence more cooperation of specialists and partners, hence more trust between them. Therefore it requires trust as a value and capability of organizational members and partners. Organizations face challenges of developing trust and requisite holism to develop trust-worthiness. One-sided professionals/humans fail to perceive their need for systemic thinking resulting from and conditioning trust, cooperation and success beyond borders of single jobs/professions/cultures. It is practice/ethic of inter-dependence, which fortifies bases for mutual trust. The organizational literature must provide managers with more knowledge than traditionally about trust in innovative business which is more complicated and complex to attain than in routine-loving business which most humankind still practices, as well as about way to create and maintain trust. This contribution provides some insight in innovative business, systemic thinking, and (resulting) trust, and ways of implementing it. **Key words:** innovative business, organization, requisite holism, systemic thinking, trust

### The Selected Problem and Viewpoint

In the innovative business there are less established habits, relations, ways of working and behavior than in the – now obsolete – routine-loving business. They used to make situations clear for long. Trust between organizational members, units, specialists of different jobs and professions, as well as between partnering organizations used to be easier to attain and maintain. In the – now up-to-date – innovative business there are many more quick changes and related risks; many less attributes are predictable and hence reliable. This holds even more in the “open innovation” than in the older paradigm of the “closed innovation” (Affuah, 1998; Huston and Sakkab, 2006; Potocan, 2005; McGregor, 2006).

In the latter there used to be many less outer sources of inventions and partners in developing innovations from inventions. Now the invention-innovation processes include people you know little about and many short-time and infrequent partners. Lack of trust belongs to problems resulting from the lack of knowing each other naturally, be it between research, development and daily operation people, be it between inventors, innovators and routine-jobs people who lack absorption capacity for novelties, including innovations (Mulej, Likar and Potocan, 2005; Mulej, 2006). Failure of innovation projects reaches beyond 96% and elicits mistrust, naturally. So do differences per professions and jobs and gender and nationalities requiring diversity and stress management.

Managers should handle trust/mistrust, but they find little support in organizational literature about how to connect it with innovative business and systemic thinking. The latter are unavoidable for trust to be created, influential and surviving.

Organizational theories deal with the problematique of trust/mistrust especially in relation with work dividing and control assuring even in routine-based activities (See: Barney and Hansen, 1997; Hatch, 1997; Nicholson, 1998; Cook, 2003; Agnes, 2004; Lorcsch, Berlowitz, and Zelleke, 2005). Trust/mistrust can be generally defined as personal expectation and persuasion (positive or negative), that other people (for example coworkers, partners) will work and act in a certain expected way. Former research about this was focused on the work of single people and groups in organizations from the psychological and socio-psychological viewpoints.

Modern organization theories understand trust as a necessary condition for mutual cooperation and group/team work in an organization, which enables realization of routine jobs and invention-innovations processes, be them radical or incremental in consequences, falling inside or outside job duty, and tackle management style, business style, organization, products or processes attributes, or business program range. For this reason trust is

considered a personal belief of a single person (and/or group) in a foreseen positive activity and/or behavior of partners in the organization and between the organizations (Potocan, 2004; Potocan, 2005; Potocan, 2006).

But neither the traditional nor the modern organizational theory offer a unified definition of role and meaning of trust in working and organizational behaving. Single authors define trust very differently, for example as a basis for organizing/organization, as a factor of an organization, characteristics of the relation between the organizational factors and/or as an organizational result. At the same time, many empirical researches prove that trust is a factor, which influences directly and indirectly the possible level of effectiveness and success of an organization (Potocan, 2004; Potocan, 2005; Potocan, 2006).

Trust in an organization influences critically (Barney and Hansen, 1997; Davis, Schoorman and Mayer, 2000; Hardin, 2002; Braithwaite and Levi, 2003; Fichman, 2003; Gilbert, 2005; Bibb and Kourdi, 2006):

- Working and cooperating of the organization with other organizations; and
- Behaving and characteristics of its relation to its environment/s.

Trust is important and worth attention for economic and other reasons. Lack of trust is costly, so is lack of trustworthiness.

The topic of discussion is the problematique of formation of a suitable level of trust in an organization based on knowing: the role and the meaning of trust, possibilities to assure (interest in) trust in an organization, basis and important characteristics of innovative business and relations between trust and ethics of interdependence in business.

## **Interdependence of the Innovative Business and Systems Thinking–Basis for Trust in Organizations and Between Them**

Innovation is defined as every novelty found beneficial in the experience of its users (OECD, 1971; Mulej, Likar and Potocan, 2005; EU, 2006; Potocan, 2006). Or, in other words: Innovation = Invention + commercialization (Affuah, 1998). In the modern conditions the buyers' market prevails. Therefore, innovation must be a permanent result of any BS trying to survive or even prosper in market (EU, 2000; Collins, 2000; EU, 2002; Potocan, 2002; Rebernik, Mulej and Rus, 2002; Rebernik, Mulej and Rus, 2003; Potocan, 2004; Rebernik, Mulej and Rus, 2005). Thus, BSs must run their business as an innovative business (Mulej, 1987; Potocan, 2002; Potocan, 2005; Mulej, 2006).

Innovative business can be simply defined by the following (interdependent!) five sentences:

- In principle, every cost is unnecessary, avoidable. In reality it is so, if we work smarter, not harder, and create innovations.
- Today, every product and process becomes obsolete, sooner or later. That's why we must know their life cycles, do research, do development (connecting research results with the daily needs and practices), create other inventions and make from them innovations as a new, useful basis of survival, on a continuous basis.
- Survival and therefore both good and poor work is everybody's business. Nobody, neither the superiors nor the subordinates, are entitled by their own life reality to be irresponsible and unmotivated for innovation.
- Therefore let us continuously, all the time and everywhere, search for *possible novelties*! Only a small portion of them may become *inventions* (= new, perhaps making sense and potentially useful ideas). From some of them, by (formal or informal) research and development, sometimes something both usable and new might be created, *a potential innovation*. Customers will accept only a fragment of them as useful and worth paying for, hence making a benefit to both customers and suppliers, therefore deserving the name of *innovation*.
- The entire business policy and practice is innovation-oriented, not just a fragment of it. We work as the smart and not as the crazy ones.

A further part of the essence of the innovative business is that the five sentences of its definition no longer apply to the producing part of the organizations only, but to all activities and all parts of life in all organizations. This makes an innovative society. The effort must be broadly disseminated and permanent, because the pressure of competitors is permanent, and for competitiveness the quality must be systemic. This includes surpassing the

customers' expectations in terms of price, quality, range, uniqueness, and environmental care, as a dialectical system (Ecimovic, Mulej and Mayur, 2002; Potocan and Mulej, 2003; Potocan and Mulej, 2007). It is starting to include social responsibility, too. The systemic quality is a demanding requirement of the modern market, which is impossible without continuous innovation. These demands are complex enough to require systemic thinking. See Table 1 (Mulej and Kajzer, 1998; Mulej, 2000; Potocan and Mulej, 2003; Potocan and Mulej, 2007).

TABLE 1: THE SEVEN INTERDEPENDENT BASIC SETS OF TERMS OF SYSTEMS / SYSTEMIC / HOLISTIC VS. UN-SYSTEMIC THINKING (AS A DIALECTICAL SYSTEM)

No.	Systems / Systemic / Holistic Thinking	Un-systemic / Traditional Thinking
1	Interdependences, Relations, Openness, Interconnectedness, Dialectical System	Independence, Dependence, Closeness, A single viewpoint/system
2	Complexity (& Complicatedness)	Either Simplicity, or Complicatedness alone
3	Attractors	No influential force/s, but isolation
4	Emergence	No process of creating new attributes
5	Synergy, System, Synthesis	No new attributes resulting from relations
6	Whole, Holism, Big Picture	Parts and partial attributes only
7	Networking, Interaction, Interplay	No mutual influences

Therefore a practical transition from one-sided and routine-loving practice to systems/innovative practice in the daily experience of BS can normally not be attained, if there is no or poor interdisciplinary co-operation. In the case of the innovative business it includes technological and marketing researchers and developers, and all professions on shop floor and in other operation offices, as well as everyone with whom they connect to learn and develop more (Huston and Sakkab, 2006; McGregor, 2006). They are all interdependent – needing each other and needed by each other, because they are mutually complementary with some parts of their attributes. The process can, in terms of contents, be defined as an entity made of discovering and formulation of new ideas and of elaborating them in inventions, suggestions, potential innovations, and finally innovations and broadly diffused innovations becoming a beneficial routine, for a period of time. Later on, a new innovation replaces the previous one.

All process participants use their subjective starting points (knowledge, values, emotions, talents) and their objective starting points (needs in the market, possibilities in BS) in order to provide an innovative application of all the requisite and available knowledge, entrepreneurial spirit, entrepreneurship, co-operation capacity and ethics of interdependence. (Mulej and Kajzer, 1998; Potocan and Mulej, 2003; Mulej, Likar and Potocan, 2005). All of these attributes are complex enough again to require systems thinking, and they are also interdependent enough for it. See Table 1 again.

### The Human Part of Preconditions of the Innovative Business

Around the world, especially in the 80% of humankind living in the less innovative countries, in transitional countries, such as Slovenia, as well as in the more traditional areas inside the innovative countries (See: Dyck and Mulej, 1998; Potocan, 2002), making the innovative business the prevailing practice requires systemic thinking and practice about changes in the inherited culture and practice (See: Mulej, 1987; Mulej, 1994; Mulej, 2000; Potocan, 2004; Mulej, 2006). At least, it requires making and implementation in a harmonized working of both:

- Institutional economic and legal order supportive of innovative business;
- Innovation-friendly behavior of decisive participants of innovative business.

Traditional economists tend to suppose that the institutional system alone is able to work well enough (CJE, 2003). This may mean a misreading of the Adam Smith's invisible hand theory, which has presupposed moral sentiments, including trustworthiness, as a basis of economic behavior of people in market relations; Smith meant consideration of interdependence rather than independence, too (Petzinger, 2000). Influential persons in BS tend to read the institutional systems measures from their own viewpoints. Thus, the business reality is not only based on economics, but to an equal level of importance on management and organization of human relations.

In the innovative business, a central role belongs to co-operation and therefore to interdependence of the professional invention/innovation teams. They do not consist of the research and development professionals only, but marketing professionals, at least, must be equal-footed for teams to make inventions and make innovations from them. The tendency of growing specialization made all professions, including the ones of these three groups (i.e. Research, Development, and Marketing), closed-in and disregarding interdisciplinary co-operation. (Barabba, 2004; Potocan and Mulej, 2003; Mulej, 2005; Mulej, 2006).

The contemporary need for requisite holism requires professionals to accept their practical interdependence and enter interdisciplinary co-operation concerning all the invention/innovation process and all resulting novelties – inventions, suggestions, potential innovations and, at the very end of this long and very selective process, innovations, and their diffusion in markets. Not even research, development, and marketing professionals are enough, all operation managers and professionals in production, design, finance, human resource services, law, etc, are equally unavoidable – for innovation to result. Even if their co-operation is quite holistic, everything cannot be foreseen and in every phase mentioned above a small portion of its results proceeds to the next stage. Stages do not follow each other in a simple linear style, but in interdependence: the later ones also impact the earlier ones, e.g. through expectations, estimations, future research, prognoses etc., not only by feedback feeding a next cycle.

In the briefed invention/innovation process very different people show up, per functional areas, professions, human personality attributes, values, etc. (Potocan and Mulej, 2003; Potocan and Mulej, 2007). Thus, leading them and managing their different cultures (See Table 2) is difficult.

TABLE 2: CIRCULAR INTERDEPENDENCE OF VALUES, CULTURE, ETHICS, AND NORMS

Individual values (interdependent with knowledge)	↔	Culture = values shared by many, habits making them a round-off social group
↓		↓
Norms = prescribed values on right and wrong in a social group	↔	Ethics = prevailing values on right and wrong in a social group

Managers must become leaders, i.e. co-operation-friendly rather than commanding, to attain more of the requisite holism (Creech, 1994; Mogensen, 1980; Peters and Waterman, 1982; Peters, 1997; Potocan, 2004; Kovac and Rozman, 2006). This requirement to owners and managers has been raised for eight decades since the first Mogensen’s publication, but again and again new methods had to be invented all way to e.g. Business Reengineering and Twenty Keys etc. of today – to fight the bosses’ desire to give no authority up and still have many creative ones in their personnel (Peters, 1997; Potocan, 2002; Ojasalo, 2004; Potocan, 2006). Attributes in tables 3, 4, at least, need consideration.

TABLE 3: THREE INTERDEPENDENT GROUPS OF SOURCES OF CULTURAL DIFFERENCES

<b>Psychological Sources of Cultural Differences</b>	<b>Sociological Sources of Cultural Differences</b>	<b>Economic Sources of Cultural Differences</b>
Individualism : Collectivism Big : Small risk avoidance Big : Small power distance • Masculinism : Feminism	Social structure of society Religion Language Education	Economic philosophy Political philosophy Communication Management style

Bosses must change / innovate themselves to become role models of co-operation -based leadership. Psychology demonstrates that this can be done: nearly two thirds of humans seem to behave in the “wait-and-see” passive and adaptive style, one sixth of humans are willing to take risk and co-operate, only the remaining one fifth are free-riders (Lester, 2005). Thus, the old Mogensen’s experience is back: if bosses behave in a commanding style, they can get from their subordinates a small fraction of their real capabilities, including creativity. But co-operative bosses gain much more of enthusiastic values and creative capacities: they are found trustworthy and followed.

Hence, the first crucial issue in this framework is bosses' self-transformation from managership to leadership (Creech, 1994); it tackles values management rather than knowledge management only, and reaches beyond motivation to personality (re)-formation and (re)-education. (See: Balgiu, 2005; Potocan, 2005; Potocan, 2006) Afterwards, managers – leaders can start developing their personnel's capacities of creativity and co-operation. Both is difficult, especially when education includes no or poor insight into other professions with whom a businessperson, a lawyer, or an engineer, etc., will co-operate in practice. Education in systems theory is missing, too. Thus, cultural differences need a bridge. And people must learn to use it.

TABLE 4: FRAMEWORK FOR MASTERING THE CULTURAL DIFFERENCES IN E.G. INTERNATIONAL BUSINESS NETWORKS

<b>Leaders' competencies to act about psychological sources of cultural diff.</b>	<b>Leaders' competencies to act about sociological sources of cultural diff.</b>	<b>Leaders' competencies to act about economic sources of cultural diff.</b>
To not close oneself into own values, by listening to other opinion To get accustomed to others (empathy) To accept the change of the viewpoint in the discussion (own and of the others) Curiosity for other cultures Tolerance to everyone, self-control, patience Ability to trust and to be honest, worth trusting	To accept, that your values, knowledge and comprehension are relative To be adaptable To be tolerant to ambiguity To develop bridges regarding language questions To solve conflicts Personal relations To re-establish common culture of nations and similar Diplomatic treatment	All members of the team have influence The group should meet on different places, which have different cultures Heterogeneous ideas Experiments and mistakes Common visions and aims Understanding aims of all participants of the process Willing to cooperate

The model »Global Leadership Competencies« (Moro Bueno and Tubbs, 2004) can help one's persistence in developing one-self's and others' capability of co-operation over the borders of different cultures (their case tackles international co-operation of firms) over several stages:

1st stage: *Ignorance*: When diverse cultures face each other, one knows nothing about them. Every party considered its own behavior correct and best.

2nd stage: *Awareness*: During contacts of diverse cultures, impressions begin to be created, and links begin to evolve. One becomes aware of importance of exchange.

3rd stage: *Understanding*: Individuals start showing a conscious effort to find out why people are as they are, and do what they do. They start developing some feeling for the other culture/s and some tolerance for the new way of behavior.

4th stage: *Appreciation*: Individuals are really tolerant to views different from their own. They start to appreciate and perhaps even prefer some views of the other culture/s.

5th stage: *Acceptance/Internalization*: Chances for cultures' mutual impacts grow a lot. People start to respect and to really accept their understanding of the other culture/s. They start to comprehend that diversity, globalization, and competition from the other parts of the world is a fact.

6th stage: *Transformation*: Globalization becomes way of life. Situation is well described with notions including: professionalism, adaptability, equilibrium, broad-mindedness, and internationalism. Fear from new and different things is off. On the contrary, one is interested in trying new and different things. Capacity to accept others' attributes is growing.

Cultural differences belong to central social and economic issues (Ojasalo, 2004). This author suggests the following three framework steps in mastering them:

- Recognizing different cultures showing up in a business network;
- Recognizing the most crucial differences between cultures;

- Creation and application of ways to master cultural difference.

He suggests one should use three groups of sources of cultural differences: see table 3 (adapted by grouping of sources). To master differences, managers must (1) first discover (1.1) who are individuals with impact in the network, and (1.2) what are their cultures. Then they must (2) discover (2.1) what relations exist between influential network members, (2.2) relations between cultures, (2.3) cultural differences inside relations between cultures, and (2.4) pay attention to sources of differences (in table 3). In order to be able to (3) develop and apply ways to master intercultural differences, one can receive help from experiences and skills concerning competencies in table 4 (See also: Potocan and Mulej, 2003).

Attributes in table 4 lead to informal systems thinking summarized in table 1 due to interdependence of values, culture, ethics and norms summarized in table 2. They may include or refuse trust: selection depends on experience in organizational life.

## **Relations Between Organization and Trust as the Prevailing Values/Culture/Ethics/Norms**

Numerous organizational researches work on trust. They differ in their starting points and conclusions, as well as in the basic understanding of the content of trust (Misztal, 1995; Warren and Warren, 1999; Ciancunatti and Steding, 2000; Hersey, Blanchard and Johnson, 2000; Hardin, 2002; Robbins, 2002; Bracey, 2003; Salomon and Flores, 2003; Kovac and Rozman, 2006). At the same time numerous researches observe it from different viewpoints, levels and fields of organizational behavior and work.

Most researches can be divided into two basic groups (for example: Abst, 1997; Nicholson, 1998; Potocan, 2002; Alvares, Barney and Bosse, 2003; Ward and Smith, 2003; Agnes, 2004; Potocan, 2004; Wall and Patton, 2005; Potocan, 2006). The first group deals mostly with trust as a part of values with impact on behaving and acting, especially; the second group discusses it as competence as ability of a suitable behaving and acting.

Trust as a value (this is credibility) is reflected in expectation of honesty, frankness, sincerity and respect. Lasting attainment and assurance of this value demands high standards of ethics, as for example suitable mutual relation, agreements about co-working and disclosure of information, and assurance of shared activity.

Trust as competence is reflected in ability of reliable behavior and working. To perform a certain work, each single participant has to trust, that his/her partner is going to perform his/her part of obligation and responsibility very well. Trust as competence of behaving and working is based on the requisitely holistic and updated competence of all participants, which cooperate directly or indirectly in an organization or between them.

The organization evaluates trust on the basis of understanding each other in terms of (Warren and Warren, 1999; Davis, Schoorman and Mayer, 2000; Potocan, 2002; Room, 2002; Alvares, Barney and Bosse, 2003; Lorsch, Berlowitz and Zelleke, 2005; Potocan, 2005; Bibb and Kourdi, 2006):

- The key relations in an organization and between the organization and its environments (for example between the owners, managers and employees, between the organization and its business partners, between the organization and other partners in its environment);
- The level of trust, which the others have in the working of the organization (Do its partners look at the organization as a trustworthy organization? Can the organization work as to assure trust of others?);
- The level of trust into the others (Are its partners worth trusting? Do its partners work properly and are trustworthy so one can cooperate with them?).

Existence and development of organizations in the modern environment depend on the needed and sufficient trust into behaving of a single organization and work to others and to itself. In our experience, interdependence and ethics of interdependence back trustworthiness and trust best.

## **Ways to Assure Trust in Organizations and Between Them**

Discussion about trust is important and depends on understanding the starting points, characteristics and realization of professional and political viewpoints of trust (Potocan, 2002; Room, 2002; Fichman, 2003; Braithwaite and Levi, 2003; Cook, 2003; Potocan and Mulej, 2003; Potocan, 2004; Gilbert, 2005; Wall and Patton, 2005; Potocan, 2006).

The professional viewpoint is focused on the needs for a requisitely holistic definition of the basic characteristics of trust from the viewpoint of content and methodology. The political viewpoint arises from the need for understanding of interests, which reflect the starting points and for assurance of conditions for implementation of trust in the organization. Both viewpoints depend on the requisitely holistic values, knowledge, experience, interests and norms as well as circumstances (Misztal, 1995; Ciancunatti and Steding, 2000; Potocan, 2002; Robbins, 2002; Salomon and Flores, 2003; Ward and Smith, 2003; Potocan and Mulej, 2003; Potocan, 2005).

The professional viewpoint is focused less on the values and more on knowledge, experiences, and professional rather than subjective interests. Therefore it is relatively objective and rational, if the participants act ethically and work professionally (not one-sidedly). The political viewpoint depends on various kinds, types and forms of interests in the discussed period (for example short-term, long-term). This makes it relatively subjective and irrational, often quite one-sided rather than requisitely holistic.

The discussion about trust in an organization from the political viewpoint tackles various formal and informal institutions (for example UNO, UNESCO, BASD, WCED) (Potocan, 2002; Potocan and Mulej, 2003; Potocan and Mulej, 2007). The professional approach is supported by many formal and informal agreements (for example principles, rules, codes, documents), which are formed by many different organizations, associations and groups, such as interest-based association, professional associations, initiatives, international professional organizations, groups of single people, etc. (Potocan, 2002; Potocan and Mulej, 2003; Potocan and Mulej, 2007).

Numerous examples of good practices of organizations in various organizational fields, such as units, processes, or process steps, show, that the basis of trust can be reached by considering the interdependence of persons/organizations involved:

- Political viewpoints of trust, which should assure considering interests in the frame of trust related to the topic and its background; if involvees feel independent, they try to dominate and impose their own partial interests as the only ones that merit attention; if they feel dependent, they will allow the others to dominate; if they feel interdependent, they will negotiate for an acceptable synergy; and
- Professional viewpoint, which defines content and methodological starting points for implementation of trust on all levels and fields of the organization and assure the synergy of organizational interests; professional different from each other, who know that they are complementary and therefore need each other, trust each other better than the ones feeling no need for each other, or even having a bad experience.

To trust and be trustworthy, one must hence know each other requisitely well, and even more so in an innovative business environment of the current times, which is not easy. Customer fidelity, of which marketing theory speaks, is difficult to attain and to keep with all the current offer of new products and services attributes caused by innovation as a result of the pressure of the contemporary competition.

## **Dilemmas of Understanding Interests and to Trust in an Organization**

The organization can be defined also as an interest cooperation of participants aiming to reach the chosen objectives. That's why the behavior and working of the organization has to be investigated from the viewpoint of interests, which represent a possible partial viewpoint of trust (See: Misztal, 1995; Barney and Hansen, 1997; Hersey, Blanchard and Johnson, 2000; Ward and Smith, 2003; Robbins, 2002; Gilbert, 2005; Potocan, 2005).

The background of interests and capacity to trust can be detected on the basis of cognition of (potential) partners' starting points made of knowledge, values, and circumstances (Mulej, 1987; Mulej, 2000; Potocan and Mulej, 2003; Potocan, 2004; Potocan and Mulej, 2007).

The organization tries to satisfy all selected needs of its inner and outer environments, for which it has been established. That's why the interests have to be defined on the basis of system/network of perceived needs and possibilities and of values and knowledge of all important organizational members, the derived synergy of preferred needs and related possibilities making the well grounded objectives, related tasks, and processes leading to outcomes (Potocan, 2003; Potocan, 2004; Potocan, 2006). But interests, perceptions and preferences may differ per levels of the organizational hierarchy, jobs, roles, professions and relations in the organization – the intra organizational and inter organizational relations.

The interests tend to inter-depend with:

- Individual values, which are formed on the basis of the values, knowledge, feelings, needs and possibilities, and education of organizational members,
- Culture, to which values develop, when accepted/prevaling in a social group – from family to the entire humankind,
- Ethics, which define right from wrong in this basis in the given social group, and
- Norms, which order, which ethics is acceptable in a social group, if individuals try to join it, or experience subordination to it, such as to a governing group.

The indicated facts open new questions, as for example relations between:

- Professional needs, possibilities and interests,
- Political needs, possibilities and interests,
- Political and professional preferred needs and possibilities and
- Political and professional interests selected as objectives imposed by the governing group over all others who to not emigrate.

With that we have returned to the main point about the relations between the whole and its parts. For the interests, like in all other cases, we can use the dialectical rule of three interdependent parts of any entity – the general, group-specific and individual ones:

- Shared interests unite in the role of the general shared attributes;
- Specific interests of partial (sub)-groups divide per these groups, such as organizational or political units inside an organization, community, or society; and
- Single (individual) interests divide, making every member unique.

Definition of the shared interests' content depends on trust, demands, and understanding of different interests and bargaining as well as reconciliation and compromise capacity of the influential organizational members. Interests are discussed with discussion participants' aim to share, to dominate, or to subordinate themselves as:

- Individual viewpoints of discussion; and/or
- Partial viewpoints or synergetic discussion of viewpoints of the whole group.

With that we have opened the basic question about the choice of the suitable approach to discussion. The level of suitability, requisite holism and acceptability of others' interest content depends on the type, kind and form, as well as level of equality of discussion participants or holism of their views.

The third group of questions about interest-based discussion and trust among its participants refers to the methodology and method. In this frame, a whole methodology concerning interests and their reconciliation has to be discussed and a base of interest characteristics has to be formed. A requisitely holistic dialectical system of political and professional interests of participants is needed, which influence the organization.

On the basis of solving dilemmas of the stated viewpoints the organization may try to implement interest-based trust in its working.

## **Implementation of Interest-based Trust in an Organization**

A holistic discussion about implementation of interest-based trust in an organization is very complicated and complex; it exceeds boundaries of this work. We are limiting our-selves to measuring and evaluation of the level of trust and to suggestions for its improvement.

The researchers deal with many questions while defining the level of trust and its measuring and evaluation (Abs, 1997; Barney and Hansen, 1997; Hatch, 1997; Nicholson, 1998; Alvares, Barney and Bosse, 2003; Agnes, 2004; Lorsch, Berlowitz and Zelleke, 2005; Potocan, 2005; Wall and Patton, 2005).

What ever is the viewpoint and the level of the trust under discussion, important elements of measuring and valuation are needed, which influence trust. This supposes the usage of a methodology, which suitably enables measuring and evaluation of all objective and subjective elements of trust (factors, relations, and synergy). But in theory and practice, there are not enough solutions to fulfill all indicated requirements.



We better focus on real and possible solutions in the business practice (Potocan, 2004; Potocan, 2005; Potocan, 2006). A large group of researchers measures and evaluates “the synthetic criteria of trust”, as for example the level of trust in an organization (total, professional and interest trust). The problem of such approach is the further analytic discussion of the gained results. It is very hard to define all elements objectively. In the other group, there are researchers, which try to learn and investigate “analytic (single) criteria of trust”, as for example honesty, frankness, sincerity etc. in the frame of understanding trust as a value. For the further discussion the partial results have to be defined from the viewpoint of shared criteria by defining trust’s role and meaning.

The additional problem by both approaches is also the subjective character of most criteria of trust, which represent the “soft organizational factors”. The objectiveness of trust depends on the subjective evaluation (understanding and discussion) of the researcher/s concerning the role and the meaning of the analytic elements of trust in the frame of synthetic elements of trust.

To improve the level of trust the organization can use many different solutions. On the basis of understanding the discussed field it can try to influence the elements of trust and their synergy directly (trust in the whole and/or single viewpoints, factors, inner relations, outer relations, synergy etc.) or indirectly (influence of the environment, relation to the environment, synergy of the environment etc.)

On the basis of the requisitely holistic understanding of trust one can suppose, that its factors, relations and synergies can be improved. But we have to consider, that the characteristics of the process of forming new solutions depend on understanding trust, the chosen approach to its discussion and manner of discussion. At the same time trust in a single organization depends on its specific organizational characteristics of behaving and working (activity, size, business situation and trends, work force, governors, managers, obsolescence or modernity, etc.)

Hence, the general solutions, which would suit a larger field of organizational working (for different types, kinds and forms of organizations) can not be formed.

The known solutions how to improve trust can be placed in two groups – on the basis of its characteristics. In the first group are solutions suggesting basic elements of trusts for different organizations. It intends to form generally valid bases of solutions.

Many of them are valid, but its content is mostly too general (not thorough and adjusted to different forms of organizations). Single organizations use them especially as a starting point to develop specific solutions by considering behavior and working of the organization at stake.

In the second group there are solutions, which suggest more analytically oriented solutions for the improvement of the single elements of trust. Considered are specificity of trust in behaving and working of single kinds, types or forms of the organization. This can be an advantage and disadvantage at the same time. It is an advantage in equal organizations; then they are adjusted and suitable for use. At the same time it is a disadvantage, because its specificity limits its field of use to one organization (different kind, types and forms of organizations).

Thinking about the possible solving of the problem of the level of trust and its possible solutions can be concluded with a general statement, that most known solutions for improvement of trust can be placed on the interval, which is limited by two extremes:

- Absolutely general solutions, which can be used as improvement of general elements of trust. That’s why they are lesser usable for solving concrete problems of trust in a single organization.
- Completely specific solutions, which are narrowly usable and very specific in content. That’s why they are suitable for solving problems in similar or equal organizations, but not in general.

Both theory and practice face open questions about the ways of forming solutions, which would be requisitely both specific and general to assure the needed solving of the problem to improve trust in organizations.

In the framework of our discussion about trust we must take into account, that organizations (and especially business systems (BS) as a most important group or organizations in modern society) face two important challenges, at least: 1) How to satisfy needs of demanding (potential) customers, requiring the best possible/total quality of supplies, and 2) How to make their own business requisitely innovative to make customers happier with it than with competitor's supplies.

Above mentioned cognition about trust (e.g. about understanding of trust in organization, about its role and importance in business) (especially in BSs) are also basic for understanding the role and importance of trust in BS

operating in modern business environment of innovative societies and global economy in which the innovative one prevail and profit at the expense of the less innovative ones.

## Conclusions

Trust is becoming a central topic of modern theoretical discussions about behavior and work of the organization. Understanding trust as a value and competence enables the organization to plan a more democratic and holistic starting point for improved relations between people, which work.

A higher level of trust can be reached with acceptable experience, requisitely holistic and long discussions of them and with considering all professional and political viewpoints, which are necessary for a constant changing of work and behavior.

An important viewpoint of discussion is respect for interests, which is related to the questions regarding viewpoints for discussion of interests, understanding, and different viewpoints of interests and forming suitable methodology for their reconciliation.

Detailed and requisitely holistic insight into the topic of trust shows, that it is complicated and complex. Trust is also a characteristic of a single person and mutual relations among people. This refers to values and competences, separated and synergetic. Trust is very important psychologically and sociologically, but also organizationally and in economics. At the same time, its consequences influence - directly and indirectly - the economic and legal viewpoints of work and behavior of different people in the organization and in its environment.

In modern business practice, trust present important basis for operating of BSs. But how do BSs implement trust? Synergy of findings in tables 1, 2, 3, and 4 says, in terms of the topic of this contribution, that one needs systemic thinking to develop and maintain mutual trust beyond borders of single cultures and resulting divisions rather than sharing. In this effort, it makes sense to consider mutual interdependence and synergetic effects of (1) personality traits, (2) professional cultures, ethics, and norms, (3) job cultures, ethics, and norms, (4) department cultures, ethics, and norms in a given organization, (5) cultures, ethics, and norms prevailing in organizations at large, (6) in local communities, (7) in regions, (8) in nations, (9) beyond their borders.

In this framework it is ethic of inter-dependence, which fortifies bases for mutual trust. Then, trust results from practical experience with positive outcomes of mutual complementing by mutual differences. This leads to (informal) systems thinking – left column in table 1 – and applies to decision-making and action as well.

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# Formalization of the Front-end Phase of the Innovation Process: Competitive Advantage or a Path to Downfall?

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## Abstract

The influence of front-end process formalization on front-end performance is currently intensively debated issue in the new product development literature. The main line of arguments state that process formalization in general kills creativity and leads to decreased innovativeness. However, studies that would have investigated the effect of formalization of the front-end phase, the creative and chaotic early part of the innovation process, are scarce. Typically studies consider both front-end phase and development project phase simultaneously, thus averaging the totally different characteristics of these two phases. This article tested the association between front-end process formalization and perceived superiority of created product concepts. In addition, this article tested the classical contingency hypotheses whether the task uncertainty moderates this relationship. The study is based on exploratory factor analysis and multiple regression analysis that are used to investigate 133 front-end cases collected from Finnish industrial companies. The results indicated, opposite to the existing theory, that front-end process formalization is associated with superior product concepts. In addition, market uncertainty positively moderates this association, i.e. the more market uncertainty is present the more positive is the association. Implications of results from theoretical and practical point of views are discussed.

## Introduction

The foundation for successful new product development is created in the front-end phase, which refers to the activities that take place before the formal development project phase (Koen et al., 2001). The overall structure and the main characteristics of the future product are all decided in the front-end phase, which then strongly affects subsequent new product development activities. Recent studies indicate that these early front-end activities represent the most troublesome phase of the innovation process, and at the same time one of the greatest opportunities to improve the overall innovation capability of a company (Reid and de Brentani, 2004; Herstatt et al., 2004; Nobelius and Trygg, 2002; Kim and Wilemon, 2002; Cagan and Vogel, 2002). The front-end phase nourishes the new product development project phase by producing new incremental and radical product concepts. The front-end phase results in a well-defined product concept, clear development requirements and a business plan aligned with the corporate strategy (Kim and Wilemon, 2002). In addition, the front-end phase should result a decision on how the product concept will be developed further. The decision could be to continue with an immediate development project or to put the concept 'on hold' to wait for more suitable timing, or even to kill the initiative. However, despite the recognized importance and great development potential of the front-end phase, e.g. compared to the development project phase, there has still been relatively little research on the best practices related to the front-end phase (Nobelius and Trygg, 2002; Kim and Wilemon, 2002; Koen et al., 2001). The theoretical discussion is still hindered by general level models, vague terminology and unclear definitions (Zhang and Doll, 2001; Koen et al., 2001).

The front-end phase has a very strategic nature since important strategic decisions related to e.g. target markets, customer needs satisfaction, value propositions, expected product price and product costs, the main functionalities of products, and the predominately used technologies are all made at this stage (Bonner et al., 2002; Smith and Reinertsen, 1998; Wheelwright and Clark, 1992). These decisions embodied in a product concept define and guide the subsequent development activities later in the innovation process. An important activity in the front-end phase is to ensure that decisions and choices serve the best interests of the company and fulfill its long-term strategic objectives. However, strategic guidelines might be missing, misleading or too general to assure an efficient link between strategies and operative level activities, thus making decisions uncertain and unsystematic. Product concepts can become "moving targets" when there is no comprehensive strategy directing the innovation

processes (Wheelwright and Clark, 1992). Other familiar symptoms reflecting front-end failure are new product initiatives that are cancelled half-way through because they do not match the company's strategy, and delayed top-priority new product initiatives that suffer from a lack of prioritization of assignments (Englund and Graham, 1999; Khurana and Rosenthal, 1997). Furthermore, Khurana and Rosenthal (1997) have analyzed these front-end failures and found that they emerge because senior managers do not communicate their strategic level expectations, such as the product's core benefits, choice of market segments, and pricing of products, to the development team. Strategic statements can also be too abstract without giving any direction to front-end activities (Smith and Reinertsen, 1998). In general, firms seem to want more explicit links between strategy and the new product development process (Hertenstein and Platt, 2000). Management's ability to influence strategic choices in product development is naturally greatest at the beginning of the innovation process. However, the typical real involvement pattern shows that management gets heavily involved in the initiative after the design phase has already been completed when development problems have become visible and just when large financial commitment is actually needed (Smith and Reinertsen, 1998; McGrath, 1996; Wheelwright and Clark, 1992). Unfortunately, the ability to influence the outcome then without considerable and costly redesign effort is low. Management should invest their time proactively to confirm that critical choices made in the front-end phase are strategically feasible from the company's point of view (Smith and Reinertsen, 1998; McGrath, 1996; Wheelwright and Clark, 1992).

The above mentioned challenges related to front-end execution and management involvement relate to the interesting question of how management should actually control the front-end phase of the innovation process. The term 'management' refers to individuals such as R&D (research and development) directors or technology directors, who are responsible (based on their organizational position) for assuring that new product development activities fulfill strategic objectives and serve the long-term development needs of the organization. The creative nature of the front-end phase makes it difficult to use a hard command type of control, but still certain controllability is needed to secure the effective use of resources and the achievement of the company's long-term objectives. Thus the critical question is how to control the front-end phase of the innovation process while simultaneously maintaining the innovativeness and assuring the company's long-term objective achievement. However, contingency theorists and many others have acknowledged that the degree of task uncertainty influences the optimal way of organizing management processes (see e.g. Donaldson, 2001; Tidd et al., 2001; Burns and Stalker, 1966). Thus innovations including different degrees of task uncertainty, e.g. incremental or radical product innovations, probably need different control approaches. This leads to another important question of how task uncertainty in incremental and radical innovations influences the applicability of different control mechanisms.

The goal of finding appropriate means to balance control and creativity is not a new issue. There are several studies that have raised this important question in management literature in general (see e.g. Marginson, 2002; Simons, 1995) and in the innovation and new product development (NPD) context (see e.g. Bonner et al., 2002; Tatikonda and Rosenthal, 2000; Park, 1998; Brown and Eisenhardt, 1997; McGrath 1996). One challenge of interpreting sometimes conflicting results of existing management control research in the NPD context is due to the fact that these studies have investigated NPD projects as a whole, without considering the characteristics of different phases of projects, e.g. differences between the front-end phase and the development project phase. As several studies have shown, the nature of these phases is totally different in terms of task characteristics and people involved (Kirsch, 2004; Koen et al., 2001; Nixon, 1998; Zien and Buckler, 1997). The front-end phase shows characteristics of high uncertainty and ambiguity, while the development project phase shows characteristics more of formality and certainty. Reasoning goes further by arguing that because of the different nature of the phases, they should be managed differently as well. This leads to the interesting notion of whether different control mechanisms are generally applicable in different phases of the innovation process. Research on management control of information system development projects give indications that types of management control and control mechanisms change when the initiative proceed from the idea stage towards commercialization (Kirsch, 2004; Choudhury and Sabherwal, 2003). Results indicate that simple output based controls are preferred over behavior control at the beginning of projects (Choudhury and Sabherwal, 2003). Another study revealed that informal control modes dominated over formal methods in the requirements definition phase of information system projects whereas formal methods were taken into use in the implementation phase (Kirsch, 2004). It may be justifiable to wonder whether any type of control is appropriate i.e. has a positive effect on performance in the highly uncertain and even chaotic

front-end phase. Critical question from the practical point of view is whether there is a certain limit (measured in terms of uncertainty) where different types of control becomes ineffective. The importance of studying different phases of the innovation process separately has been discussed by Davila (2000), Olson et al. (1995), and Kirsch (2004).

The author's own notion is that industrial companies are currently intensively developing systematic approaches to manage and control the front-end phase. Qualitative studies indicated that many of those development interventions focused on creating some kind of stage-gate model (formalized process model) for the front-end phase. A formal process model is a key mechanism to control front-end activities, and is typically associated with creation of formal reporting channels, review and evaluation procedures, and decision gates. Current theoretical understanding is in line with stated concerns of practitioners, who were afraid of the possible influence a stage-gate process may have on innovativeness in the front-end phase.

This article aims at helping to understand how management can control the front-end phase of the innovation process in a product innovation context. Process formalization as one type of management control mechanism is taken into closer investigation. Two research questions have been set for this paper:

1. How is front-end process formalization related to the front-end performance?
2. How does task uncertainty influence on the relationship between the process formalization and the front-end performance.

## **Management Control and Front-end Process Formalization**

Management control has been stated to be an important aspect of organizational design (Eisenhardt, 1985), fundamental management activity (Jaworski, 1988), critical activity for organizational success (Merchant, 1982), and also a central feature of all human organizations (Otley and Berry, 1980). Merchant (1982) argues that control should especially be directed to strategically important areas in organizations such as NPD. The traditional 1970s and 80s view of control emphasized managerial actions as confirming that activities conform to existing strategic plans. The present understanding of management control sees it as a function of divergent requirements between creativity and innovativeness, and intended goal achievement (Simons, 1995). Simons discusses management control systems as "...the formal, information-based routines and procedures managers use to maintain or alter patterns in organizational activities" (Simons 1995, p. 5). This definition covers both top-down induced and bottom-up emerged strategies. Simons emphasizes that the competitive pressure created by senior management is a catalyst for innovation and adaptation. Thus traditional command type, top-down oriented control is no longer sufficient. In addition to the top-down information flows and commands that inform lower level employees about the organization's intended strategies, there needs to be channels transferring information from the bottom of the hierarchy to the top. Through these channels the top management receives information about progress in achieving intended strategies and also information about threats and opportunities that may contain seeds of new emergent strategies. (Simons, 1995)

The theoretical control framework of this paper is based on Hales (1993) who separates four dimensions of control: 1) focus of control, 2) level of formality of control 3) level of interactiveness of control, and 4) locus of authority of exercising control. The first dimension, focus of control, categorizes management control by placing control practices in a chronological order based on the actual sequence when the control is implemented. This leads to the following categories of management control: input, process, output and value. Input control occurs before the controlled activity. Instructions, materials, and the knowledge and skills of those carrying out the forthcoming work are the main objects of the control. Process control, in turn, is exercised during the activity focusing on work processes and technical work methods of the controlled employees. Output control takes place after the activity and focuses on outputs, material, information or financial results. Finally, value control influences the activities all the time by affecting the planning, implementation and evaluation of work activities. Value control is a kind of meta control, which is based on the influence of beliefs and norms of the company. (Hales, 1993)

Management control can also be classified in formal and informal ways of implementing control (the second dimension in Hales' framework). Jaworski (1988 p. 26), who studied control in marketing units, defines

formal controls as “written, management-initiated mechanisms that influence the probability that employees or groups will behave in ways that support the stated [marketing] objectives”. Informal controls, conversely, are “unwritten, typically worker-initiated mechanisms that influence the behavior of individuals or groups in [marketing] units”. Many of different control mechanisms can be applied either informally or formally. Management control can also be applied either in interactive/personal or bureaucratic/impersonal ways (the third dimension in Hales’ framework) (Hales, 1993; Bonner et al., 2002; Simons, 1995; Fisher, 1995). Interactive control means that managers have personal contact with the decision making activities of their subordinates (Simons, 1994). Hales emphasizes that personal control manifests that control is exercised by one individual over others, whereas impersonal control is based on rules and regulations (Hales, 1993). The locus of responsibility for implementing the control may also be possessed by different parties within the organization (fourth dimension). The control may rest in the hands of individuals (self-control), a group of colleagues (mutual, peer or clan control) or a body which is separated from the work process itself (external control) (Hales, 1993). The latter case refers to traditional top-down implemented control.

Organizational control has traditionally been based on the use of two means of control: output or process (action or behavior control) (see e.g. Ouchi, 1979; Merchant, 1982; Eisenhardt, 1985; Jaworski, 1988; Hales, 1993; Simons, 1994; Ramaswami, 1996; Abernathy and Brownell, 1997; Bonner et al., 2002; Marginson, 2002). The basic difference between these control types is that process control focuses on work procedures and processes during the controlled activity, whereas output control focuses on the end results of a certain activity after the event. Merchant (1982) uses the term “action control” to mean different ways of controlling the actions that individuals in the organization are performing. According to Merchant, there are three basic types of action control: 1) behavioral constraints e.g. segregation of duties prohibiting improper activities; 2) action accountability including definitions of limits of appropriate behavior, monitoring activities, and rewarding or punishing deviations from the acceptable limits, and; 3) pre-action reviews in the form of direct supervision, formal planning reviews or expenditure approvals. In the case of complete process control, management holds employees responsible for following the established process guidelines and work instructions, and not responsible for the potential outcome of the specific activity (Jaworski, 1988). Ouchi (1979) stated that behavioral control is appropriate in situations of high task programmability and low outcome measurability, and the outcome control in the opposite situation. When task programmability is perfect and outcome measurability is high, the organization has the option to use either behavioral or outcome control. The organization then chooses the control mode which is the most cost efficient. Behavioral control is typically preferred over output control if the means-ends relationships are known, because of the real-time operating nature of behavioral controls which gives accurate control information during the activity (Ouchi and Maguire, 1975). Eisenhardt (1985) states that an increase in task programmability, the possibility of behavior measurement, the cost of outcome measurement, and outcome uncertainty, lead to favor behavioral control. One critical precondition for the use of behavioral control is that the employees under control must really know what kind of behavior is expected from them (Merchant, 1982).

Process control and especially process formalization in the front-end means specifying procedures to be followed and monitoring that work activities are proceeding in accordance with the defined procedures. Management aims at ensuring that those activities that are considered necessary and critical for the success are thoroughly accomplished. In addition, management arranges review and decision points during the processes and establishes reporting procedures in order to be kept informed about the progress of front-end initiatives. The effect of process formalization on front-end performance in the presence of high task uncertainty is hard to predict due to many conflicting findings. The organization control literature states that critical pre-condition for process control and process formalization is that the appropriate work process leading to the desired end results needs to be known (Ouchi, 1977 (Ouchi uses the term knowledge of transformation process); Eisenhardt, 1985 (Eisenhardt uses the term task programmability)). Thus routine, structured and independent tasks are suitable for instituting formal process control. This is also the essence of classical contingency theory and the distinction between mechanistic and organic structures (Burns and Stalker, 1966). The increase in task uncertainty should cause reduction in formalization and an increase in decentralization (Donaldson, 2001). Lawrence and Lorsch (1967) were among the first to link this causality into performance. They found that the situation (e.g. a research lab) where high task uncertainty was associated with low formality and low centralization led to higher performance.

The front-end phase, being an experimental and even chaotic endeavor, is not so fertile ground for process control and its formalization based on the above arguments. However, the widely referred new product development text books for practitioners give some indication that new product success may be, at least partly, dependent on existence and efficiency of the defined, formal front-end process model (see e.g. Cooper, 1998; Wheelwright and Clark, 1992). The literature provides several process models to decrease fuzziness and increase systematic approach and manageability of the front-end phase (see e.g. Cagan and Vogel, 2002; Nobelius and Trygg, 2002; Koen et al., 2001; Cooper, 1998; Khurana and Rosenthal, 1998; McGrath, 1996). The Stage-Gate model is one of the most linear and formal process models presented to manage the front-end phase. Copper (1998) has introduced a model for the front-end phase including three phases (idea generation, preliminary investigation and business case preparation) and three decision gates. An opposite process model, i.e. the non-linear and iterative process model, is a new concept development model developed by Koen et al. (2001). The model consists of three key building blocks: a) five front-end elements, b) the engine which is fuelled by leadership and innovation culture, and which nourishes and gives power to the front-end elements, and c) external influencing factors such as organizational capabilities, business strategy, and the enabling science. The front-end elements or activities included in the model are opportunity identification, opportunity analysis, idea genesis, idea selection, and concept and technology development. In addition to linearity, the level of formality can be used to categorize different process models. Khurana and Rosenthal (1998) state that the formal approach includes implementing an explicit and widely known process with clear decision making responsibilities and specific performance measures. A more informal method is the culture-driven approach, which aims to assure that important front-end issues, e.g., strategic vision, technical feasibility, customer focus, schedule, and coordination are always on the minds of all key participants. Decision making structure in the form of decision gates or review points is typically defined together with the front-end process model. Tatikonda and Rosenthal (2000) point out that periodic reviews are important especially for senior management providing a time and place for intervene and giving guidance regarding project decisions. The existence of specific review points decrease also the probability that senior management involves hands-on, i.e. too deeply, in operative decision making. The right timing and existence of adequate information to make decisions in these review points are of importance (McGrath 1996). The process model is also associated with definition of reporting hierarchy inside the organization. Simons (1995) discusses managers using monthly updates and exceptions reports as diagnostic control mechanisms. These reports are used to confirm that no unpleasant surprises emerge from the organization. Internal reporting is one of the basic functions that information systems are designed to do in organizations.

Recent research has criticized the current management approaches because they adopt one single, optimal model for the front-end without considering any contextual factors, e.g. differences between incremental and radical innovations. For example, the study of Nobelius and Trygg (2002) showed that front-end processes differ regarding performed activities and task sequences, as well as relative time duration and perceived importance of specific tasks. The findings indicate that the definition of the front-end process model, which is applicable for all kinds of pre-project phases, is questionable. Buggie (2002) has presented strong criticism against stage-gate types of models stating that they are not NPD models at all, but more like general project management models which can be used only to control milestone achievement. The most crucial fault of this kind of model is that its decision gates focus on searching for 'fatal flaws' of new initiatives, thus especially excluding many radical ideas. However, there is also some evidence that a formal process in the front-end can lead to improved and faster decision making as well as to more successful products (Koen et al., 2001; Montoya-Weiss and O'Driscoll, 2000; Khurana and Rosenthal, 1998).

Naturally, the process formalization brings several advantages. Ability to focus, possibility for replication and learning, and improved coordination and integration are typical advantages associated with process formalization (Bonner et al., 2002; Tatikonda and Rosenthal, 2000; Hertenstein and Platt, 2000). Process formalization provides a sense of structure and clear sequence of activities reducing uncertainty regarding the work tasks. Defined processes provide both motivation and sense of accomplishments as well as require employees continuously evaluate whether they are in the right track. In addition, formalization helps to achieve more efficient coordination and cross-functional communication and may enhance a feeling of collectiveness among the development group. (Tatikonda and Rosenthal, 2000) Hertenstein and Platt (2000) state that not only do formal models and documentation enable the replication of process but they also help management to monitor the process



and to improve it when needed. Process formalization enables both the management and employees to focus on the most critical development issues while implementing the predefined processes. However, the above mentioned authors do not make distinction between the front-end and development project phase in their studies. The existing studies have also identified several disadvantages of process formalization such as decreased innovativeness, increased corner cutting activities, negative attitudes among employees, excess bureaucracy, and decreased flexibility (Bonner et al., 2002; Tatikonda and Rosenthal, 2000; Hertenstein and Platt, 2000; Amabile, 1998; McGrath, 1996). Amabile (1998) states that granting a choice over applied work processes fosters creativity by increasing employees' sense of ownership and intrinsic motivation. Free choices regarding the process allow employees to maximally utilize their substance expertise and creative thinking skills. Ramaswami (1996) warns that excessive process formalization may actually lead to dysfunctional behavior among employees. Excessive formalism may also result inefficiency, inflexibility and heavy bureaucracy e.g. when required approvals are acquired for operative level decisions (McGrath, 1996). New product development process formalization has negatively been related to project performance (Bonner et al., 2002; Abernethy and Brownell, 1997) Bonner et al. (2002) found that formal process control was negatively related to project performance. Process formalization led to delays, cost overruns, lower product performance, and lower team performance in projects ranging from incremental improvements to radical new products. Again, the above mentioned authors investigated a development project as a whole without considering special characteristics of its phases.

However, since the existing research gives somewhat conflicting results of the applicability of process formalization in terms of performance in a new product development project phase, it is believed that the front-end phase including even more uncertainty is not suitable for process formalization. The negative consequences of process formalization are more likely to overcome the potential advantages of formalization. Thus the following hypotheses are created:

- H1: Front-end process formalization is negatively associated with a superiority of product concept.
- H2: The more market uncertainty, the more negative the association between process formalization and a superiority of product concept.
- H3: The more technology uncertainty, the more negative the association between process formalization and a superiority of product concept.

## **Research Method**

The sample companies were derived from BlueBook database (TDC Hakemistot Oy Blue Book, <http://yrityshaku.bluebook.fi>), which includes information of all the Finnish industrial companies. The sample companies were derived from the database by using two selection criteria: 1) companies have more than 50 employees, and 2) companies carry out product development activities. Different business units of 50 biggest Finnish companies (based on turnover figures in 2004) fulfilling the above criteria were also included in the research. In total, 888 companies (company in this context refers also to different business unit of 50 biggest Finnish companies) fulfilling these criteria were found from the database. The questionnaire were sent to all these companies, i.e., to the whole population in December 2005. The questionnaire was addressed to R&D Director, Research director, Technology director, CEO or R&D responsible person in each company. These titles were considered as key informants with a purpose to find a director/person who participates in controlling individual new product development initiatives in the front-end phase from management's point of view. The respondents were requested to select the last completed front-end case and base their answers on that in order to avoid success bias.

The survey questionnaire was eight pages long and divided in two parts. The first part focused on the background information of the company. The second part focused on the example front-end case itself, which was a unit of analysis in this study. The questions covered different control mechanisms (independent variables), front-end performance measures (dependent variables) and also some contextual information regarding the front-end case. Before sending the questionnaire was tested both with academics and practitioners as suggested by Fowler (2002). The mailing process included three separate contacts to the company representatives. First contact was a mail consisting of a cover letter emphasizing the importance of the survey, response instructions, the eight-page

questionnaire, and a pre-paid return envelope. Three weeks after first mailing, second contact was taken by an e-mail to non-respondents as suggested by Dillman (2000). The final third contact was taken by a phone to the randomly selected 50 non-respondents.

Of these 888 companies, 137 returned the filled questionnaire, which leads to the response rate of 15.8 %. The response rate can be considered as acceptable in the light of the long eight-page questionnaire and the fact that the questionnaire was targeted towards the director level where the time resources are always scarce. The final useable sample for statistical testing was 133. When a survey relies on the responses of a single informant, special attention should be paid that the informant is knowledgeable in survey domain (Campbell, 1955; John and Reve, 1982). The great majority of respondents (91.8 %) had one of these expected positions to whom the questionnaire was sent. The respondent had 5,7 years experience (range: 0-30) in their position in average and 12,8 years experience (range: 0-40) in the organization in average.

Only 1.56 % of data of used measurement items were missing, which indicates that the returned questionnaires were completed thoroughly. The missing values were visually inspected to find possible patterns of missing data. However, not such patterns were found. Mean substitution was used to replace missing values (Hair et al., 1998). The influence of mean substitution to final results was checked and found to be non-existing. The response rate in this study was 15.8 %, which gives a reason to study a possible response bias. One method to investigate the response bias is to compare early and late respondents of the survey. Armstrong and Overton (1977) have suggested that late respondents, who responded because of the increased stimulus, are relatively similar to non-respondents. Possible response bias was analyzed by testing a difference in turnover, number of employees and R&D intensity (% of turnover to R&D) between early (63 companies) and late (70 companies) respondents. No statistically significant differences were found between early and late respondent groups. The results indicate that response-bias is not a problem in this study and the sample can be considered to be representative of the target population. Herman's one-factor test was used to analyze common method variance (Podsakoff and Organ, 1986). All the interested independent variables were entered in the factor analysis simultaneously. This resulted in 6 independent factors as expected. In addition, first general factor accounted only 23.45 % of the covariance of independent variables. This gives some indication that common method variance is not a serious problem in this study.

Multitrait-multimehtod matrix analysis was done to assess convergent and discriminant validity of measurement constructs (Campbell and Fiske, 1959). A good convergent validity exists if within-construct correlations are statistically significant. The inter-item correlations generally exceeded the threshold value .30 (Hair et al. 1998) indicating a good convergent validity. A good discriminat validity requires that there is a small number of cross-construct correlations that exceed within-construct correlations. All the items with one exception loaded .30 or lower to other than a primary factor in the factor analysis resulting in a good discriminant validity.

#### **Analysis Methods**

Two main statistical methods were used in this study. First, the exploratory factor analysis was applied to test validity and unidimensionality of the created measurement constructs (Hair et al., 1998). Exploratory factor analysis was favored over confirmatory factor analysis, since the verified management control measurement constructs applied in the front-end context are scarce. Further, Cronbach's inter-item coefficient alpha was measured for each factor to evaluate the reliability of the measurement construct. Second, a multiple regression analysis was used to test the created hypothesis (Hair et al., 1998). The appropriateness of empirical data (such as a normality of residuals) was tested to investigate that multiple linear regression analysis can be applied (Hair et al., 1998; Cohen and Cohen, 2003). Predictor value centering was used to overcome problems of multicollinearity while investigating the moderating effects of task uncertainty (Cohen and Cohen, 2003).

#### **Measurement Constructs**

This study applies existing, validated measurement constructs as much as possible. However, there are not so many empirical quantitative studies that would have investigated management control in the front-end phase of the innovation process. Thus, the author needed to create new measurement constructs. Two principles for creating new measurement constructs were applied. First, the new measurement construct was based on modification of existing and validated measurement constructs from the other contexts, if the close proxy was found. Second, when the new measurement construct was created from the scratch, it was based on extensive literature analysis and tested with

both academics and practitioners. The measurement of the dependent variable and moderating variable “uncertainty” was based on the Likert scale from one to five (1 = strongly disagree, 5 = strongly agree). Independent variables (other than “intrinsic task motivation” and “influence of strategic vision” constructs, where the Likert scale was used) were measured in the scale one to five asking respondents to judge the intensity to which extent different control mechanisms were used in a particular case (1 = not at all, 5 = used in a great extent).

Process formalization measurement construct was created based on the extensive literature review of different process control mechanisms used in new product development and front-end context. The first measure concerned the use of a reporting system informing the management about the progress of the front-end case. This kind of status reporting has been regarded as an important diagnostic control tool in the literature (Simons, 1995; Cleland and King, 1975). The second item measured the extent to which the front-end case was executed in accordance with the defined process model. The measure was derived from discussion emphasizing the importance of specifying the overall structure and procedures in new product development context (Bonner et al., 2002; Ulrich and Eppinger, 2001; Hertenstein and Platt, 2000; Tatikonda and Rosenthal, 2000). The third measure focused on the existence of specific evaluation gates during the front-end. These review points enable the management to consider the progress of the case and to make decisions about appropriate direction as well as continuing the case (Davila, 2000; Tatikonda and Rosenthal, 2000). Finally, the fourth item measured used direct supervision over the procedures used by the front-end group. This measure was adopted and modified from Ramaswami (1996) but modified to the context of this study. The Cronbach’s inter-item coefficient alpha for this construct is .79 indicating a good reliability.

From the vast amount of different control mechanisms, the following six other control mechanisms were adapted to this study: input control, output based rewarding, influence of strategic vision, intrinsic task motivation of the development group, informal communication, and involvement in goal setting. Since the primary focus in this study is on process formalization, these six constructs are introduced as covariates in the regression analysis.

Much of the discussion of measuring product concept superiority (a dependent variable) is adopted from Cooper (1994), who studied over 1000 new products and their development process with the aim of finding drivers of successful product innovations. A product including unique attributes, superior price/performance characteristics, and high customer satisfaction has greater chances for success in the markets. Measures for this product concept superiority construct were collected and modified based on variables used by Cooper (1994), Griffin and Page (1996) and Song and Montoya-Weiss (2001) who used these measures product development project context, and especially by Herstatt et al. (2004) and Kleinschmidt et al. (2005) who applied these measures in studying front-end performance. Product superiority construct is consisted of five measures, two of them dealing product’s comparative position to the competitors’ products, one concerning the potential competitive advantage created by the product, and two measures related to the impact on customers. The variables were measured with a five point Likert scale. Overall, this measure is found to have a reasonable reliability (alpha = .69).

Uncertainty was used both as a control variable and as a moderating variable in multiple linear regression analysis. Classical contingency theory considers uncertainty of being one of the main factors influencing optimal way of organizing work activities. There are two main factors defining uncertainty in the product innovation context: applied technology and aimed target market (Tidd et al., 2001; Danneels and Kleinschmidt, 2001). The more new technology the product includes or the more unfamiliar the target market is, the more uncertainty the development task includes. Thus the uncertainty measurement covered both market and technology dimensions. Garcia and Calantone (2002) emphasized that product innovativeness (the uncertainty that product includes) must be evaluated from two different perspectives: macro-level industry perspective and micro-level company perspective. First two measures both in market uncertainty and technology uncertainty constructs reflects this notion. These measures were modified to fit the context of this study from Danneels and Kleinschmidt (2001) who used these measures in the market familiarity and technological familiarity measurement constructs. The third and fourth measures in both constructs relate to the discussion of whether the new products can rely on firm’s existing technological and marketing competencies or not. This is an important measure of uncertainty in this study since products with a closer fit to existing competences of the firm tend to be more successful in average (Danneels, 2002). The third and fourth measures in market uncertainty construct, and the third measure in technology uncertainty construct were modified from Danneels and Kleinschmidt (2001). The fourth measure in technology

uncertainty construct was created and found to be functioning adequately, based on the discussion of Danneels and Kleinschmidt (2001). Two different factors with clear factor solution and high loadings were found as expected. The Cronbach's inter-item coefficient alpha for the market uncertainty construct is .76 and the technology uncertainty construct .84. The variables were measured with a five point Likert scale.

Several control variables were included in the regression model to take into account of the potential effects of the firm, industry, and the case itself to the final results. Control variables for firm-level effects included the size (logarithmic transformation of turnover), R&D intensity (logarithmic transformation of percent of turnover invested in R&D) and Front-end intensity (existence of a separate front-end group). Industry-level effects were considered by using industry sector as a dummy variable. In addition, the objectives set for a front-end case were controlled (short term vs. long term).

## Results

The results indicated that approximately one third of the investigated companies had defined front-end process in quite detail (TABLE 1). Only 11.5 % of respondents indicated that there was no defined process model for the front-end. However, almost half of the respondents (49.5 %) stated that the front-end process is only superficially defined.

TABLE 1: FRONT-END PROCESS FORMALIZATION

Level of detailness of front-end process model definition	Number of companies	Percent of non-missing
Not defined at all	15	11.5 %
Defined superficially	65	49.6 %
Defined quite detailly	44	33.1 %
Defined very detailly	7	5.3 %
<b>Total</b>	<b>131</b>	<b>100.0 %</b>

Correlations and reliability statistics of the used measurement constructs are presented in TABLE 2. In general, the used measurement constructs indicated good reliability. The highlighted area in TABLE 2 indicates the correlations between process formalization and other measurement constructs. Process formalization and product concept superiority has a positive correlation ( $p < .01$ )

TABLE 2: CORRELATIONS AND RELIABILITY STATISTICS

	Items	$\alpha$	1	2	3	4	5	6	7	8	9	10
1. Input control	4	.79	1									
2. Process formalization	4	.79	.41**	1								
3. Output-based rewarding	3	.76	.21*	.26**	1							
4. Influence of strategic vision	1	-	.19*	.10	.00	1						
5. Intrinsic task motivation	3	.74	.13	.11	.25**	.20*	1					
6. Informal communication	3	.91	.31**	.26**	.12	.15	.11	1				
7. Involvement in goal setting	3	.73	.13	.19*	.16	.27**	.18*	.25**	1			
8. Market uncertainty	4	.76	.00	-.03	.17	.09	.05	.18*	.16	1		
9. Technology uncertainty	4	.84	.15	.04	.18*	.03	.05	.10	.02	.36**	1	
10. Product concept superiority	5	.69	.15	.23**	.03	.22*	.13	.05	.05	.12	.12	1

\*  $p < .05$ ; \*\*  $p < .01$

The hypotheses were tested by regressing the front-end performance variable on all the management control variables, control variables and interaction terms. The first hypotheses (H1) predicted the association between process formalization and product concept superiority (negative association). The results in TABLE 3 show

that process formalization is positively associated with product concept superiority (Model 1) (beta =.203, t = 2.02, p = .046). Thus the hypothesis H1 needs to be rejected, but actually the opposite hypothesis gets support. Model 2 and model 3 in TABLE 3 tested the moderating effect of market uncertainty (H2) and technology uncertainty (H3) respectively. When the interaction term (process formalization x market uncertainty) is inserted in the regression model (model 2), the F-value changes significantly (F = 3.523, Sig. of F change = 0.01). The interaction term itself is also statistically significant (beta =.290, t = 3.582, p = 0.01). The significant change of F-value indicates that market uncertainty indeed moderates the association between process formalization and product concept superiority (Hair et al., 1998). However, the hypothesis H2 needs to be rejected, since the association is more positive, not more negative, as stated in the hypothesis. The model 3 tests the hypothesis H3, whether the technology uncertainty moderates the association between process formalization and product concept superiority. F change is not statistically significant (F = 2.480, Sig. of F change = 0.55) and thus the H3 needs to be rejected.

TABLE 3: REGRESSION COEFFICIENT ESTIMATES

<b>Variables entered</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
Input control	-.07	-.07	-.07
Process formalization	.20**	.17*	.21**
Output-based rewarding	-.09	-.08	-.01
Influence of strategic vision	.23**	.21**	.23**
Intrinsic task motivation	.14	.14*	.14
Informal communication	-.04	-.09	-.04
Involvement in goal setting	-.01	.00	-.01
Market uncertainty	.11	.11	.12
Technology uncertainty	.06	.11	.06
Process formalization x Market uncertainty		.29***	
Process formalization x Technology uncertainty			.05
R <sup>2</sup>	0.25	0.33	0.26
Adjusted R <sup>2</sup>	0.16	0.23	0.15
F	2.636	3.523	2.480
Sig. of F change		0.01	0.550

\* p ≤ 0.10; \*\* p ≤ 0.05; \*\*\* p ≤ 0.01

Standard coefficient betas are shown

Dependent variable: product concept superiority

Control variables are not shown

## Discussion

The fact that all existing theory-based, created hypotheses were rejected, and two opposite findings emerged, gives indications that existing theory related to management control in the front-end phase is far more than complete. The results indicate that process formalization in the front-end is positively associated with superior product concepts. It seems that advantages created by process formalization overcome those potential challenges created by formalization. That is, potential decrease in innovativeness or intrinsic motivation discussed by Amabile (1998) is compensated by increased ability to make systematic and coordinated decisions. It seems that process formalization is a mechanism to make the front-end phase more systematic and manageable. The findings that Tatikonda and Rosenthal (2000) made in new product development context in general, holds also in the front-end phase. Process formalization gives an overall framework in accordance with the front-end activities are executed. This evidently reduces uncertainty and ambiguity of front-end tasks. One critical advantage of process formalization is that it enables continuous improvement of work processes (Hertenstein and Platt, 2000). Replication of the process over

again reveals shortcomings and inefficiencies that can be removed through process re-design. Executed front-end cases provide benchmarks that enable learning and collection of best practice data base. This is what McGrath (1996) meant by stating that without a defined process, each group makes the similar development work differently resulting slower process and repeated mistakes. The results showing negative relationship between process formalization and project performance (e.g. Bonner et al., 2002; Abernethy and Brownell, 1997) need to be critically evaluated in the light of present findings.

However, several formal process models exist and they are not alike. Different process models can be presented as a continuum, one end being a linear stage-gate process (Cooper, 1998) and the other end being a non-linear, iterative process model (Koen et al., 2001). Formality of process decreased while approaching non-linear models. Even though the findings presented in this paper indicated that process formalization is associated with superior product concepts, they fail to give instructions on how the front-end process should be formalized. It can be assumed that strict formal processes (such as a stage-gate) work best for incremental innovations by optimizing efficiency (see e.g. Kim and Wilemon, 2002), while a less structured iterative approaches leads to more innovative results (see e.g. Benner and Tushman, 2002). However, as the results indicated, any type of model is better than no model. In general, a front-end process model should be flexible and support the inherent differences and iterations of the front-end, reflecting the ideas presented e.g. by Koen et al. (2001). Companies should develop one state-of-the-art front-end process model which is flexible enough and customized for each development initiative. The front-end process model should give a general frame of working, provide necessary tools, instructions and templates for efficient work, enable appropriate control and coordination, and support effective and efficient front-end experimentation.

The most interesting finding from theoretical point of view is probably the moderating effect of market uncertainty on the association between process formalization and product concept superiority. The results indicated that under high market uncertainty the positive relationship between process formalization and product concept superiority is even stronger. This can be explained through improved coordination and communication that process formalization enables. Ulrich and Eppinger (2001) emphasize that defined model clarifies the roles of different functions and enables different functions to bring their competence and knowledge to the development effort in a timely manner. In addition, the model typically specifies how and when different parties should communicate with each other. Further, they emphasize that front-end phase is the phase where the coordination of different expertise is the most essential. The empirical findings support this. Collaboration between sales & marketing function and R&D function is of importance. The expertise of sales and marketing function needs to be available to reduce uncertainties related to customer needs, target markets and overall profitability of developed products. The fact that the similar positive moderating effect was not found under technology uncertainty, further support this notion. When only technology uncertainty is high (e.g. new technology is applied in existing product that is aimed at existing target markets) R&D function itself is more capable of bringing a new product concept for the development project phase. The need for coordination and collaboration is not so high. Improved coordination and cross-functional communication enabled by process formalization may also enhance a feeling of collectiveness among the development group (Tatikonda and Rosenthal 2000). Improved atmosphere and group feeling naturally have positive influence on final results. In addition, process formalization brings two other advantages. First, process formalization helps to assure that no critical activity (e.g. concept testing or price sensitivity analysis in high market uncertainty situation) is passed. Clearly defined development process, if appropriately designed, helps to assure that each step is thoroughly accomplished resulting high quality end results (Ulrich and Eppinger 2001). Second, defined process model enables managers to focus on the most critical development issues and to trust the guidance given by the model in trivial issues.

Contribution to practitioners can be summarized in three recommendations. First, practitioners are advised to develop a formal process model for the front-end. This has a critical influence on front-end success in general, and especially in the situation of high market uncertainty. However, practitioners should be informed that there are other alternatives, beside the stage-gate model, that may provide better support and controllability of front-end activities. Second, practitioners should build appropriate decision gates or review points (e.g. amount and timing of gates, persons in a decision board, agenda of decision process, information requirements for decision making) for the front-end. These gates enable the management to steer the front-end initiatives without too deeply involve in

operative level decision making. Steering groups that can be typically found from the development project phase, are needed already when product concepts are created. Last, practitioners are advised to build a reporting system, which informs management of ongoing front-end initiatives. This kind of reporting system should ensure that potential shortcomings or challenges in critical decisions are found early enough. In addition, the system should enable to find those ideas that contain promising opportunities and seeds for strategic renewal.

There are some limitations that should be noticed while interpreting the findings and continuing the research related to management control and the front-end phase. This study has three main limitations. First, independent and dependent variables were answered by the same person. This may naturally have influence on objectivity of evaluation of dependent variables. Second, this study evidently includes some success bias since the respondents were asked to select the last completed front-end case as an example. This obviously excludes those development cases that were cancelled already in the front-end phase. Third, it can be always speculated whether the respondents were capable of separating the control mechanisms used in the front-end phase and the subsequent development project phase.

## Conclusions

The critical mission of front-end process formalization is to find an appropriate balance between formal control mechanisms and activities fostering creativity. In addition, one process model should provide support for different types of innovations having versatile requirements. These dichotomies need to be solved to some extent by organization-specific choices. It can be concluded that both formalization and flexibility are needed. The empirical findings indicated that any model is better than no model. Front-end process formalization is associated with superior product concepts. In the situation of high market uncertainty, this relationship is even stronger. Process formalization provides management an efficient control mechanism to ensure that developed product concepts have superior value in competitive business environment.

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# Natural Entrepreneurs and their Epistemic Limits: The Knowledge Transcendence Approach for Understanding Human Creativity in History

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## Abstracts

The paper will use the most recent development in cognitive sciences to reject a key assumption of mainstream economics as well as Austrian economics and evolutionary economics that considers innovation and entrepreneurship as natural, spontaneous, and automatic in the market economy. Instead, it argues that there are inherent epistemic limits in our natural ways/systems of knowing and learning. Before the rise of the West, the creativity of all civilizations was checked by these inherent limits. The West was able to overcome these limits by creating a new system of transcendental knowing that is based on a new set of organizing principles, norms, tools, and institutions. In order for non-Western countries to gain competitive advantage in innovation and entrepreneurship, they should adopt and synthesize these new organizing principles, norms, tools, and institutions that the paper will articulate.

## Introduction

In this age of perpetual innovation, it seems to us that the sources for human creativity are endless. From the Internet, high-definition TV, to cellular phone, to WiFi, to iPod, to YouTube, to eBay, to Google, we witnessed the emergences of so many new products, new services, and new way of organizing that, in less than one generation, our fundamental ways of life have forever changed. Innovation and entrepreneurship are so pervasive and ubiquitous that we treat them like air we breathe: taking them for granted, and treating them as natural, necessary, and inevitable.

Going back to history, the surge in innovation also happened in the first industrial revolution of the 1760-1870 and specially the second industrial revolution of 1870-1970, although at a much slower pace than what we are witnessing right now. It was exactly during these periods of the industrial revolution and the capitalist revolution that the fields of economics and management developed. As a result, most classical scholars in both fields treated innovation and entrepreneurship as natural and inevitable. Although most modern scholars still uncritically and implicitly hold this view, this article will provide a counter-argument. It uses the recent development in evolutionary psychology and cognitive sciences to make the case that there are innate epistemic limits to human creativity in our natural ways of knowing and learning. It further suggests that it took what I called “the great knowledge transcendence,” including a new state of minds, new methods, and new systems of knowing, that enabled human beings to overcome the limits.

The first section of the article summarizes the grand narratives of natural entrepreneurs that are still tacitly held by many economists and scholars of technological change. The second section explores the cognitive foundations of human creativity that were used by many scholars to support the dominant view of natural entrepreneurs. The third section discusses the origin and cognitive foundations of human creativity. The fourth section provides a brief review of human creativity through history. The fifth section briefly discusses the still dominant blockage view of human creativity that intends to explain why certain societies in certain historical periods failed to innovate. The sixth section discusses the epistemic limitations for natural entrepreneurs. The last two sections provide the transcendent view of human creativity, and discuss national differences in creativity and economic development under the framework of knowledge transcendence.

## The Grand Narratives of Natural Entrepreneurs and Natural Growth of Knowledge

The idea of the natural growth of knowledge can trace its origin back to the great thinkers of both the English and French Enlightenment. Although not aware of the first industrialization that had already been undergoing in Great Britain, the founder of neoclassic economics, Adam Smith believed that the division of labor in society would naturally lead to the growth of knowledge, as he famously stated it in the first paragraph of *The Wealth of Nations* (1776):

The greatest improvement in the productive powers of labor, and the greater part of the skill, dexterity, and judgment with which it is anywhere directed, or applied, seem to have been the effects of the division of labor.

Adam Smith's view of natural progress of human knowledge was, however, not a pure product of his own thinking, but influenced by his close friend, the French economist Jacques Turgot, who, in his *A Philosophical Review of the Successive Advances of the human Mind* (1750), first advocated the idea of natural progress. Encouraged by the great achievement of the scientific revolution in the seventeenth century, and bolstered by optimism in human reason and human perfectibility, the Enlightenment philosophers Voltaire, Montesquieu, Turgot, Condorcet and Kant championed the idea of progress that considered human history as a universal progress toward the unfolding of human freedom, the perfection of human reason, and the maximal realization of human beings' knowledge about themselves and the rest of world (Bury, 1932; Cassirer, 1951; and Nisbet, 1980). For Montesquieu, human creativity comes from "an innate thirst for knowledge, an insatiable intellectual curiosity, which never allows us to be satisfied with any conception we have arrived at, but drives us on from idea to idea" (Cassirer, 1951: 14). For Condorcet, nature sets no limits to the perfectibility of human minds, and human history is a universal progress of this perfectibility. In developing his philosophy of history, Kant similarly considered human history as destined to the full realization of human capacities.

Successive great thinkers of economics provide further explanations for the natural progress of knowledge, especially in the capitalist society. In their *Manifesto of the Communist Party*, Marx and Engels (1848/1978: 476) acknowledged the economic, technological, and social dynamism of capitalism, as they famously declared, "the Bourgeoisie cannot exist without constantly revolutionizing the instruments of production, and thereby the relations of production, and with them the whole relations of society." Following Marx's lead, Schumpeter considered entrepreneurship, which he defines as the new combinations of resources that generate new products, new processes, new services, and new organizations, as the primary drive of capitalism. In his earlier view, independent entrepreneurs and their innovations are natural in a capitalist society. They constantly create "the perennial gales of creative destruction" that are the driving force for the dynamism of capitalism. In his latter works, Schumpeter gave more importance to the routinization and institutionalization of innovation in corporate R&D divisions, but the assumption of the naturalness of innovation is still retained. With the protection of intellectual property rights, and with the accumulation of sticky and tacit knowledge, expertise, and capabilities, innovations generate temporary monopoly; so corporations are always willing to invest in R&D, which in turn will always automatically generate innovation and technological change at the aggregate level.

In the same vein, Hayek (1945, 1985) emphasizes the importance of free market competition as a procedure for the discovery of dispersed knowledge by entrepreneurs at the specific time and place, which in turn constitutes the foundation of innovation and entrepreneurship. To Kirzner (1986) and other Hayek's followers in Austrian economics, entrepreneurial alertness in the market process will naturally generate novelties at the aggregate level. The same assumption of automatic generation of innovation through the market process is also predominant in evolutionary economics that follows the Schumpeterian tradition. As long as there exist economic freedom and incentives for innovation through intellectual property right protection, entrepreneurs will always experiment with new variations of products, processes, services, and ways of organizing. At the aggregate level, the greater the number of variations and experimentations, the greater will be the likelihood of technological change at the society level (Vanberg, 1992).

Working within the neoclassical framework, Baumol (2002: 2) delineates capitalism as "the free-market innovation machine that generates "the growth miracle" that no other socio-economic systems can deliver.

Assuming the naturalness of innovation in the capitalist society, he declares that “once capitalism was in place and fully operational, a flow of innovation and the consequent rise of productivity and per capita gross domestic product were to be expected.” Baumol further discusses how innovation is routinized by the rational decisions of oligopolistic rivalry under modern regimes of property right protection.

In exploring the sources and dynamics of technological change, evolutionary economists emphasize the importance of learning by searching, learning by doing, learning by using, learning by experimenting, learning through networks and alliances, and learning by routinization (Nelson and Winter, 1982; Dosi, Nelson, and Winter, 2000). Learning is regarded as a cumulative process that happened at the individual, organizational, and institutional levels. Individuals have natural ability of accumulating knowledge through various forms of learning. In modern society, they are able to overcome the limitations of their individually bounded rationality by relying on a complex division of labor, the systemization and routinization of knowledge creation and diffusion in organizations and institutions. Through path-dependent learning processes, modern corporations acquire both organizational and technical competencies for continuous knowledge creation and for perpetual innovation (Nonaka and Takeuchi, 1995; Rycroft and Kash, 1999).

In mainstream economics, theorists of endogenous growth try to put technological change back as an endogenously generated variable in their mathematic models of economic growth (Romer, 1990). By acknowledging the non-rivalry nature of knowledge and the resultant effect of increasing returns to scale, they single out the generation of knowledge as the key for sustained economic growth. Nevertheless, they face a problem of knowledge generation: how knowledge is endogenously produced and how this knowledge generation process is sustained. Following the typical economic thinking of a production function in which the inputs of labor and capital are automatically transformed into outputs of products and services, the endogenous growth economists (Romer, 1990) make automatic link between investment in human capital and research and development (R&D) to rate of technological change or productivity growth. It assumes that once such an investment is made, innovation will natural happen.

One of the great puzzles, then, was why did sustained economic growth only happen after 1800? As Galor (2005) rightly pointed out, most of the human history before 1800 was in a stage of Malthusian stagnation in which humans lived in subsistence; growth of per capita GDP was minuscule; population growth was check by poverty; and average life expectancy well below 40. Indeed, if human creativity is unlimited and therefore growth of ideas and knowledge is so natural, why did it take for so long for humans to break out the Malthusian trap of stagnation that was typical for most human history before 1800? What were the mechanisms that have checked human creativity before that date? What were the sources for the dramatic breakthrough in human creativity toward sustained growth of knowledge as well as wealth?

Scholars of the so called “unified growth theory” try to answer the above question by extending the endogenous economic growth models into the very-long human history. They made several important assumptions about the causal relationships and virtuous cycles in the generation of knowledge. The first virtual cycle is between population and knowledge: increase in population automatically leads to the generation of more new ideas/knowledge; which leads to increased productivity; which in turn leads to higher population carrying capacity of endowed natural resources; which completes the virtuous cycle of generating more knowledge (Jones, 2003).

The second virtuous cycle is between investment in human capital and growth of knowledge: the increases in accumulated knowledge enhances returns on investment in human capital; which leads to increases in the supply of human capital; which in turn generates more ideas, expertise, and knowledge.

The third virtuous cycle is between health, life expectancy, and investment in human capital: better health leads higher life expectancy; which generates higher returns of investment on human capital; which in turn induces more investment in human capital; which further generate more new ideas and knowledge; more accumulated knowledge leads to higher productivity; which improves the economic well-beings of the population; which leads to better health.

The fourth virtuous cycle is between fertility rate and investment in human capital: increased return on human capital leads to a decision to substitute investment in quality of children for investment for quantity of children. This substitution leads to a demographic transition, in which the fertility rate of population is dramatically

reduced. Reduction in fertility rate releases resources constraints, enables more resources to be invested in human capital, and therefore generates more knowledge.

The fifth virtuous cycle is the relationship between property rights, institutions, and returns on investment in knowledge: improved protection of property rights, especially intellectual property rights increases return on investment in knowledge, which in turn facilitates the rise of new institutions for knowledge generation and diffusion, such as schools, universities, patent and trade mark laws and offices; these in turn generate more knowledge and the needs for more property right protection. According to Jones (2001), from 25,000 B.C. 2000 A.D., the annual production of knowledge increased 111,000 times, of which a factor of 108 came from population growth, 4 from knowledge spillovers, and 245 from improvements in property rights.

Embedded in all these five virtuous cycles, and inherent in almost all intricate mathematical models of unified economic growth models is the assumption of a positive rate of knowledge generation and technological change. Therefore, the Malthusian stagnation in the very long run can be explained by the lack of the existence of these virtuous cycles as the results of poverty traps (Azariadis and Stachurski, 2005) and human development traps in which very slow growth in knowledge kept the growth in wealth in check, which in turn kept the growth of population and investment in human capital and physical capital in check, which in turn check the growth of knowledge. The transition from Malthusian stagnation to sustained economic growth can then be explained in multiple ways by various theories from multiple disciplines: it could be the result of an external shock in the production of knowledge, such as the scientific revolution, that is outside the frames of economics (Lucas, 2002); it could be the cumulative results of very slow knowledge generation and positive technological change that finally reached a point in which one of the five virtuous cycles became possible (Galor, 2004); it could be the European discovery and colonization of America that released the resource constraints on population growth and wealth generation (Pomeranz, 2000); it could be improvement in health and longevity that is either the product of evolutionary response to population density (Galor and Moav, 2005), increased nutrition, or improvement in medicine (Porter, 1997; Cervellati and Sunde, 2006); it could be the expansion of international trade that gave asymmetric advantage to the industrial countries that invest heavily in human capital ((Galor and Mounford, 2006); it could be the invention of invention (Landes, 1998) that enabled the Western countries to jump start the virtuous cycle of innovation; it could be the Christianity that set the foundation for modern science (Grant, 1996); it could be the inter-state competition (Jones, 1981, 1988) and the emergence of constitutional order of free market, democracy, freedom, and rule of law (Hall, 1985, Rosenberg and Birdzell, 1986) that provided incentives for entrepreneurs to systematically experiments with new products, new processes, new services, new ways of organizing; it could be the evolutionary emergence of entrepreneurial traits that accelerated the pace of knowledge generation and technological change (Galor and Michalopoulos, 2006); it could be the development of a new epistemic base (Morkyr, 2005), a new scientific culture (Jacob, 1997), new technological paradigms (Dosi, 1988), or new institutions of free enterprise (Rosenberg and Birdzell, 1986; Acemoglu, Johnson, and Robinson, 2004), of open science and invisible college (David, 1997, 1998), and of corporate bodies of public schools, universities, associations, and other human capital promoting institutions (Huff, 1993; Galor, Moav, and Vollrath, 2006).

All of these theories and models conclude with the inevitability of positive technological changes, of the industrial revolution (Hansen and Prescott, 2002), of demographic transition (Galor and Weil, 2000; Jones, 2003), and of the transition from Malthusian stagnation to sustained economic growth, especially when they are applied to the Western nations.

Economists are not alone in assuming the naturalness of innovation and technological change. Sociologists, anthropologists, management scholars, and historians also hold very similar belief. In his sweeping description of the evolution of human societies, Diamond (1997) also assumes the naturalness of human creativity. He explains the richness of innovation in Eurasia by its long East-West axis, which promotes diffusion of innovated technologies because of similar weather conditions; on the other hand, he attributes the slowness in the development of technology in America before European colonization to the long North-South axis and narrow East-West axis, which blocked the effective diffusion of technology because of weather differences across the North-South axis.

In his grand theory of intellectual change, the sociologist Randall Collins (1998) traces the sources of conceptual change and creativity not simply to isolated individuals but to the intellectual networks where the conflicts and alliances of intellectuals with different ideas facilitate them to learn, generate, synthesize, and contest

ideas. Although he acknowledges that the structures and processes of these intellectual networks differ from country to country, and the collapse of certain structures might have impeded creativity, it never happened to him that human creativity might face some natural limits that need to be transcended. Historians that examine the very long human history (Christian, 2004; Chase-Dunn and Lerro, forthcoming) also take the same view for the natural rise of modern knowledge.

Most philosophers of science take similar view on the natural advancement of science. In *the Structure of Scientific Revolution* (1962), Kuhn delineates four dynamic stages of scientific discovery as moving naturally from normal science to anomaly to crisis and finally to a scientific revolution with a shift of paradigms. The historian of science David Hull (1988) uses Darwinist evolutionary theory to delineate science as a selective process in which scientists struggle for the priority and acceptance of their ideas and theories, which lead to its natural development. In a same vein, Basalla (1988), Mokyr (1990), and Ziman (2000) delineate technological change as an evolutionary process in which innovations were a cumulative product of trial and error experimentation and selection.

## **Origin and Cognitive Foundation of Human Creativity**

Those who assume the naturalness of human creativity and entrepreneurship should find comfort in securing support from recent scholarship in cognitive sciences. Indeed, many strands of research in cognitive archeology, cognitive anthropology, evolutionary psychology, cognitive foundation of science, and cognitive neurosciences confirm the uniqueness and innateness of human creativity in the biological worlds. As archeological evidence indicates, the earliest stone tools made by our predecessor appeared at about 2.5 million years ago. They were hardly differentiated from naturally formed rocks, indicating a lack of conscious planning and execution. *Homo habilis*, appeared between 2.5-1.8 million years ago, was able to make more advanced stone flakes and wooden tools for hunting animals. Its follower, *Homo erectus*, emerged about 1.8 million years ago and lasted until about 300,000 years ago, was able to make a symmetrical stone tool called hand axe, indicating the existence of conscious planning and execution. However, the shapes of hand axes were basically unchanged during their existence between about 1.65 million years ago and 250,000 years ago, indicating a lack of creativity (Klein, 2002:108). It was only when *Neanderthals* appeared by after 500,000 years ago, that special purpose tools were crafted. But *Neanderthals* was still limited in creativity as evidenced by the limitation in variety of stone tools, the uniformity of tools, the lack of bone or ivory tools, and the lack of arts, religion and science (Mithen, 1996, 2006; Klein, 2002). As a result, all these lineages did not gain decisive advantage over other animals. The biological world waited until the emergence of our own species, the behaviorally modern *Homo sapiens* about at least 70,000 ago that generated a great cognitive capability of creativity. It is this explosion in creativity that enabled our own species to expand into all climate regions except the South and North Poles, to wipe out some big game animals such as mammoth, and to push *Neanderthals* to extinction about 30,000 years ago (Mithen, 1996; Klein, 2002).

This unprecedented creativity was the cause behind the Early Upper Paleolithic Revolution about 40,000 years ago in Europe. According to Mithen (1996), Bar-Yosef (2002), and Mellars (2005), this revolution is characterized by a surge of innovations in bodily ornaments, arts, ritual tools, music instruments, religion, foraging and hunting technologies, symbolic systems, and their systematic use. While this revolution in Europe can trace back to its Africa source back at least 70,000 years ago and therefore might be gradually developed (Henshilwood et al, 2004), the majority of scholars in archeology, anthropology, and biology consider it as the result of the sudden emergence of behaviorally modern *Homo sapiens* (Mithen, 2006). Potts (1996), Klein (2002), and Calvin (2002) propose that the Upper Paleolithic Revolution was biologically based on the “Big Bang” of general intelligence that transform our own species, the anatomically modern *Homo sapiens* that appeared about 200,000 years ago to behaviorally modern *Homo sapiens* about 60,000 years ago, or by the estimate of Henshilwood et al (2004), at least 70,000 years ago. According to them, ecological instability and abrupt, dramatic climate changes that were typical in those periods enabled the selection of gene mutations that dramatically increases in brain size and therefore general intelligence. According to the Machiavellian intelligence hypothesis (Byrne and Whiten, 1988, 1997), it was the never ending arm race in deception and counter-deception in the dilemma of cooperation and competition that increased brain size, enhanced general intelligence, and facilitated the emergence of the domain-specific module of

mind reading. Similarly, the social brain hypothesis (Dunbar, 2003) posits that since bonding within social groups provided decisive reproductive advantages, and since maintaining a large numbers of complex bonds requires a large brain and especially a large neocortex, gene mutations that increase brain sizes and especially the size of neocortex were selected. According to Dunbar (2003), brain size, especially the size of neocortex as compared with the whole brain, is possibly related to the group size of primate species. Following the same logic, Geary (2005) proposes that it was the motivation to control the social world that enabled the rise of general intelligence, which makes it possible for humans to use strategic behaviors to gain control over their peers. Studies of primate species by Reader and Laland (2002) do indicate a positive link between brain size and behavioral innovation and social learning. Gibson (2002) concurs that increase in brain size expands the information processing capacity, which in turn enables the combination and recombination of mental constructs to form new, highly complex, and variable ones. Genetic studies by Evans et al (2005) indicate that the human brain is continuously evolving. More specifically, a genetic variant of *Microcephalin* rose about 37,000 years ago that might be associated with increase in human brain size, an intrigue time parallel to the emergence of arts, religion, and sciences in Europe as identified by Mithen (1996). This genetic variant is present in about 70 percent of current human population, indicating its positive selection effect (Evans et al, 2005). Based on their study on robust genetic evidence, Lahn and colleagues (2006) propose that a seldom event of interbreeding between humans and Neanderthals might be the source of this genetic change that enhanced human brain size. In a similar study, Mekel-Bobrov et al (2005) also found evidence for continuing evolution of *ASPM*, a gene that is found to have an effect of regulating brain size. But a further study by Mekel-Bobrov et al (2007) found no support for the link between the adaptive evolution of *Microcephalin* and *ASPM* and increase in general intelligence.

In addition to the above general intelligence arguments, various theories about special intelligence and cognitive capabilities are proposed to explain the unprecedented creativity of *Homo sapiens*. Mithen (1996) proposes a three stage model for the evolution of intelligence and creativity. The first stage involved the development of domain-general module of general intelligence; the second stage added the domain-specific cognitive modules of technical intelligence (folk physics), natural history intelligence (folk biology), and social intelligence (folk psychology). In these two stages, because of a lack in the connectivity between domain-specific cognitive modules, there was a lack of creativity. The final stage was the explosion of human creativity; it was the result of a sudden emergence of what he called “cognitive fluidity,” a genetically based Big-Bang change that enables the flexible connections between the domain-general cognitive module of general intelligence and the domain-specific cognitive modules, and among the domain-specific cognitive modules of folk biology, folk physics, and folk psychology. This cognitive fluidity makes it possible for human beings to flexibly integrate the once isolated domain-specific intelligences, such as natural history intelligence, social intelligence, and technical intelligence; to bring to conscious awareness of the once inaccessible domain-specific intelligence; and to form a new reflexive cognitive process that enables conscious thought, systematic planning, and formation of symbolic behavior. Using the Schumpeterian terminology, the cognitive fluidity makes it possible for new combinations of ideas, concepts, and knowledge for entrepreneur efforts. According to Boden (1990)’s theory of creativity, the newly acquired cognitive fluidity should dramatically increase the conceptual space our human minds can effectively operate, making it possible for creativity to happen.

Coolidge and Wynn (2005) propose a much simpler model in which an additive genetic mutation that increased the capacity of the working memory, making it possible for a variety of cognitive capabilities that are necessary for human creativity. According to Baddeley (2002), working memory is composed of four components: the central executive, the phonological loop, the visual-spatial sketch-pad, and the episodic buffer. The phonological loop temporally recalls, maintains and manipulates verbal information through rehearsal. The visuospatial sketchpad temporally recalls, maintains, integrates and manipulates visual and spatial information. The episodic buffer temporally recalls, maintains, and manipulates long-term episodic memory. The central executive controls attention, makes decisions, plans and inhibits actions, and recalls, maintains, integrates, and updates information from the above three slave subsystems. Coolidge and Wynn (2005) propose two possible genetic mechanisms for enhanced working memory. One is a mutation that increases the domain-general capacity of working memory and its executive functions. Another is a genetic mutation that increases domain-specific phonological storage capacity or the capacity of episodic buffer.

Enhanced working memory increases capacity for attention span and control. It enables inhibition of instant gratification and automatic response, and therefore makes it possible for planned actions, contingency strategies, sustained goal-oriented efforts, which are necessary for tool making, and managed foraging (Coolidge and Wynn, 2005). By increasing the flexible access of long-term memory, and the flexible combination and recursion of information, enhanced working memory might also be the final enabler for the emergence of language in behaviorally modern *Homo sapiens*. According to Mithen (2006), while *Neanderthals* perhaps could sing, increasing compile of evidence indicate that only our own human species has the modern language capability, that is a capability of infinitively generative recursion. According to Spelke (2003), it is the combination of the language capability of infinitive recombination of ideas and the innate domain-specific core knowledge system of folk physics, folk biology, folk psychology, and folk mathematics that makes humans smart and creative. While the innate core knowledge system provides the fountain of knowledge, the language enables the infinitive combination of knowledge and ideas. S

By enabling the access, maintenance, and manipulation of a larger number of information from various domain-specific cognitive modules, enhanced working memory makes it possible for the reflection and manipulation of internal mental states, and the shaping, selection, and maintenance of goals. It therefore gives rise to the emergence of self awareness, self regulation and consciousness (Courtney et al, 1998). According to Rossano (2003), consciousness is of pivotal importance for the development of expertise that underlies most innovations. Expertise requires what he calls “deliberate practice,” in which a mental image of an artifact must be consciously formed; a goal of making the artifact be consciously formed and maintained; performance be consciously monitored; errors be consciously detected, and distractions be consciously avoided. Because of this linkage, Rossano (2003) suggests to use the evidence of expertise in fossil record of tool making as the indicator for the existence of consciousness, which he traces back to the Upper Paleolithic Revolution about 40,000 years ago, when the Big Bang of human artifact, arts, and religion happened in Europe.

Cognitive fluidity and consciousness enable the integration and recombination of information, and the arbitrary association between signs and meaning, setting the foundation for to the emergence of symbolic behavior that is of pivotal importance for cultural evolution and learning (Deacon, 1997). Most recent archeological discoveries indicate that *Homo sapiens* used personal ornaments and performed rituals in Africa 70,000 years ago (Henshilwood et al, 2004; Coulson, 2006), a big bang revolution 30,000 earlier than in Europe.

Enhanced working memory might also contribute to the formation of the theory of mind, a uniquely human capability of inferring the mental states of other minds. According to Mithen (1998), together with language, and consciousness, theory of mind enables thought experiments that are of pivotal importance for human creativity. Theory of mind is also cognitive foundation for our ability for pretension, play, and imagination, all essential for human creativity (. Indeed, enhanced working memory and the language faculty of recursion can be seen as the very foundation of conscious thought, symbolic behavior, and creativity.

Because of this linkage, and because science is in essence a knowledge discovery process, Carruthers (2002) considers it natural for the rise of modern sciences. For him, the cognitive foundation for scientific reasoning is no different than the mundane job of animal tracking in the hunting and gathering age in which hunters make hypothesis about the relationship between traces and animal movements. In the same vein, from her study of children’s understanding of the external world and the other minds, Gopnik (1996, 2004) considers a human child as a naturally born scientist that is equipped with an innate cognitive capability for making hypotheses and test them by experimentation. In her words, “even the youngest babies are solving Popper’s problem: somehow they accurately learn about the causal structure of the world from their experience (Gopnik, 2004: 22).

## **A Brief History of Human Creativity**

Giere (1996) challenges Gopnik’s assumption of the scientist as child by posing the 1492 question: if indeed human beings are naturally born scientists, why had humanity waited until after 1492 to develop science in the modern sense? A similar question can be posed about human creativity: if behaviorally modern *Homo sapiens* are endowed with cognitive capability of creativity, why the greatest burst of creativity only happened after 1492? Since

behaviorally modern *Homo sapiens* are already equipped with capability of science and creativity back at least 70,000 years ago, what were the reasons that they didn't develop modern science and technology for most of these 70,000 years until the last 500 years?

If we look back to the last 70,000 years, the display and outcomes of human creativity have not been evenly distributed, but followed a pattern of what Gould (2002) termed punctuated equilibrium, in which a period of burst in radical changes is followed by a long period of stasis or very slow gradual changes. There are five bursts of human creativity in the last 70,000 years: the Upper Paleolithic Revolution about 40,000 years ago in Europe; the Neolithic Agricultural Revolution about 11,000 years ago; the Urban Revolution and the emergence of writing about 5000 years ago; the rise of the axial age between 800-200 B.C.; and the Scientific Revolution and Industrial Revolution after 1492.

What is interesting for the study of human creativity is the relatively slow pace of change in between the revolutions. If behaviorally modern *Homo sapiens* are equipped with innate cognitive capability for creativity, then the Upper Paleolithic Revolution about 40,000 years ago in Europe can be easily explained: It was the time for *Homo sapiens* to migrate from Africa to Europe. Increasing collection of evidence of similar revolution in Africa at least 70,000 years ago are found in Africa (Henshilwood et al, 2004; Coulson, 2006). Indeed, together with the genetic evidence, in archeology and anthropology the evidence of symbolic artifacts, arts, rituals, and complex tools, which are typical of the Upper Paleolithic Revolution, is used to determine the timing for the emergence of behaviorally modern *Homo sapiens*.

Then, what were the reasons for the time lag of at least 30,000 years for humanity to invent the agricultural way of life? Indeed, while the evolution of human brain has been ongoing for the last 70,000 years (Evans et al, 2005; Mekel-Bobrov et al, 2005), especially with regards to *ASPM* and *Microcephalin*, two genes that are found to regulate brain size, so far no evidence is found to link the ongoing evolution of *ASPM* and *Microcephalin* with enhanced general intelligence (Mekel-Bobrov, 2007). The fact that agricultural revolution happened spontaneously and independently in multiple areas of Southwest Asia, China, Mesoamerica, Amazonia, and New Guinea indicates that it was not biology based, but the natural product of human creativity (Diamond, 1997; Richerson, Boyd, and Bettinger, 2001; Mithen, 2004). Most scholars agree that agricultural mode of production was simply impossible before 11,500 years ago because the weather was too cold, too dry, or too variable for the domestication of and cultivation of plants. Since then, the climate has been warm, wet, and stable in a vast area of the world, making it possible for the agricultural mode of production to naturally evolve. Continued population growth put high pressure on the limited carrying capacity of the hunter-gatherer mode of production, giving agriculture, which has a much higher population carrying capacity, a selective advantage in the areas with arable lands and good weather conditions.

The most interesting aspect of the agricultural revolution, which is either taken for granted or entirely ignored, is that the creativity involved in the explosion of innovations that fueled this revolution is entirely within the natural cognitive capability of our ancestors (Jin, 2006, 2007). Back in the Upper Paleolithic Revolution, stone tools for processing wildy collected foods, such as bowls, mortars, and cup holes, were already invented (Bar-Yosef, 1998). In the Natufian culture in Near East, semi-subterranean houses, art objects, bone industry, and pounding and grinding tools were already present around 13,000 B.P., setting the foundation for the Agricultural Revolution (Bar-Yosef, 1998). What limited the inventiveness of hunter-gatherers were environmental, population, and socio-economic variables that are discussed in standard evolutionary model of agricultural revolution (Richerson, Boyd, and Bettinger, 2001). It took time for population to expand into all corners of the world and to reach the carrying capacity of the hunter-gatherer environment. In a simple hunter-gatherer band, the need for mobility made it useless to invent, produce, and accumulate heavy, fragile, immovable physical objects. The inability to accumulate wealth through time and carry them across space, together with lack of hierarchy and status differentiation, made it less likely to develop craftsmanship that focused on the production of prestigious goods. Instead, Major cognitive activities were focused on the development of the ability to recognize and find edible plants and to trace, hunt, and process animals. There were limited number of materials that could be used for tools, and limited ways of making tools. Therefore, human creativity was focused more on tracing and hunting animals and finding edible foods than on developing new tools. Because cooperation among fellow hunter-gatherers was of pivotal importance for their very survival, cognitive efforts were also focused on the formation of rituals and norms



that reinforced solidarity of their bonding. Because most hunter-gatherers faced tremendous uncertainties and constant disasters that were beyond their control, they also developed folk religions and folk cosmologies that tried to explain the unexplainable.

In a complex hunter-gatherer society before the advent of agriculture, social hierarchy and division of labor did evolve, which promoted the specialization of craftsman activities, and their invention and production of prestige goods (Hayden, 1998). In addition, complex hunter-gatherers also established sedentary or semi-sedentary way of life in some resource-rich areas such as Japan's coastal areas and the Natufian culture in Near East. This further facilitated the invention of a variety of technologies such as pottery, metalworking, jewelry, houses, and accidental domestication of animals. Indeed, as Hayden (1998) pointed out, the seeds for virtually all major technological innovations we normally associated with the agricultural revolution were actually planted much earlier.

But complex hunter-gatherer could only go so far with their inventions. Their sedentary lifeway was only limited to few isolated locations; their division of labor was still rudimental, and their social hierarchies were not tall. More importantly, hunter-gatherer societies were limited in their productive power to produce enough surpluses of food and other resources to support and sustain a craftsmen class and communities of craftsmen specialized in the creation, sharing, and enhancement of knowledge, expertise, and techniques. They also lacked new dimensions of conceptual space beyond their dominant way of life.

Therefore, while not lacking creativity in creating stories, rituals, folk religions, folk cosmologies, and in originating various technologies necessary for the agricultural revolution, complex hunter-gatherers had limited surplus resources, conceptual space, and institutional arrangements for further development of technologies. While scholars increasingly aware that the advents of pottery technology, sedentary lifeway, agriculture, which had long been treated as an inseparable bundle of the Neolithic revolution, should be treated as independent events (Marshall, 2006), as long as the hunter-gatherer mode of production was locked-in by the weather conditions of the last ice age, there would be little available resources, conceptual space, and institutional support for the further development in technologies. The more than 30,000 years of relative stasis in human creativity between the Paleolithic Revolution and the Agricultural Revolution was, therefore, caused not by the innate cognitive bounds but by the external environments of the ice age that made the agricultural way of life impossible.

While the experimentation with the domestication of plants and animals might have happened well before the end of the ice age, it became more meaningful, advantageous, and therefore systematic after the end of ice age in 11,500 B.P. Ten centers of domestication rose independently across the globe, with Near East immediately following the end of the ice age. The agricultural way of life opened up multiple new dimensions of conceptual space for innovation. First, agriculture requires a permanent and pervasive sedentary way of life; it opened up the spaces for the innovation and construction of monuments, housing, furniture, heavy, immovable physical objects, tools, and facilities. While a sedentary life way did develop independently before the advent of agriculture in a variety of areas with rich marine resource such as coastline Japan (Marshall, 2006), it only became a prevalent way of life after the advent of agriculture. Second, agriculture requires the innovation of new tools and facilities for the systematic shaping and working on the arable lands, and for irrigation systems. Third, agriculture requires the innovation and production of tools and facilities for food processing, transportation, and storage. Fourth, agriculture requires the removal of environmental and human waste, and the supply, storage, and removal of water resources. The results are the innovation of completely new sets of tools, technologies, and facilities.

In addition to stones, the most available materials for making tools are clays. Humans in the Upper Paleolithic age had already used clays to make various unfired objects. As a result of their constant use of fire, early humans could easily find that fires harden clays. Just as they naturally learned to use fire to process stones, they should have naturally invented the technology for making pottery. Increasing evidence indicates that humans invented pottery technology independently in multiple places well before the advent of agriculture. Back in 25,000 B.P., complex hunter-gatherers in central Europe already made pottery as a prestige symbol; Pottery might have been in use at about 16,000 B.P. in South China (Zhang, 2002); Pottery found in Russia's Far East was radiocarbon-dated at about 13,300-12,300 B.P. (Kuzmin, 2002). Pottery vessels found in Japan dated at about 13,000-12,000 B.P. But widespread use of pottery only happened after the advent of agriculture.

While archeologists have proposed various theories for the origins and spread of pottery technologies (Rice, 1999), they never doubted the natural capabilities for humans to invent them. What had constrained the

creativity of natural entrepreneurs was the trajectory of the pottery technologies from prestige goods to practical goods, from plain pottery to painted pottery, to glazed ceramics or porcelains, and to their various artistic expression, which in turn depended on the discovery of new types of clays, new color materials, new techniques for shaping clays, new fuels for reaching higher temperature such as charcoal, and new kiln design. Each major invention opened up both new dimensions of conceptual space and of technological possibilities for individual entrepreneurs to design, manufacture, and distribute new pottery products. The potter's wheel, invented in Mesopotamia before 3000 B.C. and possibly elsewhere in Egypt and China in latter dates, made it possible for the perfectly round shaping of pottery; The accidental finding that charcoal as a fuel created a much higher temperature within a pottery kiln and generated much better products might trace back in 4000 B.C. It opened up a new dimension of technological possibilities of not only better quality ceramics, porcelain, but also the making of glasses, copper and bronze, irons, and steel.

While the discovery of raw nuggets of gold, silver, and copper and their reshaping as prestige goods might trace back well before the advent of agriculture (Hayden, 1998), the need to systematically work on lands for farming, housing, and, irrigation might have contributed to the abundance of their discovery. Indeed, the earliest objects made of native copper such as early forms of pins, hooks and awls were found in Anatolia of modern Turkey and Ali Kosh of Iran around 8,000-6,000 B.C., By trial and error experimentation with various colorful minerals for glazing and coloring pottery in kilns, some craftsmen might find that certain minerals could yield copper when they are heated to a high temperature. Some eventually found that the firing of a combination of certain minerals might yield a type of metal that is harder than pure copper. The technologies for smelting and casting of bronze might have been independently invented in Western Asia at about 3500 B.C. and China at about 3000 B.C. They were originally used for the production of prestige goods and gradually for practical tools. They created a new dimension of both conceptual space and technological possibilities within which human creativity could flourish to the extent that they greatly impacted the way of human life during c. 3500-1200 B.C., a period the archeologists termed the Bronze Age.

In addition to the development of new dimensions of conceptual space, what required for all these technological developments were socio-cultural, economics, and institutional conditions that were not present in complex hunter-gatherer societies, but available after the advent of agriculture. The advent of agriculture created more carrying capacity for a given amount of lands; it facilitated population growth, and the development of villages, towns, and eventually cities; it produced economic surplus that enabled division of labor and the emergence and development of specialized craftsmen production for both prestige and practical goods; economic surplus and craftsmen production facilitated trade that furthered the division of labor, and the formation and sustenance of communities of craftsmen specialized in the production of prestige goods and practical tools. Specialization enabled the formation and reproduction of expertise that requires long-term consistent and persistent practices. Long-term practices facilitated not only those trial-and-error knowledge creation processes such as learning by doing and learning by using, but also systematic experimentation with various new combinations of materials, tools, techniques, and processes, which led to the discovery of bronze and other technologies. Individual craftsmen were also able to overcome their own cognitive limitations by the formation of communities and networks of practices where they learn from one another and from the inherited techniques of their ancestors. Here, we can see that several virtuous cycles of the so called "unified growth theory" can be used to explain the transition to agriculture. Indeed, one of the earliest town, Catal Hoyuk in Turkey lasted for about 1000 years between 6300-5400 B.C. It was originally specialized in the production of stone tools, made of obsidians mined in abundance, traded in long-distance. Catal Hoyuk was also where some earliest practical pottery and artifacts made of copper and lead were found dated at about 6000 B.C. It is a good example of how the combination of agriculture, stone-working, pottery, and metal-working could support an urban way of life.

Indeed, the transition from the Neolithic to the Bronze Age in multiple places can best be explained as the co-evolutionary process in which technology, economy, culture, and institutions mutually reinforced one another in their evolution. It eventually led to the stratification of society, the urban revolution, the emergence of the state, the emergence and development of writing, the arrival of the Iron Age, and the rise of classical civilizations and empires.

While a detailed treatment of this process is beyond the scope of this paper, it is important to point out that all these developments happened independently and spontaneously in multiples centers of civilizations; they are

therefore natural and within the limits of cognitive capabilities of our own species. The urban revolution was a natural result of population growth, the intensification of agriculture, and the increasing division of labor in the craft production of goods and services. The emergence of state was also a response to the need for the large scale construction and organization irrigation systems, to the reduced governance cost with increased effectiveness of metal weapons, to the increased conflicts as a result of social stratification, and to wars on increasingly scarcity of lands, slaves, and mineral resources such as copper and salt (Flad et al, 2005), a result of innate human greedy, human motivation to control, and human's Machiavellian capability of strategic behavior. The independent emergences and developments of writing in several centers of civilization such as Western Asia and China were also a response to various forces such as the calculating requirement of agricultural production, the need for trade, the demand of state administration, and elite's efforts of legitimating and signifying their dominance through ideologies and religions (Houston, 2004).

Archeologists and anthropologists are still not certain about the exact causes for more than two thousand years of time lag between the beginning of the Bronze Age at about 3500 B.C. and the emergence of the Iron Age at about 1200 B.C. It might just be a historical accident, or a result of increasingly scarce copper and tin resources, reflecting the difficult in accidental trial-and-error experimentations in iron making. Natural iron exists only in meteorite and therefore is very rare. It requires much higher temperature to smelt than copper and tin do. The natural product of firing iron ore in the furnace is not pure iron, but an iron oxide. It forms pure iron only when it is reacted with carbon monoxide in high temperature, produced by air-deprived burning of charcoals. But this is not the end of the story. It is mixed with impurities to form the bloom. Only through repeated reheating and hammering the bloom in high temperature can blacksmith force out the impurity and produce wrought iron. Unfortunately, wrought iron was not as hard as bronze. Only when it is carbonized in high temperature can it become either cast iron or steel. Cast iron has more than 2% of carbon and is hard but brittle. Steel has about 0.2%-1% carbon and is both hard and flexible. While blacksmith might have accidentally found the ways of making cast irons and steels from wrought iron by pure trial-and-error experimentation, their underlying principles were not found until the 19<sup>th</sup> century during the advancement of chemistry.

## **The 1492 Question Reconsidered**

The question is then: why did it take more two thousand five hundred years between emergence of the Iron Age in 1200 B.C. and the Scientific Revolution in the seventeenth century and the Industrial Revolution in the eighteenth century? Immediately after the onset of the Iron Age, independent breakthroughs in religion and philosophy in Ancient Greece, Western Asia, India, and China created the so called Axial Age between 800 B.C. and 200B.C. In classic Greek as well as India and China, classic mathematics, astronomy, and medicine were developed. Technologies for making porcelain, metals, buildings, ships, textile, agricultural tools, and weapons continued their gradual development. China invented stirrups, horse harness, paper, printing, and gunpowder that many considered as revolutionary. The West invented and found pervasive use of chimney, waterwheels, mechanical clocks, and eyeglasses. Architecture, painting, sculpture, poems, literature, music, drama, cuisine, furniture, and many other forms of high culture were further developed. But a basic fact still remains: basic human conditions had not changed very much, so did basic human cognitive capability and creativity. A person who lived in the axial age Greece, Rome, India, and China should not have been surprised by the material conditions of their counterpart in the fifteenth century. There should also be of little cognitive puzzles that are beyond their ability to understand. Indeed, Peter Temin (2006) of MIT concludes that people in early Rome Empire from 27 B.C. to 200 AC lived as well as early modern Europeans in the seventeenth and eighteenth century. Scholars of very long-term economic growth also identified sustained stagnation in per capita GDP and low life expectancy for the last two thousand years until its transition to sustained economic growth and increased life expectancy in the eighteenth and nineteenth century.

Of all the major human accomplishments in history as identified by (Murray, 2004), the majority of them were achieved since the scientific revolution in the seventeenth century, while the remaining the achievement of the axial age of 800B.C.-200 B.C. Very little were achieved in between. The history of human discovery of metals can best represent this stagnation. While seven metals, gold, copper, silver, lead, tin, iron, and mercury, were discovered

before 750 B.C., no metals were discovered until the thirteenth century when arsenic was discovered. It was followed by zinc in 1400, platinum in 1500, antimony in 1560, and bismuth in 1595. It was only since the chemistry revolution after 1700 that some of these elements are recognized, isolated, and found common use. The eighteenth century discovered 12 additional metals, the nineteenth century 30, and the twentieth century 19 (Cramb, 2007). Without the revolution in chemistry all these discoveries would be impossible. What is more revealing is that oxygen, the element essential for life, was found only in 1777, more than two thousand years after the discovery of mercury.

Indeed, if we look at the technologies of our everyday life, almost everything we enjoy is a product that humanity invented after the scientific revolution. Even agriculture is fundamentally transformed by modern science and technology. Human creativity is tremendously enhanced by modern education and research institutions, and by the newly created dimensions of conceptual space, of available materials, and of technological possibilities.

But the real question is: why did not such a burst of creativity happen much earlier? Why there was such a lag of two thousand years between the axial age and the scientific and industrial revolutions? If indeed, behaviorally modern *Homo sapiens* are endowed with cognitive capabilities for creativity, and for scientific discovery as Carruthers and Gopnik suggest, then as Giere famously asked, why should humanity have to wait until after 1492 to develop science in modern sense? Although asked in different context and disciplinary frameworks, this is the question that puzzled scholars in humanities and social sciences for many years. In his book *The Savage Mind* (1966:15), after discussing the need for a scientific attitude for the Neolithic Revolution, Levi-Strauss famously reasons that:

Neolithic, or early historical, man was therefore the heir of a long scientific tradition. However, had he, as well as all his predecessors, been inspired by exactly the same spirit as that of our own time, it would be impossible to understand how he could have come to a halt and how several thousand years of stagnation have intervened between the neolithic revolution and modern science like a level plain between ascents.

While Levi-Strauss rightly recognizes that there are two types of scientific knowledge and methods involved, his discussion of them is less convictive; so does his categorization of intervene between the Neolithic and modern science. But the question remains.

## **The Blockage View of Human Creativity**

The still dominant approach to both the 1492 question and the Levi-Strauss Puzzle is the blockage view of human creativity. If indeed, humanity is endowed with cognitive capability for creativity, then the common sensual and easiest answer to the 1492 question is that human creativity before 1492 was blocked by various forces. Based on different theories, the blockages can be the lack of freedom, individualism, property rights, and free market (Jones, 1981; Hall, 1985; Rosenberg and Birdzell, 1986; Landes, 1998), the irrationality of religion, culture, customs, government (Gellner, 1992; Mokyr, 1990), and the lack of institutional innovations (Mokyr, 1990).

While a complete treatment of this view is beyond the scope of this article, it is suffice to say that it is fundamentally challenged by recent scholarship almost in every discipline of humanities and social sciences (Jin, 2006). In the study of ancient economy, scholars found that property rights and market existed in Ancient Rome (Temin, 2001) and elsewhere. In the great divergence debate about the rise of the West and the relative decline of the rest after 1800, the California revisionist school of history challenged the dominant view by Weber, Jones, Hall, Gellner, and Landes (Pomeranz, 2000).

## **The Cognitive foundation for the Epistemic Limitations of Natural Entrepreneurs**

While fierce debates are still going on between standard theories and the revisionist challenges, both tacitly assume the infinitive capability of human creativity and the natural growth of knowledge. That is why both sides all focus on the external conditions such as markets as the explanative variables. This same mistake is also apparent in afore mentioned new growth theorists and unified growth theorists. As a result, in my view, they all neglected the real

source for the stagnation of human creativity after the axial age: the limits of natural entrepreneurs in their natural state.

As we discussed before, human creativity is based on the cognitive fluidity that are enabled by human language capability and human innate core knowledge in folk physics, folk biology, folk psychology, folk ethics, folk logic, and folk mathematics. While the latter provide the very foundations and mechanisms for generating concepts and casual inferences, the former enables the infinitive recombination of these concepts and inferences. While a detailed treatment of the domain-specific cognitive modules of folk physics, folk biology, folk psychology, folk ethics, folk logic, and folk mathematics is beyond the scope of this article (see for example Pinker, 1997; Geary, 2005, Hauser., 2006), it is suffice to say that these cognitive modules provided the very foundation for the Paleolithic Revolution, the Agricultural Revolution, the emergence of writing, and the axial age breakthrough, but not enough for the scientific and technological revolution since the seventeenth century.

According to evolutionary psychology (Pinker, 1997), folk physics, folk biology, folk psychology, folk ethics folk logic, and folk mathematics are innate, domain-specific cognitive modules that gradually evolved through genetic mutation and natural selection or sex selection in the evolution f human species. Like evolution of eye that enables animals to form images of the external world in their brain to escape danger and find food, folk physics was evolved through long-term natural selection where the characteristics of the physical world that are of pivotal importance to an animal's survival are coded in the innate neural networks. These include the fear of cliff and height, the sense of balance, impetus, softness, hardness, warmth, contact, force, and movements. It is exactly this core knowledge of folk physics plus the ability to plan and execute conscious thought that enable humans to make stone tools, and build houses. Furthermore, folk logic and folk mathematics enable human beings to reason cause-effect relationships based on a sense of human agency, to make probability judgment based on an innate, unconscious statistic module. They enable humans to learn from trial-and-error experimentation, paving the way for the discovery and development of the technologies for pottery, bronze, iron, and classic physics, mathematics, and logic. Folk biology, together with folk logic and folk mathematics, enables humans to understand the essence of the biological world, helps them recognize and find edible foods, and avoid poison and predators. They constitute the cognitive foundation for the domestication of plants and animals, and therefore, paving the way for agricultural revolution. Folk psychology is mainly composed of a theory of mind in which humans can understand the mental state of others. Folk ethics on the other hand provides innate moral guidance as to what is wrong and what is right. Together folk psychology and folk ethics enable sustained alliances to secure cooperation and avoid being cheated and exploited. The innate theory of minds and the innate sense of morality enable humans to evolve from simple to complex hunter-gatherer society, from band to tribe, to chiefdom, and to state, and from village life to urban society. They also enable humans to teach one another and learn from one another so that human society can accumulate and transfer knowledge and expertise through time and space, making possible the creation of great classical civilizations.

The cognitive fluidity enables symbolic thinking and abstract analysis, which set the foundation for the independent emergence of writing, and the independent axial age breakthrough in religion, philosophy, and classic physics, mathematics, astronomy, and medicine in multiple civilizations. But what the axial age breakthrough embodied is the explicit articulation of the innate core knowledge systems of folk physics, folk biology, folk psychology, folk ethics, folk logic, and folk mathematics, which were implicit and unconscious. While Aristotle's physics is very much the explicit articulation of the feeling of impetus in folk physics, his theories of ethics is the explicit articulation of folk ethics. But that is what our innate cognitive capability can go. The fact that Aristotelian science didn't produce much further development for more then two thousand years reflects the very limitation of creativity for the innate human mind. This same thing can be said about the limited development of irons and steels, of Chinese traditional medicine, and of new materials before the advent of modern science.

Because natural selection is always myopic (Mayr, 2001), the innate core knowledge systems of folk physics, folk biology, folk psychology, folk ethics, folk logic, and folk mathematics are evolved not to reveal in-depth principles of physics, biology, psychology, ethics, logic, and mathematics. Rather, they are cognitive short-cuts that enhanced reproductive success of organisms that carry them. They can help a causal inference that a natural copper can be made into prestige goods, clays after fire can be hardened to form pottery, and a certain rock can yield copper if it is fired in a kiln with charcoal. But these innate cognitive modules are not designed for the discovery of

oxygen and carbon and the fundamental chemical process involved in the production of copper from copper ores. Alchemic theories that developed independently in multiple places in explaining the principles of metal production were entirely wrong if judged by modern scientific theory, so was the foundations of classic physics, astronomy, biology, and medicine.

## **The Transcendence View of Human Creativity**

So while many scholars consider the advent of modern science as similar to the advent of agriculture, the urban revolution, and axial age breakthrough, I will argue that they are qualitatively different. While the latter three breakthroughs were the natural products of innate human minds, the former was the result of what I called the great knowledge transcendence that enabled humans to go beyond the limitations of their innate core knowledge systems of folk physics, folk biology, folk psychology, folk ethics, folk logic, and folk mathematics (Jin, 2006).

While a detailed discussion of the historical, institutional, religious, and socio-cultural factors and incidents that contributed to the great knowledge transcendence is beyond the scope of this paper (see Jin, 2006), it is suffice to discuss the key principles underlying this process, many of which are identified by Merton (1942). The first principle is organized skepticism. Such skepticism is first directly toward common sense and everyday experiences. Common sense is based on the innate core knowledge systems we discussed before. It is the common sense that prevented humans to accept that the earth moves around the sun; it is common sense that makes humans believe that any movement is the result of a force. Modern astronomy began when people began to challenge these common senses. Indeed modern science is unnatural to the extent that it is uncommon sense (Wolpert, 1992). Second, organized skepticism has reserved attitude toward knowledge claims. It requires that any knowledge claims be subject to systematic, rigorous, thoughtful, and methodical justification through independent and objective experiments and tests. Third, organized skepticism also means a rebellion against the tyranny of community, authority and tradition. It requires that no one should have priority in knowledge claims and knowledge justification; it maintains everyone should have the freedom to form hypotheses and test them as well as the hypothesis of other. In doing so a new community of inquiry is formed. While we are indeed naturally born Poperians who constantly make hypotheses and test them, we also tend to accept authority and tradition, and take most things for granted. By enforcing the principles of organized skepticism, freedom, universalism, and individualism, the new communities of science and technology constantly push our minds to a state of perpetual tension so that we are driven to find new solutions and new hypotheses.

What is interesting is that historically, the emergence and dominance of these principles are the result of a unique combination of historically contingent forces and events in the West and the world system; they might not repeat elsewhere. Nevertheless, once these principles and institution evolved around these principles are in place, the human minds acquired a new cognitive capability of creativity that is not stoppable. Every new discovery, every new technology opens up new conceptual spaces, new available materials and tools, and new technological possibilities that enable further new discovery, constituting a loop of positive feedback to create increasing returns to investment in human creativity. Indeed, it is only during the modern period of the great knowledge transcendence that science and technology formed a virtuous cycle, whereas Classic Greek science had little impact on technology. Indeed, as Rosenberg (1982) indicates, science had little influence on technology until the nineteenth century.

## **Explaining Cross-National Differences in Creativity**

Sadly, more than three centuries after the scientific revolution in the seventeenth century, major scientific and technological breakthroughs are still dominated by the Western industrialized world, with the exception of Japan, Korea, and Taiwan. Even Japan is not up to the USA in turns of spontaneous entrepreneurship in the Internet age (Jin, 2001). While many countries like China and India have tried to build an innovation-based economy by boosting investment in human capital and in research and development, their outcomes are not clear. From the perspective of this paper, policy maker in these countries might fall victims of a false theory of growth and a false theory of innovation. What are missed in the lack of creativity in many developing countries are not so much the economic

variables such as invest in human capital or research and development, but in the institutional principles of organizing the knowledge creation and entrepreneurial process. Because it is tightly coupled with cultural and institutional transformations that many developing countries have not experienced, the development and institutionalization of these principles would be a difficult and time consuming process. But to understand this need is much past due.

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# Scaling the Inner Parnassus: Unlocking the Creativity through Advertising

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## Abstract

**Creativity has innumerable definitions and is inextricably blended with the advertising world. It is copywriters' prerogative to twist, turn and writhe the language of advertising to reach the acme of creativity. In the world today when all the human beings work like machinery the creativity is refreshing delight and respite from the humdrum of today's cacophonous milieu. This paper attempts to identify all the tools and techniques used by the Creatives to make their ad look distinctive and noticeable. The analysis will be done in terms of language, design and non verbal cues. The focus however will be on Amul advertisement, which have created niche in the advertising arena.**

## Introduction

Creativity is a business skill- or rather a life skill –that is innate and cannot be learnt. The only way to enhance your creativity is through practice for some people it is originality of ideas while for others it is judicious imitation of existing ideas. Persons with creative bent are labeled as being eccentric as they have unique way of looking at the things. They not only play with imagination but indulge in daydreaming as well. They are mavericks in some respect, as they don't follow the path of the common man. The hackneyed expression 'the old wine in new bottle' still is apposite in the context of advertising. Whatever be the profession creativity is required to develop new ideas and theories. In some profession it is needed more than in others. We cannot deny that mathematicians, philosopher, medical practitioners; all are creative as they too have divergent thinking to get the solution of problem.

Advertising is ubiquitous and creativity is an integral part of it. It is the profession of advertiser to sell dreams, which is not a concrete entity. Therefore he has myriad of ways to sell his dreams. He lets his imagination go weird and in this process come up with umpteen solutions. He has out of box thinking with several permutations and combinations. To be different from the crowd he takes the calculated risk. When Fcuk fashion chain of showrooms had started with this name they certainly had taken a calculated risk. Fortunately it clicked very well and has become one of the most desired brand.

With the farrago of products proliferating in the market the competition has become very arduous. The advertisers aim to be different to put an indelible impact on the viewers. They want to create a niche for themselves. For doing this they have to have a big idea, ability to take risk and say something relevant too. This can be done with the help of picture, words or may be with the combination of both. The copywriter uses variety of linguistic tools to titillate the reader. He uses all the rhetorical devices and anomalous expressions in the text. For example the print ad for huggies showing the mammoth dam holding enormous water and just huggies written at the end speaks volume as the meaning can be drawn through analogy. The art director on the other hand uses scintillating pictures and sometimes-controversial images in attempt to be different. In the want to lure the viewer all the strategies are explored to the fullest. The brilliant ads done by Oliviero Toscani for Benetton are brilliant display of creativity. In creativity the old existing ideas are looked into the new light. Creativity to some extent has a universal appeal. It is not bound with the rules; one can have an appellation of being creative even sans the theories of advertising. Rules are antithesis to advertising. If an individual is able to sell ideas to the majority of people then that is the successful campaign creative people have no dearth of ideas because of the lateral thinking. They always come up with novel and fascinating solutions. The only criticism the creative people are charged with is of being weird and frenzy. But they should not mind these indictments for they don't follow the rules. They fall under the pale of Janusian thinking. Janusian refers to the Roman god Janus who was depicted with two faces looking simultaneously in opposite



direction. Creativity cannot be learnt but is an innate ability of an individual. Creative people have preponderance of left-brain thinking and that is the reason they come up with innumerable ideas.

In the world today when all the human beings work like machinery the creativity is refreshing delight and respite from the humdrum of today's cacophonous milieu.

## **Creativity: Definition**

Creativity is a dynamic tension between several opposing forces – freedom versus discipline, speculation versus safekeeping, divergence versus convergence, relaxation versus alertness, feeling versus thinking, learning versus problem solving, ideating versus evaluating, and experiencing versus abstract thinking.

Most definitions emphasize different facets of creativity. Some emphasize outputs of creative efforts, and they view creativity as the discovery/innovation of something that is novel and also useful or relevant or economical or elegant or valuable. Some others have stressed the creative process. In this view, creativity is goal-oriented exploratory thinking, the seeking of relationships between previously unrelated concepts or frames of reference, of imagining possibilities, of exploring the under-known, and cycles of exploratory and analytical thinking. The outcome of this effort may or may not be creative, but the effort reveals the characteristics of the creative process – wide search, leaps of imagination, incubation, sometimes strikingly fresh insights. Thus it is that we say that the sciences and the arts are generally more creative pursuits than, say, factory work or vocational training, or that research and development is a more creative activity than accounting and control. That is problem solving in the sciences, the arts, or in R&D generally exhibits greater exploratory, imaginative 'divergent thinking' than problem solving relating to factory work, vocational training, or accounting and control.

Still others identify creativity with certain states of the being. For example, Abraham Maslow, the guru of human psychology, has identified creativity with openness in expressing feelings, receptivity to ideas, concern for others, desire to grow as a person actualize one's potential, and so forth. Other psychologists have compared creative and non-creative persons from the same profession. They have identified a number of personality traits and abilities that distinguish creative from non-creative persons, like the greater love for the complexity of the creatives, their more bizarre fantasy life but simultaneously a high degree of contact with reality, and their greater independence of judgement. The ability to come up with many, varied, and uncommon ideas or solutions also seems to distinguish creative from non-creative persons as also their abilities to notice anomalies, issues, paradoxes, etc. The advertisements try to bank on the basic appeals discussed by Maslow in his pyramid. The Happy dent ad in which human smile coruscates light illuminating the whole kingdom. Of course this ad is a step ahead of the Edison's invention of light.

Each one of these views of creativity is flawed. If one judges creativity only in terms of the novelty and usefulness or elegance of the product, one may sometimes find that this creative product may have been discovered or produced either by accident or by a non-creative process. Today, innovations are increasingly institutionalized. For example, many researchers discover something or the other simply by taking a problem and by applying the scientific method to it. Indeed, Maslow has contemptuously disposed off universities and scientific establishments as havens of the mediocre. If one judges creativity by the creative process instead of the creative product, the dreamer would be the champion creative, for the extent of imagination and divergent thinking, playful, 'if-suppose' combinations, the relating of remote ideas, and so forth that characterize the creative process are at their flood tide during dreaming. If creativity is to be judged in terms of the characteristics of the creative person, such as curiosity, receptivity, idea flow, lack of inhibitions, etc. the child would outrank the Einsteins, Tagores and Picassos of the world.

I suspect creativity has to do with the employment of a playfully exploratory rather than a mechanical process of problem solving, by a person who is open, curious and imaginative rather than by a person who is inhibited and conventional, to find solutions or designs that are novel (and yet appropriate in the context) rather than merely run-of-the-mill. Creativity includes lateral thinking but does far beyond it. Creativity is not just thinking; it is also creative intelligence, personality, motivation, expertise, process, context and product.

## Misperceptions about Creativity

There are various misconceptions about creativity and some of them are listed below.

- Creativity is a natural talent and cannot be taught.
- Creativity comes from the rebels.
- Right brain/ left brain concept
- Art, artists and creativity.
- Intuition
- The need for “craziness”
- Scatter-gun success.
- Intelligence and creativity go hand in hand.

## Sources of Creativity

Creativity can be nurtured out of the following sources

- Innocence
- Experience
- Motivation
- Tuned judgment
- Chance, accident, mistake and madness
- Style
- Lateral thinking

## Advertisement Effectiveness

Advertisers and AD men in the agency use plenty of information before they create an advertisement. The preparation of an ad is seldom a one-man show; it involves several experts each contributing to an effective advertisement. It has been argued that the advertising efforts so made will very rarely go waste. Others feel that, after all, large sums of money are poured into advertising. And that the sales results are dependent on the success of the advertising campaign. The stake in the right kind of advertising is bigger; and that is why every advertiser is keenly interested in the evaluation of its effectiveness.

The advertisers keen interest in measuring effectiveness seems logical; but many have raised doubts about its validity. They argue that, advertising is an art and not a science, the effectiveness of which cannot be measured with a mathematical or empirical formula. They further argue that any attempt at testing artistry will only stifle its creativeness.

The confusion control method, as the name suggests, is by adding confusion to the survey. Some unpublished ads are mixed up with real ads, usually in a portfolio, and the recognition claims are measured as usual. Advertising through blogs is display of new ways of creativity.

## Creativity through Blogs

**Blog** as described by the dictionary goes thus - “A **blog** is a user-generated website where entries are made in journal style and displayed in a reverse chronological order”

What does it mean to a man who yearns to innovate? Who loves to write? Who fumes at the sight of injustice? And thrives on the inspiration derived from appreciation of a million readers, reviewers and critics alike..?

In simple terms, it is a forum where one has the right to throw open his perceptions and opinions on different issues, his writings, thoughts and random ramblings. For millions it could just mean another portal, a public one sometimes – and personal otherwise to network with friends and family that are separated by time and distance. That apart, researchers have analyzed the dynamics of how blogs become popular. There are essentially two measures of this: popularity through citations, as well as popularity through affiliation (i.e. blogroll). The basic conclusion from studies of the structure of blogs is that while it takes time for a blog to become popular through blogrolls, permalinks can boost popularity more quickly, and are perhaps more indicative of popularity and authority than blogrolls, since they denote that people are actually reading the blog's content and deem it valuable or noteworthy in specific cases.

In short a blog could mean anything from an advertising forum to a gossip chamber, A news room to an awareness campaign. One does not have to be a journalist to spur nationalist feelings or raise controversies. As long as the blogger has a good PR, he can go a long way and satisfy inner desires of the thrill that writing brings forth. It is indeed true that the world's opinion is just a click away.

### **Creativity: In Amul Way**

Amul advertisements has started way back in 1966 when Sylvester Da Cunha took over and then there was birth of the moppet-33 year old which has changed the outlook of Amul advertisement. In 2004 Amul had made its place in Guinness Book of World Record, surviving for the longest span of life. Amul could create a niche in the market because of the pun in the language and by exploiting topographical issues. It always came out with the humour appeal which is refreshing delight. The creative team of Amul had realized that sans creativity their ads cannot survive. To be different than the crowd is of utmost importance else the ad will be lost in the hullabaloo. With the invasion of plethora of media, the competition has very arduous and to make your product conspicuous, more challenging task. In this backdrop Amul campaigns were designed to lure the audience with succinct, alluring and intriguing messages. The pictures and messages cohere well to make the unprecedented magic. All the Amul ads create a desired effort by germane amalgamation of the contemporary theme with the message.

### **Conclusions**

Creativity is an elixir. Every time you visit it, you return bubbling with new ideas. The creative process concerns the translation of a marketing proposition into the verbal and visual devices that will communicate the essence of that proposition in ways that are attention getting and persuasive. The best ideas are those that are “on strategy” as well as exceptionally very distinctive.

In evaluating proposed advertising, it is important to remember that the riskiest advertising is often that which takes no risks at all – playing it safe can mean advertising that is ineffective. Therefore, the “rules” of advertising copy should not be so venerated that they are never broken: the best ads are sometimes those that break all the rules. However, this does not mean that we should not learn from the experience of the great practitioners of the art, or from what copy-testing research can teach us. Such experience and research has taught us much about what makes for good ads in print, radio, television, outdoor, retail and business-to-business.

The results of the tests conducted also prove that the effectiveness of an advertisement also depends partly on the individual creativity of the target audience. It is evident that more creative is the person, better will the creative advertisement reach out to him and vice-versa.

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# How to Prepare more Effective Multicultural Managers

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## Abstract

The growth of globalization as well as of diverse organizational environment, constantly changing environment of the organizations, new demands of customers resulting in product innovations and quality improvement, demand not only changes in organizational structures but also changes of individuals – their personality, abilities and skills. This means that new competencies mainly in the arena of leadership require new way of thinking, communicating, new attitude towards self-development, work, as well as towards other people. Flexibility, effective collaboration, trustworthiness of managers and constant development of his or her personality are becoming a part of managers' work, a part of the demands put on the managers. The success of organizations will depend on the success of their managers, their development. Many managers are avoiding development programs and they consider their own personal experience to be the only appropriate way of personal development.

## Interpersonal Skills

The growth of multinational organizations as well as diverse work environment demands innovation and improvement mainly in interpersonal competencies, in the area of "soft skills". Organizations realize that without managers able to cooperate with their subordinates effectively it isn't possible to be successful. Therefore a lot of researches write about such abilities and skills, which differentiate more effective from less effective multicultural managers. Such skills of organizations have to not only require but also develop by their managers.

Emotional intelligence belongs to the most important competencies of new managers. EQ becomes a competitive advantage of the multicultural managers. All the managers in all organizations are realizing this necessity. Requirements for a development of their skills mostly in the area of emotional intelligence of managers are being nowadays more and more actual. Emotional intelligence of managers is directly linked to the ability to utilize subordinates' skills, to create creative working conditions, to lead effectively employees mostly in the diverse working environment. Effective interpersonal communication, active listening, empathy, effective leadership and motivation belong to the most important parts in EQ. The establishment of multinational organizations in Slovakia created a need to consider a situation of how to prepare effective multicultural managers.

During the creation of development programs it is possible to refer to successful domestic and foreign researches in areas of managerial competences.

According to N. Adler (1998, p. 613) important skills for transnational competent managers are:

- cross cultural interaction
- adaptation
- synergic learning
- global perspective
- cultural sensitivity acceptance of others
- openness to the new ways of thinking and problem solving
- communication skills

Also researches from Abbas, A. – Camp, R. S. (1996) affirm that mostly required competencies for multicultural managers are in area "soft skills" / EQ:

- ability to interact with people from different cultural background
- flexibility
- openness to the changes

- adaptability
- cultural, political and economical knowledge about fringe country
- effective multicultural communication
- empathy and sensitivity

J.S. Black and M. Mendenhall (1990) consider as the significant competencies for managers working in diverse work environment competences that are possible to assign into 3 categories:

- Interpersonal competences – the ability to create positive interpersonal relationship with people from different culture, ability to understand their attitudes, values and habits, effective conflicts resolving. Important are also such characteristics as empathy, cooperation and social sensitivity.
- Perceptual competences – ability to perceive and interpret events and behavior of others in adequate way.
- Self-maintenance – ability to cope with stress in the effective way, sensitivity toward feedback, understanding of own and other's emotions, self-acceptation and acceptance of people with different way of thinking and behaving.

D. Jamison and J. O'Mara, (1991, p.160) state significant characteristics that differentiate effective managers from less effective managers as following:

- understandable, explicit communication
- satisfaction with own managerial role
- requiring of high productivity from others and also themselves
- empathy
- support of development
- providing positive and negative feedback effectively
- knowledge about own strengths and weaknesses
- sensitivity toward differences
- support of participation and collaboration
- active listening
- effective delegacy
- support of creativity
- effective usage of information
- support of discussion
- effective using of subordinates' potential
- knowledge about subordinates' needs
- self-reflexivity

According to research among 84 Slovak employers – Education Model Uni2010 (2007), as key and also less developed competences were identified:

- effective communication
- creative problem solving
- team collaboration
- ability to continually learning and development
- cultural sensitivity
- self-management

Above mentioned research in Slovakia, also as other researches in foreign countries, confirms the requirement for development of managerial skills and knowledge in areas of emotional intelligence that are condition for successful interpersonal interactions mostly in multinational organizations. Maintaining the direct contact between lane managers and their subordinates, scheduling the time for direct interaction with employees, requiring a participation during a decision making and a goal setting, stimulating will of the employees to bear a responsibility and thus to encourage the subordinates' motivation are specific conditions of successful managers in Slovak organizations.

An effective acting of managers in multicultural environment requires not only developing their new abilities and skills but also new ways of thinking and new attitudes. Important become:

- acceptance competences of others
- respect to the values, attitudes and point of view of others
- fairness
- support of positive interpersonal relationship
- acceptance of differences

Mentioned requirements are necessities for interpersonal competences that are included in human emotional intelligence. Low importance was given in the past to above mentioned skills and characteristics. However, researches carried out in various countries and various organizations showed that for success of company these skills are vital especially in organizations where people from different countries cooperate. But it doesn't mean that cultural specification should not be considered. During the development of these skills cultural specifications should be taken into account.

## **New Approach to the Development Programs**

Formation of multicultural working environment and constantly changing needs of customers require focusing on the new competences and their continual lifelong development. New approach to the development managerial competences is - Participative approach where lector acts only as a facilitator and responsibility for the result is only on the participants.

Application of the participative methods:

- requires activity
- is built on personal experiences
- develops knowledge, skills, abilities
- learns to active approach to the problems
- enables easier transformation knowledge into praxis
- is realized in a small teams

Frequently used participative methods are sensitivity training, role-play, out-door training, case study etc.

## **Communication Skills**

The entry of globalization and the rise of the diverse work environment make the requirement for effective intercultural communication skills more important.

Organizations realize that effective interpersonal communication in all level of organization determinates positively high productivity, satisfaction and motivation of employees.

For managerial work more than ability to speak foreign languages is needed. He/She has to be able to express, receive, handle and interpret thoughts effectively. Effective interpersonal communication is reflected also in affecting of people, problem and conflicts solving, skill to motivate and convince employees, etc. Communication skills, which managerial work requires; include active listening, effective interpersonal communication, effective negotiation, accepting and providing information, conflict resolution, language skills, effective presentation style, effective way of providing feedback.

Determinants of Effective Intercultural Communication

The diverse work environment, where people have different cultural background and speak a variety of languages, effective communication becomes more difficult. The same words don't have to have the same meaning and the variety of nonverbal signals become difficult to understand.

Effective communication with people from other cultural conditions requires to understand how the culture means determines the behavior and thinking of people. In communication process this is reflected in a selection of words and symbols, mode of expressing, selection of themes and ways appropriate for communication. Differences are extent of time that the partners are willing to dedicate to a discussion, in using non-verbal symbols that

accompany the communication process - gestures, movements, eye contact, vocal characteristics of an individual, and dynamics of the speech or expression of emotions. These non-verbal symbols can acquire a totally different meaning.

Our attention should be given also to the process of *coding and decoding* the information. It is important when coding the information that the transmitter uses such kind of codes that the receiver knows and understands. The transmitter has to be conscious of the possible ways of the perception and understanding of various codes. The risk of a misunderstanding of the sent message can be decreased by an immediate feedback. The effectiveness of the interpersonal communication can be increased also by using the direct communication because it allows feeling also the non-verbal signals of the both partners.

Very specific can be also *values* and *roles* that one holds and which are determined by the culture and appear in interpersonal communication. It is important to know and to understand not only habits of the workers but also their needs, hierarchy of values and their influence on the behavior.

Also *perception* of situations is influenced by the special characteristics of the country or society the individual comes from. Due to these influences different individuals can perceive and interpret the same situation differently or can interpret with different meanings. The individuals can lay stress upon different facts. What an individual from one culture feels as desirable and positive, an individual from other culture can feel as not desirable and negative. Misinterpretation due to cultural differences can become a barrier to effective communication. This is the reason why it is important to dedicate so much attention to the partner's specific perception of reality.

Barrier of effective intercultural communication is also tendency to judge other people based on the experiences and standards in own country.

Frequent barriers of effective perception is *stereotyping* – tendency to perceive another person as a belonging to a single category. That is very misleading and such views of others ignore individuality and lead to communication problems.

Expressed or suppressed *emotions* are also cause of misunderstanding in communication process among the people from other culture. The expression of emotions that we can see during the reciprocal discussions is strongly influenced by the culture. The mistake will be to interpret emotions mainly from the point of our experiences and opinions. The culture can suppress some emotional expressions (for example during the negotiation some businessmen usually don't express the emotions) or it can also support them (for example the open expressing of emotions in Italy).

#### **Improving Communication across Culture**

How can people avoid making mistakes in communication process? Most effective way is learning. Learning about culture – cultural differences and habits, about history religion, values, social structure etc./ learning new ways of interacting with other people.

To sum it up, here are some recommendations how to make more effective the interpersonal communication with people from other cultural environment:

- to acquaint with cultural customs of the given country - by different means such as literature, discussions with people that have visited the given country;
- to adopt the language - it often helps to gain the respect;
- to acquaint with the history;
- to eliminate the stereotype in negotiations, ethnocentrism - the tendency to consider the mother culture solutions of problems as the best, parochialism - the assumption that the problem solutions from the point of view of the mother culture is the only right;
- development of skills such as active listening, mutual acceptance and respect, empathy, tolerance, flexibility, clear and open communication, congruency of verbal and non verbal information.

Many training programs are developed for “intercultural managers”, which focus on emotional intelligence, on the “soft skills”. Very important is also to develop and to apply a new way of leadership and motivation, ability to create right and creative climate among workers.



## How Culture Influences Leadership Style and Motivation

Leadership is an ability to influence behavior of people into desired direction. But who is effective multicultural manager; what style of leadership is needed to implement in multicultural corporations? In some countries managers prefer to use and may be more effective with an autocratic leadership style (Germany) in another countries workers would prefer participative style of leadership (USA) and expect more discussion. In some countries it is appropriate to give bonus to the best worker in others it is a big mistake. There are several dimensions that differentiate culture and which is important to take into account in the leadership style. The most important cultural differences, which it is important to have in mind by implementing effective leadership style, are (F. Luthans, 1998):

- How people see themselves and others – in some countries people are viewed as basically honest and trust worthy, in others countries people are regarded with suspicion and distrust. Such attitude determines the way of perceiving subordinates, the way of handling them, the chosen way of leadership.
- People's relationship to their world – in some society people try more than in others to live in harmony with their environment (Asia). Such attitudes influence formation of organizational goals and strategy.
- Individualism-collectivism – for example in countries which prefer collectivism is very important group harmony – that determinate evaluating and hiring practices, the way of motivating people, job design etc.
- Perception of the time – for example some societies are oriented toward the past other are focused more on the present or the future. The impact of the orientation is showed in the hiring process, in schedules, deadlines or in decision process.
- Public and private space – do managers seat together with their subordinate or not? Do they have their office between workers or not? Are the barriers in their environment important for accepting managers or not.

Cultures of countries influence not only the behavior of people but also their *expectations*. It means that as an effective leader is perceived a person who fulfills criteria and expectancies of his/her subordinates, modified by experiences and personal differences.

Cultural differences - that's why we cannot expressly define one general way of effective leadership. Managers should know above mentioned differences and also many others in order to be more effective in interpersonal interaction with their subordinates. However, it must be remembered that these cultural differences may change over the time and that effective multicultural manager is not born but becomes.

## Appropriate Leadership is in Connection with Appropriate Motivation

Another problem in multicultural organizations is appropriate motivation of employees. Many managers have relevant knowledge about motivation theories but they have problem with implication of their knowledge into multicultural work environment. Understanding of cultural differences is vital to the understanding of motivation process and effective motivation in international context.

According to many researches culture considerably influences factors that motivate or demotivate employees. Managers entering a new culture should observe which factors appear important and should not assume that their experiences are transferable. On the contrary, they have to always take into consideration the way of perception of features, facts and system of values of their subordinates. The knowledge about motivation theories is useful in all countries but managers must be specific in their ways of application. Frequently appeared reason why managers aren't active in multicultural working environment is their inability to get through the element of patriotism or ethnocentrism in their behavior and mind. This perception and assumption disable the use of so-called '*synergic effect*' which cultural diversity offers. Contribution of multicultural environment is thus minimized.

Culturally synergic approach doesn't minimize or ignore cultural diversity; it appreciates pluralistic society, assumes that similarities and differences have equal importance and no cultural way is an only superior way. This way of thinking and behaving, that involves 3 steps (N. Adler, 1997) - cross-cultural situation description (defines problems from the perspectives of all involved cultures), cultural description – (analyzes the problem from

perspective), and creativity – (creates solutions without violating the norms of involved cultures), enables to exploit the best assets of all employees.

## **Conclusion**

A shift from manager to effective manager acting in multicultural environment of organization requires changes in manager's personality, level of knowledge, skills and abilities. It is difficult and long live process and it is impossible to rich the change from one day to the other. But appropriate training programs and training methods can be very helpful. But in the same time the perceptions that experiences and visit of foreign culture is sufficient for understanding and effective leading of people from other countries must be overcome.

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# **Personal Innovativeness and Creative Thinking as Factors of Business Development: How Ideas exchange Process Influences Individual Creativity**

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## **Abstract**

The main goal of our study was an evaluation of relations among characteristics of the group brainstorming and particular parameters of participants' creativity. We analyzed the productivity, flexibility, and originality of individual creative performance, as well as participants' personal innovativeness. The sample consisted of 464 students. Effects of the ideas exchange process on the individual creativity were assessed in an idea exposure paradigm. Stimulus ideas were grouped into 4 semantic categories: high creative, with low level of novelty, aggressive, and "silly" ideas, which contained semantic contradictions. Experimental data showed the most intensive changes ( $p < 0.05$ ) of originality in the group where "silly" stimulus ideas with semantic contradictions were exposed. We explained these changes by the cognitive stimulation effects taking place when subject considers semantic contradictions as examples of getting over boundaries of the stereotypic thinking. Results of the study can be used for enhancing the managerial creativity and innovativeness.

## **Introduction**

Individual abilities to think in unusual way, as well as to adopt and modify new original ideas are important factors of successful managerial activity. These abilities are closely related to concepts "creativity" and "innovativeness".

### **Concept of Creativity**

The most popular understanding of creativity is the following: it is an act of making something new and an ability to carry out this creative process. It is a topic of wide scope that is important at individual, social, economic, cultural, as well as at biological, cognitive, emotional, motivational etc. levels. According to Gruber and Wallace (1999), the concept of creativity includes novelty and value of products, purposeful behavior of an individual, and duration of the process. Perry-Smith and Shalley (2003) define creativity in the following way: "Individuals can be creative in their jobs by generating new ways to perform their work, by coming up with novel procedures or innovative ideas, and by reconfiguring known approaches into new alternatives" (p. 90). The investment theory regards creativity as an ability "to buy low and sell high" (Sternberg and Lubart, 1999). According to this theory, creativity is a confluence of six interrelated resources: intellectual abilities, knowledge, style of thinking, personality, motivation, and environment.

The process of ideas generation often takes place in social context. The most popular form of group creativity was suggested by Osborn (1957) in his brainstorming concept. He claimed that brainstorming as a method of group problem solving and ideas generation could considerably increase both the quality and quantity of ideas produced by group members. However, numerous research findings have consistently shown that nominal groups, consisting of a number of individuals who work alone, out-produce face-to-face groups of the same size. The most common explanations of losses in the group brainstorming are evaluation apprehension, free riding, production blocking, and matching (Diehl and Stroebe, 1991). The inhibiting effect is small in dyads, but increases rapidly with group size (Coskun, Paulus, Brown, & Sherwood, 2000).

### **Innovativeness**

New original ideas, technologies, and solutions can be the basis for the innovation in organizations and industry. In order to be creative, these creative products must be useful in the organizational context. An ability to adopt and apply new original novel ideas is closely related to innovativeness, which is an important determinant of the business development. According to the theory of diffusion of innovations, there are 5 categories (differentiated by the innovativeness level) which all persons belong to: a) innovators, (b) early adopters, (c) early majority, (d) late majority, and (e) laggards (Rogers, 1995). The second theory, which has made an important contribution to the innovativeness research, is the Adaptation-Innovation Theory. Kirton has developed a 32 item self-report scale

named the Kirton Adaptation –Innovation Inventory (Kirton, 1989). In according to the Inventory, each person can be located on a continuum ranging from highly adaptive to highly innovative. Gauvin and Sinha have found in the scientific literature three definitions of the personal innovativeness: (1) a characteristic of those who are the first to adopt a new technology; (2) a force that increases the probability of being first to adopt a new technology; (3) a force that enhances adoption of a new technology (Gauvin and Sinha, 1993). Some authors distinguish between cognitive and sensory innovativeness. Cognitive innovativeness is a subject's predisposition to be engaged in new activity and experiences, and to enjoy them. This activity stimulates cognitive abilities (Pearson, 1970; Venkatraman and Price, 1990). Sensory innovativeness is a tendency to "...enjoy internally generated experiences, such as fantasy and daydreaming and externally available thrilling and adventurous activities, such as sky diving" (Venkatraman and Price, 1990, p. 295). One of the most important points in the research on innovativeness is exploration of particular ways of the new ideas adoption and their further implementation.

In the scientific literature relationships between concepts "creativity" and "innovativeness" are also discussed. Creativity is closely related with production of new, original and potentially useful ideas. But these creative products are only the first step in future innovations. Novel ideas and solutions could be considered as real innovations only after their adoption and subsequent implementation (West and Farr, 1990).

#### **Study Goal and Hypotheses**

The main goal of our research was evaluation of influence of the ideas exchange process in the group brainstorming on particular parameters of participants' creativity. Additionally, we assessed the interrelations among subjects' creativity, innovativeness, and particular ways of others' creative products adoption and use.

Hypotheses for the study were as follows:

- 1) individual creativity is influenced by the semantic characteristics of stimulus ideas, as well as by the way of their exposure;
- 2) originality of subject's ideas depends on the level of novelty of stimulus ideas;
- 3) personal innovativeness correlates negatively with the quantity of stimulus ideas which individual includes without any changes in the list with his(her) own creative products.

## **Method**

### **Participants**

The sample of the study consisted of 464 students: 157 males and 307 females. 382 persons (125 males and 257 females) participated in the basic experiment. Ages ranged from 15 to 46 (Mean= 21.90, SD=5.80). In additional experiment participated 82 students: 50 females and 32 males (27 of them were experts). All participants had not been informed of the purpose of the study.

### **Measures**

Parameters of the creativity were assessed in a psychometric paradigm. As a measuring tool the Guilford's verbal test of creative thinking "unusual use" in Averina and Shcheblanova's adaptation was used (Averina and Shcheblanova, 1996). This test is represented in the kind of two parallel and interchangeable forms. The first form requires subjects to think up during assigned limited time a maximum number of all possible applications of standard newspaper, and second one, respectively, of wooden ruler. This test is the most popular and often used one. Its advantages are: easiness in implementing and quickness of testing, which lowers a level of weariness factor's manifestation among subjects. In the subjects' verbal creativity diagnostics, we analyzed following parameters by means of quantitative measures suggested by Guilford himself:

- productivity - a total number of ideas proposed by a subject;
- flexibility- a number of semantic categories subjects' proposed ideas relates to;
- originality - singularity and statistical rarity of subjects' proposed ideas, estimated by five- point scale - from 1 to 5 points - by means of tables assumed in the Russian adaptation of the Gilford's original test (Averina and Shcheblanova, 1996).

In the additional experiment apart from the Guilford's verbal test of creative thinking "unusual use" the Kirton Adaptation – Innovation Inventory (KAI) was used (Kirton, 1989). Each participant can score a maximum of 5 or a minimum of 1 per scale item. Moreover, in the additional experiment 27 experts assessed ways in which

participants have used preliminarily read stimuli in their own creative products. These experts counted the number of ideas produced by each participant, which belonged to the following two categories:

- identical to stimulus ideas under the formulation (participants transferred stimuli without any changes in their own “creative” products);
- identical to stimuli on sense (they re-formulated stimulus ideas or modified them extracting main principles of unusual use of the given object).

Each of 26 experts assessed creative performances of 2 participants, and 1 expert evaluated in the mentioned way ideas of 3 participants.

#### **Stimuli**

Relevant to task stimulus ideas were subdivided into 4 semantic categories:

- with low level of originality (in accordance with Guilford’s method of its evaluation);
- with high level of originality;
- of aggressive content;
- “silly”, which contained semantic contradictions.

In accordance with this classification of stimulus stuff, all subjects in the first and the second series of the basic experiment were subdivided into 4 groups:

- the 1<sup>st</sup> group- participants were given stimulus material with low level of originality;
- the 2<sup>nd</sup> group- subjects were exposed to stimuli with high level of originality;
- the 3<sup>rd</sup> group- participants were given stimulus material of aggressive content;
- the 4<sup>th</sup> group- subjects were exposed to stimulus ideas of absurd content.

In the basic experiment each participant was presented with 11 ideas from one of four mentioned groups.

In additional experiment each subject was given 15 stimuli. As a stimulus material we used the most original and novel ideas, which have been generated by participants in the basic experiment. Stimuli for the additional experiment were selected according to their statistical rarity: we picked out ideas, which had been most rarely produced by participants in the basic experiment.

#### **Design**

The effects of ideas sharing on the creativity parameters were assessed in an idea exposure paradigm. First, participants generated ideas concerning unusual applications of newspaper. Afterwards, they thought up various ways of wooden ruler’s applications, while being exposed to stimulus ideas.

A design of the study envisaged two distinctive schemes of experiment, differing in a form of exposing of stimulus stuff. Under the first scheme, before accomplishing the second part of diagnostics procedure, respondents were given stimulus material - typewritten list with ideas regarding uncommon application of wooden ruler, were reading them out for one minute and then got instruction to think up, on one’s own, a maximum number of wooden ruler’s applications. A subject could see the list of these ideas till the end of the experiment. Moreover, participants could use (and that has been specified in the instruction) information, obtained from the stimulus material, to their own discretion.

Under the second scheme, exposure of a stimulus material to respondents had been carried out in terms of group “creative” activity in dyads. One member of each dyad had been producing - imitating his(her) creative activity - stimulus ideas (which in reality were studied by him(her) beforehand) to a naïve examinee. Stimulus material (“others’ ideas”) with the same semantic characteristics as in the first scheme had been exposed to subject. Hence, only a form of acquainting with ideas had been changed. In the first scheme it was mediated, and was direct in second one (participants might produce new ideas in conditions of the interactive communication). Duration of the ideas generation process concerning unusual uses of each object under each experimental scheme was 6 min.

In additional experiment participants were given stimulus ideas under the first experimental scheme. Afterwards, they completed the Kirton Adaptation – Innovation Inventory.

## Results

### Descriptive Statistics

Means and standard deviations of participants' productivity, flexibility, and originality scores for two experimental schemes are reported in Table 1.

- TABLE 1: MEANS AND STANDART DEVIATIONS OF CREATIVITY PARAMETERS FOR TWO EXPERIMENTAL SCHEMES

Creativity parameter	Stage of diagnostics	Mean		Standard deviation	
		Experimental scheme		Experimental scheme	
		1	2	1	2
productivity	1	11,5172	13,4105	4,76274	5,03286
	2	9,9397	15,2105	4,12004	5,61134
flexibility	1	5,6681	6,6526	1,96445	1,87235
	2	5,4052	7,1684	1,86319	2,29547
originality	1	2,6403	2,5479	,59030	,52359
	2	3,0706	2,9805	,58360	,53074

### Dynamics of Creativity Parameters

The dynamics of creativity parameters in groups where participants were exposed to various stimuli is illustrated in Table 2. In the first experimental condition scores of productivity significantly decreased ( $p < 0.01$ ) for all groups of participants, except for one group where subjects were exposed to "silly" stimulus ideas ( $p > 0.05$ ). In contrast, scores of originality in all groups significantly increased ( $p < 0.01$ ). Experimental results showed that the most evident changes of the originality level (from 2.56 to 3.24) took place in the group, where participants read stimulus ideas with high level of novelty. Under the second experimental scheme scores of productivity and flexibility increased significantly ( $p < 0.01$  and  $p < 0.05$ ) in one group, where participants were exposed to "silly" stimulus ideas. The originality increased significantly in all groups ( $p < 0.01$  for each of them). Experimental data showed the most intensive changes of originality in groups, where stimulus ideas with high level of novelty, as well as "silly" ideas with semantic contradictions were exposed.

TABLE 2: DYNAMICS OF CREATIVITY VARIABLES IN VARIOUS GROUPS

Type of stimuli exposure	Content of stimuli	Means of creativity parameter scores					
		productivity		flexibility		originality	
		1 <sup>st</sup> stage	2 <sup>nd</sup> stage	1 <sup>st</sup> stage	2 <sup>nd</sup> stage	1 <sup>st</sup> stage	2 <sup>nd</sup> stage
mediated	low novelty	11.40	10.00**	6.13	5.42**	2.61	2.91**
	high novelty	10.72	9.04**	5.17	5.06	2.56	3.24**
	aggressive	12.64	9.95**	5.89	5.29*	2.71	3.14**
	“silly”	11.30	10.66	5.45	5.81	2.68	3.03**
total sample for the 1 <sup>st</sup> experimental scheme		11.89	10.11**	5.79	5.41**	2.64	3.07**
interactive	low novelty	13.48	15.04	5.84	6.52	2.62	2.94**
	high novelty	11.46	12.63	6.33	6.25	2.61	3.08**
	aggressive	15.30	15.49	7.57	7.52	2.58	3.01**
	“silly”	13.48	21.83**	6.96	8.48*	2.37	2.89**
total sample for the 2 <sup>nd</sup> experimental scheme		13.41	16.18**	6.65	7.17*	2.55	2.98**
total sample for the 1 <sup>st</sup> and 2 <sup>nd</sup> experimental schemes together	low novelty	12.01	11.48**	6.05	5.74	2.61	2.91
	high novelty	10.94	10.14**	5.52	5.42	2.58	3.19
	aggressive	13.42	11.56**	6.38	5.94*	2.67	3.10**
	“silly”	11.89	13.68*	5.86	6.53*	2.60	2.99**

\*\* Significant at the 0.01 level

\* Significant at the 0.05 level

## Regression Analysis

A regression analysis was performed to test the influence of the semantic characteristics and the way of exposure of stimulus ideas, as well as the age and sex of participants on productivity, flexibility, and originality of their creative performance. Under the first experimental scheme, the productivity was predicted by the sex of participants ( $R^2=0.089$ ,  $F(1, 230)=19.604$ ,  $p<0.001$ ), the flexibility was predicted by the “silliness” of stimulus ideas and the sex of participants ( $R^2=0.202$ ,  $F(2, 229)=25.229$ ,  $p<0.001$ ). Participants’ originality was determined by uniqueness of stimulus ideas ( $R^2=0.052$ ,  $F(1,230)=11.057$ ,  $p=0.001$ ). Under the second scheme, the productivity was predicted by

the “silliness” of stimulus ideas and the age of participants ( $R^2 = 0.253$ ,  $F(2, 134) = 15.562$ ,  $p < 0.001$ ). Aggressiveness and “silliness” of the stimuli content determined the participants’ flexibility ( $R^2 = 0.146$ ,  $F(2, 134) = 7.849$ ,  $p = 0.001$ ). Additionally, separate regression analysis for men and women was performed. The results for men showed that “silliness” and aggressiveness of stimulus ideas predict the flexibility of participants’ creative performance ( $R^2 = 0.151$ ,  $F(2, 116) = 9.189$ ,  $p < 0.001$ ). For women, the flexibility of their thinking was predicted by “silliness” and the way of exposure of stimulus ideas ( $R^2 = 0.292$ ,  $F(2, 254) = 38.758$ ,  $p < 0.001$ ). The results of performed regression analysis of the total sample showed that the participants’ productivity was determined by the way of exposure, as well as the “silliness” of stimulus ideas ( $R^2 = 0.294$ ,  $F(2, 379) = 61.318$ ,  $p < 0.001$ ). The flexibility was predicted by the mode of stimulus ideas exposure, the sex of participants, and the “silliness” of stimuli ( $R^2 = 0.234$ ,  $F(3, 378) = 31.156$ ,  $p < 0.001$ ). Participants who were exposed to more novel stimuli reported more original ideas: ( $R^2 = 0.034$ ,  $F(1, 380) = 10.428$ ,  $p = 0.001$ ).

#### **Self-reports Analysis**

An analysis of self-reports showed that participants who were exposed to stimulus ideas with low, as well as high level of originality, tended to compare their own ideas with stimulus ideas to more extent compared to participants from other groups.

#### **Additional Experiment**

In an additional experiment correlation analysis was performed to determine the relationships among the creativity parameters, quantity of others’ ideas use (by two different ways separately), and personal innovativeness. The results are illustrated in Table 3. As can be seen, quantity of others’ ideas modifications and participants innovativeness scores showed a positive relationship. We also found positive correlations approximately the same size between different types of others’ ideas use. This result showed that both ways of others’ ideas use are measures of the same dimension, which can be a propensity of some participants to apply stimuli to their own creative process in various ways. But we could not find any significant correlations between innovativeness level and the quantity of stimulus ideas, which individuals include in the list with their own creative products without any changes. So, results of the correlation analysis did not support our prediction that participants’ personal innovativeness correlates negatively with this type of others’ ideas use. Experimental data also showed, that there are no significant relationships among innovativeness and particular creativity parameters, and between frequency of others’ ideas use and creativity parameters.

## **Discussion**

The main objective of this study was to explore ways of cognitive and social stimulation of the creativity and innovativeness by evaluation of influence of the ideas exchange process on these individual characteristics. We found that “silly” stimulus ideas, which contained semantic contradictions, effect positively the productivity and flexibility of individual creative performance. These results seem to partially support the idea of Nijstad, Stroebe, and Lodewijkx (2002) that “... topics with a relatively large solution space, with many categories of solutions and many possible ideas per category... are more likely to show stimulation effects than topics with a small solution space” (p. 543).



TABLE 3: CORRELATION MATRIX FOR CREATIVITY, INNOVATIVENES, AND “QUANTITY OF OTHERS’ IDEAS USE” VARIABLES

	1	2	3	4	5	6	7	8	9
1.productivity (stage 1)	1.000	.465**	.086	.577**	.496**	.137	-.008	.195	.229
2.flexibility (stage 1)		1.000	.335*	.346**	.609**	.102	.030	.044	.096
3.originality (stage 1)			1.000	.210	.103	.130	-.038	.074	.064
4.productivity (stage 2)				1.000	.695**	.062	.135	.155	.189
5.flexibility (stage 2)					1.000	.143	-.018	.080	.086
6.originality (stage 2)						1.000	.044	-.070	.085
7.use without any changes							1.000	.284*	-.171
8.modified use								1.000	.273*
9.innovativeness									1.000

\*\* Significant at the 0.01 level

\* Significant at the 0.05 level

The study results confirm our prediction about positive influence of highly creative ideas on the individual originality. It has earlier been shown that “...’cognitive facilitation’ takes places when one brainstormer’s idea serves to activate related ideas in the mind of his or her listeners” (Coskun, Paulus, Brown, & Sherwood, 2000, p. 310). Taking into consideration that the originality in the present study was assessed using psychometric methods, we regard our results as consistent with mentioned ones.

Gender differences in the impact of analyzed factors on the participants’ creativity were also revealed. They may be explained by differences in social stimulation. According to Dugosh, Paulus, Roland, and Yang (2000), social influence model suggests that the exposure to highly creative products enhances the individual creativity. Our findings support this model for the nominal dyads only. For interactive dyads the results of our study are inconsistent with the model. We argue that the social comparison and social influence processes are activated in different communicative conditions by different ways.

According to our predictions, stimuli with high novelty were rather effective in stimulating the individual creativity. But we were surprised with the degree of positive influence on the participants’ originality by absurd stimulus ideas, which contained semantic contradictions. It can be explained by the cognitive stimulation effects taking place when subject considers these contradictions as examples of getting over boundaries of the stereotypic thinking. These effects can serve to enhance the individual innovativeness, which is an important determinant of the organizational development.

Our findings that there are no significant relationships between innovativeness and creativity, and quantity of others’ ideas use and creativity, contradict the notion that creativity and personal innovativeness closely related with each other. But they could be considered as a partially support the idea that creativity is the first step in future innovations (West and Farr, 1990).

The positive significant correlations between different types of others’ ideas use can be regarded as a basis for the differentiating between motivational and cognitive-behavioural determination of the innovativeness. Motivational determinants of personal innovativeness are activated when subject is acquiring new ideas and adopting them. Cognitive factors determine mostly a process of making decisions about particular ways of others’

ideas implementation and modification. Different determinations of two mentioned stages of the innovative process presuppose different methods for their future research.

#### **Managerial implications**

Creativity and innovativeness, as well as particular ways of others' ideas adoption and modification can be considered as important determinants of the successful managerial activity. For example, managerial flexibility and creativity become the most considerable factors in the adapting of a firm to a changing environment. The stimulation of the managers' flexible thinking can serve to enhance the organizational ability of firms to respond effectively to changing circumstances. This study presented an empirically validated model for the stimulation of managerial creativity, as well as for measuring both creativity and innovativeness. The results of the performed analysis of others' ideas use can be applied to various procedures and stages of the innovation management. These results also can be basis for the assessment of different types of managerial innovativeness.

Our finding that there are no significant relationships between creativity parameters and personal innovativeness could set a task to differentiate these psychological concepts in more depth. This finding can be used in a practice of generation of novel ideas, as well as in the innovation management.

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# Machine Learning For Market Segmentation of Opera and Ballet Audience

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## Abstract

**Interaction of human experts with Machine Learning and Data Mining tools leads to improved results on decision making systems support. In marketing decisions related to market segmentation, the use of one only technique does not guarantee an optimal solution as such solution may even not be achievable. In this paper we analyse market segmentation decisions through the combination of expert opinions and Machine Learning algorithms in order to obtain a consensual model that allows a better understanding of market preferences together with a deep knowledge about reliability on the results obtained. Results and data were applied to build a model of market segmentation of university students and their intention of attending Opera and Ballet performances.**

**Key words: Machine Learning, Data Mining, Market segmentation, Opera, Ballet.**

## Introduction

Different segmentation models have been proposed to be used for expanding the audiences of performing arts (Tajtáková and Arias-Aranda, 2008). Identifying different market segments is a crucial and prior step in the design of audience development strategies. Initially, the audience can be classified in terms of their behavior and their attitudes towards the arts into 'available audience' and 'unavailable audience'. Available audience is then divided in 'attenders' -those who are presently experiencing the offering of an arts organization- and 'intenders', whose attitude towards the offering is favourable but have not yet been persuaded to make a commitment. The unavailable audience encompasses those who are 'indifferent' or 'hostile'. Other models focus on the segmentation of the non-attending individuals, each segment corresponding to each different stages of The Performing Arts Adoption Process. While in the model by Andreassen (1991) there are six different market segments, i.e., six different stages, in the RAND model (McCarthy and Jinnett's, 2001) there are four different stages of becoming an art participant. Their limitation to model interaction of factors was tried to be overcome by the Motivation/Ability/Opportunity (MAO) model of audience development (Wiggins, 2004). The model assumes that participants as well as non-participants experience three types of barriers, which determine their likelihood of participation: lacking motivation, ability and opportunity to participate, or some combination of these. Wiggins (2004) considers as a key advantage of the MAO model a fact that it enables organizations to see how their strategy will affect the rest of the market.

When segmentation must be performed from a very specific and rather homogeneous market, as university students, the specific configurations of such populations need to be considered. For this specific case the Interest/Attendance model (Tajtáková and Arias-Aranda, 2006) combines interest and behavioural variables in order to identify four different sub-segments within a student target market: 'interest/attendance', 'interest/no attendance', 'no interest/attendance', 'no interest/no attendance'. The model aims to distinguish between those students who are interested and do participate (current audience) or do not participate (due to lacking abilities or opportunities) and those who are not interested but do attend because of several reasons (e. g. to accompany a partner, friend, family; if he or she gets tickets as a gift, etc.) or do not attend (indifferent/hostile). However, this model does not consider practical factors, as the RAND model, or situational barriers to action, as the MAO model.

Artificial Intelligence tools and more specifically, Data Mining and Machine Learning can be applied to marketing research when extracting knowledge from data. There are many different approaches in Machine Learning able to build models from a data set in order to represent relationships among different variables. It is especially in multidimensional models when automatic algorithms from Machine Learning may outperform multivariable analysis and human-expert models. In the context of the audience development strategies, algorithms designed to build a classifier can increase levels of performance and reliability in the decision making process. Thus, these learning-from-data models can be focused on the prediction of future attendance of an individual to an arts performance –the class variable– regarding different input variable. They can also include some mechanism for feature selection –superfluous input variables are eliminated– or for feature extraction –input variables are weighted according to their influence to the class variable (Blum and Langley, 1997)–. However, for these algorithms to be used in market segmentation they must provide also of an interpretable model. In this case, approaches such as neural networks (Ripley, 1997) or instance-based algorithms (Aha et. al., 1991) that build black-box models are not suitable for this task. Even if their predictive accuracy is very high, knowledge cannot be extracted from them and therefore they cannot be applied as a pre-processing task for market targeting for making marketing investments decisions.

In this work we first address how different learning-from-data algorithms can support the task of market segmentation, considering differential features of this task compared with other decision-making tasks, in which these algorithms can constitute the inference engine of a decision support or expert system. In a posterior step – section three in this paper–, we design a four-step strategy in order to obtain accurate market segmentations by using only machine learning mechanisms. We further applied this strategy in order to provide a model that can be used by performing arts companies for reaching non-attending groups - Section four -. Discussion is provided in the last section.

## **Machine Learning And Market Segmentation**

Algorithms and architectures that learn from observed data are continually developed in Machine Learning research. Learning algorithms can learn similarity patterns from data in an ‘unsupervised’ way. Hence, for the case of marketing research, trying to decompose the data sets in groups or clusters without any predefined criteria, do not produce the intended results of performance for marker segmentation, as they cannot use any marketing response or performance information. When some information is used by an algorithm in order to identify similarity patterns, the learning process is referred as ‘supervised learning’. The simplest function to be learned by a supervised learning algorithm is a classifier, a function that for each configuration of a set of input variables returns a class value, i.e., a value of a discrete variable called the ‘class variable’. When the returned value can be any within a given range, i.e., the function range is continuous, such function becomes not a classifier but a ‘regression’. For now on we will focus on classification functions as, with an appropriate approach, are better understood and decomposed by humans.

Data Mining applies Machine Learning techniques in order to extract useful information from large data sets or databases. In marketing research, it is specially useful for analysing relationships in purchase intentions for different products and services. This can help marketing practitioners to locate purchase related products nearby or offer related service in the same package. The information which and in which degree a set of variables contributes to predict a class variable is not required for Data Mining to be applied. An expert system is able to predict failure risk in new products launching considering hundred of variables without providing an interpretable model. This is the case of neural networks algorithms, a nature-based learning approach for building black-box models, as they cannot be understood by humans. While black-box models are perfectly suitable to a classification task, as for instance, the risk prediction of a personnel credit in a bank, or the risk of death of a patient in a cancer hospital, they cannot be used when the model itself needs to be known. Another black-box learning approach, known as ‘instance-based learning’ (Aha et al. 1991), has among its main features a very low computational cost. The k-nearest neighbour algorithm, with k being an integer number greater than 0, must be mentioned as an example because of its

simplicity. It returns for each pattern the most common class value among its  $k$  closest neighbours, i.e., the set of  $k$  patterns with the shortest distance to the pattern to be classified. Different measures of distance can be used

In our study, market segmentation process can be performed by using Machine Learning techniques. However, as variable interaction defines different segments, only white-box methods are able to learn classifiers by providing an interpretable model to humans. Nevertheless other Machine Learning techniques, as feature selection or feature extraction, are applicable as a preprocessing step to black-box classifier-builders, so that information can be extracted through a set of variables affecting the class, ordered by their influence.

Perhaps the most widely used white-box learning algorithms to build classifiers are those building decision trees and those building Bayesian networks. A decision tree is a visual and analytical decision support tool, where the expected values of competing alternatives are calculated. Fig. 1 shows an example of a very simple decision tree to assist in the decision making process about paragliding]. Input variables are 'wind speed', 'pilot experience' and 'quality of the paraglide'. Each leaf node represents a decision, with only two different decisions: 'to fly' or 'not to fly'. Although expected values, usually likelihoods or probabilities, are not provided in the figure, they must be also computed by the algorithm for each leaf node.

[Take in Fig. 1]

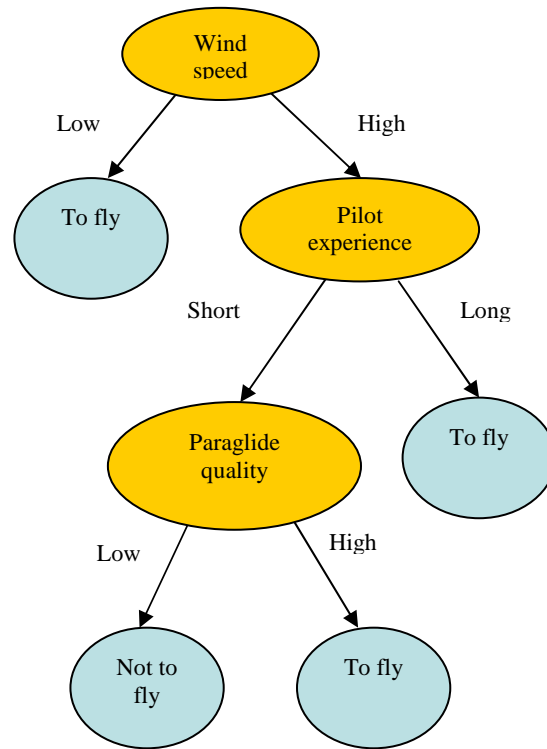


FIG. 1: A DECISION TREE FOR DECISION MAKING SUPPORT IN SOARING. EXPECTED VALUES FOR EACH DECISION OR LEAF NODE ('TO FLY' OR 'NOT TO FLY') DO NOT APPEAR IN THE EXAMPLE. DECISION NODES ARE COLOURED IN ORANGE WHILE LEAF NODES IN PALE BLUE. SOURCE: OWN PROCESSING.

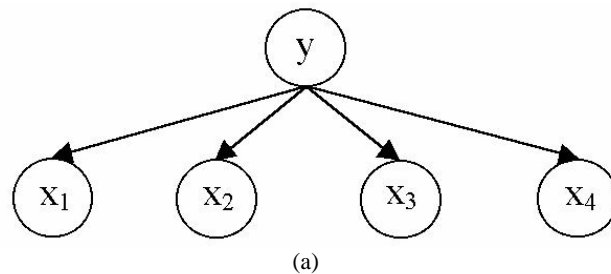
A Bayesian network consists of (1) a directed acyclic graph (DAG) where each node represents a random variable and arcs represent probabilistic dependencies between these variables being this part of the network known as the structure, model itself or the qualitative part of the BN, (2) a conditional probability distribution of the form  $P(x|\square_x)$  for each node  $x$  given its parents set  $\square_x$ . This part of the BN is called the parameters or the quantitative part of the network.

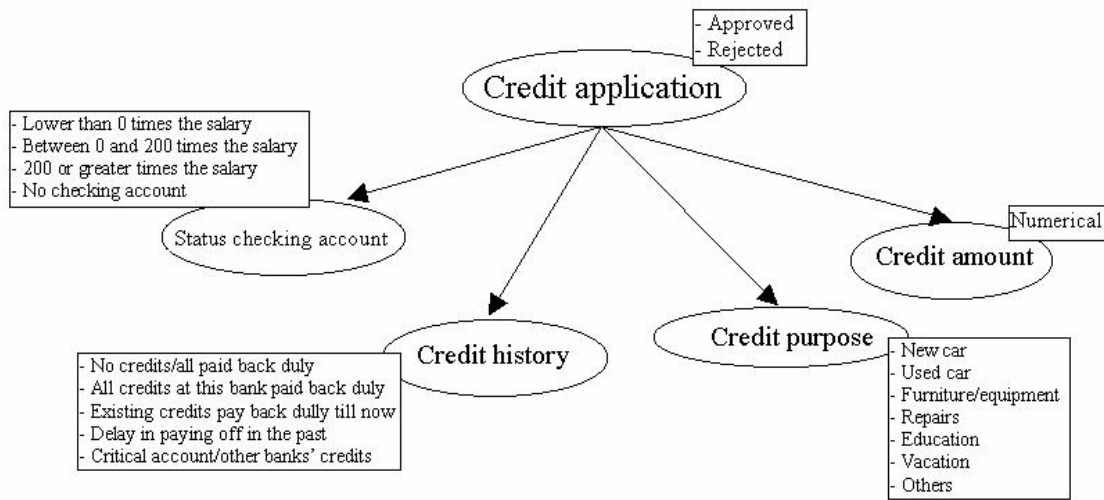
$$P(x_1, x_2, \dots, x_n) = \prod_{i=1..n} P(x_i | \square_{xi}) \quad (1)$$

When a Bayesian network is defined only to assign values for a discrete variable, the class, given a set of attribute values, it works as a classifier. This Bayesian classifiers are applied as part of a DSS in financial companies for decision making processes related to credit card applications and/or loan approvals. Attributes such as the amount of money currently in a checking bank account vs. salary assignment, credit records, seniority in the same employment, personal status or the loan purpose are used for classificatory purposes.

One of the most effective Bayesian network classifiers, in spite of its simplicity, is the Naive Bayes (NB) classifier. The model of the Bayesian network used by this classifier makes a strong independence assumption: all the attributes  $x_1, x_2, \dots, x_n$  are conditionally independent given the class  $y$  as shown in Fig. 2 (a). Fig. 2 (b) shows the structure of a NB classifier for the DSS about a credit authorization with four input variables. The NB algorithm was used among other applications to learn a Bayesian classifier from a dataset with information about 690 credit card applications in an Australian bank, called crx (Blake et al., 1998). Each application contained 15 categorical and continuous attributes. The NB algorithm achieved 83 per cent generalization accuracy, measured by using a 5-fold cross-validation. This implies that an erroneous decision was made in 17 of 100 credit card applications. Accuracy increased up to 88 per cent when only the most relevant input attributes were chosen by using a wrapper feature selection algorithm (John et al., 1994). Recently, more sophisticated models have been defined and tested in the Machine Learning literature. One of these models, called Augmented Naive Bayesian networks (AN) (Friedman et al., 1997), allows edges among the attributes, thus reducing the strong assumptions existing in the Naive Bayes classifier.

[Take in Fig. 2]





(b)

FIG. 2: (A) GRAPH FOR THE NAIVE BAYES CLASSIFIER WITH 4 INPUT FEATURES. (B) THE STRUCTURE OF A NB CLASSIFIER FOR THE CREDIT EXAMPLE. SOURCE: OWN PROCESSING.

### Developing an Strategy for Automatic Market Segmentation

While the quantitative part of a Bayesian classifier can compute posterior probabilities for the class given a configuration for all or some of the input variables, the graph can provide information about independence among variables. It seems to be clear that a decision tree can model a market segmentation in a much direct way, as a hierarchical segmentation can directly be read from the tree. Looking only at the first level of the hierarchy we will obtain a very simple segmentation attending to only one variable. Looking only at the first level of the hierarchy we will obtain a very simple segmentation attending to only one variable. If no more variables are included in the tree, only the root variable will explain the segmentation. Let us suppose an algorithm is used to build a decision tree for market segmentation of car consumers. The class variable has four different values 'sport car', 'family car', 'wagon', '4 wheel wire car (4WW)', depending on the preference of a car consumer. Input variables to use for learning the model include sex, age, marital status, incomes, profession, etc. If the resulting decision-tree only contained variable 'incomes' it would mean that incomes are enough in order to predict car consumer preferences. If a more complex decision tree were provided, a publicity campaign should be designed taking into account the other variables in the tree. According to the decision tree shown in Fig. 3, a major marketing decision to encourage purchasing of 4WW cars should be targeted to either young men or professional sport people.

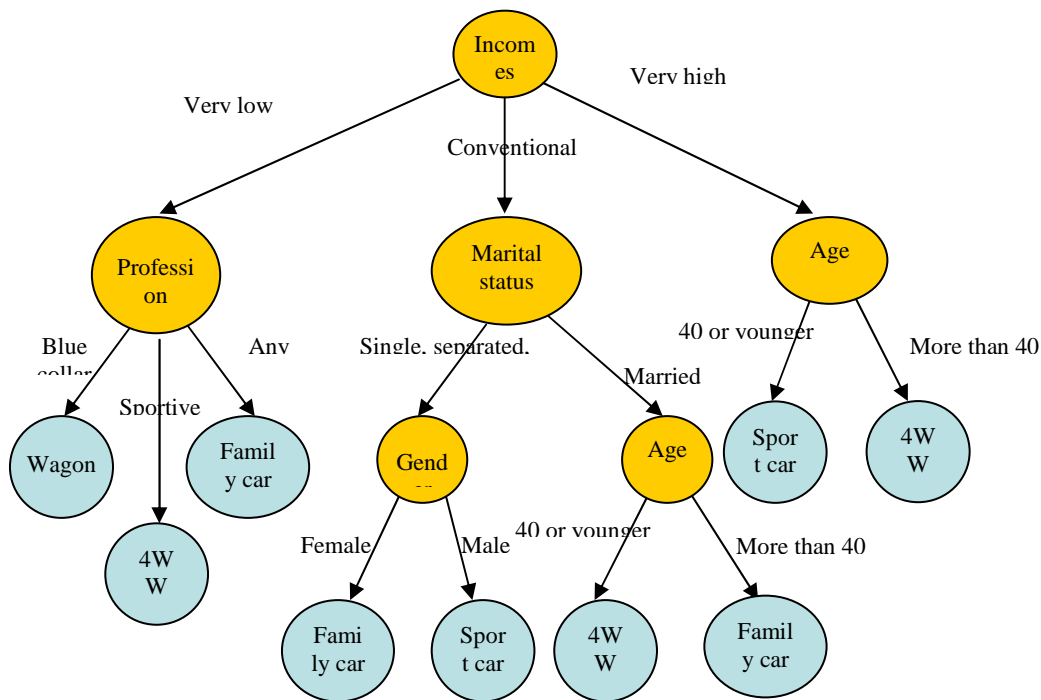


FIG. 3: A DECISION TREE FOR MARKET SEGMENTATION OF CAR CONSUMERS. DECISION NODES ARE COLOURED IN ORANGE WHILE LEAF NODES IN PALE BLUE. SOURCE: OWN PROCESSING.

However, in order to assess the robustness of a decision tree, accuracy contrast with other classifiers, either back or white box models is to be performed. If accuracy of the decision tree is significantly lower, different algorithms for decision tree building or even different approaches should be considered. Moreover, at least the variables that most affect the class, i.e., those in the highest levels of the tree should be also considered as important for other models learned by using different approaches.

Thus, in order to assess the reliability of a decision tree as a model for market segmentation, we propose the following 4-step strategy:

1. Inclusion of sample sets with as much information as available, considering variables obtained through different current expert human models about the market segmentation of a population.

2. Use algorithms to learn classifiers from different approaches and compute their predictive accuracy for a given data set. At least one algorithm based on decision trees is used. If the accuracy levels are not satisfactory in all algorithms, even in those known to be robust for superfluous attributes, the data set is enhanced by increasing the number of instances and/or the number of variables, as either there are not enough instances or those variables with the strongest association with the class in this population are not included .

3. If the predictive accuracy for the decision tree algorithm is satisfactory, a decision tree is generated by using all the instances in the sample being adopted as a model of a hierarchical segmentation.

4. Utilization of a feature selection or feature extraction algorithm for all the learning algorithms used in step 2. When a feature selection algorithm is used, the set of input variables is ordered depending on the degree of association with the class. If there is no agreement in the variables in association with the class, especially between the decision tree and any other model, being the accuracy of the decision tree lower than the one reported by other



models, those branches corresponding to the variables in disagreement should be pruned by the expert in order to improve or even develop a new model.

## **Empirical Evaluation**

In this section we describe the sample and data sets used. Second we refer the algorithms and technical issues related with the application of the four-step strategy described in the previous section. Finally, accuracy results and the segmentation model that was created by using this strategy are presented with the final conclusions.

### **The sample**

The sample used was obtained from a survey of university students aged mostly from 18 to 26 years, during the spring term of 2004 in Bratislava (Slovak Republic). The sample consisted of 800 individuals from different fields of study. The study was conducted by the Slovak National Theatre Bratislava in cooperation with the University of Economics in Bratislava. In addition, forty students in marketing from the university participated in the preparation and implementation of the survey. They were involved in piloting the questionnaire and also in collecting data. There were two main purposes for getting involved students in the preparation and implementation of the study: to estimate realistically behaviour of the examined market segment and to make interviewing process more informal in order to facilitate the expressing of respondents' opinions, especially not favourable ones. The contribution of these students was invaluable and many of the suggestions applied in the survey came directly from them.

Respondents were personally interviewed through a standardized questionnaire. The questionnaire was divided into five parts: (1) associations and attitudes towards opera and ballet (2) attendance and intentions to attend at opera and ballet performances, (3) motivations, barriers and expectations, (4) knowledge of the repertory and admission prices for students, (5) demographic variables. Before having generated its final version the questionnaire was tested on a small sample.

The demographic profile of respondents is consistent with the demographic structure of students at Slovak universities. In the academic year 2003/04 there were 101 429 individuals pursuing their studies at the universities in Slovakia, 51 359 (50.64 per cent) of them were women. In the survey, females comprised 50 per cent of the sample. Regarding the age, students between 18 and 21 years represented 50.25 per cent of the respondents and those between 22 and 26 comprised 45.25 per cent of the sample. There were 0.50 per cent of students under 18 and 4.00 per cent over 26. The majority of universities in Slovakia offer a five years study programme in undergraduate studies, only a few of them offer six years studies. A distribution of respondents according to their grade at the universities was as follows: 16.75 per cent in the first year of studies, 22.38 in the second year, 21.62 in the third, 27.25 in the fourth, 11.00 in the fifth and 1.00 per cent in the sixth year

### **The Method**

The four-step strategy explained in the previous section was applied. To accomplish the first step, the survey was designed in order to include a variety of variables used by different current models of audience development. Thus, information about attitudes and behaviour were included because were used by the A.D.A.M. model (Diggle, 1984), Andreasen's, RAND, MAO, Hayes and Slater' (Hayes and Slater, 2002) and the Interest/Attendance model. More practical factors were also included as in the MAO model. From the survey, two different data sets were obtained, one for the market segmentation of attenders/non attenders to opera performances (Opera) and other for the market segmentation of attenders/non attenders to ballet performances (Ballet). Variables 8 to 11 in the survey were disregarded, as they should be answered depending on the answer to previous questions. Moreover, some questions in the survey referred to the opera while others to the ballet. Taking all these issues into account, each data set was finally made up by 18 variables (see Table 1).

TABLE 1: VARIABLES USED IN THE OPERA(O) AND BALLET (B) DATA SETS.

ID	Name	Type	Values
1	Last time attending an O/B performance	Input, ordinal	Never (1), not this year (2), in the past 12 months (3), last month (4), this month (5)
2	Know the repertory	Input, ordinal	Not at all (1), only some pieces (2), I know approximately what's on (3), well (4)
3	Attitude	Input, ordinal	Not interested and do not attend (1), not interested but sometimes I attend a performance (e. g. to accompany a partner, friend or a family, if I get tickets as a gift, etc.) (2), interested but I have not had an opportunity to attend yet (3), interested and do attend (4)
4	Expectations about entertainment	Input, ordinal	1, 2, 3, 4, 5 *
5	Expectations about relaxation	Input, ordinal	1, 2, 3, 4, 5 *
6	Expectations about emotional experience	Input, ordinal	1, 2, 3, 4, 5 *
7	Expectations about new incentives - inspiration	Input, ordinal	1, 2, 3, 4, 5 *
8	Expectations about educational development	Input, ordinal	1, 2, 3, 4, 5 *
9	Expectations about broadening my scope in culture	Input, ordinal	1, 2, 3, 4, 5 *
10	Expectations about atmosphere (of the venue – event...)	Input, ordinal	1, 2, 3, 4, 5 *
11	Visited an opera performance abroad	Input, nominal	yes (1), no (0)
12	Gender	Input, nominal	female (1), male (2)
13	Age	Input, ordinal	1 to 18 years old (1), 18-21(2), 22-25(3), 26 and more (4)
14	Study grade	Input, ordinal	1, 2, 3, 4, 5, 6
15	Faculty	Input, nominal	Economics, Humanities, Life sciences, Polytechnics
16	Population (in thousand inhabs.)	Input, ordinal	City over 100 (1), town from 50 to 100 (2), town from 5 to 50 (3), village to 5 (4)
17	Region	Input, nominal	Bratislavský, Trnavský, Trenčiansky, Nitriansky, Žilinský, Banskobystrický, Prešovský, Košický, foreign country
18	Wish to go in the future	Class, nominal	Yes (1), no (0)

(\*) 1 means very important and 5 means not important at all. Source: Own processing.

For the second step, the variable that was chosen as the class or predicted variable was a binary variable derived from question number 4 in the survey: “Do you wish to attend an opera/ballet performance in the future?” We used 3 different Machine Learning approaches to obtain the predictive accuracy for both data sets:

- Decision trees: We used C4.5 (Quinlan, 1994), an algorithm for building decision trees that usually achieves high accuracy levels to build classifiers from very different populations.
- Bayesian networks: We used Naive Bayes, a very simple but very efficient Bayesian classifier. We considered two different hyper parameters (Friedman et al., 1997):  $\alpha_{\square}=0$  and  $\alpha_{\square}=1$ . In the first case, Maximum Likelihood (ML) is used to estimate each probability distribution. In the second case, a Bayesian estimation is used with the prior being the marginal distribution for each variable.
- Instance-based algorithms: We used the popular k-nearest neighbour with two different values for  $k=1$  and  $k=5$ . Value of 1 usually is less robust than values a little bit larger.

Learning-from-data algorithms need a data set to infer the classifier. This data set is usually referred as the training set. In order to measure the predictive or generalization accuracy of the classifier, i.e., how well the classifier will perform with a new instance, a not previously used dataset should be chosen. This data set is called the test data set. Usually only one data set is provided. In order to reduce the variance, instead of split it into a training data set and a test data set, other solutions such as cross validation are frequently applied. In cross validation, the original data set is divided in  $f$  folds. The learning algorithm is used  $f$  times. Each time  $t$ ,  $t \in \{1, 2, \dots, f\}$  the algorithm is run, the test data set is composed of all the instances at fold  $t$  and a different classifier can be inferred by using as a training dataset all the instances in the remaining  $f-1$  folds. Test accuracy is computed for each classifier. The predictive accuracy reported is the averaged test accuracy for the  $f$  folds used. In this study, 5-fold cross validation was applied, as it was referred to be a good trade-off between efficiency and computational cost (Kohavi, 1995).

Once we obtained 5 different values of predictive accuracy and checked that accuracy reported by C4.5 was satisfactory, we obtained the decision tree (step 3) and went on to step 4. In this step we applied a forward and wrapper selection algorithm algorithm for those approaches without any embedded feature selection mechanism, i.e., Naive Bayes and  $k$ -nearest neighbour algorithms. A wrapper selection means that the selection is used together with the learning algorithm. Actually, it 'wraps' the learning algorithms so that the criterion to select a variable is the generalization accuracy of the learning algorithm when using the current selection of variables (John et. al., 1994). C4.5 is the only one of these algorithms that includes a feature selection algorithm by pruning the tree. Actually this is one of the reasons of the high accuracy that usually C4.5 achieves (Quinlan, 1994). We also checked whether there was agreement in the variables selected by C4.5 and any other algorithm.

#### **Results**

Table 2 shows predictive accuracy values for the 5 algorithm configurations used. NB0 means Naive Bayes with ML estimation, NB1, the Bayesian Naive Bayes with  $\alpha=1$  and 1nn and 5nn mean  $k$ -nearest neighbour with  $k=1$  and  $k=5$  respectively. The highest accuracy level is achieved by C4.5 while 1nn obtained the lowest level. A predictive accuracy of 83.61% for the Opera data set and 82.39% for the Ballet data means that with the data used as input variables, the decision tree learned by the C4.5 algorithm is able to correctly classify more than 80% of new instances belonging to the same population. Figs. 4 and 5 show the decision trees that were built by this algorithm when using the entire sample as a training set. In Table 3 we show predictive accuracy levels for all the algorithms when a wrapper feed-forward selection algorithm is applied. As accuracy levels always improved, it can be assumed that some input variables were not inferring the class. Accuracy levels reported for C4.5 are the same as those shown in Table 2, as C4.5 already included a selection algorithm. Table 3 also shows an ordered set of the selected variables. For both data sets, variable number 3 (Attitude) was for all the algorithms the first one to be selected, so its importance seems to be crucial in the segmentation of the sample for both opera and ballet performance. Other variables that were chosen by any other selection algorithm are number 16 (Population size) and 12 (Gender). The highest accuracy levels when selection was used in the Opera data set was achieved by NB1 and only Attitude was chosen. However, accuracy from C4.5 was very close to the highest one. In the Ballet data set an overall agreement about variable Attitude was also found. In this case, again C4.5 achieved the highest accuracy levels even considering that the other algorithms used feature selection. Variable 8 (Expectation about education development) should be also considered as highly important in the segmentation about the Ballet attendance as it was used by all algorithms with the highest accuracy levels. Variable 6 (Expectation about emotional experience) was chosen also by NB0 and NB1 as a highly crucial variable. These algorithms reported the second and third highest accuracy levels. Variable 1 (Last time attending an Opera/Ballet performance) was selected in both Opera and Ballet data by C4.5 but not by any other algorithm.

TABLE 2: PREDICTIVE ACCURACIES FOR DIFFERENT ALGORITHMS. THE HIGHEST ACCURACY FOR EACH DATA SET IS SHOWN IN SHADOW

<b>Algorithm</b>	<b>OPERA</b>	<b>BALLET</b>
C4.5	0.83610	0.82293
NB0	0.80052	0.79873
NB1	0.80561	0.80127
1nn	0.75737	0.71083
5nn	0.80180	0.79108

Source: Own processing

TABLE 3: PREDICTIVE ACCURACIES WITH FEATURE SELECTION AND ORDERED SET OF SELECTED VARIABLES. THE HIGHEST ACCURACY FOR EACH ALGORITHM IS SHOWN IN SHADOW

<b>Algorithm</b>	<b>OPERA</b>		<b>BALLET</b>	
	Accuracies	Ordered set of selected variables	Accuracies	Ordered set of selected variables
C4.5	0.83610	3, 1, 12, 13, 2, 16	0.82293	3, 8, 17, 6, 1, 5
NB0	0.83229	3	0.81911	3, 15, 14, 6, 8, 11
NB1	0.83739	3	0.82038	3, 15, 14, 6, 8, 11
1nn	0.77892	3, 16	0.81529	3
5nn	0.80813	3, 16, 12	0.82038	3, 8, 4

Source: Own processing

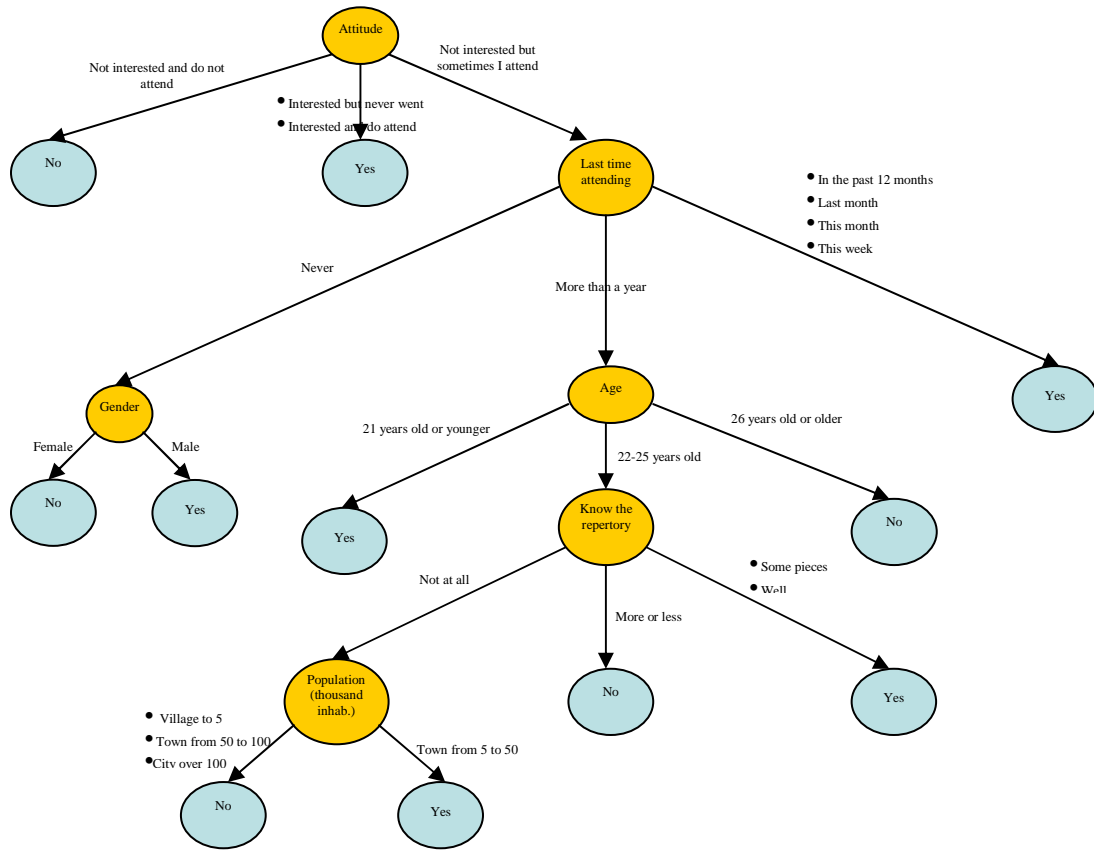


FIG. 4: DECISION TREE FOR THE OPERA DATA SET. THE WHOLE DATA SET WAS USED IN ORDER TO OBTAIN THIS MODEL.

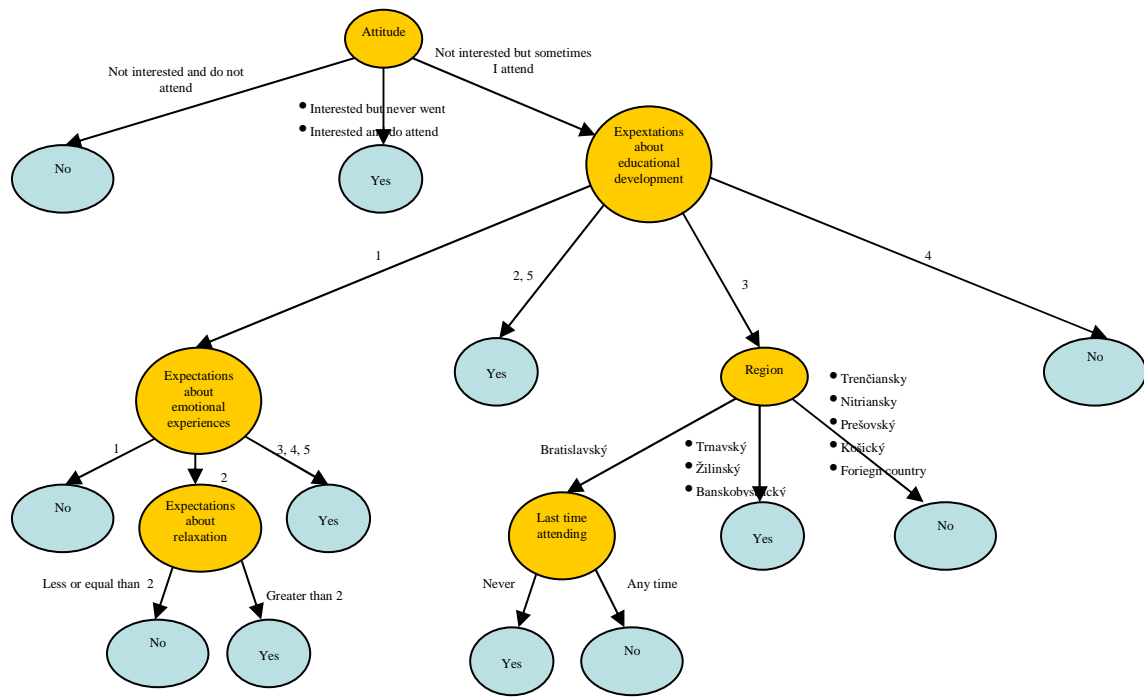


FIG. 5: DECISION TREE FOR THE BALLET DATA SET. THE WHOLE DATA SET WAS USED IN ORDER TO OBTAIN THIS MODEL

## Conclusion

The agreement of C4.5 about this variable for both data sets gives more reliability to the decision trees when including this variable. According to the high accuracy results achieved by C4.5 in both data sets, we used decision trees in Figures 4 and 5 to segment the sample for their intentions to attend an opera and ballet performance respectively. However, some branches could be pruned in case the model were going to be used for a wider population. Thus, those variables not located at the root of the tree (target sub-segments) were not considered by any other learning algorithm (variables 2 and 13 in the Opera data set and 5 and 17 for the Ballet data set). Anyway, they could be removed if they are not predecessor of a more important variable. On one hand, in the Opera data set, neither variable 2 (Know the repertory) or 13 (Age) can be removed as they are both predecessor of the more important variable 16 (Population size). On the other hand, in the Ballet data set, variables 5 (Expectation about relaxation) and 17 (region) can both be removed, as the only descendent is variable 1 (Last time attending) which has not to be chosen by any other selection process. The resulting pruned decision tree is shown in Fig. 6. In order to know the value of the leaf node that substitutes the removed variable, the criterion by the learning algorithm must be used, i.e., that value with highest score must be chosen. In case of C4.5, the criterion is ML, so the branch with the highest frequency should be chosen. In the example, it was the branch ending with the leaf node 'No'.

The resulting models only guarantee accuracy levels in the same population. If the same model is applied to samples from a wider population, we will gain more reliability in the model as a more general predictor of intentions to attend Opera and Ballet performances.

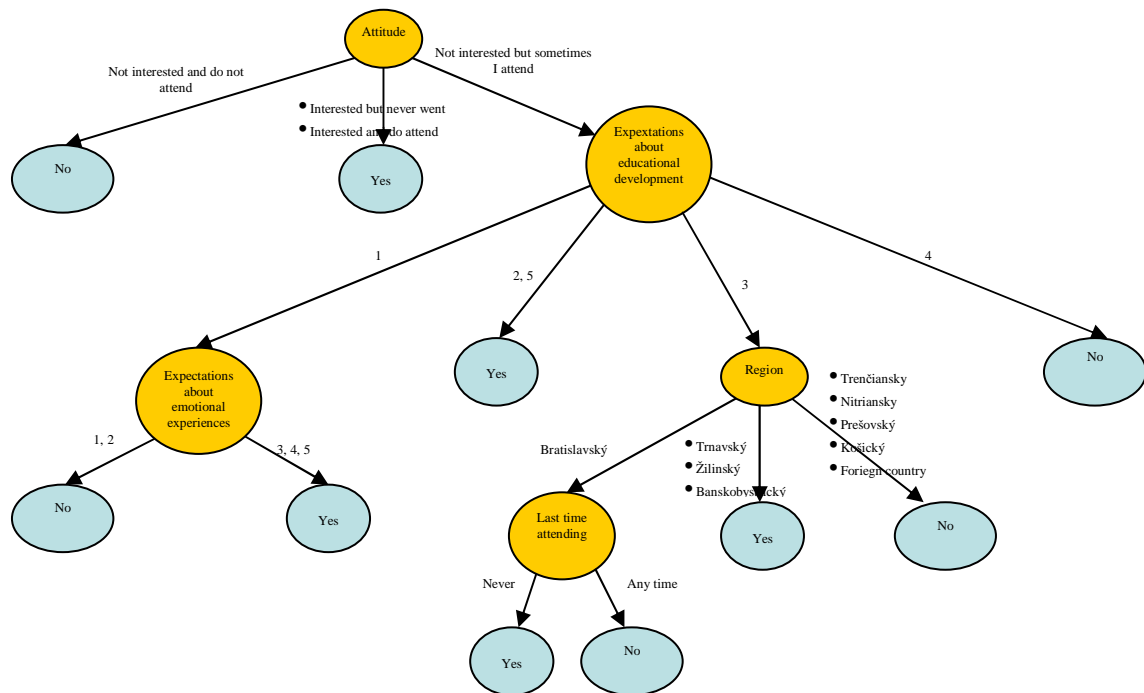


FIG. 6: PRUNED DECISION TREE FOR THE BALLET DATA SET.

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# The Role of Creative Innovation in Economic Growth: Evidence from Asia

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## Abstract

Export-driven policies in East Asia have thus far produced dramatic increases in real per capita income. At the same time, sustainable growth requires that technological innovation proceed at comparable rates if mutual gains from globalization are to be realized. In this paper, we derive a measure of innovation and test the extent to which institutional policy choices enhance or delay its diffusion. To do so we use a panel regression model, with data on a sample of countries for the 1980-2005 period. Our findings provide empirical evidence of the positive role of creative innovation in economic growth, and from which we derive several basic policy conclusions.

## Introduction

For many countries in East Asia, export-driven policies have led to significant increases in per capita income over the past several years. This “Asian” model of growth is based in several key elements. It depends in the first instance on favorable rates of exchange, access to primary and intermediate inputs, and finally on relative access to the major industrialized economies where these exports have gone. Over the longer term, however, as differences in per capita incomes diminish, sustainable economic growth will depend not just on the above factors, but also on the ability to innovate. In this paper, we develop a model of creative innovation to explain relative differences in growth, test for its determinants, and then calibrate how changes in institutional variables produce significant variations. To do so, we rely on a global sample of 103 countries that covers the 1980-2005 period. We develop a nested panel model that is applied to the global sample as well as to six geographic sub-samples. Our findings point to several policy conclusions.

## The Role of Creative Innovation in Economic Growth

Economic growth depends on a variety of factors. Among them are a country’s rate of saving, increases in the quantity of productive inputs, and technical change. Studies on economic growth (Barro and Sala-I-Martin, 1995, Porter, 1990; Jorgenson, Gollop, and Fraumeni, 1987; Chenery and Syrquin, 1975; Denison, 1962) affirm the central roles of saving and the stock of inputs, but point to several underlying factors that may be crucial. Among them are: technology, aid and financial innovation, foreign direct investment, research and development, and the governance of economic institutions.

Technological change offsets the classical economic problem of diminishing returns. We know how technology affects economic growth (Jorgensen, 1995; Grossman and Helpman, 1991; von Hippel, 1988; Rosenberg, 1976; David, 1975; Schmookler, 1966; As Arrow (1962) pointed out, innovation derives from experimentation, and it is a key element in achieving cost efficiencies in production (Leibenstein, 1966). What is less obvious is how to achieve technical change (Burns and Stalker, 1966). Does it, for example, depend essentially on markets, as suggested by Rostow(1960), or by Schumpeter’s entrepreneur (1982, 1934, 1913), or does it require some measure of public intervention, as suggested by Aghion and Howitt (1996), Aghion and Tirole (1994), and by Arrow and Kurz (1970).

- To the extent that markets alone do not provide a satisfactory rate of technical change can only be determined with reference to some underlying criteria. A benchmark could be sustainable growth, growth of one economy in comparison to some previous historical experience, or comparison to another economy with a higher rate of growth (Berthelemy and Varoudakis, 1996; Bordo, Taylor, and Williamson, 2003; Olson, 1982).

If innovation may depend in part on public sector intervention, it also may depend on financial innovation, international aid, and governance institutions. Mauro, Sussman and Yafeh (2006) examine the role of financial innovation in historical perspective, and note the positive relationship between financial innovation and growth. This supports the findings of Levine (1997), and Berthelemy and Varoudakis (1996). However, financial innovation alone may not explain major differences in per capita income, which suggests that other factors such as foreign direct investment (DeMello, 1999; Granstrand, 1999; Aghion and Howitt, 1992) also are at work.

One factor is the role of international aid. Although Burnside and Dollar (2004) found a positive relationship between aid and growth, this runs contrary to most findings, as summarized in Rajan and Subramanian (2006). The Burnside and Dollar findings point, however, to the quality of institutional governance, which has been examined in a number of related studies, notably Kaufmann, Kraay, and Mastruzzi (2003), Perotti (1996), and Saint-Paul and Verdier (1993). Because the quality of governance matters, institutions matter, and this forms the focus of the analysis we put forth in this paper. To do so, we first derive the analytic framework of basic growth models, from which we then apply our institutional variables as they apply to creative innovation.

Empirical growth models build on the traditional neoclassical approach set forth in Solow (1956, 1957). In this approach, aggregate production function model in which factor accumulation establishes conditions for steady-state growth. An important conclusion from this work is that in order to sustain growth, there must be a continuous process of technological change to offset diminishing marginal returns to capital stock accumulation.

In general, we can portray economic growth through a standard neoclassical function:

$$Y = f(K, L, T) \tag{1}$$

where:

Y = Output, which empirically can be measured in terms of  
PPP Real Per Capita GDP

L = Labor input,

K = Capital input,

T = The level of technology.

In empirical studies, this relationship often has taken the form of:

$$Y = A(K, L) \tag{2}$$

where:

A = the level of technology

- One variant of equation (2) is the Harrod-Domar model, in which labor inputs expand in proportion to increases in capital stocks. Under this balanced factor proportions approach, the warranted rate of growth reduces to the ratio of the national savings ratio to the incremental capital-output ratio. More formally, the warranted rate of growth can be expressed as:

$$r = s/k, \tag{3}$$

where:

r = the warranted, or steady-state rate of growth in output, as indicated in (1),

s = the rate of savings, which in empirical estimations  
can be determined as a percentage of GDP,

k = the incremental capital-output ratio, or investment in time t divided by the  
change in GDP from t to t+1.

In a closed economy, growth can thus be portrayed as a function of the rate of savings, which encapsulates the allocation of capital and labor inputs. When we include the role of trade, the economy's rate of growth thus can be portrayed as:

$$Y = f(S, TRDEP) \tag{4}$$

where:

S = the national saving rate, expressed as a percentage of GDP,

TRDEP = the degree of trade dependence, expressed as a weighted share  
of imports and exports as a percentage of GDP.

- Empirical problems abound in these formulations, notably in measuring the level of technology and determining its impact on per capita income. In Solow's early models (1956, 1957), technology was treated in the residual of regression equations. This approach led to international empirical studies by Denison (1962, 1967) as well as work that inspired many of the original lending policies of the World Bank in developing countries (Chenery, 1975). In most of these studies, technology once again was considered to be exogenous to the growth process, taking second place to factor accumulation and required levels of international aid to achieve target levels of growth in real per capita income.

An alternative approach to growth accounting has come to be known as endogenous growth theory (Aghion and Howitt, 1998). This approach builds on insights put forth in Schumpeter's *Theory of Economic Development* (1934, 1911), and in his *Capitalism, Socialism, and Democracy* (1942). For Schumpeter, growth depends first and foremost on the entrepreneur, as elaborated in his *Theory*. In his latter work, innovation serves to explain persistent differences in rates of return across industries, and may, as in Adam Smith's steady state, cease to occur once levels of wealth have reached a level that no longer stimulates its production. That very success, Schumpeter suggested, is how capitalism would then be transformed into a socialist economy, in contrast to Marx's prediction of imminent collapse from a rising rate of exploitation. This latter, and now quaint, interpretation seems distant at best, given the collapse of the Soviet Union and the expansion of market-driven globalization.

Recent research that draws on Schumpeterian innovation theory utilizes several interrelated measures of growth. Key among them are research and development expenditures, patent and trademark applications, scientific citations, and net flows of copyright and trademark revenues. In an ideal setting, one could frame the optimal level of research and development as that which generates a maximum level of innovation. Thus,

$$U = \int_0^{\infty} e^{-r\tau} y(\tau) d\tau = \int_0^{\infty} e^{-r\tau} \left( \sum_{t=0}^{\infty} \prod(t, \tau) A_t x^\alpha \right) d\tau \quad (5)$$

- where:

U = the level of social welfare, e.g. a welfare adjusted level of per capita income,

□ = the number of innovations

□ □ time, and

A = the level of technology.

If innovations arrive according to some Poisson style process, we can then portray their rate as:

$$\prod(t, \tau) = \frac{(\lambda n \tau)^t}{t!} e^{-\lambda n \tau} \quad (6)$$

Expected welfare can then be defined as:

$$U(n) = \frac{A_0 (L - n)^\alpha}{r - \lambda n (\gamma - 1)} \quad (7)$$

The socially optimal level of research and development expenditures would be where the first derivative of 7 is set to zero, in which case we then derive the reduced expression:

$$1 = \frac{\lambda(\gamma - 1) \left( \frac{1}{\alpha} \right) (L - n^*)}{r - \lambda n^* (\gamma - 1)} \quad (8)$$

where:

L = the quantity of labor input,,

□ □ factor increase in output from each innovation.

Under these conditions, the level of research would lead to an average rate of growth in welfare adjusted per capita income of:

$$g^* = \lambda n^* \ln \gamma \quad (9)$$

- Although this framework provides a useful starting point for empirical estimates, there are several limitations that should be noted. One is that an aggregate formulation does not capture the transitional phases of growth in many developing countries, in particular, the shift of resources from agriculture into industry and services. Another is that knowledge itself can not be readily captured in an empirical form. A third is that the implementation of successful innovation requires that one take into consideration the role of institutions and transactions costs. We take up these issues in the following section.

## A Model of Creative Innovation

If economic growth depends partly on factor accumulation and for an open economy, partly on international trade, we can enrich our growth model through incorporation of two additional factors, namely, risk and innovation. In previous work, we have examined the role of aggregate country risk on economic growth and find that it presents a transactions cost that can lower per capita income (LeBel, 2005). Management of risk requires that one take stock of institutional variables, namely, property rights and judicial independence. Increased levels of property rights and judicial independence tend to lower aggregate country risk, and in so doing, raise real per capita incomes. By including aggregate country risk and its determinants in our growth accounting, we thus respond to one of the critiques of endogenous growth theory.

We now turn to creative innovation. Although research and development expenditures provide one measure of innovation, data are infrequent and sparse in many instances, thus making it difficult to derive meaningful international comparisons of its impact on economic growth. However, there are other indicators that may serve as proxies for creative innovation. From them, we derive an index of creative innovation, which we define below.

We propose an index of creative innovation that contains two key elements: per capita scientific citations and the ratio of per capita royalty fees to per capita royalty fee payments. Countries that engage in creative innovation do so in part through the frequency of scientific citations. In turn, when we consider both scientific and artistic innovation, these changes will have an effect on a country's royalty revenues and royalty payments. For countries with low levels of scientific and artistic innovation, royalty payments will exceed royalty revenues. As creative innovation expands the ratio of royalty revenues to royalty fees will increase. We thus use the per capita net royalty ratio as the second component of our creativity innovation index.

Formally, we now define an index of creative innovation as:

- $INNOVINDEX = (\text{Per Capita Scientific Citations} + \text{Per Capita Net RoyaltyRatio})/2$  (10)
- We do not claim that this index can capture all of the relevant dimensions of creative innovation. However, it does enable us to examine how innovation affects the level of per capita income, and in turn, how institutional factors influence its level.

We now specify the structure of our model of growth through creative innovation. Instead of an aggregate production function approach as indicated in equations 1 and 2, we use the framework of equation 4, namely, the rate of saving and the level of international trade dependence. In turn, we add the role of aggregate country risk, which provides a proxy for the level of efficiency in institutional governance. We then add to this our index of creative innovation, which we treat as exogenous to per capita income in this analysis. Our first order specification of economic growth thus is:

$$PPRPGDP = f(\text{GNSGDP}, \text{TRDEP}, \text{RCCRISK}, \text{INNOVATION}) \quad (11)$$

where:

- PPRPGDP = Purchasing power parity real per capita GDP,
- GNSGDP = The rate of national saving as a percentage of GDP
- TRDEP = The level of trade dependence as a percentage of GDP
- RCCRISK = An index of aggregate country risk
- INNOVINDEX = The index of creative innovation as defined in

- We first derive panel regression estimates of equation 11, allowing for sequential incorporation of risk and innovation. Panel regression models take the following general form:

$$Y_{it} = \alpha + \beta X_{it} + \varepsilon_{it}, \text{ for } i = 1, 2, \dots, N, \text{ and } t = 1, 2, \dots, T, \quad (12)$$

where N is the number of cross-section units and T is the number of time period. for the estimates in Table 1, we provide separate estimates based on fixed cross-section and no cross-section effects. In a fixed effects model, dummy variable enable the intercept term to vary over time and over cross-section units. For a fixed effects model, we write:

$$Y_{it} = \alpha + \beta X_{it} + \gamma_2 W_{2t} + \gamma_3 W_{3t} + \dots + \gamma_n W_{nt} + \delta_2 Z_{i2} + \delta_3 Z_{i3} + \dots + \delta_T Z_{iT} + \varepsilon_{it}. \quad (13)$$

where:

$$W_{it} = \begin{cases} 1 & \text{for the } i\text{th individual, } i = 2, \dots, N \\ 0 & \text{otherwise} \end{cases}$$

$$Z_{it} = \begin{cases} 1 & \text{for the } i\text{th time period, } i = 2, \dots, N \\ 0 & \text{otherwise} \end{cases}$$

Results of preliminary estimates for our global sample of 103 countries over 1980-2005 period are shown below in Table 1. We find that while savings and trade dependency are important determinants of real per capita income, aggregate country risk has a larger negative effect than either one alone. Measures to reduce aggregate country risk through institutional reform carry important effects for economic growth. When we factor in foreign direct investment, it has a positive, but statistically insignificant effect on growth. This suggests that the choice of institutional regime may have much to do with the positive effects of foreign direct investment.

Turning to innovation, we look first at the individual effect of scientific citations on growth and find that it is statistically and economically significant. In fact, scientific citations carry a larger economic effect than either savings or trade dependency alone, and they offset the negative effect of aggregate country risk. When we then examine the effect of our innovation index on economic growth, it outweighs all other variables by a rough factor of three to one. In short, innovation is a major determinant of per capita income, and measures to expand its level carry important consequences for globalization policies.

TABLE 1: GLOBAL SAMPLE BASIC GROWTH ESTIMATES  
 Dependent Variable: **PPRPGDP**

	Fixed	None	Fixed	None	Fixed	None
C	6,061.29	318.27	4,461.10	7,616.09	4,461.10	7,616.09
GNSGDP	8.61 (4.207)	235.88 (33.915)	3.45 (2.073)	56.98 (16.182)	3.45 (2.073)	56.98 (16.182)
TRDEP	28.21 (26.551)	33.76 (16.557)	14.44 (17.344)	14.15 (9.973)	14.44 (17.344)	14.15 (9.973)
PCSCITES			27.09 (55.021)	24.61 (81.988)		
RCCRISK			-17.02 (14.706)	-139.44 (38.512)	-17.02 (14.706)	-139.44 (38.512)
INNOVINDE					54.17 (55.021)	49.23 (81.988)
Adjusted R-squared	0.9598	0.6655	0.9781	0.8510	0.9781	0.8510
F-Statistic	615.45	2,664.04	1,129.94	3,823.33	1,129.94	3,823.33
Number of Cross Sections	103	103	103	103	103	103
Number of Observations	2678	2678	2678	2678	2678	2678
Method	PLS	PLS	PLS	PLS	PLS	PLS
Cross-Section	Fixed	None	Fixed	None	Fixed	None
Period	None	None	None	None	None	None
GLS Weights	CS	CS	CS	CS	CS	CS
Granger null-values						
GNSGDP	4.76 (0.009)	4.76 (0.009)	4.76 (0.009)	4.76 (0.009)	4.76 (0.009)	4.76 (0.009)
TRDEP	40.23 (0.000)	40.23 (0.000)	40.23 (0.000)	40.23 (0.000)	40.23 (0.000)	40.23 (0.000)
RCCRISK			5.30 (0.005)	5.30 (0.005)	5.30 (0.005)	5.30 (0.005)
PCSCITES			16.30 (0.000)	16.30 (0.000)		
INNOVINDE					16.30 (0.000)	16.30 (0.000)

### Determinants of Innovation

We now undertake separate estimates of growth using two key institutional variables shown in Table 1, namely, aggregate country risk and innovation. In each case, we use Granger causality F-null tests to establish a hierarchy for the variables in the model. For our global sample, this extended formulation is shown in Figure 1. Through nested panel regression estimates, we establish estimates for each determinant. We then use estimated values to re-estimate our growth equation based on the global sample defined in equation 11. Revised model results summarized in Table 2 below.

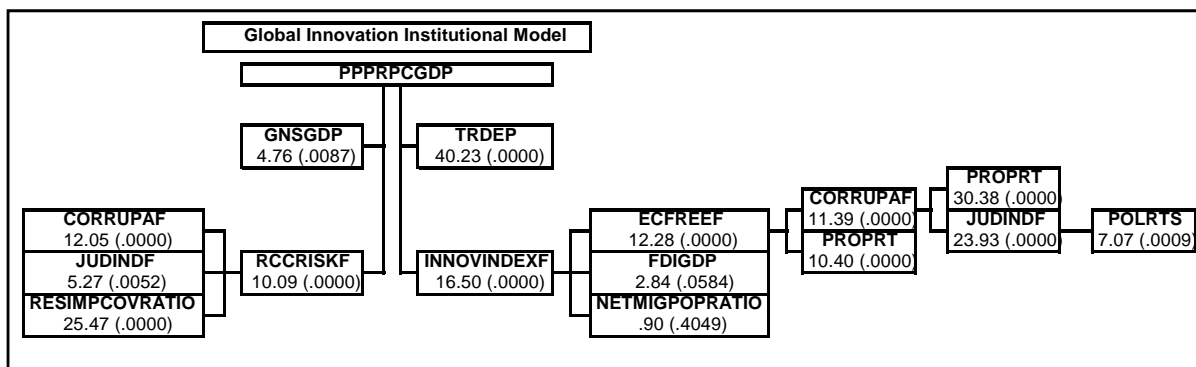


FIG. 1: EXPANDED MODEL OF INSTITUTIONAL INNOVATION

For each variable in Figure 1, the first statistic is the Granger null-value, followed by the corresponding rejection probability.

TABLE 2: GLOBAL SAMPLE EXPANDED MODEL REGRESSION ESTIMATES

Dependent Variable: PPPPCGDP		Fixed	None	Fixed	None	Fixed	None
C		<b>-516.68</b>	<b>-98.46</b>	<b>4,049.27</b>	<b>14,818.64</b>	<b>739.39</b>	<b>15,021.03</b>
GNSGDP		<b>7.93</b>	<b>100.57</b>	<b>10.15</b>	<b>19.42</b>	<b>6.88</b>	<b>16.79</b>
t		(3.836)	(28.043)	(6.854)	(7.083)	(3.291)	(5.821)
TRDEP		<b>26.59</b>	<b>32.38</b>	<b>16.71</b>	<b>4.12</b>	<b>26.22</b>	<b>4.04</b>
t		(24.644)	(22.825)	(21.417)	(3.800)	(24.238)	(3.514)
PCSCITES				<b>27.11</b>	<b>19.36</b>		
t				(54.164)	(61.734)		
RCCRISKF				<b>-13.30</b>	<b>-279.39</b>	<b>-15.39</b>	<b>282.78</b>
t				(3.722)	(57.924)	(3.090)	(54.758)
INNOVINDEF		<b>112.04</b>	<b>60.39</b>			<b>101.10</b>	<b>37.70</b>
t		(7.649)	(83.282)			(6.757)	(50.008)
Adjusted R-squared		0.9571	0.7506	0.9788	0.8671	0.9576	0.8098
F-Statistic		569.50	2,687.20	1,165.13	4,366.83	571.94	2,849.61
Number of Cross Sections		103	103	103	103	103	103
Number of Observations		2678	2678	2678	2678	2678	2678
Method		PLS	PLS	PLS	PLS	PLS	PLS
Cross-Section		Fixed	None	Fixed	None	Fixed	None
Period		None	None	None	None	None	None
GLS Weights		CS	CS	CS	CS	CS	CS
Granger null-values							
GNSGDP		4.76	4.76	4.76	4.76	4.76	4.76
pr.		(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
TRDEP		40.23	40.23	40.23	40.23	40.23	40.23
pr.		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
RCCRISKF				10.10	10.10	10.10	10.10
pr.				(0.000)	(0.000)	(0.000)	(0.000)
PCSCITES				16.30	16.30		
pr.				(0.000)	(0.000)		
INNOVINDEF		16.50	16.50			16.50	16.50
pr.		(0.000)	(0.000)			(0.000)	(0.000)

The expanded model estimates point to several findings. First, while predicted savings rates and trade dependency continue to exert a positive effect on growth, once risk and innovation are taken into account, their role is reduced. And while predicted aggregate country risk has the largest single influence on per capita income, our second most important determinant is the predicted index of creative innovation. Obviously, measures to reduce aggregate country risk as well as to increase the level of innovation are keys to raising real per capita income.

## Extensions of the Expanded Model

- We now conduct extensions to our expanded model. First we test for the significance of risk and creative innovation using geographic sub-samples of the global model. Second, we undertake estimates of the impact of single and multiple measures to reduce aggregate country risk and expand creative innovation on the predicted level of per capita income. Results of our geographic regional estimates are shown in Table 3.

TABLE 3: EXPANDED MODEL REGIONAL REGRESSION ESTIMATES  
Dependent Variable PPPRPGDP

	Global	Africa	Asia	CACARIB	WEurope	EEurope	MENAf
<b>C</b>	<b>15,221.50</b>	<b>1,487.01</b>	<b>13,400.41</b>	<b>5,492.98</b>	<b>20,408.98</b>	<b>11,168.31</b>	<b>3,684.88</b>
<b>GNSGDP</b>	<b>16.83</b>	<b>29.54</b>	<b>13.37</b>	<b>5.60</b>	<b>214.33</b>	<b>40.90</b>	<b>32.85</b>
	(5.758)	(12.450)	(3.209)	(9.174)	(65.437)	(17.989)	(17.765)
<b>TRDEP</b>	<b>3.82</b>	<b>6.16</b>	<b>28.23</b>	<b>7.05</b>	<b>48.74</b>	<b>4.46</b>	<b>25.21</b>
	(3.251)	(7.681)	(22.468)	(17.449)	(116.200)	(4.616)	(45.170)
<b>RCCRISKF</b>	<b>-286.73</b>	<b>-23.11</b>	<b>-458.38</b>	<b>-39.50</b>	<b>-384.99</b>	<b>-272.43</b>	<b>-63.61</b>
	(54.368)	(6.590)	(31.465)	(26.870)	(140.401)	(24.351)	(12.924)
<b>INNOINDEXFA</b>	<b>37.54</b>	<b>267.35</b>	<b>6283.58</b>	<b>207.30</b>	<b>61.85</b>	<b>2367.92</b>	<b>618.46</b>
	(49.814)	(74.139)	(22.700)	(33.022)	(22.002)	(13.046)	(46.885)
Adjusted R-Squared	0.8166	0.9268	0.9982	0.9992	0.9990	0.9651	0.9860
F-Statistic	2862.14	2737.07	10568.36	26310.19	117019.20	1884.21	5065.68
Panel Number	103	30	13	17	11	13	12
Effects specification							
CS	None	None	Fixed	Fixed	None	None	None
Period	None	None	None	None	None	None	None
Weights	CS	CS	CS SUR	CS SUR	CS SUR	CS SUR	CS SUR
Granger null F-Values							
GNSGDP	4.76	14.48	9.53	4.13	3.52	0.23	0.08
Pr.	(0.009)	(0.000)	(0.000)	(0.017)	(0.030)	(0.794)	(0.925)
TRDEP	40.23	13.09	4.62	1.68	18.40	1.81	4.65
Pr.	(0.000)	(0.000)	(0.011)	(0.188)	(0.000)	(0.165)	(0.010)
RCCRISKF	10.10	16.62	3.84	12.53	0.15	3.06	0.84
Pr.	(0.000)	(0.000)	(0.023)	(0.000)	(0.857)	(0.049)	(0.431)
INNOINDEXF	16.50	14.42	10.86	1.10	16.41	1.39	0.56
Pr.	(0.000)	(0.000)	(0.000)	(0.334)	(0.000)	(0.252)	(0.574)

Our regional sub-model estimates validate our global model findings, namely, that risk and innovation work in opposite directions in terms of their effects on per capita income. However, while risk and innovation are important determinants of per capita income, strategies to manage them will vary according to underlying conditions in a given economic region. For example, innovation has the strongest effect on per capita income among Asian countries, followed by those in East Europe. This may reflect the relative starting positions of these regions in applied innovations, but it also may reflect the establishment of a more innovative environment in these regions based on recent economic reforms.

- To better gauge the relative importance of creative innovation and risk, we now conduct simulations in a two-step process, using comparisons based on 2005 mean values for the respective variables and changes. First, we derive the impact on per capita income from a one-time change in an institutional parameter. Second, we then use the prevailing discount rate to derive present values of the change in per capita income from the one-time changes in institutional parameters. Finally, we derive the ratio of one-time and present-value changes in parameters to per capita income.

Results of changing institutional variables are shown in Table 4. Strengthened political rights increase judicial independence, which then increases real per capita by the effect on reductions in aggregate country risk and in expansions in the level of creative innovation. Strengthened property rights reduce corruption, which in turn reduces aggregate country risk, while expanding economic freedom, thus increasing the level of creative innovation. Increases in a country's reserve to import ratio, a standard measure often advocated in economic reform programs, has the primary effect of reducing aggregate country risk, and thus expanding the level of real per capita income. This also is true of increases in the level of Foreign Direct Investment relative to GDP. There may be, in fact, additional positive effects on the level of FDIP through changes in institutional variables and their attendant effects on risk, even though we have not made such estimates here.

We also estimate the effects of an increase in a region's national saving rate and its level of trade dependence on real per capita GDP. Although increases in these variables do produce positive effects on the level of real per capita GDP, they are outweighed in most instances by reductions in aggregate country risk and in increases in creative innovation.



TABLE 4: ABSOLUTE EFFECT OF A ONE-TIME ONE-UNIT CHANGE IN INDEPENDENT VARIABLES ON REAL PER CAPITA GDP

Absolute change in Model Variable:	Global	Africa	Asia	CACARIB	WEurope	EEurope	MENAf
POLRTS1	\$187	\$14	\$379	\$194	\$3,052	\$144	\$95
PROPRT1	\$308	\$103	\$319	\$227	\$509	\$1,286	\$257
RESIMPCOVRATIO1	\$283	\$125	\$231	\$81	\$427	\$279	\$394
FDIGDP1	\$14	\$106	\$243	\$22	\$409	\$283	\$93
GNSGDP1	\$75	\$30	\$15	\$27	\$622	\$41	\$33
TRDEP1	\$0	\$6	\$30	\$29	\$456	\$4	\$25
1 Unit Increase in MIGPOPGRATIO	\$60	\$100	\$59	\$24	\$419	\$36	\$14
1 Unit Decrease in RRCRISKFA	\$283	\$126	\$425	\$81	\$679	\$297	\$64
1 Unit Increase in INNOVINDEXTFA	\$38	\$267	\$6,209	\$223	\$469	\$2,368	\$618
Global Mean Predicted Base PPPRPGDFA	\$8,128	\$1,944	\$8,025	\$5,408	\$23,427	\$7,157	\$5,096

- We now turn to the derivation of the relative impact of one-unit one-time changes in independent variables on real per capita income. Table 5 reports the results of these ratios. Our results indicate that in general, for all regions, the relative positive effect of greater innovation is higher than for reductions in risk in all regions.

TABLE 5: RELATIVE EFFECTS OF A ONE-TIME ONE-UNIT CHANGE IN INDEPENDENT VARIABLES ON REAL PER CAPITA GDP

Relative change:	Global	Africa	Asia	CACARIB	WEurope	EEurope	MENAf
POLRTS1	2.30%	0.71%	4.72%	3.58%	13.03%	2.01%	1.87%
PROPRT1	3.79%	5.29%	3.97%	4.20%	2.17%	17.97%	5.04%
RESIMPCOVRATIO1	3.49%	6.45%	2.87%	1.50%	1.82%	3.90%	7.73%
FDIGDP1	0.18%	5.45%	3.03%	0.40%	1.74%	3.96%	1.82%
GNSGDP1	0.92%	1.52%	0.19%	0.51%	2.65%	0.57%	0.64%
TRDEP1	0.01%	0.32%	0.37%	0.53%	1.95%	0.06%	0.49%
1 Unit Increase in MIGPOPGRATIO	0.74%	5.13%	0.74%	0.44%	1.79%	0.51%	0.27%
1 Unit Decrease in RRCRISKFA	3.49%	6.48%	5.30%	1.49%	2.90%	4.15%	1.25%
1 Unit Increase in INNOVINDEXTFA	0.46%	13.75%	77.36%	4.13%	2.00%	33.08%	12.14%

Using Mean regional rates of interest, we now derive present values for the effects of the respective independent variables on real per capita GDP. These values provide a basis on which to determine the extent to which, on a per capita basis, one should consider investing in improvements in institutional governance variables. As long as the costs of improvements in institutional governance variables are less than the values reported in Table 6, the underlying implicit rate of return will be competitive with existing rates of interest in a given geographic region.

TABLE 6: PRESENT VALUE EFFECTS OF ONE-TIME ONE-UNIT CHARGES IN INDEPENDENT VARIABLES ON REAL PER CAPITA GDP

PV at Mean Rate of Interest:	Global	Africa	Asia	CACARIB	WEurope	EEurope	MENAf
POLRTS1:	\$2,965	\$135	\$7,763	\$2,598	\$98,404	\$1,223	\$2,303
PROPRT1:	\$4,888	\$998	\$6,526	\$3,046	\$16,427	\$10,923	\$6,200
RESIMPCOVRATIO1:	\$4,493	\$1,217	\$4,720	\$1,091	\$13,775	\$2,372	\$9,518
FDIGDP1:	\$226	\$1,028	\$4,986	\$291	\$13,173	\$2,407	\$2,237
GNSGDP1:	\$1,189	\$287	\$311	\$367	\$20,052	\$347	\$793
TRDEP1:	\$7	\$60	\$615	\$386	\$14,713	\$38	\$609
1 Unit Increase in MIGPOPGRATIO	\$951	\$968	\$1,208	\$321	\$13,517	\$308	\$337
1 Unit Decrease in RRCRISKFA	\$4,492	\$1,223	\$8,710	\$1,083	\$21,902	\$2,525	\$1,536
1 Unit Increase in INNOVINDEXTFA	\$595	\$2,596	\$127,143	\$2,992	\$15,136	\$20,114	\$14,937

## Policy Implications and Conclusions

- Institutions matter in achieving economic growth. Although economic models traditionally have ignored the economic impact of governance on growth, it is increasingly clear that a failure to do so can produce weak or counterproductive effects. This applies not just to a country's rate of saving or trade dependence. It also extends to such areas as foreign direct investment. Where it becomes critical is in terms of the impact of institutional governance on aggregate country risk and in a country's rate of creative innovation. Measures to reduce aggregate country risk and expand creative innovation may have significant payoffs. We note briefly some of the kinds of policy measures that derive from our model.

In terms of aggregate country risk, efforts to strengthen property rights and judicial independence have significant positive effects. While greater political rights increase judicial independence, expanded property rights reduce the level of corruption, expand economic freedom, and thus a country's level of creative innovation. In turn, reductions in corruption that are accompanied by expansions in judicial independence also reduce the level of aggregate country risk.

In terms of creative innovation, since our innovation index builds on scientific citations and the ratio of net royalties to per capita GDP, measures to increase their level produce positive effects on per capita income. Scientific innovations reflect a country's education and research capacity. Investments in education and research produce obvious effects in scientific citations. In turn, many scientific achievements are complemented by the level of creativity in other domains, as in music and the arts. How a country nurtures the environment in which these innovations take place is critical, particularly in that they translate into greater royalty producing income relative to royalty payments for a given country. Strengthened property rights are a necessary mechanism for this to take place, while a nurturing and open environment also has a role to play.

In conclusion, aggregate country risk and creative innovation typically carry greater economic consequences on a country's level of per capita income than such traditional variables as the rate of national saving and trade dependence. Devising suitable policies built around credible models is an important step in raising per capita income. The results of this analysis lend support to such efforts.

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Contact the author for the full list of references

## Appendix

### Data Sources and Model Specification

- Preliminary to our analysis, we have gathered time-series and cross-section data from a variety of sources, including the World Bank Development Indicators, the Heritage Foundation Index of Economic Freedom, and Freedom House political variables. Table A-1 lists the definitions, scales, and sources of variables used in the present analysis.

TABLE A-1: VARIABLE DEFINITIONS AND SOURCES

Variable	Variable Symbol	Definition	Scale		Source
			Lowest	Highest	
Political Rights	POLRTS	A supportive measure of democratic institutions.	1.00	7.00	Freedom House, Freedom in the World
Property Rights	PROPRT	A measure of the strength of economic freedom	1.00	5.00	The Heritage Foundation, The Index of Economic Freedom
Judicial Independence	JUDIND	A measure of the strength of economic freedom	1.00	10.00	The Heritage Foundation, The Index of Economic Freedom
Economic Freedom	ECFREE	The aggregate index of economic freedom	1.00	5.00	The Heritage Foundation, The Index of Economic Freedom
Reserve Import Coverage Ratio	RESIMPCOV	Ratio of Reserves to Imports	0.00	1.00	The World Bank, World Development Indicators
Foreign Direct Investment to GDP Ratio	FDIGDP	Ratio of FDI to GDP	0.00	1.00	The World Bank, World Development Indicators
Net Migration to Population Ratio	NETMIGPOP	Net Official Migration to Population	negative	positive	The World Bank, World Development Indicators
Revised Country Composite Risk	RCCRISK	An Index of Political, Economic, Financial, and Environmental Country Risk	0.00	100.00	ICRG, as reported by the World Bank, and re-scaled
National Saving Rate	GNSGDP	Ratio of National Saving to GDP	negative	positive	The World Bank, World Development Indicators
Trade Dependency Ratio	TRDEP	Ratio of Exports and Imports to GDP	0.00	positive	The World Bank, World Development Indicators
Per Capita Scientific Citations	PCSCITES	Per capita Scientific Citations	0.00	positive	The World Bank, World Development Indicators
Innovation Index	INNOVINDE	Average of per capita scientific citations and netroyalty ratio	0.00	positive	The World Bank, World Development Indicators
PPP per capita Real GDP	PPPRPGDP	Real per capita GDP at Purchasing Power Parity Rates	positive	positive	The World Bank, World Development Indicators
Real interest Rate	REALINRATE	Real discount rate of central bank in a country.	negative	positive	The World Bank, World Development Indicators
Corruption Index	CORRUPA	Corruption Perceptions Index, inverted scale	0.00	10.00	Corruption Perceptions Index, Inc.

TABLE A-2: EXPANDED REGIONAL MODEL 2005 MEAN ORIGINAL AND PREDICTED VALUES

	Global	Africa	Asia	CACARIB	WEurope	EEurope	MENAf
Panel number	103	30	13	17	17	11	12
<b>Original Values</b>							
POLRTS	4.8641	3.7667	4.2308	5.7059	7.0000	1.4558	2.3333
PROPRT	2.9107	2.3933	2.7692	2.5294	4.5882	3.3000	2.1667
JUDIND	5.1332	4.6963	5.2170	4.7220	7.6163	4.5296	3.4200
ECFREE	2.0085	1.5532	1.8377	2.0065	2.9135	1.8995	1.5108
RESIMPCOVRATIO	4.6408	4.3266	6.9832	4.8464	1.8222	0.7988	7.3979
FDIGDP	3.1164	3.0106	1.9420	3.0580	4.6752	0.0009	1.9623
NETMIGPOPRATIO	0.0000566	-0.0015440	0.0056350	-0.0059000	0.0146620	0.0024150	-0.0016480
RCCRISK	29.12	38.69	27.94	31.10	15.94	33.46	27.83
GNSGDP	19.7955	12.9247	30.8755	18.2433	23.2020	26.9792	22.0137
TRDEP	77.5171	64.3841	89.8601	65.9278	93.0468	73.2015	70.4656
INNOVINDEXT	71.3280	2.5644	1.0440	4.5358	7.8070	2.9488	2.0193
PPRPGDP	\$10,652.78	\$2,377.57	\$9,270.38	\$6,313.38	\$30,405.65	\$6,568.80	\$6,126.92
REALINRATE	6.3069	10.3003	4.8831	7.4590	3.1015	-11.7728	4.1405
<b>Predicted Values</b>							
JUDINDF	5.0928	4.5202	5.0446	4.5043	7.8508	4.1275	3.4695
CORRUPAF	6.0196	7.2585	6.5947	6.9075	2.5777	6.4242	7.2696
ECFREEF	1.9193	1.4461	1.7626	1.9631	2.7434	1.9380	1.2750
RCCRISKF	34.9219	43.5928	32.9869	38.8303	17.0240	34.4199	38.8532
INNOVINDEXTF	60.3168	2.5644	1.0640	4.4257	7.6219	1.6622	2.2360
PPRPGDPF	<b>\$8,065.11</b>	<b>\$1,946.76</b>	<b>\$8,025.12</b>	<b>\$5,393.44</b>	<b>\$23,834.80</b>	<b>\$7,157.50</b>	<b>\$5,096.00</b>

TABLE A-3: COUNTRIES IN THE GLOBAL AND REGIONAL SAMPLES

Global	Africa	Asia	South America and the Caribbean	West Europe	East Europe	Middle East and North Africa
Mexico	Benin	Bangladesh	Belize	Austria	Albania	Iran, Islamic Rep
Canada	Botswana	China	Costa Rica	Belgium	Bulgaria	Lebanon
United States	Burkina Faso	India	El Salvador	Denmark	Czech Republic	Oman
+ all others	C.Af. Republic	Indonesia	Guatemala	Finland	Estonia	Qatar
	Cameroon	Japan	Honduras	France	Hungary	Syrian Arab Republic
	Chad	Korea, Rep.	Nicaragua	Germany	Latvia	Turkey
	Congo, Dem. Rep.	Malaysia	Panama	Greece	Lithuania	Yemen, Rep.
	Congo, Rep.	Pakistan	Argentina	Ireland	Poland	Egypt, Arab Rep.
	Cote d'Ivoire	Philippines	Bolivia	Italy	Romania	Libya
	Ethiopia	Singapore	Brazil	Luxembourg	Slovak Republic	Tunisia
	Gabon	Sri Lanka	Chile	Netherlands	Russian Federation	Algeria
	Ghana	Thailand	Colombia	Norway		Morocco
	Guinea	Vietnam	Ecuador	Portugal		
	Kenya		Paraguay	Spain		
	Madagascar		Peru	Sweden		
	Malawi		Uruguay	Switzerland		
	Mali		Venezuela, RB	United Kingdom		
	Mauritania					
	Mauritius					
	Mozambique					
	Niger					
	Nigeria					
	Senegal					
	South Africa					
	Sudan					
	Tanzania					
	Togo					
	Uganda					
	Zambia					
	Zimbabwe					
103	30	13	17	17	11	12

TABLE A-4: ESTIMATING EQUATIONS FOR REVISED EXPANDED GLOBAL MODEL

Dependent Variable	JUDIND	CORRUPA	ECFREE	RCCRISK	INNOVINDE	PPPRCGDP
<b>C</b>	<b>4.84</b>	<b>9.79</b>	<b>4.50</b>	<b>55.02</b>	<b>48.75</b>	<b>15021.03</b>
<b>POLRTS</b>	<b>0.05</b> (8.941)					
<b>PROPRT</b>		<b>-0.13</b> (5.178)	<b>0.03</b> (2.018)			
<b>JUDINDF</b>		<b>-0.67</b> (9.210)		<b>-9.31</b> (3.717)		
<b>CORRUPAF</b>			<b>-0.44</b> (6.144)	<b>5.29</b> (2.003)		
<b>RESIMPCOVRATIO</b>				<b>-0.98</b> (19.950)		
<b>ECFREEF</b>					<b>5.25</b> (3.721)	
<b>FDIGDP</b>					<b>0.48</b> (12.717)	
<b>NETMIGOPRATIO</b>					<b>11.85</b> (2.058)	
<b>MIGPOPGRATIO</b>						
<b>RCCRISKF</b>						<b>-219.58</b> (22.199)
<b>GNSGDP</b>						<b>24.34</b> (3.307)
<b>TRDEP</b>						<b>10.91</b> (4.875)
<b>INNOVINDEXF</b>						<b>47.65</b> (44.050)
<b>INNOVINDEXF1</b>						
Adjusted R-Squared	0.9954	0.9935	0.9963	0.8843	0.9199	0.8545
F-Statistic	5,607.85	3,923.36	6,886.84	195.81	293.84	4,053.53
Number of Cross-Sections	103.00	103.00	103.00	103.00	103.00	103.00
Number of Observations	2678	2678	2678	2678	2678	2678
Method	PLS	PLS	PLS	PLS	PLS	TSPLS
Effects						
Cross-section	Fixed	Fixed	Fixed	Fixed	Fixed	None
Period	None	None	None	None	None	Fixed
GLS Weights	CS	CS	CS	CS	CS	CS
Granger F-Null values						
<b>POLRTS</b>	<b>7.07</b> (0.001)					
Pr.						
<b>PROPRT</b>		<b>30.38</b> (0.000)	<b>10.41</b> (0.000)			
Pr.						
<b>JUDINDF</b>		<b>23.93</b> (0.000)	<b>6.79</b> (0.001)	<b>5.27</b> (0.005)		
Pr.						
<b>CORRUPAF</b>				<b>12.05</b> (0.000)		
Pr.						
<b>RESIMPCOVRATIO</b>				<b>25.47</b> (0.000)		
Pr.						
<b>ECFREEF</b>					<b>12.28</b> (0.000)	
Pr.						
<b>FDIGDP</b>					<b>2.84</b> (0.058)	
Pr.						
<b>NETMIGOPRATIO</b>					<b>0.90</b> (0.405)	
Pr.						
<b>MIGPOPGRATIO</b>						
Pr.						
<b>RCCRISKF</b>						<b>10.10</b> (0.000)
Pr.						
<b>GNSGDP</b>						<b>7.91</b> (0.000)
Pr.						
<b>TRDEP</b>						<b>27.51</b> (0.000)
Pr.						
<b>INNOVINDEXF</b>						<b>16.50</b> (0.000)
Pr.						

# A Stage Model of Education and Innovation Type in China: The Paradox of the Dragon

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## Abstract

A stage model of education and innovation type is introduced to demonstrate the influence of education on innovation and, as a result, on national competitiveness. Other infrastructural, cultural and managerial elements are related to the stage model, but the focus here is on the relevant educational factors. Empirical and qualitative questions related to this model for China include: 1) how is the education system in China changing to meet the needs of industry?; and, 2) are Chinese business and engineering graduates creative enough to compete in the global market of critical industries that rely on technological innovation? In this paper, a staged framework is used to analyze these questions, leading to suggestions for further research with regard to education and innovation policies.

## Introduction

China's economy has a growing population of 1.25 billion people and continues to expand exponentially with GDP growing at greater than 9% per annum in recent years. Much of this growth has been attributed to services and the high technology industry. For example, while agriculture remains the dominate employer of the 753 million 'working age' population (contributing to 50% of employment), it only accounts for 15.4% of China's GDP (Chen, 2006). However, despite the technology industries' growing importance to the Chinese economy most of this growth is due to the introduction of Western technology via foreign direct investment (Buckley, Clegg & Wang, 2002; Liu & Wang, 2003).

In order to continue a robust level of economic growth, it is argued that China must begin to take innovation seriously as a creative process of developing new technologies and processes that do not currently exist. It can be argued that China presently lacks the propensity towards proactive innovation efforts that lead to new and different economic opportunities (Johnson, 2006; Zhan & Renwei, 2003). The country relies too heavily on imitation of technologies and processes originally created and developed in the West. This strategy—deliberate or not—may be a natural trajectory for the country based on education and innovation practices that parallel other progress-based theories which emphasize other factors of development (e.g., Mahmood & Rufin, 2005).

While the focus here is on the link between education and innovation, there are other macroeconomic and sociopolitical factors that affect innovation at the country level. Some of these have been discussed in Johnson (2006). These factors are discussed as they relate to the focus of the stage model of education and innovation and how this model affects national competitiveness.

This paper begins by demonstrating the paradoxical approach to both innovation and education that exists in China. A staged model is identified and used to illustrate the importance of education in the processes of innovation. It is argued that the stage model of education and innovation practices leads to various types of innovations. In order to move up the value chain toward technologies that critical industries in the global marketplace need, it is explained here that more emphasis in policy and strategic direction on original and creative innovations is required. This emphasis requires a focus on educational reform.

The implications of the model are first explored by discussing possible empirical indications of the framework. Policy implications are then discussed that emanate from the model. As with many current discussions on China, these implications appear to suggest further democratization in the country. Indeed, other studies suggest that countries that move beyond newly developed status may require a freer press in general (Chen, 2006), a freer political system (Mahmood & Rufin, 2005), better, more protective innovation policy (Huang et al, 2004) and, as argued here, a freer, more liberal educational system. Otherwise, development may be hampered by lethargy of

change and lack of creative entrepreneurial activity<sup>1</sup> as seen in the economic collapse of the once mighty Soviet Union.

## **Innovation and Education in China: A Paradox of Factors**

Historically, China is a country that has provided many radical inventions and innovations. However, these were introduced hundreds of years ago such that today's China has been criticized as lacking a system and even a spirit of innovation (Zhan & Renwei, 2003). It is known that paper, the compass, gun powder and printing were all original Chinese inventions. This proud historical fact has prompted some Chinese schools to replace the portraits of the four bearded Westerners of Marx, Engels, Lenin and Stalin (who, of course, brought Communist philosophy to China) with the four bearded Chinese sages responsible for the "Four Great Inventions" mentioned here (Becker, 2000: 202). The question, which begs the issue of innovation in China and which answer reveals one of many paradoxes in the country, is why China is not now known for excellence in innovation.

Innovation scholars know that the truism that "Necessity is the mother of invention" has both face and empirical validity. In the case of China, it has been argued that the glorious inventions of China's past can all be traced to fulfilling the needs of the bureaucratic establishments of the Chinese Emperor at the time (Johnson, 2006). For example, the classical inventions were not commercial in nature. Indeed, the lack of innovative behavior has been cited as a consequence of the absence of a free market, the values of Chinese society and its totalitarian nature (Landes, 1998: 55-57).

Today, and as recently as a hundred years ago, China continues to be an entrepreneurial and commerce-driven country despite its recent historical leanings towards socialistic communism. (Indeed, this may be another paradox of the Far East country, i.e., that it can so easily embrace communism and capitalism at the same time.) However, much of the entrepreneurial activity in China is manufacturing and trade related. Any innovation taking place there is incremental in nature and based on imitation of imported technologies and processes. In fact, the following quote could be taken from the headlines of today's business sections but is actually from a book published almost a century ago:

"It is often said that the peril of to-day is not the Chinese behind the gun, but the Chinese as the manufacturers of guns and of many other things, equally calling for the highest technical skill. It has been the fashion of newspaper writers dealing with the development of China to state that the danger to the West lies in the industrial expansion of China, and it is averred that the Chinese, with their cheap labour and keen aptitude for imitation, competing with the dear labour and the heavy cost of transportation of the West, would certainly be able to beat the latter. [sic]" (Wagel, 1980: 291; originally published in 1914 by North-China Daily News and Herald, Shanghai)

Continuing the theme of paradox, this has led to a rather peculiar understanding of innovation in China. Whereas China has been known as a place of great trade and entrepreneurial activity going back to the days of the Silk Road and has had a reverence for innovation, radical innovation has often been absent from the rapid economic growth there.

The same paradox can be seen in China with regard to education. Historically, the educated bureaucratic elite were given a great deal of respect. Perhaps as a backlash to the historical reverence for the educated class, the Cultural Revolution of recent Chinese history relegated the educated class to 'enemy of the state' status. Recently, a reversal of attitude has appeared as the links among education, economic growth and prosperity have become more evident. In fact, education in China is now seen as a way out of poverty as depicted in the story of a 13 year old Chinese girl from Zhangjiashu and her peasant family's struggles to keep her in school because education leads to a better life (Haski, 2004).

This paradox extends to the tension between the need for creativity in education and the need for conformance, which although present in a Western context may be even greater in an Asian setting. For example, Ng and Smith (2004) called this 'the paradox of promoting creativity in the Asian classroom'. Kwang and Smith (2004) described it this way: "teachers (especially in the East) are encouraged to promote creativity in the classroom, yet many studies indicate that they do not like creative students" (: 308). This is important to keep in mind as the staged model of education and innovation is introduced—a model that suggests the need for creative and

critical thinking skills in order to help explain the link between the education and innovation. To move up the economic value chain, it is important to become more creative. Creativity is discussed after explaining the model.

### Stage Model of Education and Innovation Type: Concept and Description

The model, illustrated below in Fig. 1, links education with innovation practices that result in a third dimension that depicts three linkage types of resultant overall innovations: imitation, incremental, and radical. It is argued by way of this stage model of education and innovation that there is a link between evolutionary types of education program/stages and innovation practices. That is, the role of education will vary with the type of overall innovation needed and selected for continued economic development of the country. This reasoning parallels Mahmood and Rufin's (2005) assertion that the role of government varies with the development process, and that development is linked with technological innovation. They assert that as a country becomes more developed economically it must move from derivational technological innovation towards more original innovation.

While the stage model of education and innovation could be applied to any country or region, the present circumstances of China are particularly well suited to the model's application through empirical investigation. The model is relevant since China is presently at a crossroads in which it could be moving away from an imitative innovation stance towards more radical, self-initiated innovation as it progresses economically. In fact, it is argued that in order to continue advancing economically, China will have to make this transition, which has policy implication with regard to education practices, even reform, in China.

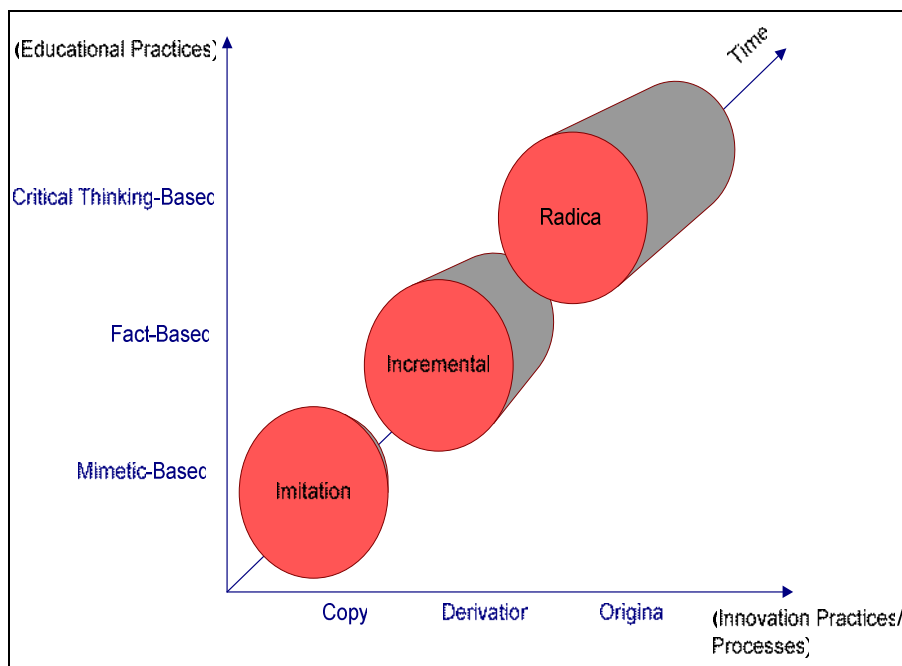


FIG. 1: INNOVATION TYPES OVER TIME: THE STAGE MODEL OF INNOVATION LINKING EDUCATION AND INNOVATION PRACTICES AND PROCESSES

The stage model is illustrated using concepts depicted in Fig. 1. It describes the two axes in the model first, then the three dimensions on each axis, and finally the resultant educational/innovation types on the third axis. The horizontal first axis depicts the type of *technological innovation process* associated with stages of development for innovative purposes. Technological innovation processes vary from direct copying without changes to the original design of the technology or process to derivation. These practices require some changes to the original design,



including the original-- which provides a newly created design for a technology or process. (Note that service processes fall under this category).

The vertical second axis illustrates *educational practices* associated with stages of education at the national level. These stages also relate to stages of individual learning. At the individual level, the model parallels the process of experiential learning as first proposed by Kolb (1984). In that model learning practices move in a cyclical pattern from concrete experience, through reflective observation, abstract conceptualization to active experimentation (ibid: 42).

The education practices in the model tend to be hierarchical in that the level above usually also employs the methods of the level below. Here the basic educational practice is *mimetic-based* in which students learn to repeat and 'parrot' the teacher without necessarily understanding the material. Johnson (2006) hypothesized that some of this propensity towards mimetic behavior was ingrained in the Chinese educational experience via the necessary approach to learning kanji. This was exemplified in an interview with a Chinese student:

"Copying, at the very beginning, especially for Chinese study because for Chinese we have special characters, it is not like English where you only learn 26 letters and you have different combinations, but for Chinese, we have each characters so you have to repeat a lot, copy a lot, like for one character you copy like 10 times in order to remember. But later, I don't think so, but it could be in a different form, like for example, if you are doing math problems, and it is not every time that the teacher gives you a new type of exercise, so it would probably be like the same type of thing with different numbers and then you practice a lot and then in the exams, it could be that same type of question repeated" (Johnson, 2006: 262).

The next stage in educational practice is *fact-based* in which students both memorize and understand facts and their relations to one another. This type of educational practice is the baseline for higher levels of engineering skills. Finally, there is the level of educational practice involving *critical thinking* skills. Here students not only know the facts of their discipline but question the very nature and veracity of those facts. They also combine facts to create new possibilities as in Koestler's (1976) concept of bisociation or by forming associative elements to create new combinations (Mednick, 1962). Furthermore, absorbing old knowledge from other disciplines and combining these with new knowledge may be beneficial to competitiveness for individual firms (Katila, 2002). Critical thinking skills allow one to separate the important knowledge from less relevant knowledge. Thus, critical thinking becomes a necessary component towards creative thinking.

The final third axis depicts the resultant general *innovation types* (*imitation, incremental, and radical*) between education practices and innovation processes. The model depicted here is progress based so that over time if a country or region is to advance it must go through stages of education practices and technological innovation.

The actual innovation practices that can take place under certain conditions are seen on the horizontal axis. These innovation types can be thought of as the adjectives describing a noun, which is the actual innovation. The two practices could be thought of as the verbs that lead to these nouns. For example, in order to create a new technological innovation that never existed previously, a certain amount of critical thinking and original practices are necessary. For instance, the first personal computers, for example the Apple computer engineered by Steve Wozniak, required creative manipulation of design to make them work. They were an example of creative innovation leading ultimately to a new industry that eventually changed almost every other existing industry. For simple innovations or detailed but highly explicated innovation designs, such complex and original thinking may not be necessary. As such, mimetic educational practices are associated with mere copying and lead only to imitations of existing designs however complicated. Moving up the value chain of innovations, fact-based educational practices are associated with derivational innovation practices and produce incremental innovations, which are material improvements on existing technologies, for example, but not entirely new configurations or designs. Finally, critical thinking educational practices and original innovation practices may result in radical innovations. Both of these practices are associated with creativity.

Creativity has been studied for more than a quarter century in the West (Angle, 2000). Both educational practices and innovation practices in the upper parts of the scale are related to creativity, which involves originality, as well as the ability to adapt and realize the achievements of creative thought. Originality, as pointed out many years ago, is not enough for useful creativity- particularly in the pragmatic situation of businesses and general economic growth. For example, MacKinnon (1975) stated: "Novelty or originality, while a necessary part of

creativity, is not sufficient... it must also be adaptive to reality. It must serve to solve a problem, fit a situation, or accomplish some recognizable goal. And thirdly, true creativeness involves a sustaining of the original insight, an evaluation and elaboration of it, a developing of it to the full. (: 67-68). Thus, critical thinking educational practices and original innovation practices require creativity.

## **The Model of Education Type and Innovation Type in China**

It is argued that China is at most only recently emerging from the imitation stage into the incremental innovation stage. It can also be argued that much of this inertia of change stems from the traditional educational programs of China. (Of course, as mentioned earlier, there are a number of other macro-economic and socio-political factors that have influenced the types of innovation processes in China but they are beyond the scope of this paper.) In light of the analysis linking education and innovation practices it is elucidated that this may be partly led by Chinese engineering and business schools focusing on high quality fact-based educational practices. According to Shimin Liu (2006), who teaches at the University of International Business and Economics, Chaoyang District in Beijing, "Chinese students still learn by rote memorization throughout primary and secondary education, despite arguments against this "force-fed" teaching method. The influence of this learning style extends all the way to university education, where poorly prepared graduates struggle to cope with unexpected challenges." (: 7). The psychological need of Chinese students to follow this pedagogical approach is evident in their desire to reproduce lecture notes precisely in exams and often sit silently in class paying reverence to the instructor and not able to question both their own actions nor the arguments being made by the teacher (Chan, 1999; Martinsons & Martinsons, 1996).

The stage model offers an illustrative means of viewing the trajectory of China's economic and technological growth. Mahmood and Rufin's (2005) theory is congruent with the model and also further explains China's present economic and technological trajectory. In order to continue to be profitable and growth-oriented, it is argued that China's educational system must move toward *critical thinking* educational practices. Even though there may be many problems associated with that stance for the Chinese Communist government, this is necessary to continue on towards more profitable though higher risk innovations that underlie the economic growth of richer, knowledge-based economies. It can be shown theoretically that radical innovation is more profitable than incremental innovation (Sheremata, 2004). If China remains in the *imitation* and *incremental* innovation stage it will not be able to continue further its economic progress to become a major player in the knowledge economy rather than basing its economic power in labor intensive sectors.

## **Suggestions for Further Research: Examining the Model in China**

The model described here is mostly prescriptive and normative in nature. However, it is possible to empirically test the model. Furthermore, the prescriptions that emanate from this exploratory paper lead to the questions posed in the abstract. These empirical questions are: 1) how is the education system in China changing to meet the needs of industry?; and 2) are Chinese business and engineering graduates creative enough to compete in the global market of critical industries that rely on technological innovation?

If Liu's (2006) arguments are predictive, the higher educational institutions in China are slowly beginning to change-- but only slightly as per the recommendations stemming from the model and which are described in the next section. Still, China continues to develop higher education facilities. For example, with 36,000 students Sun Yat-Sen Universities in Guangzhou is growing at a rate similar to that of the economy with the opening of its East campus in 2004. Its official motto is based on Zhōngyōng: "Study extensively; Enquire accurately; Reflect carefully; Discriminate clearly; Practise earnestly" following from the Confucian canonical scripture 'The Doctrine of the Mean' (this info is from wikipedia.org- '[http://en.wikipedia.org/wiki/Sun\\_Yat-sen\\_University](http://en.wikipedia.org/wiki/Sun_Yat-sen_University)' and '[http://en.wikipedia.org/wiki/Doctrine\\_of\\_the\\_Mean](http://en.wikipedia.org/wiki/Doctrine_of_the_Mean)', accessed March 16, 2007). The lead author had the opportunity in 2005 to visit the East campus of Sun Yat-Sen Universities and witness the massive physical growth of the facilities there. China already has over 60 million people with a college degree or higher (Chen, 2006: 157) but does this vast number of graduates equate with the necessary skills of creative thinking that is argued to lead to

radical innovation and increased national competitiveness? A careful reading of the Zhōngyōng philosophy would suggest not.

A thorough survey of the teaching methods and use of creativity in the classroom is in order. Some existing research programs are aimed at just such an endeavor looking at creativity in the Asian classroom (e.g., Chan & Chan, 1999; Cheung et al. 2004). As mentioned earlier, some researchers have found that a tension exists in introducing creativity into the classroom between ‘desirable but uncreative’ (DBU) and ‘creative but undesirable’ (CBU) behaviors of students (Kwang & Smith, 2004). They also attempted to show a difference between cultural factors and creativity emphasis by comparing Australian and Singaporean students. In general, they found Asian classroom emphasized DBU behaviors and that this increased for more experienced teachers in what appeared to be a driving out of earlier more liberal attitudes of novice teachers. Similar studies are proposed that utilize match pair experiments in classroom across different cultures to explore the relationship between culture and creativity.

A major confounding aspect of the model is the multiple layers of analysis that it implies. At the individual level, the model suggests that students need to be nurtured in classroom environments where they grow from early stages of cognitive growth a la a Piaget-type theory of learning where children first learn to mimic their mentors toward a more mature, question style of ‘the disciplined mind’ (Gardner, 1999). However, here the model is extended to the national level, where individual creativity is channeled into industrial inventions and process and service innovations that increase productivity and profitability. The link between the levels is in the practice of innovation, which can be studied at any level. The point here is that while this model is multi-level and multi-perspective (as most innovation-based theories tend to be), any actual empirical study is likely to be at a specific, well-defined level of analysis. Otherwise, various confounding factors will make impossible the conclusions of any analysis. As such, it is recommended that the following areas be examined when approaching the implications of the model:

- The individual level of the cognitively growing person regarding the educational and innovation practices
- The classroom level involving both student and teacher attitudes and behaviors regarding the educational and innovation practices
- The industry level regarding the educational and innovation practices involved in technological and process/service related innovation
- The national level regarding the educational and innovation policies involved in technological and process/service related innovation

## **National Education and Innovation Policy Implications of the Analysis**

The prescriptions of the model lead to a number of policy implications. One such implication does not bode well for the Communist party in the sense that critical thinking may provoke unrest with the status quo. This also falls in line with Mahmood and Rufin’s (2005) theory in that it would suggest that as countries become more developed there may be a tendency towards democracy and liberal business practices with “political and economic freedom being necessary” (: 338).

The need for critical thinking and creativity in order to ascend the value chain towards design functions and proactive radical innovation may not sit well with the current Communist government of China. That is, it is argued here that in order to become more competitive in the higher value-added industries China will need to become more innovative internally than has been the case in the past. However, in order to do this it must meet head on the paradox existing in its traditional (and indeed current) educational policies and practices. Ultimately, the process depicted in Fig. 1 leads to the student becoming freed of the educational system in a personal sense. That is, life-long learning becomes necessary and at the same time questioning of all the dogmatic assertions of the educational establishment is necessary. (This is true in the West. In fact, it is interesting that the most successful Harvard students have often been their drop-outs. Bill Gates is the pinnacle example of this fact, but there are many others including the now successful Mark Zuckerberg of Facebook.com fame.) As such, successful and innovative entrepreneurs will always get to the point where they do not need specific educational institutions at the personal level.

This reasoning could be seen as the culmination of the pedagogy of the oppressed (Freire, 2000), which suggested that “Liberating education consists in acts of cognition, not transfers of information. It is a learning situation in which the cognizable object intermediates the cognitive actors-teacher on the one hand and students on the other... Through dialogue, the teacher-of-the-students and the student-of-the-teacher cease to exist and a new term emerges: teacher-student with students-teachers. The teacher is no longer merely the-one-who-teaches, but one who is himself taught in dialogue with the students, who in turn while being taught also teach. They become jointly responsible for a process in which all grow” (: 79-80). And as a review by Gail Kidd suggests: “The students are active learners, who internalize the problems and link them to existing experiences to reflect on. Through problem-posing education students are not only taught facts and information as in banking education, they learn along with the teacher how to “think”, to reflect on their lives, experiences, and the activities of others around them. They are no longer passive learners, nor are they passive in their community. They now know and are aware of their humanity, and their voice deserves to be heard.” (Kidd, 2001).

In China, Ng (2004) has already suggested one way out of the ‘the paradox of promoting creativity in the Asian classroom’ is to promote an egalitarian approach to education based on self-determination theory with the fulfillment of basic psychological needs of competence, relatedness and autonomy (Deci & Ryan, 2000).

However, this sense of praxis may not be reasonable to the Chinese communist government leading to the perpetuation of the paradoxes examined in this paper. In this case the paradox becomes a dilemma for the government: In order to continue growing ‘up the value chain’, educational practices must be revolutionized but in revolutionizing the education system towards critical thinking and creativity, the very stability of the Communist government may be negatively affected. Using the terms from Freire (2000), the oppressors will be freed by the oppressed through ‘liberating education’ or in the model where critical thinking is applied in the third stage of innovation. Unless, this process of education and innovation is allowed to grow, the stellar economic growth of late will eventually cease when global capital eventually move on to cheaper locations in the world (for example, to India or Malaysia).

Evidence suggests that China is increasing its liberalization of trade and business but it is still questionable how much power the Communist government is prepared to lose in China’s efforts to grow economically. The theory linking education, innovation and business activities suggests that economic development (as a country moves up the value chain towards innovative high technology and design industries) and individual rights are linked such that moving up the value chain also implies moving toward democratic policies. As mentioned earlier, this is in alignment with Mahmood and Rufin’s (2005) theory regarding the role of government during the development process. Thus, a major policy implication is the need to move toward more democratic rights in the People’s Republic of China.

Of course, this does not mean a major revolution, in any real sense of the word, is in order. The changes necessary for this appear to have already set sail in the country although progress needs to continue. In terms of specific policies from the theory, the analysis suggests that efforts toward changing Chinese educational practices should continue. Of course, such change is not easy- see a case example of the suicide of a Chinese University President in charge of reforming higher education in the 1990’s (Sun et al., 2003).

Furthermore, while Western models and theories have demonstrated validity in business settings in the West, merely transplanting these into the Chinese setting will do little to help Chinese managers and entrepreneurs manage in the future innovative setting. While collaborative, or liberating, learning leading to innovation is necessary, the process must be designed and developed for the unique Chinese environment (Liu, 2006). Simply providing Western textbooks and the perspectives of the Caucasian world will not work. New texts are needed that utilize the knowledge developed in the West but are written to be useful for those managing in the East, where cultural differences may negate the effectiveness of many managerial paradigms.

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## End Notes

1. Here it is meant creative entrepreneurial activity in the sense of creating something new and not entrepreneurial activity in the sense of merely opening and running a new business. This is akin to Schumpeter's (1951) notion of creative destruction, which he saw as a necessary stage in continual economic growth patterns.

# Innovation, Creativity and Commerce: The Case Of Traditional Art in Malaysia

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## Abstract

Arts has always been looked as a free commodity in Malaysia which has slowly resulted in the dying of the Malay traditional performing arts. Recently, the waves of commercialization have changed arts to become a commodity. The performing arts entrepreneurs mapped the audiences needs and wants and its supplies by providing a more receptive performances. Hence, traditional Malay performances has bloomed and received more attention from audiences. Performances are made more glamorous by employing popular artist (although they are not skillful in that particular art genre). Costumes have been changed to suit the current availability of textiles. The usage of traditional golden thread woven material is replaced by modern textiles. The use of thick colorful make-up techniques and innovation are practiced by the show make-up artist. The stage is excessively and elaborately decorated. Those innovation and creativity will be discussed in great length in this paper.

## Introduction

Malaysia is going through a modernization phase in the development of the country. Many Sectors are affected by this changing wave including arts. Performing arts especially Malay traditional and classical arts are the most affected form of arts in Malaysia. Modernization has brought destructive and constructive effects to the Malaysian traditional performing arts. Many forms of Malay traditional arts are now forgotten by the society due to some factors leading to the dying process of arts. The classical theater, *Makyong* has almost gone through the process of dying in the 80's and 90's which then urged the society in wanting to revive it. It was then revived by some arts activists and arts entrepreneurs to become an exclusive performing arts commodity to Malay society. Innovation and creativity are applied to the performances in order to adapt and capture the attention of the modern viewers. Similar predicament also happened to other forms of traditional dances in Malaysia. This critical situation is not only happening to the Malay traditional arts but also Chinese and Indian traditional performing arts, for instance, the traditional Chinese opera has been in the dark for so long.

On the other hand, arts activists who are able to witness and smell the problems of traditional arts have developed promising strategies so as to curb the problems from aggravating. The turn around arts activists cum arts entrepreneurs innovate all aspects of the show ranging from script writing to costumes, venues of shows and performers. They are willing to invest in product development so as to give a face-lift to the show.

New ways of promotion and advertisement are adopted. Tickets are not only sold at the show venue counters but using other easy access distribution channels such as bookstores, cinema, the ministry and CD shops. Technology has also come into place in ensuring the attractiveness of the performances to the viewers. Shows are recorded on CD and VCD to encourage sales of products. Advanced lighting and sound system are employed in the shows in order to make it more interesting and current. A more real and delicate prop setting were put in place so as to upgrade the quality of shows. Professionals are hired to design props and stage settings. In one occasion of a *Makyong* show, screen is used to show the setting of a scene of fisherman boating in the sea. These prop settings are expensive and they account for quite a big portion of the overall show budgets and it is sometimes only affordable by an established strong production company. Small companies will have to get sponsors mainly from the Ministry of Culture, Arts and Heritage to realize the dream of putting up a good show with professional prop settings.

Costumes are more extravagant, colorful and uses non-traditional textile fabrics such polyesters and Indian brocades. The design of costumes is more up-to-date, more varied and complicated depending on roles portrayed. The shoulder covers worn by dancers are not hand made any longer because it is available in costume shops at a very reasonable price. However, the quality and design have change and it is not really the old shoulder design

because it is imported from Indonesia or China. The lack of skills in making the elaborated design of shoulder covers has resulted in dance company to resort in buying ready-made shoulder covers.

Modern and professional make-up artists are also hired to enhance features of artists and players of the show. The make over is more fine and sophisticated using all kinds of cosmetics such as concealer, two-way foundation cake, eye shadows, eye-liner, lip-liner and mascara. The colours applied come in all shades, even vibrant colors such as green, peach and sea blue are used. Sometimes glitters and star dusts are also used to enhance the look of artists. In some shows, very faint and latest lip colors are used such as brown, light pink, burgundy and natural lip colors. Extension hairs and wigs are used in some scenes. Elaborate accessories are also created and innovated. Accessories such as head gears, flowers, necklaces, bangles and ear rings are sometimes exclusively designed and hand made by the owner of the production company. This situation is true to small production companies that have small production budgets. The constraint in getting grants or sponsors forces this production company to be more creative in producing their own accessories with small cost. For instance in one performance, the owner of a dance company (The Terengganu museum Group performing for Citrawarna Malaysia 2007) bought small artificial flowers from a RM2 shop and uses it to produce floral design clip ear rings. For Seri Temenggung Group, they produce their own brocade bangles by sewing beads and sequins on a small piece of left over brocade materials. The same method was applied in making woman's belt which used to be of copper materials. Music and songs and dialogues are also adapted and innovated based on the current interest of viewers. Slapstick comedy dialogues use current issues to attract viewers to watch the shows. Topics covered can range from internet issues, globalization, digitalization, borderless world, economic issues to war and many more. Even Mc Donald's issues are brought in as comedy dialogues in a show. Songs such as latest Hindi songs depicted from films are used in comedy dialogues. Similar cases happen to music whereby to attract the attention of viewers from boredom, latest numbers such Hindi music or even rock music are adapted into the Makyong performances. Although it sounds rather strange, but the attention of viewers is seen as detrimental in making a show more successful and attractive. Surely, the old viewers would find it less original, interesting and lack of aesthetical values, but that is what the current viewers prefer. To them aesthetical values come secondary and what they are worried most is the profitability of the show. This research investigates the elements in the Makyong product that have been innovated creatively. The discussion of this paper is centered towards the aspects of innovation in traditional performing arts. Those aspects that are considered as being innovative are costumes, stage props, make-ups, ticket distribution, promotion, dialogues, the players and the management of the show will be discussed in great length in this paper. However this paper has some limitations namely the context of the discussion are only based on Makyong performances by the Sri Temenggung Group and The Istana Budaya group. Only one show is referred in evaluating the Istana Budaya group. Entrepreneurs in this paper are limited to the performing arts entrepreneurs which are at same time the performers themselves. Another limitation is the different in the time zone of the show - the istana budaya show is very recent whereby the Seri Temenggung Group shows are performed in the late nineties. Makyong is also a dying form of traditional performing arts which is rarely showcased in Malaysia.

## **Problem Statement**

Performing traditional arts have always been regarded as a free service and less dynamic in terms of growth. The connotation of arts as commercial products has always received stern feedback from arts activists. However, with the introduction of commercialization process, traditional performing arts have now been viewed as a commercial commodity. Arts entrepreneurs have changed the face of arts to becoming more innovated and creative while maintaining the traditional aesthetical values. The extent of innovation and creativity is still unclear and needs to be investigated. This research investigates those elements innovated and created by arts groups actively involved in performing the Makyong (The traditional Malay theater production similar to Kabuki in Japan)

## Literature Review

In Malaysia, it is obvious that the commercialization process of Malay performing arts is directly related to the development of the tourism industry. Recently, the dying Malay performing arts has been awakened by the growth of the tourism industry in Malaysia. Many types of traditional and classical Malay performing arts are being innovated in line with the growing demands from tourists. Farok Zakaria (2002) mentions that the traditional Makyong dance (a form of Malay court dance) group has innovated the structure of performances by dropping some scenes considered unnecessary. Costumes have also been innovated by using modern textiles such as polyester and velvet. This action has led to the dying of the real structure of Malay dance. Ghulam (1986) reports that the classical Makyong dance has been shortened to only one hour due to time constraint. The Malay dance is now blended with Indian and Chinese dance elements. Nefi Imran (2003) mentions that the emergence of the *potpourri dance* (Term used to describe the combination of Malay, Chinese and Indian dance elements into one Malaysian short dance) is due to the booming of tourism. Zulkifli Mohamad (2005) on the other hand, extends his view by saying that the tourism motto "Malaysia Truly Asia", promoted by the Ministry of Tourism has resulted in the formation of a multiracial Malaysian dance. He also points out that tourists regard Malaysia as a one-stop place to see three cultures (Malay, Chinese and Indian) merging together. The current Deputy Prime Minister of Malaysia who was then the Minister of Education, Najib Razak (1997) also suggests that Malay music and theater should be commercialized to ensure their survival.

The development of the tourism industry has given a huge impact to the survival of Malay performing arts in some southern and central states of Malaysia. In Johor (southern state of Malaysia), the performance of *Zapin* (the local southern Malay traditional dance that combines Malay and Arab elements) has been cultivated and commercialized to the extent that it becomes part of the society's daily activities. The state government of Johor through its agency Johor Heritage Foundation is responsible in commercializing the dance.

Oka Yoety (1985) mentions commercialization of arts performances refers to the promoting of traditional arts as a commodity to tourists in its original forms and structures. She says that in Indonesia, the Bali dances such as the *Kechak*, *Barongan* and other religious rituals are commercialized.

The opinion is supported by Parani J.L (1997) in her working paper in which she agrees that traditional performances have become part and parcel of the promotional activities to attract tourists to Indonesia. He also explains that performing arts have become a commodity and industry to develop tourism sector in Indonesia. Similar opinion is also maintained by Cahyono M.D (1997) who supports that the ancient Bali dance is considered as an economic commodity for the purpose of enhancing tourism sector in Bali. Millado (1997) confirms the above opinions through her research findings. She finds out that there are a spectrum of performing arts in the South East Asian countries such as Thailand, Myanmar, Cambodia and Indonesia which are commercialized and exported to other countries. Rahmah Bujang (1998) states that the Cambodian court dance was revived after the war with some modification and innovation.

However Keong W.C (1994) in his research on marketing strategy of Substation theatre in Singapore finds out that a sound marketing strategy formulated by the arts entrepreneurs will be able to turn audiences to be keen patrons for theater performances in Singapore.

- S.C. Seth and Padma Seth (1978) further explain the impacts of commercialization to arts such as the growth of arts, level of commercialization, quality and creativity management. They agree that proper management practices will determine the success of commercialization. Milene Salvini (1971) describes that the Kebyar dance originated from southern Bali (was popularized by a well-known Bali choreographer Mario) have been adopted into modern dances and the old form is totally diminished. Zaiton Nasir (1991) mentions that the Makyong has the potential to grow by transforming it into a new innovated and modern performance.



## Objectives of the Research

In general, the objective of this research is to find the aspects of the traditional theater production, the Mak yong, that has been creatively innovated by arts players turned arts entrepreneurs. Specifically, the objectives of this research are as follows:

- i. To investigate the innovated elements of costumes, stage props, make-up and dialogues of the Mak yong show produced by arts entrepreneurs.
- ii. To investigate the ticket distribution and management styles of Makyong performances by arts entrepreneurs.
- iii. To compare the innovated elements and the old way of performing Makyong.
- iv. To give suggestions on how to improve the Makyong production while sustaining the old aesthetical values.

## Scope of the Research

This research is only confined to Makyong performances by the Seri Temenggung Group and Istana Budaya group. Makyong in this research is referred to as an arts product or commodity. The referred performances by the Seri Temenggung Group are the “Raja Bongsu Sakti” (literally translated as The Magical Young King”) performed in 1997 at the then Experimental theater, National Cultural Complex (currently the premise for the Arts and Heritage Academy owned by the Ministry Of Culture, Arts and Heritage) and Kejujuran (“Sincerity”) performed in 1998 at the Kuala Lumpur City Hall. The “Dewa Indera, Indera Dewa” (The king Indera Dewa and Dewa Indera) a Makyong show by the Istana Budaya in 2006 is also one of the references for this research.

This research limits the scope to only creativity and innovations of Makyong performance elements related to costumes, stage props, make-up and dialogues. The management styles and ticket distribution are also highlighted with in this research.

## Sampling

To obtain data for the research, the samples chosen are two performances by the Seri Temenggung group and one performance by the Istana Budaya cultural group. The productions of Seri Temenggung Group that were analyzed and scrutinized are as follows:

- a. The “Raja Bongsu Sakti” Makyong performance
- b. The “Kejujuran” Makyong performance

The researcher selects these two shows because the researcher was involved directly in the show as the make-up artist, hence enabling the researcher to obtain direct information pertaining to the show as well as being able to analyze the data critically and holistically.

On the other hand, the production of the Istana Budaya group is “Indera Dewa, Dewa Indera” show. This show is chosen because the researcher attended the whole show personally, therefore enabling the researcher to obtain first hand information and data on the show. Wide publicity given by the press and media to this show is also another reason for the researcher to select this performance as one of the samples. It also allows the researcher to have access on the opinion of other writers especially media reporters on the show.

## Methodology

Based on the viewing of the shows, the researcher investigated those innovative and creative elements of the show that differ from the old forms of the show. The old forms of the show are considered as the benchmarking point for innovation and creativity in all the elements of the selected shows mentioned earlier in section 3.0. The data were then jotted down and listed in brief. They were then transferred to a table that simplifies the findings. Descriptions of the innovation and creativity done were then elaborated in the findings. Observations based on the experience of

researching while watching the show and working with the group were the main techniques used in gathering data for this research. Secondary data obtained from pamphlets and reports in the magazine or newspapers on the show are also used. This information is essential in supporting the findings of the research. Their opinionated views are also a basis for the reliability of the finding of this research.

Another technique used to support the finding is the informal conversation held with the owner of the company on certain matters pertaining to the show. Indirect response given to the researcher during conversation is beneficial to confirm the findings of the research.

Although this is a raw qualitative approach method of analyzing data obtained from watching a show, it can become a substantial source of information for the arts entrepreneurs to adopt and ensure the growth of their arts endeavors. The source of information obtain for this research is real and original, hence increasing the reliability of the findings.

## **Findings**

### **Costumes**

In the performance of Seri Temenggung, the costumes has been innovated by the use of modern textiles such polyester, satin, velvet and brocade. Costumes designed in the production of Raja Bongsu Sakti are sexier with the use of a Spaghetti string kind of top wear which resembles modern tube top. Whereas in the production of Kejujuran the textile used to make costumes are of brocade, satin and velvet material. The costume in this show is more decent and less exposing of the top part of the body. Costumes are also designed according to the characters in the play for example for a character of monkey, the costume is of black and white color. In kejujuran most of the costumes are highly influenced by the Siamese culture (Thai) culture such as short dresses with hard shoulder sleeves jutting out. The use of accessories for both shows is made by the owner of the company using cardboard, beads, sequine and velvet. For instance, the head gear are specially innovated by the owner using just the hard card board material covered with velvet and sequine. The bracelet is also made of velvet and sequins. The necklace for the main player is also hand made using velvet with hanging beads and sequins. For the belt, this group bought ready made costume copper belt from Indonesia.

For the Istana Budaya production, the group has larger capital to spend on costume and accessories since it is a government established group. The funding comes from the Ministry Of Culture, Arts and Tourism. However, accessories such as the head gears and the breast top net covering costume for the main player are hand made ordered from commercial arts costume makers specialist. The head gears used are more elaborated and bigger compared to the one worn by Seri Temenggung players. The types of textiles used for making the costume are of traditional material- the high quality hand made woven cloth called the *tenun* and the hand made gold thread woven cloth, the *songket*. However velvet material is still used in some cases such as to make dress for the side players. Other accessories such as hand bracelet, beaded top breast cover and belt are hand made and ordered from the arts costume maker. Modern and abstract costumes are also used to show the virtual world of ghost and other related characters. The comparison between the groups and the traditional group are in table 1.0.

TABLE 1: COSTUME AND ACCESORIES

Items	Seri Temenggung Group	Istana Budaya Group	Traditional Group
Textiles used	Velvet, Indian Brocade, polyester, synthetic satin and minimal use of traditional material	Velvet, traditional hand woven textiles (tenun and songket)	Traditional material – full songket and tenun, sometimes batik were used
Costumes	Spaghetti string and tube top- sexy bare top covered with beaded net, resembling the Siamese costumes	Less sexy with small tight top dress with beaded net	Covered top with top beaded net
Accessories	Hand made with velvet, beads and sequines.	Hand made with velvet, beads and sequines but more elaborated in design. Ordered from the art costume maker specialist. Modern costumes were also used to show certain characters.	hand made with velvet, beads and sequines

**Stage Props**

For the Seri Temenggung group, the stage props are innovated by the prop and stage set professional hired. In the play of Kejujuran, the head of a bird is carved on Polystyrene to exhibit the traditional form of ship ridden by the king. To make it more realistic, the sound of bird and sea breeze are played to show the movement of ship in the sea. The stage and lighting of the stage are change from time to time to depict various scenes of the show. Dark lighting with a cave Polystyrene decoration shows the scene played. Lightning in the form of fire light and sound are used to realize certain scenes. Sometimes multimedia are used by projecting real scene on the white screen place on the stage to give a more realistic effect to the stage present.

The Mak Yong performance by the Istana Budaya group experienced similar prop settings where light and sound are given priority in making the stage lively. Lighting is not only used to set a mood in the theater but also to exhibit some drawings on the stage floor. Images from the computer are also used to enhance the stage condition. Sounds are also used extensively and excessively throughout the show. Sometimes, the mood of the scenes depends solely on the sound, music and lighting of the stage. Elaborated design of props is barely used in some cases. Therefore, having adequate professional technical stage staff is detrimental in ensuring the success of a show.

TABLE 2: STAGE PROPS

Items	Seri Temenggung Group	Istana Budaya Group	Traditional Group
Hire professionals	Part time only for the show	Full time workers	No professional- the owner does it all
Use light and sound	Use light and sound moderately	Extensive and excessive use of light and sound	Minimal use of modern light and sound
Stage	Moderately modern and sophisticated	The best stage in Malaysia- modern and sophisticated with computers facilities	A very simple and small traditional stage- perhaps 10 ft. by 15 ft.
Use of props	Use heavy props setting- sometimes combining real props and multimedia	Sophisticated and modern props setting	Use real props such as real trees and leaves but very minimal.

**Make-up**

The make over of the players are done more professionally by qualified stage make up artist. The group Seri Temenggung normally hires regular make up artist that are less competent because of the budget constraints faced by the company. However the make over are basically done in a modern way. The players are heavily applied with make-up using modern cosmetic kit and gadget such as concealer, two-way foundation cake, vibrant eye colors, lip-liner and mascara. False eye-lashes are also used to enhance the beauty of the players. Vibrant eye shadow colors are used such as green, gold, peach, sea blue, turquoise and purple. Lipstick colors such as fuchsia, brown and natural colors are used in their performances. Those eye and lip colors are previously considered as taboo by traditional performers for some unknown reason. Current arts entrepreneurs are bolder to try new ways of enhancing the beauty of players. The types of make up also vary according to types of roles and characters. In the production of Kejujuran, the make over for the role of monkeys are exactly like monkeys using black and white colors. Mask is also used to enhance the feature of certain characters. Sometimes, the make up for comedian resembles the Ronald Mc Donald statue which receives flaming critics and disapproval from arts activists, especially traditional arts activists. To them, such make-up should not be adopted in traditional performances because it eliminates the aesthetical values of the show.

Normally the Istana Budaya group has their own resident professional make-up artists who are hired as full time workers. The trends of make- up are similar to those in Seri Temenggung mentioned in previous paragraphs. Vibrant colours and latest make-up trends are employed in making over the players. Thick false eye-lashes are applied to enhance the look of the players. In fact, in some scenes, gold and silver dust as well as highlighter is applied together with the eye shadow to make the eyes look more attractive. Both group used extended hair or wig if necessary to outstand the appearance of players. Table 3.0 shows the differences and similarities of those groups vis-a-vis the traditional performance

TABLE 3: MAKE-UP

Items	Seri Temenggung Group	Istana Budaya Group	Traditional Group
Make-up style	Modern and trendy	Modern and trendy	Very conventional, old fashion and minimal application of make-up, more natural beauty
Uses of eye colours	Vibrant, trendy and bright colours.	Vibrant, trendy and bright colours. Sometimes, uses gold and silver dust for eye shadow highlights.	Natural colours such as brown were used.
Uses of lip colours	Vibrant and trendy colours.	Vibrant and trendy colours.	Only red or maroon colour.
Uses of false eye lashes	Used occasionally	It's a must have item for all shows	Do not used.
Uses of wig and extended hair	Used occasionally	Used when necessary	Do not used.

### Dialogues

For both groups, their dialogues used in their performances are almost the same. Their performances still use the Kelantanese dialects as a main medium of dialogues. However in some parts of the show especially the comedian, terms related to current issues are used in their dialogue such as multimedia super corridor, internet, Y2K, inflation, global, borderless world and others. The usage of bombastic foreign words in Makyong performance are considered as taboo to the traditional players for reason such as altering the aesthetical values of the performances, out of contexts and so on.

However amidst the advancing in theater technology, the translation of the dialogues can be done automatically and heard by the audiences using the ear-phones available in modern theatre setting.

Sometimes, foreign words such as English, Japanese and Hindi are introduced into the performances especially during comedy scene. Expression such as yes, no, sir, *arigatou*, *wakarimasu*, *nahi*, *chuprahu* are used in comedy to attract the attention of audience as well making it more interesting and lively.

Dialogues can sometimes be very harsh and impolite. The use of this kind of expression are sometimes considered as instant comedy in the performance. Table 4.0 explained the use of dialogues in modern Makyong and traditional Makyong.

TABLE 4: DIALOGUES

Items	Seri Temenggung Group	Istana Budaya Group	Traditional group
Main language and dialect used	Modern Malay – Kelantan dialect	Modern Malay – Kelantan dialect	Classical Malay Kelantan Dialect
Uses of other languages	Used almost in all shows	-Used almost in all shows	Do not used
Harsh words and expression	Used occasionally in comedy scenes	Used occasionally in comedy scenes	Do not used
Trendy expression and	Used almost in all	Used almost in all	Do not used

bombastic terminology	shows	shows	
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**Promotion And Ticket Distribution**

The Mak Yong performances held by the Seri Temenggung group normally are promoted through the Ministry Of Culture Arts and Heritage. Promotion for the show of Kejujuran and Raja Bongsu Sakti are also done at strategic tourist locations around Kuala Lumpur city such as the Central Market and Kuala Lumpur Tower. A small space is given and a short dance and acting are displayed for the purpose of introducing and promoting the show to the visitors of these places. Apart from the Ministry, the company uses their players to promote the show through the word of mouth. Similarly the distribution of tickets is done according to the promotion activities. Tickets are sold directly to the consumer during the promotion activities. This group does not use the internet to sell tickets. However tickets can be purchased before the show time at the theater ticket counter. Pre-booking of tickets through telephone is not permissible. Publicity from the newspaper, radio and other media are also widely used. Other ways of selling tickets such as through book stores are not employed.

Since The Istana Budaya Group is under the administration of the ministry, it is clear that promotion of their show is mainly done by the Ministry Of Culture, Arts and Heritage. Their show will be promoted through the web site of the ministry and Istana Budaya. They also publicized their show through national newspapers and electronic media. They seldom do site promotion as done by The seri Temenggung group. In distributing tickets, the conventional way of selling is employed such as selling at the theater ticket booth before show time and through authorized agents such as book stores. They have not employed the method of purchasing ticket through the internet. Basically, the method of selling tickets and promotion between these two groups are almost the same. Table 5.0 summarizes the similarities and differences.

TABLE 5: PROMOTION AND TICKETS DISTRIBUTION

Items	The Seri Temenggung Group	The Istana Budaya Group	Traditional Group
Promotion methods	Face to face, Word of mouth, through the ministry, site promotion, publicity in newspaper and television.	Face to face, Word of mouth, through the ministry, publicity in newspaper and television and through web site in the internet.	Face to face and words of mouth.
Ticket distribution methods	Tickets are distributed through conventional method such as theater ticket counters, through players and during site promotion activities	Tickets are distributed through conventional method such as theater ticket counters, the ministry, and also through authorized agents such as book stores.	Tickets are solely obtained at the theater ticket counter and players.

**The Player**

The Seri Temenggung group normally hires family members as their players. However, the group being aware of the current trend in the Malaysian theater industry whereby popular artists are hired to add more value to the show, they have opted to follow the trend. This group hires popular artists such as Anne Hamid, Raja Azura and Zizie Zulkifli as leading roles to attract audience to watch the Kejujuran show. The leading roles are all performed by females. The Istana Budaya group has permanent dancers, musician and personnel as players. They are given monthly salary according to the government remuneration scheme. Popular artists are yet to be hired in their Mak Yong performances. However in the show of Dewa Indera, Indera Dewa performed in 2006, the leading roles is given to a male player. This act of changing the conventional approach of having a female player as the leading role to a male

player is considered a brave attempt by the istana budaya group and had received comments from the audience and arts activists. One of the arts activist known as Dinsman (2006) quoted in his writing that the act has modernized the Makyong performance from the original version. This paradigm shift is done not only to the main player but the musician who normally are seated together with the dancers and players on the stage were located outside the stage area. This act is to segregate the musicians, dancers, actors and actresses as different groups of entity in the show. The use of promotional act before the normal singing facing the rehab is also a new innovated creative act. The use of male leading player, segregating the musician and the initial start of the show with promotion act are a new approach introduced by the Istana Budaya group.

TABLE 6: PLAYERS

Items	The Seri Temenggung Group	The Istana Budaya Group	The Traditional Group
Main players	All female	Male and female	All female
Hiring of popular artist to act as leading roles	Hires popular artist	Involved only permanent staff	No popular artist involved
Position of Musicians	Together with other players on the stage	Segregated from other players and were not visible on stage	Together with other players on the stage

### Management

The management of the Seri Temenggung group consists of family members. Its unique features of having family members as the bigger portion of the group members are perhaps a common phenomenon in the traditional theatre settings in Asia. The management style of this company is very loose, less systematic and disorganized. Perhaps the involvement of family members has contributed to this unprofessional management style. The management of the Istana Budaya follows the government style where the hierarchy of direction comes from the top bosses. The top management then listened to the voice of their subordinates from the feedback given. Incentive given is in the form of salary increment or position upgrading. However, in both groups professional members are also used if necessary.

TABLE 7.0: GENERAL MANAGEMENT

Items	The Seri Temenggung Group	The Istana Budaya Group	The traditional Group
Management members	Family members and professionals	Government officials and professionals	Family members
Management style	Unprofessional, loose. Less systematic and disorganized	Systematic and organized	No proper management- very loose and free

### Conclusion

From the above findings, the researcher found that processes of innovation and creativity in arts productions have started with effort initiated by owners of the production house themselves. An enterprising owner will be willing to do all kinds of changes such as creating something new that will be of attraction to viewers. Even if the group is owned by the government, innovation and creativity will happen if leaders or managers or administrators have creative mind sets.

Innovation and creativity implemented by arts entrepreneurs through their products and marketing strategies. Areas that are more viable for innovation are costumes, props, dialogues and scripts, promotional activities and ticket sales.

Many aspects of arts production can be continually innovated and created such as the play, the players and the packaging of the play. The packaging of the play includes elements such as make-ups, costumes, stage props, music and many more. Although the traditional aesthetical values must be kept by arts entrepreneurs, nevertheless the commercialization process must take place so as to enhance the development of traditional performing arts in Malaysia. The stigma of many arts performers of not wanting to commercialize arts must be seen by the government as a threat. By keeping traditional arts in its old form without innovative attempts is just a waste of resources and will not be productive to the development of arts industry in Malaysia. In fact, arts can be developed as a commercial product as well as be kept as a valuable cultural heritage for the younger generation to appreciate.

Arts entrepreneurs on the other hand must be able to take the challenge by developing performing arts as a commercial product by using their own resources as well as meeting the needs and wants of the current audience. Producing a show which is in line with the current audience needs will definitely bring the crowd to the show although it is an old traditional product. By formulating innovative product strategies such as sophisticated costumes, stage props, new themes of scripts and venues, the arts entrepreneurs will change the current situation of the industry in Malaysia.

It is suggested that The Ministry of Culture, Arts and Heritage to form a unit or division that looks into the commercialization of traditional performing arts so as to develop the traditional arts industry in Malaysia. Currently, such department is still not available in the ministry. Rules and regulations pertaining to commercialization of arts must be outlined in order to conserve and preserve the aesthetical values of traditional arts. However in Malaysia, being innovative is not just all, but to sustain the traditional aesthetical values is also essential in ensuring the survival of traditional arts. Enhancing innovation in traditional arts is limitless but maintaining the old form of arts is an obligation that must be committed by all arts entrepreneurs.

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## **Analysis of the Relational Capital Devaluation Risks within the Organization**

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### **Abstract**

**The highly complex environmental conditions and hyper-competitiveness of the markets have created the need to review government action, in the sense that the latter has to be more careful in evaluating the risks which influence the integrity of the relational capital of the organization. In this context, there is a need to review the traditional DSS, in order to make them more appropriate for the global hyper-competitiveness which influences the competitive dynamics of the organization.**

### **Introductory Statement**

Organizations are constantly being faced with the problems created by the great complexity of the environment due to the wider variety and variability of the phenomena, notwithstanding the high competition that characterizes many markets, above all due to the drastic changes brought about by globalisation.

The management of the organization has to be more careful with the administration of the internal and external relationship systems as well as protecting its relational capital, which is the presupposition of its viability [1] and survival [2].

For this reason, it is important to adequately and constantly analyze the risk conditions of the organization, in other words not survival. In particular, it is important to focus on implications of a bad administration and relational system that may have on it. It is, therefore, necessary to use new support instruments to sustain choices, in order to evaluate a priori the variations in terms of major and minor systemic agreement, and also that well chosen strategies capable of determining the relation among the interlocutors of the organization, with particular emphasis on those considered to be the most relevant by the Governing Body of the Organization (GBO).

There is the *decision support system* model (DSS) which comes from the first results of the SIVI [3] research project. It is a support system for the choices not aimed at finding an optimal choice, but at increasing the consonance [4] between the organization and its principal interlocutors, who are influenced by the choice.

### **Organization Government in a “Relational Based” Perspective**

In the theoretical approach that considers organizations as vital systems, the role played by the Governing Body is particularly relevant [5], which, in order to be considered and recognized, has to be able to guide the organization system, so that it undertakes and goes through virtuous evaluative trajectories, which lead to developing its own viability and, in the end, increase their probability of survival.

However, it is worth taking into consideration what is currently intended today for the ability to guide by the Governing Body. There is no doubt that management action does not correspond, as it did in the past, to a hypothetical directional activity which includes strategically decisional choices, which would correspond to a complete and natural interface, to a merely executive activity, which belongs to corporate structure. The GBO is not the creator of the evolutionary dynamic of the organizational system, which is not capable of managing due to the dynamics having only a relational content and nature. It involves, in a more or less collaborative way, a plurality of subjects and interlocutors, who are either internal or external to the system.

Therefore, the GBO appears to be more of a facilitator rather than a driver. It is a facilitator of relational dynamics, which tries to lead and guide using only communicative levers, therefore activating a continuous dialogue

and constructive confront with the other actors of the dynamics. If only this use turns out to be efficient, the good functioning of the relational dynamic exalts the entire systemic self-regulation ability (Von Bertalanffy, 1968).

Even though, the GBO is not the only actor of the organization's destiny, it is the main character. This role gives it the responsibility of business successes and failures [6], and therefore to its own survival.

As far as the role of the GBO as a facilitator of systemic agreement conditions is concerned, today it appears to be more complicated due to several evolutionary changes affecting the inter and intra-systemic relational conditions of the organization. Further reflections will be discussed later.

In first place, the GBO confronts with an operative structure of the organization [7] which appears to be more and more vital, because it is characterized by self-determination processes and self-regulation or self-organization. This is due to the important attributions of directional powers as well as checking to organizational units. Furthermore, from the drive to create a high degree of internal business [8], it is vital to characterize current entrepreneurial decisional models [9]. The self-regulation contributes to improving the conditions of agreement between the organization and its systemic interlocutors [10]. In fact, where it notices an individual capability and organizational units to create relationships and interactions defined by them, without GBO planned intervention, there is a self-organization phenomenon (Golinelli, 2005). Even in this case the GBO has to give necessary stimulus in order to create these processes, which have to be well administrated and due to the role of self-organization, pressures may create centrifuge driving, leading to an internal complexity which may affect the probability of survival of the system [11].

In second place, the major projection towards the external of the organization leads to a revision of the concept of the environment. It is possible to use as a reference a hierarchy of systems based on a sociological perspective (Parson, 1965). From this perspective, the systems objectively analyzed appear to be inserted into each other, as increasing hierarchical levels. The elementary level taken into account is that of the individual. The second level, useful for the goal of this paper, is that of the represented organization in a sociological perspective as a mixture of interacting people.

So far the organization appears to be immersed in its relational context (or specific environment), where it actives and creates relations (of economic and social nature) with other organizations, suppliers, people, as well as public institutions, corporations, associations and so on and so forth.

Instead, the generic environment constitutes a background that goes further than the specific relational context of the environment. Macro-economical, but also political, cultural, technological phenomena are displayed in it. They influence the organization and its ability of being viable [12].

The main difference between the environmental phenomenon and context relations is that an organization may not influence or interfere with the first, while it has to give particular importance in cultivating relations. It is a matter of events, displayed in the generic environment, to which the organization undergoes although not passively. In order to avoid being totally influenced by choices, the organization has to monitor the environment to prevent and anticipate the effects. Basically, towards the generic environment, the organization does nothing more than adjust its behaviour, in order to avoid prefigured menaces and have chances of picking the emerging opportunities, anticipating the other competitors.

## **Analysis of the Organization Risk between the Generic and Specific Environment**

The etymology of the term "risk" tells us that it means a negative potential effect over human expectation which is caused by the manifestation of different phenomenon in a present or future state [13]. Therefore, it is connected to the idea of an unpredictability of future events which can create obstacles towards the pursuit of a specific goal. Having said this, where management identifies a number of goals finalized to increasing viability of the organizational system, the possibility of reaching such goals could be threaten by the creation of environmental events which can determine a total or partial failure.

Risk genesis has always been connected with human survival (the risk of not being able to survive). A good example might be found in the results of studies which focused on how the first humanoids adapted their way of living according to a careful evaluation of the risks which characterized the environment where they lived. While

being, at the same time, predator and prey generated a need for a rationalization concerning different behavioural choices, for instance, the supplying of food or the search for safe place to live. All of that required an environmental “study” on one hand, while on the other, a “study” of the behaviour of predators. In this context, by attempting to reduce the environmental risks, man demonstrated sensitivity towards the use of rational and cooperative drivers.

Maynard Smith and Price (1973) used computers to show simple theoretical models of simulated play and highlighted how conflicts among animals of the same species always develop in a form of “limited” conflicts (anticipating the usage of useless weapons or merely ritual confronts). By using play theory in order to discuss in a convincing way, the modality of controlled conflicts and their effects on the dynamics of animal population, (how they learn better strategy useful for the entire population), the authors claimed that strategies of limited war are always rational and evolutionary fixed, collaborative but not marked by conflicts [14].

The argument so far discussed leads to another similitude that gives us the opportunity to confront primitive man’s (whose goal was directed toward his attempt to survive in a specific environment) survival strategy with that of today’s minor organizations (whose goal is to survive in the market in which it operates). Considering the latter uses organizational aggregates in case of a lack of technological know how that can guarantee a viable support to the system, the former (the primitive man), who could not use technological tools to help his survival, was able to survive thanks to a synergetic aggregation [15] with individuals like him, in other words preferring a collaborative strategy instead of a conflictual one (limited conflicts).

Therefore, human evolution has always been influenced by knowledge of the environment, which came from a study and observation of the same environment. It is evident that in the decisional phase, knowledge of the environment may be considered as a driver for a fundamental human need: reduction of events which may threaten human survival. In the case of the humanoids, the knowledge of his predators’ habits and the consequent comparison between animal behaviour and his behaviour reduced the risk of not survival greatly, allowing an easier development of mankind [16].

Empiric evidence obtained from different archaeological studies highlights different elements which lead to a unique conclusion: if it is true that the humanoid used any means necessary to get resources useful to survive, and if it is true that in his absence the female had thought a form of aggregation to exchange wares (the first markets), as a tool to get more food (increasing of survival probability), it is evident that a primitive concept of economical risk has to be associated to woman.

Along with the evolution of the human species, the concept of economic activity developed too, due to the invention of money, which established a unit of measure capable to level goods, although they were of a different nature. At the same time, there was the creation of the very first commercial businesses, in which a suitable availability of precious metal has been, as today is, synonym of survival. Consequently, the risk of not being able to survive of the former business activities drove those new commercial businesses to create a first form of competition which goal, like it is today was the continuous acquisition of environmental resources in order to create damages other competitors. This point of view appears to be connected with the assumption of the well-known Theory of Independence from External Resources [17]. In this theory, the resources have two constraints strictly interconnected to each other:

- Fewer resources that are available, more expensive is their cost because they are limited;
- Resources are sought-after among different subjects because they are limited.

In this context, money assumes a dichotomy connotation: on the one hand, it can be considered as the only measure for the sale of goods and/or services, while on the other, it can be a unit of measure for the viability of the organization. In the same way, economical activities developed in a symmetric way with the evolution of human kind, also the concept of organization risk developed, assuming a specific nature which is more and more subjective.

In order to realize a better understanding of organization dynamics and their management, economists used concepts and theoretical models of other subjects (biology, cognitive psychology, physics etc...). It derived that even the concept of risk, which is connected to both the existence of the organization and its management was and still is a multidisciplinary object of study.

These studies have highlighted the increasing difficulty in checking the environment in which the organization operates, and consequently the risks which come from it [18]; In fact, the risk can be seen as a

condition for the life of the organization, or better its physiological aspect that can be complementary with the concept of maximization [19]. The most recent organization theory and the Viable Systemic Approach [20] give particular attention to an intangible factor the organization has: relational capital. It is a stock of reliance, fidelity, and loyalty that has to be accumulated by the organization in order to increase its own ability and values on the markets over time

What has been discussed so far, gives some important considerations on the analysis of the risk in the corporate context, as described in the following table:

TABLE 1: RISKS OF THE ORGANIZATION BETWEEN THE GENERAL AND SPECIFIC ENVIRONMENT

	<b>General Environment</b>	<b>Specific Environment</b>
<b>Unpredictability</b>	No Knowledge Risk	No Agreement Risk
<b>Predictability</b>	Aleatory Risk	No Ethic Risk

The risks traditionally considered are related to the “General Environment” and may be identified as two different types: *aleatory risks* and *no knowledge risks*. The former take place thanks to a phenomenon which has an objective nature, and to which the organization does not have any possibility of intervening in order to avoid negative effects, even though it is able to find out what the causes are that generate such phenomenon. It also establishes when they take place and what consequences may derive from them. The latter may be addressed to unknown events or events which the organization does not take into account. This happens because the organization is not able to find out the probability that such events may take place, with it also underestimating the influence of such events on environmental performance.

The extension of the analysis model including the risks takes into account a further two categories which belong to the “specific environment” of the organization, in other words to its relational context. In this case, the presence of a harmful event is connected to a lack of relational tuning with some stakeholders of the organization. It derives from an unconscious incompatibility/incomprehension (no agreement risk) or from a conscious incorrect behaviour (no ethic risk) of one or both interlocutors (organization and its interlocutors). It emerges that while typologies of traditionally considered risk are connected to the lack of environmental information, the specific environment risks derive from specific relationships which the organization establishes with different stakeholders. Therefore, no resonance risks derive from the incapability of establishing an efficient and profitable dialogue, from a partial or reciprocal incomprehension of the respective need, or from the involved stockholder’s choice to not agree with the expectations that the organization projects in that specific relation. The result is that the bi-unique condition of interest and utility may not take place. This condition represents the only position of balance on which a path of development could be built. However, no agreement risks might be also due to a “lack of competition” within the organization, or rather deriving from the incapability of satisfy the same needs and the same demands of the resource owner better than any other competitors would be able to do, with the consequent potential possibility of losing the resource. Therefore, it is clear that due to the nature of the aforementioned mistakes, these risks may be seen as not exactly predictable. If it was possible to be predicted them, the organization would not run into them.

On the contrary, the no ethics risk refers to incorrect behaviours created consciously by the organization in confront to the stakeholders to which it works with. These no ethic risks are also results of collusive agreements between the organization and its interlocutors, and they penalize a third party not included in the relationship but somehow involved due to the effect produced by it.

Different from traditional risks, specific environment risks are connected to negative circumstances that influence the relationship, deriving from the setting and attention of the relation. Therefore, in the general environment, the risk is connected to the difficulty for the acquisition of necessary information – in absolute

rationality conditions –, to the location of the “one best way”, in other words the only solution that optimizes performances; Also, in the general environment, the risk is connected to the evaluation of different choices which are submitted to the limited rationality tie [21], and among them we localize the one which fits best. On the contrary, in the specific environment, the risk created from a bad relational administration, in other words the impossibility or incapability of creating a constructive dialogue.

In the effort of giving a deeper analysis of “no ethic risks”, we may look at another source which allows us to create different considerations about the suitability of management choices, as well as risks and performances that such choices may create. Specifically, we take into account the level of risk which came out from the choice of using behaviors which are not based on correct business ethic, but that the GBO maintains they are correct for a good economical feedback. In other words, the category of risks is connected with the system of values which characterizes the organization, defining its own identity or personality, and orientating behaviours in a more or less ethic sense. The other way round, the performance is connected to the planned and predictable economical feedback which the GBO retains may come from the implementation of the chosen strategical option, even because the organization projects on its interlocutors a positive image of itself, an image which is recognized and esteemed by the latter.

TABLE 2: ORGANIZATION RISK BETWEEN ETHIC AND BALANCED ECONOMIC

<b>Risk</b>	<b>High</b>	Pointlessness	Gambling
	<b>Low</b>	Carefulness	Sagacity
		<b>Low</b>	<b>High</b>
		<b>Rendering</b>	

From the junction between the two variables, it emerges four typologies of entrepreneurs behaviour described as they follow:

- *Pointlessness*: refers to less ethical behaviours. It is easy to be unmasked by the public opinion;
- *Carefulness*: refers to behaviours ethically correct, but they are not adequately valued through communication;
- *Hazard*: refers to less ethical behaviours which are easily unmasked thanks to false communication;
- *Sagacity*: refers to “ethically correct” behaviors which are emphasized in the organization image.

While it is easy to evaluate highly virtuous behaviours (*sagacity*) or very negative (*pointlessness*), it is more problematic to do the same with behaviours in which the relation risk-efficiency goes down (*carefulness*) or high (*hazard*). This maintains that an organization management action may not be based on economical or moral conclusions. It is necessary that both perspectives are taken into account and contextualized.

In the end, we might justify a GBO which, seeing the life of its organization threatened by highly complex environmental conditions as well as hyper-competitiveness, preferred to pick business opportunity which are deprecated from a moral point of view, but are notable from an economical point of view because they are able to increase the probability of survival of the organization. On the contrary, unjustifiable Government behaviors are those made without the necessary awareness – that only an adequate risks analysis may give – of the effects that are fundamental for organization survival because of the devaluation of its relational capital. Therefore, the focus given of a concept of risks crosses with the concept of the relation. A continuous attention and tension toward the

consonance with its interlocutors appear as an essential condition of vitality, especially for middle, small, and very small average dimension organizations which, isolated, underline an enormous amount of difficulty in order to sustain a comparison with global competition leaders.

## **A Reference Model for the Creation of a Decision Support System (DSS) in the Inside/Out Perspective: First Results of the SIVI Research**

In order to reduce the previously mentioned risks of organization relational capital devaluation, informative systems appear to facilitate strategic choices made by the GBO. In the assumption of these strategic choices, the GBO has a more or less full understanding of the relational effects (in terms of minor or major consonance) caused by them on the stakeholders. Following the theoretical assumptions previously discussed, the model offered, adopts an inside/out logic in which the analysis carried out starts within the boundaries of the organization. This approach – which differs from the traditional inside/out formulation adopted in strategic management studies – is based on a vision of the organization that includes two trends of the literature which are partially directed towards: the resource based and competence based vision of the organization [22]. The first one, which comes from micro-economy analysis, uses concepts such organization capacity, its own peculiarity, the accumulation ability and their exploitation. The competence based formulation shows a more managerial trend, which uses concepts such as strategic intent, fundamental competence, creation of value, and above all influence [23].

By using the concept of influence, we report the first results of our research (we mentioned in the introductory statement) addressed to a development of an innovative methodology capable of supporting the economic-decision, financial, and strategic processes of the organization. The final aim of the research was to develop a DSS capable of supporting, in the initial stage of the decisional process, the GBO when evaluating the effects of its decisions before they are explicated. In other words, the research program wanted to emulate, before the formalization of the decisional process, the effect generated by a decision on a reference stakeholder. The base hypotheses on which we built the methodological system are:

- the high number of potential alternatives that the GBO faces;
- The difficulty of shaping the behaviour of the GBO, and consequently the complexity of emulating the induced effect, from a specific decisional choice, on references stakeholders because of the provisional data insecurity;
- the main negative consequences and the costs of the mistakes that the decision maker may commit;

Therefore, the DSS model developed in the research is a support system for less deterministic decisions. It is not addressed to the research of a first-rate decision, but it is a voluntaristic system which is addressed to the research of a consonance between the decision of subject “a” and those of subjects “b, c, ...n”, who will run into the decision.

The basic model hypothesis refers to the paradigm defined by Golinelli (2005) in his work on the viable systemic approach, a work from which we derive the following statement:

– *Hypothesis 1*: the final goal of the organization is to survive in its relational context (specific environment). In order to pursue this goal, the organization asks that the system GBO dynamically explicates its own choices [24].

As far as the evaluation of consonance is concerned, it required a qualification of the problematic environment in which the decision maker and the relevant stakeholders [25] interact in order to express a judgement on the decision proposed by the decision maker. This includes other hypothesis:

– *Hypothesis 2*. the consonance between two or more systems may not be evaluated generically and absolutely valid without taking into account the relational context where interacting systems get together with a specific reference to a specific decision proposed by a decision maker;

– *Hypothesis 3*. the internal context in which a decision takes place, identifies problematic field; It will feature decisions and forbid to get to a valid profile of an individual. The latter decision will always depend on the problematic field in which these decisions are taken;

– *Hypothesis 4*: in order to evaluate the impact which a decision will have on relevant decisions made by the stakeholders, it is necessary to outline the behaviour of stakeholders potentially interested in the decision made by a decision maker, and in second place to the informative stream which urges a judgement by stakeholders regarding the decision.

The fundamental problem which our research group had to deal with, in measuring consonance, was to define the metric range of variety [26]. The variety of a viable system may be identified in three dimensions, based on an elementary informative unit. The first dimension is formed by a basic informative element (to which is connected the informative unit quantitative endowment  $u_i$  owned by a viable system). The second dimension is formed by a synthesis scheme of basic informative elements (by synthesis scheme we mean the result of informative units elementary composition subsets). The third dimension is represented by summary categories of synthesis schemes and informative units, (whereas for summary categories we mean the capability – in term of owned knowledge – of joining them together with synthesis schemes the informative elementary informative units) (Barile, 2005). It is represented in the following figure:

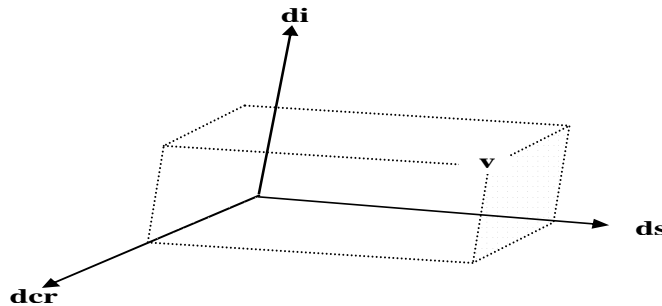


FIG. 1: GRAPHIC REPRESENTATION OF THE VARIETY OF A VIABLE SYSTEM  
*Our elaboration (Barile, 2005)*

Legend:

- v**: based on a defined dimension, it locates the position of variety owned by a viable system;
- di**: the dimension relevant to informative endowment;
- ds**: the dimension relevant to synthesis scheme;
- dcr**: the dimension relevant to summary categories.

Therefore, SIVI DSS attempts to measure the approaching/removal degree of variety owned by complex individuals/organization/systems following a decision and, consequently, the variation of informative units. By determining a modification in the informative endowment, the decision generates a process of approaching/removal of the variety [27].

The methodology adopted is the theory of information elaboration or Human Information Processing (HIP) (Newell, Shaw, Simon, 1960; Newell, Simon, 1972; Newell, 1980, pp. 693-710). This theory, developed in the cognitive psychology field, interprets the human subject as an information elaborator and looks at the calculator as a model of the working of the mind.

Specifically, in order to qualify the problematic field better, we referred to the concept of “problem space” which is based on four hypotheses:

- some important features of the human system as information elaborator stay fixed, even if we change task and the solution finder;
- those features are adequate in determining the representation of a task in the field of an elaborator system of the information as problematic space in which solutions to problems may happen;
- the task area structure determines the potential problematic space structures;
- problematic space structure determines programs which may be used to solve a problem.



Based on these assumptions, the aforementioned theory claims that when a man tries to solve a problem, he codifies problems components in a “space”, including initial, intermediate, and final situation to which he tends to.

According to Newell the concept of problem space has been defined as “The rational activity in which people engage to solve a problem can be described in terms of (1) a set of states of knowledge, (2) operators for changing one state into another, (3) constraints on applying operators and (4) control knowledge for deciding which operator to apply next.”

In the study of theory about artificial intelligence, carried out by the Artificial Intelligence Laboratory of the University of Michigan, it has also been highlighted that “Some investigators have posited a domain-independent representation for knowledge called the problem space. Problem spaces are commonly composed of a set of goals, a state or set of states, and a set of valid operators which contain the constraints under which the operator can be applied. The top-level goal is the problem originally posed to the agent. New goals are generated when the agent does not know how to apply any of its available operators rationally to move closer to its goal. The state consists of a set of literals who describe the knowledge of the agent and a present model of the world (cfr. <http://ai.eecs.umich.edu>).

Therefore, based on these considerations, it has been possible to define the problematic field as a decisional context in which are submerged the decision-maker and his interlocutors (stakeholders). It is formed by:

- Problem to be solved or an objective or a set of objectives to pursue (the decisional context final stage);
- Decision maker with specific knowledge. It is worth if this knowledge is better qualified later as variety.
- modalities and strategies through which the decision maker wants to solve the problem, in other words how to pursue the objective or sets of objectives (operators or operations useful to pass from an initial to a final stage)
- Different numbers of interlocutors interested in the problem - which the decision maker thinks to be fundamental - anyone qualified by a certain variety (influential factors on the problematic field).

In the research used as a reference, problematic field, profanation, and consonance are joined through the methodological lens of the Viable Systemic Approach [28]. Where as organizations, public or private, are represented as vital systems whose final goal is to survive. The pursuit of this goal asks the decision maker to continually implement the organization with capacity and competence in order to keep/implement the condition of consonance with the relational context (specific environment).

The methodology proposed supports consonance search regarding models and theory which are focused on the organization. It opens interesting scenarios on descriptive fields and on prescriptive ones too. The use of a variety scheme and concepts of consonance, joined with a series of revelation modalities (questionnaire and similar), contribute to the creation of an innovative decisional model.

The following picture schematizes the logic of the decisional model, with methodological plans typical of the Viable Systemic Approach emerging.

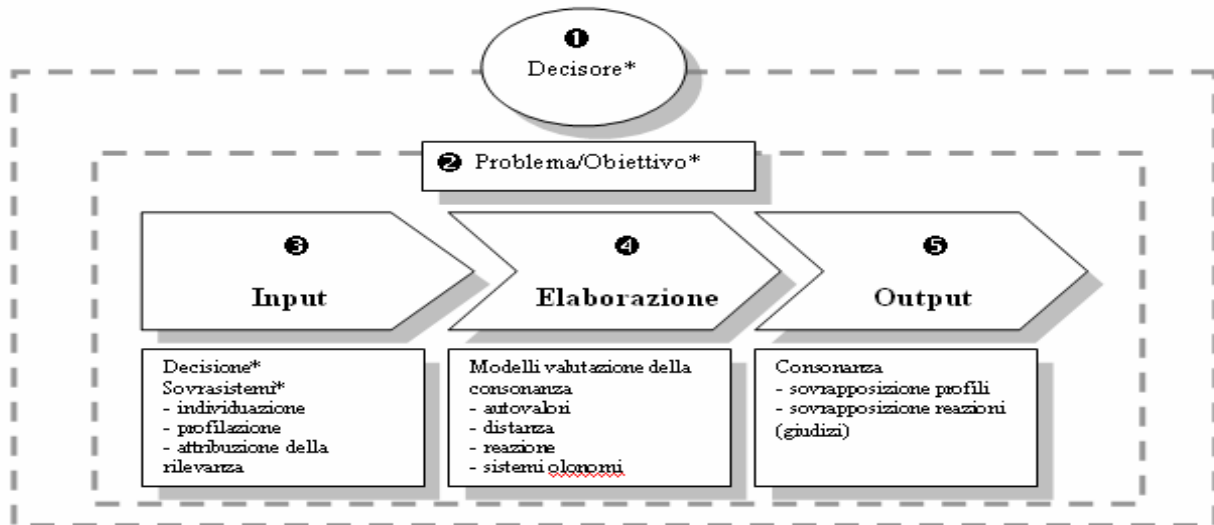


FIG. 2: LOGIC AND MAINFRAME OF THE DECISIONAL MODEL  
*Asterisks are problematic field components*

The decisional model represented in the picture is characterized by the following logic/formal steps:

- ❶ Decision maker is the decisional model user (with its relative informative instrument);
- ❷ Definition of the problem to be solved, in other words the objective or sets of objectives to be pursued;
- ❸ Definition of outputs in the model: modalities or strategies through which the decision maker wants to solve the problem, in other words pursue the objective or sets of objective; interlocutors interested in the problem who are relevant to the decision maker, and also anyone qualified with a certain variety.
- ❹ Elaboration of parametric models is sensitive to consonance evaluation. Basically, those models derived from self-evaluator methodologies (with the consequent reduction of variety space complexity), from distances (with transposition of Hamming's approach) (Hamming, 1980), from models of reaction (they may be used through bayesian net and/or neural net) and from holonom system (with the implicit definition of potential system movements more or less qualified)
- ❺ Definition of the predicted impact, in previous stage, registered, in progress, and after the decision, in terms of satisfaction (received benefits) or dissatisfaction (created damages) from those expectations (definition of parameter indicators sensitive or meaningful, which may be connected to beneficial aspects and harmful aspects) (FIG. 2).

Consonance measurement have been carried out in two ways: profiles and judgements overlap. As far as consonance esteem is concerned as tendency to profiles overlap, we adopted R. W. Hamming's distances approach (1980); he introduces this distance in his fundamental work on codes that helps to recognize and correct mistakes.

Among the several uses, the method is used in telecommunications to count the wrong number of bits in a fixed length binary word, in order to estimate the mistakes. In order to get a consonance evaluation, the distance introduced is a function that associates a no negative numeric value to a succession of orderly and comparable pair of elements, with the idea that the major is the minor distance, and it is also the similitude between two profiles. Particularly, given two profiles expressed trough an orderly and comparable list of categories and schemes we have the following expressions:

$$dC_{i,j} = \sum_{k=1}^n |C_i^k - C_j^k| \quad (1)$$

$$dS_{i,j} = \sum_{k=1}^n |S_i^k - S_j^k| \quad (2)$$

where:

$C_i^k$  and  $C_j^k$  are the scores given to i-esima and j-esima entities;

$S_i^k$  and  $S_j^k$  are the score given to i-esima and j-esima entities to k-esimo schema;

The following graphic shows a typical situation that the model so far discussed might help to represent.

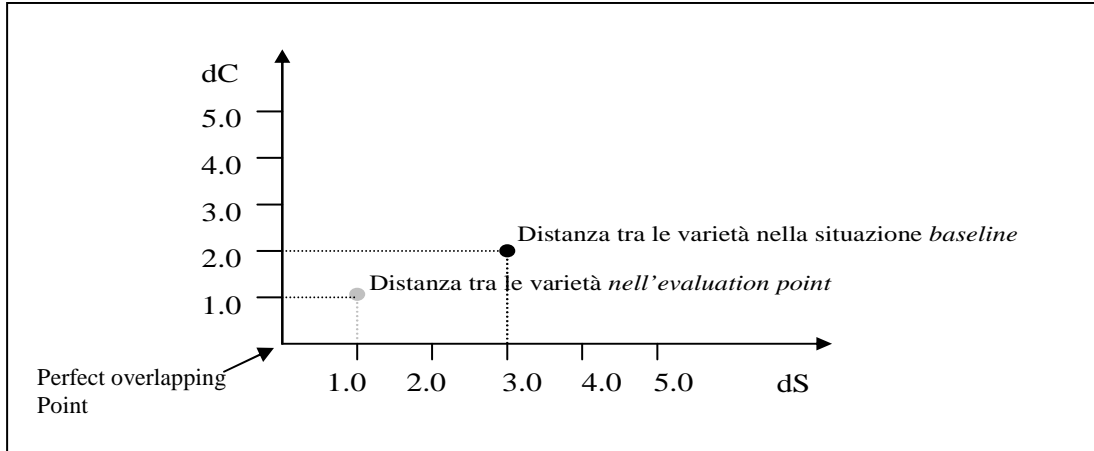


FIG. 3: MODEL OF DISTANCES: TYPICAL GRAPHIC REPRESENTATION

On the axes, the distances between two relational system in relation to categories (Y axis) and schemes (X axis) are represented.

The represented systems are:

- decision maker whose position has  $x=0$  and  $y=0$  coordinates in both the baseline situation and evaluation point;
- a stakeholder whose position has coordinates  $x=3 - y=2$  in the baseline situation, and  $x=1 - y=1$  in the evaluation point.

Indeed, the overlapping judgments approach is represented by a mathematical model which, emulating scheme and categories of a subject, is able to associate to a sets of stimulus (input informative unit) subject specific answers (output informative units). Particularly, it is a function which receives a n-values input. This n-values input represents the coming informative stream (created by decision maker's choice about the problematic field) and produces as output decision maker' answer, which is normalized within a 0 (negative answer) +1 (positive answer) range. In formal terms we have:

$$v': R^n \rightarrow R \in [0,1] \quad (3)$$

For the creation of  $v$  function, it is useful to look at two formulation, bayesian net and neural net.

Beside the methodologies used to measure the consonance (Hamming's distance; bayesian net), the model offered qualifies itself as a support system for decisions capable of helping the Decision Maker in the intra and intersystemic relational dynamics. As previously mentioned, the formulation used is a voluntaristic one as in Child (1973) rather than a deterministic one as in Bain (1968). It is not a traditional logic such as Structure/Behaviour/Performance, it is rather Behaviour/Structure/Performance. In a wide perspective, it embraces Thompson and Weik's conception (1967) about the organizational action and activated environment.

Therefore, while the current market DSSs qualify as a support process to decisions according to an outsider/in perspective – in other words supported by the Decision Maker's ability to find opportunity and threats which come from the general environment – SIVI DSS qualifies as a support system to decisions in a specific environment, which is the relational context. So that SIVI DSS might represent a necessary complement to traditional DSSs, allowing the Decision Maker to decide in the agreement stage too. Particularly, this support system

to evaluate decisions differs from the current ones, which try only to find solution space and choose the optimal ones through an optimization way (Hamming, 1980), (Fig. 4).

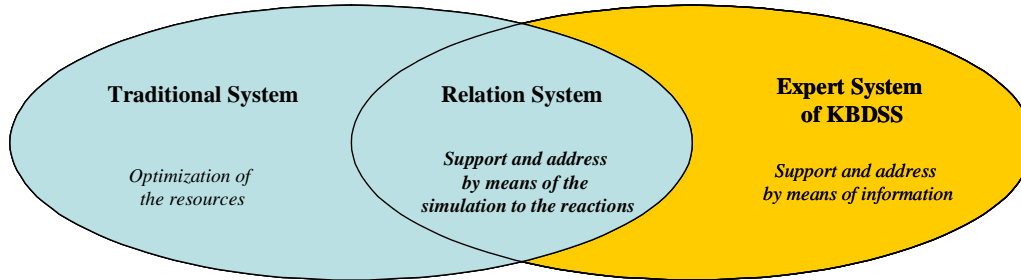


FIG.4: SUPPORT SYSTEMS TO DECISIONS AND OPTIMIZATION WAYS

Based on these peculiarities, SIVI model, by using Input-Model-Output taxonomy, may be synthetically described as it follows:

TABLE 4: ORGANIZATION RISKS BETWEEN GENERAL ENVIRONMENT AND SPECIFIC ENVIRONMENT

Instruments	Input	Model	Output
Consent emulator	Structural decomposition of decision	Individual models of reaction	Probability of consent at one decision
Profiling of Stakeholder	Profiling of stakeholder	Interpolation of stakeholder features	Interpolated model of reaction
Profiling of Stakeholder	Questionnaire given to each stakeholder	Psychometric models	Set of categories and schemes which qualifying stakeholders Measure of consonance between profile

## Conclusion and Managerial Implications

In this paper we offered an analysis and evaluation methodology of the risks connected to unbalanced relational situations caused by casual or intentional effects. The model elaborated examined the “variety” through categories concepts, schemes, and informative endowment. It carries out a support methodology for decisional process which is capable of giving a range of useful solutions to the decision maker in the stage of conceiving, planning, and implementation of initiative without giving final solutions. At the same time, it does not substitute the Decision Maker, but it acts as a support for the decisional process leading the evaluator to an appropriate judgement on strategical choices which are object to decision. It does not only refer to technical features of the strategical choices, but also on the social, economical, territorial system which will be influenced by such choices.

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## End Notes

1. See Beer, S., 1991 for the concept of vitality. The concept of survival, as it is used in organization economy, refers back to localization of *modus vivendi* as "fundamental aim of the organization".
2. In this place, it is useful to remember that vitality is the final goal of an organization. By pursuing the vitality, organization GO does not want only to assure its survival, but it wants to increase constantly survival probabilities as well, choosing as its main purpose a gradually and firmly increasing of the organization capability of surviving through a guide of the GO (intentionality), following a way which allow the organization to be able to face environmental conditions.
3. The research project, which will end in October 2007, has been financed by University and Scientific Research Ministry. CUEIM (University Syndicate), DATAMAT SPA – formerly known as Finmeccanica – and the Research Center on Software collaborated to this project.
4. The term consonance means "a kind of compatibility between systems, which allow them to relate each others and to create agreement between them. A metaphor is that of the musical orchestra, where the presence of many instrument and one score is a necessary condition, but not enough for a correct execution of the piece. The possibility that instruments interacts each other in order to create a melody is connected to the idea that they are consonant, in other words they are able to play compatible sonorous vibration which fit with the score.
5. The role played by the GO differentiates in its ability in orientating evolutionary trajectories of the organization system, in order to reach high economical efficiency degrees which are able to create competitive and value advantages that guarantee the survival of the organization along the way.
6. Usually, when the organization has trouble any recovery attempt focuses on the need of replacing the government. The government replacement may help the organization to recover credibility and reliance.
7. Another fundamental element of the system (Beer, S. 1991)
8. For internal and widespread entrepreneurship we mean the operative structure delegation and its components, the ability to self-organize and the ability to support its own decisions risk, in the field of the allowed autonomy. So that it will help the creation of entrepreneur abilities in the operative structure rather than to the exclusive use of other subjects such as ownership and government organ members.

9. The self-organization may be defined as a behaviouristic and organizational model based on the abilities of social subjects to organize *efficient answers* to their needs without delegating them to macro-mechanisms.
10. Additionally, it reflects on innovation abilities which come from experimenting – limited to its own field of activity – new organizational and interactional models which are obtained at the memory of the organization system (routine).
11. If self-organization is not adequately governed, it could lead to the formation of centres of power in the time – in the operative structure – which is particularly influential. These may harm government organization leadership itself. This tendency has to be contested because no organizational unit may dispose of a widespread vision useful to address and lead correctly the evolutive dynamic of an organization system.
12. In this sense the organization is defined by a set of individuals interconnected and orientated to a common goal (which gives to the aggregate the system valence). From results which come from consonance and resonance interrelations (condition of life of a system) started within the system – collocated in a macro system (sets of micro-environment) more complex – come out entrepreneurship aims.
13. The rule wants that, in the stage of evaluation of progress and future risks, have to be combined the reference to a relative past as well. Therefore, it appears evident which process previous risks are considered *ex ante* by the decision maker. It comes out that actions and strategic lines used to reach a specific goal have already influenced by different consideration of the decision maker, which have influenced by the dynamics.
14. See Maynard Smith J., Price, G.R., 1973, pp. 15-18. See also Maynard Smith, J. 1982 for further information.
15. Synergic aggregation comes from relations between two or more entities which interact each other fruitfully.
16. In this context, it is evident that the no survival risk is translated with an erroneous administration of exchanged available resources, in other words a no fruitfully transaction which might put under risk the survival of those who administered the barter.
17. For further information about the Theory of Dependence from External Resources see also: Pfeffer, J. & Salancik, G. R. (1978); Pfeffer, J. (1981).
18. The historical moment, in which exchange rate curve and that of the control of risk of the government organization happened in the Taylorist-Fordist period, characterized by a low entropic level of markets which allowed the planning of ten years length strategy. The concept of “entropy” refers to Beer S. Theory of System (1973). This theory, in a synergetic relation with physics and chemistry studies, explains open and closed systems behaviour, according to the classic second law of thermodynamic.
19. Knight, F., 1921, pp. 89 ss.
20. Beer, S., 1973; Golinelli, G. M., 2005; Barile, S., Golinelli, G. M., 2002; Barile, S. (Ed.), 2006.
21. Simon, H.A., 1945, pp. 118-132. Different authors discussed in depth the argument looking at it as strategic decision making. For instance, Fredrickson, J. W., 1983, pp. 565-575.
22. Van der Zaal, G.A.W., 1994, pp. 311-329.
23. On the argument see Itami, Roehl, 1987; Winter, 1987, pp. 159-184.
24. It comes out that vital system GO has to be able to administrate the knowledge in order to make better choice and guarantee its own survival. Barile, S., 2005, pp. 13-14.
25. For “over-relevant system” we mean those that have critical resources for the organization.
26. On the argument see Barile S., 2005, pp. 15-16. As far as measurement is concerned there is in literature of the field a measure method of informative units proposed by Shannon, C. E., 1949.
27. For further information see Audi, R., 1998.
28. The term vital comes from the English word *viable*: able to maintain a separate existence (Oxford English Dictionary).



## **Section 8: Global Technologies and Entrepreneurship**

# Strategic Role of Information Systems in Contemporary Management

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## Abstract

**Strategic role of information systems plays in contemporary management a key role in today's global, dynamical and highly competitive environment. In this paper we identify a strategic information system (IS) issues in an organization. We critically analyze and evaluate the organization's practice to solve the problems connected with the implementing strategic information systems. We try to discuss the wider organizational implications of the steps taken by the organization in the use of IS and their consequences. In conclusion we summarize how this knowledge and the use of advanced information and communication technologies can be used to gain a competitive advantage.**

## Introduction

In this paper we will consider a company in Slovakia, with above average industry performance. Geographic accessibility of the company's major markets in WE and CEE, together with low cost operations, represent the major competitive advantages of the firm. Declining markets, existing production, overcapacity in Europe, and increased imports from Asian low cost countries intensify competition and enhance further industry consolidation.

The company has a long-term history of local 'big successful enterprise operating in a mature industry and stable CEE environment, with all implications on organizational structures, systems, company culture, processes, leadership and peoples' mindset. After privatization of the company in mid 1990's, international company took-over management control (50% shareholder). The company became strategic business unit (SBU) of the multinational enterprise (MNE). The integration of the company into MNE structures triggered massive restructuring and downsizing processes within this SBU and implied cultural clashes. On the other hand the integration created the opportunity to utilize the synergies from common distribution channels, procurement and production planning.

### Core Thesis

Lack of the company's emphasis on information systems integration with customers and suppliers, and the resulting poor/inefficient information and information exchanges within the value system, represents the major missed opportunity for value creation and was one of the underlying reasons for company's takeover. The company's over reliance on internal value chain optimization as a source of competitive advantage has proved to be an unsustainable source of competitive advantage.

### Business Strategy

The company's competitive strategy can be characterized as a hybrid strategy (Johnson-Scholes, 2002), where the low cost base (cost leadership), reinvested in low price, is merged with differentiation based on quality, reliability, flexibility, innovation and sustainable value creation for all key stakeholders. The company's current business strategy can be characterized as a turnover strategy (Gerstein, 1983) that followed the company's take-over and subsequent integration of this SBU into MNE structures. The turnaround strategy has not been driven by poor financial performance (SBU has enjoyed sound financial performance), but rather by the desire of new shareholders to increase productivity and to change organizational culture and structure, which are necessary measures asserting sustainable competitive advantage of a low cost, lean and entrepreneurial enterprise. Despite the management rhetoric (Carter and Jackson, 2004) expressed in MNE's business strategy, in reality the cost cutting and strong centralization are dominant in SBU, in the context of a mature industry, severe price competition and the SBU's background.

This paper examines the alignment of IS and business strategy and the contribution of IS practices towards business objectives.



## **IS Strategy**

From strategic point of view the issue is the extent to which the improvements in information processing capability can improve and assist the way in which knowledge is created and shared both within and around an organization (Johnson&Scholes, 2004).

The competitive pressures have resulted in the takeover of company by MNE. The company, as a SBU of a large multinational enterprise is in a position of Implementor (Gupta, 1991) and its IS strategy making process could be plotted on Whittington model (2001) as classical (Grant, 2002), where over reliance on higher-level strategies (from MNE) is apparent. The company is 'forced' to accept systems from other units (located in Austria) for largely economic (or even political) reasons, without recognition of their differing business situations and organizational competencies (Ward&Pappard, 2004). The strategic IS are designed centrally and rolled over to the SBU, so that the approach to corporate strategic information system planning could be identified as an incremental one (Salmela&Spil, 2002). Overall IS strategy focuses on the integration of existing IS within SBU's, as well as external integration with wider value chain partners (SCM) with the aim of supporting both the cost leadership and differentiation strategy.

### **Analysis of IS Procedures and Practices**

Porter and Miller (1985) assert that management of information systems can no longer be the sole province of the EDP function such as accounting and record keeping, focused on cost control and reduction. The use of advanced information systems in value chain activities allows companies to enhance competitive differentiation as well as attain cost leadership and consequently gain sustainable competitive advantage. In other words, the ability to pursue cost reduction and differentiation simultaneously should be a criterion for IS utilization. Earl (1998) asserts that IS must have the potential to be a strategic weapon in at least one of the following: (1) gaining competitive advantage; (2) improving productivity and performance; (3) enabling new ways of managing and organizing; (4) developing new businesses. These views suggest that the utilization of IS in strategic and managerial activities is more important than their use in operational contexts (Soo, 2002). The following part of this paper analyzes and critically evaluates the company's practice in addressing the issue of low internal and external integration of its information systems and its negative impact on upstream and downstream value creation.

### **Internal Value Creation**

The company has consistently tried to enhance its business efficiency and effectiveness by reassessing its internal business operations such as purchasing, warehousing, materials management and distribution. This has involved using techniques such as Manufacturing Resource Planning (MRPII) and Just-In-Time (JIT) to improve internal value chain effectiveness and efficiency. The company has implemented its major ERP system (SAP R3) in early 1990's (comprising FI, CO, HR, MM, SD and other modules). The company achieved relatively high internal integration of the processes within the company's value chain towards the end of 1990's.

However, after takeover by MNE, many non-integrated applications were implemented replacing SAP's existing functionalities (e.g. for sales, Cost controlling, etc.), as the parent enterprise had implemented SAP only to a limited extent. The situation for the company represents a step back in their internal integration efforts for sake of uniformity of the group IS. The major barrier towards full internal integration of the company's information systems therefore represents the variety of applications used for different processes. This shows poor strategic information system planning (SISP) at MNE level, in the context of a fast growing group (through external acquisitions) where IS was considered not a strategic weapon, but rather an operational information processing tool. The cost versus value added quantification of IS integration has been problematic (topic is beyond the scope of this paper). Moreover, the integration of IS in the context of MNE has the additional dimension of intra SBU/corporate integration, which is considered a major issue at the corporate level.

The clear decision on the major platform for integration has still not been taken, but a feasibility study undertaken by a team of internal and external experts has shown that the most beneficial medium-term solution lies in building the data warehouses on the top of existing applications ensuring the gathering, integration, storing and sharing of the available information for users. Moreover, historically strong focus on internal value chain integration reduces opportunities of whole value chain in which the company operates for cost savings and leads to duplication of effort, maintenance of redundant systems, and investment in inefficient processes such as manual entry of data when machine sources are available.

### **External Value Creation**

The company is in today's highly competitive global market place required to reassess its business operations and examine both internal processes and external linkages with business partners to satisfy the changing needs of their customers, react to the actions and new business models of their competitors and opportunities afforded by new technologies (Chaffey, 2002). Therefore the process of re-engineering the whole supply chain and examining the linkages between internal and external functions has started at MNE level. The project is facilitated by an external consultant company and comprises a wide range of information systems applications on both the supplier and customer sides of the value chain. The major part of the report will analyze the external upstream IS integration.

The company moved from the first phase of Interorganizational information system (IOS) development (Shore, 2001), where paper copies of purchase orders, bills and invoices represent most of the information flows over the last decade. The company currently processes purchase orders and invoices as well as provides its customers with order status, pricing enquiries and scheduling transactions via Electronic data interchange (EDI) using value added network (VAN) and heading towards the third phase of IOS development where there is integration between information management systems of the company and the Web (Shore, 2001). The company is now in process of integrating its current applications into Enterprise Resource Planning (ERP) systems (Haiwook, 2001).

The major barriers towards the smooth integration in the company are both poor internal integration of applications used for different processes, and lack of industry standards (supplier and customers using variety of different systems), making value system management difficult.

### **Upstream Value Creation using Integration of IS**

Contribution of the company's practice in respect of IS improvements towards their higher integration is analyzed and critically evaluated using an example of systems integration of the company and its packaging materials supplier. The targets of the project called Supply Inventory Management (SIM) were defined as follows: increase forecast accuracy and delivery performance, reduce supply chain planning cycle time, synchronize inventory supply/demand schedules, automate inventory replenishment, proactively identify and resolve exceptions, eliminate unnecessary administrative burden and drive continuous improvement with integrated intelligence (Zuckerman, 2005). The Project is part of the wider MNE group movement CSC aiming for building collaborative supply chain system based on utilization of synergies from information sharing via integrated supplier/customer information systems.

### **Cost Reduction**

The presented project contribution towards the cost leadership could be found in improved planning processes, where the information about demand is shared with the supplier. In particular the sales information system of the company is providing demand level information based on booked orders from the company's final customers. This information is combined with the company's SAP MM module information on standard consumption of packaging materials. The transfer of information is supported by an Extended Mark-up Language (XML) standard. The solution provides the intelligence feature of automatic safety stock levels calculation which, in combination with current stock levels of packaging materials (as per MBP MM SAP module), enables automatic planning of replenishment of packaging materials. The cost benefit therefore at this stage comes from replacing non-integrated (mainly human, excel based) planning processes with automatic system based processes, saving administration costs (headcount, paper, etc). In addition, it eliminates redundant planning processes (on the supplier side, as the system is providing plans based on shared data from the company). The accuracy of plans also increases, as well as planning flexibility where automatic changes are executed following the changes in final customer demands. The cost benefits are shared though between both parties involved.

The intelligence features of the new systems enable the trigger of automatic ordering process, once inventory level reaches the predefined floor. Based on production planning data it then generates the optimal order quantity by item. The tentative or real electronic order report is generated and fed into the suppliers SD SAP module. The system therefore recognizes whether the delivery is to be made at a specified date or just held available as part of supplier's stock (supplier managed inventory). Subsequently, automatic order procedure is executed on the side of both the company's and the suppliers' MM or SD modules with updates of all relevant ledgers. No manual input is needed for standard items representing as much as 98% of transactions. Major direct cost savings impact of

the automatic ordering process is in administration (no paper orders, no confirmations by human, headcount reduction, accuracy). These intelligent data sharing system features provide the opportunity for supplier inventory management (SMI) where it eliminates reasons for buffer stock on the company's side (responsibility is based on SLA on the supplier), and also enables the optimization of stock levels on the suppliers' side, based on accurate and timely information on demand for packaging material. The new quality of data exchange enables management of the consignment inventory model. The cost savings are therefore in working capital reductions, lower storing and ordering costs for both parties. Moreover, the financial part of standard packaging delivery procedures (invoicing and settlement are also covered by the SMI project. Invoicing process is triggered by the company's SAP MM module information on consumption of an item (i.e. customer does not own any packaging materials at all). The invoices are electronic, issued based on SLA prices agreed per period without human confirmation (except discrepancies identified by SAP), where automatic updates of AP and AR ledgers are ensured by SAP on both sides. Payments are processed based on automatic procedures, where both companies share a cash pooling system facilitated by an electronic payment system. The new level of systems integration enables indirect savings in the area of financial processes (lowering outstanding balances of AP/AR leading to improved working capital and cash flow and lowered administration costs of maintaining AP/AR ledgers).

#### **Other Sources of Differentiation Advantage**

The new level of systems integration enabling better information exchange between both partners within the industry supply chain also supports the differentiation advantage of the company's both partners. More specifically, improved production planning enhances better utilization of production capacities, and increases the flexibility (volume and time) of the supplier. Resulting shorter lead times and improved delivery accuracy, enables the company to react to ultimate customer requests more promptly therefore creating differential advantage. The quality of final products is enhanced due to lower rate of human based errors in the processes and improved planning and control mechanisms implemented, as well as enhanced quality of service received from supplier (due to the company being perceived as a good customer). Supplier power is being decreased as they share common benefits from closer co-operation, however their switching costs are increased, balanced by opportunities for additional revenue creation. In addition, the upstream value chain analysis and subsequent restructuring identified the possibility of eliminating an intermediary from the chain. The new model, using extensive information exchange in real time with intelligent features, reduced the value added of this value chain component dramatically. The elimination of the intermediary meant exclusion of its margins from the chain as well as reducing total lead-time, making the supply chain it less costly and more flexible.

The targets fully support the cost (business process re-engineering eliminates redundancies, improves/streamlines processes and increases their transparency, and enables stock level reductions on both the company and supplier side, automation of human based processes, brings less administration and errors) as well as the differentiation competitive strategy (shorter lead times, higher flexibility, knowledge sharing). This information sharing has allowed the company and the supplier to improve operational efficiency and has resulted in substantial benefits. The company has reduced stock-holding costs by about SKK 20 million and improved stock management. The supplier has benefited by increasing service levels and thereby increasing sales by up to SKK 2 million per annum.

Unfortunately, quantification of targets has not been performed and evaluation/monitoring/control mechanisms are not established.

#### **Downstream Value Creation using Integration of IS**

Sales and Marketing functions are fully centralized at MNEi level, therefore the company has very limited chance to influence the ISPS used to integrate our systems with downstream value chain. The CSC project at MNE level is aiming to improve the integration of internal value chain with the major customers, however it is still in its planning stage. The project is still very much focused on integration of IS among SBUs and corporate level. The successful internal integration is a necessary precondition for the next stage of integration.

The competition moves are signaling the establishment of a strong alternative industry value system, based on downstream vertical integration of a major manufacturer with a major merchant company. The manufacturer aims to achieve advantages from being closer to its customers. This acquisition provides the manufacturer with excellent distribution network fit in terms of additional geographical market coverage, as well as access to IS expertise of this

distributor. The integration of the merchant company into existing manufacturer structures and information systems will be crucial and will shape this industry in Europe.

Following Porter's (2001) argument SCM and CRM are starting to merge, as end-to-end applications involving customers, channels and suppliers, link orders to manufacturing, procurement and service delivery. This situation represents a major challenge for MNE. There are several options open to respond to this competitor move: to build up an alternative competitive supply chain, follow the move and acquire a similar distributor, or enter into a collaborative relationship with other players (or even the abovementioned manufacturer) and further develop and share benefits of a unified distribution channel. In any case IS will play an important role regardless of what path MNE selects. While it is more dangerous than ever to ignore the power of IOS, it is even more dangerous to believe that on its own an IOS can provide an enduring business advantage (Keng Siau, 2003). Keng Siau also suggests that new competitive philosophy should be: to compete on the use of electronic tools not on their exclusive ownership. This represents value creation proposition that might match the competitor's move – eliminate the merchants from the value chain by building an end-to-end customer IS based on internet technology that would save costs, generate value and increase flexibility of the chain.

Application of network-based coordination and optimization are the collaborative process-outsourcing possibilities available when enough members are connected to the network (Christiaanse, 2005). Opportunities to optimize transportation and logistics arrangements are presented by MNE's alliance with logistic companies, which capitalize on expertise of the partners. Basis for collaboration is utilization of IS and infrastructure (Cross Docking Centers, Warehouse Management Systems, etc). Detailed analysis of the project is beyond the scope of this paper.

## Conclusion

The company became part of MNE competing on global markets within global industry value chain with strong competition. The resources used by competitors are to high extent similar (technology, people, money); difference makes how those resources are employed/managed. Nowadays financial markets are looking at a broader picture in order to understand the perspectives of businesses that are often not obvious from its financial statements. Intellectual capital that includes company information systems management abilities is often the distinguishing factor of perspective and profitable companies and drives companies' value (Couger, 1995). IS at the company has been traditionally focused on supporting internal efficiency. Firms must have trusting long-term relationships with each other and with the B2B marketplace itself to allow members to penetrate this deeply into each other's internal business processes. IS potential to generate value is in inspiration, creation and support of collaborative value networks rather than reducing internal data processing costs. The company realized the challenge and is moving in the right direction in terms of integrating their IS into the changing industry value chain to generate additional value for all stakeholders.

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# High-Speed Broadband and Global Competitiveness

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## Abstract

While the United States is both a military superpower and the world's top economy, it is losing the race to Europe and East Asia in developing high-speed broadband. While the United States has a substantial number of broadband subscribers, it is mostly in "basic" broadband which is too slow to run the many innovative applications necessary to maintain economic competitiveness. East Asian countries, particularly, are moving quickly to harness the economic benefits, the increased productivity, and the better quality of life that high-speed and ultra high-speed broadband technologies offer their societies. This paper discusses how the United States is falling behind in offering high-speed broadband and compares its lagging performance to the successes of countries such as Japan and South Korea. It concludes by stating that future economic and country competitiveness could well be determined by the successful adoption of these new technologies.

## Introduction

There were 216 million broadband subscribers in the world in early 2006, approximately half of the total number of the world's internet subscribers, while there were 60 million mobile broadband users worldwide, only three percent of total mobile users. Figure 1 shows the development of broadband networks worldwide and the percentage breakdown in different regions of the world. But, the number of subscribers of broadband is a misleading indicator of broadband use. For instance, the United States has the highest number of world broadband subscribers, but when that number is compared to broadband penetration per 100 inhabitants; it is not even in the top ten countries. Countries such as Japan, South Korea, Italy, and Sweden had a far greater broadband penetration rate. Also, the type of broadband available in most U.S. households is "basic", among the slowest, most expensive, and least reliable form of broadband. And, the U.S. is falling way behind Japan and South Korea in providing fast, cost-effective wireless mobile broadband. What is at stake is just not just the "bragging rights" to global innovation and technology, but something much more important, a country's ability to compete economically in the 21<sup>st</sup> century.

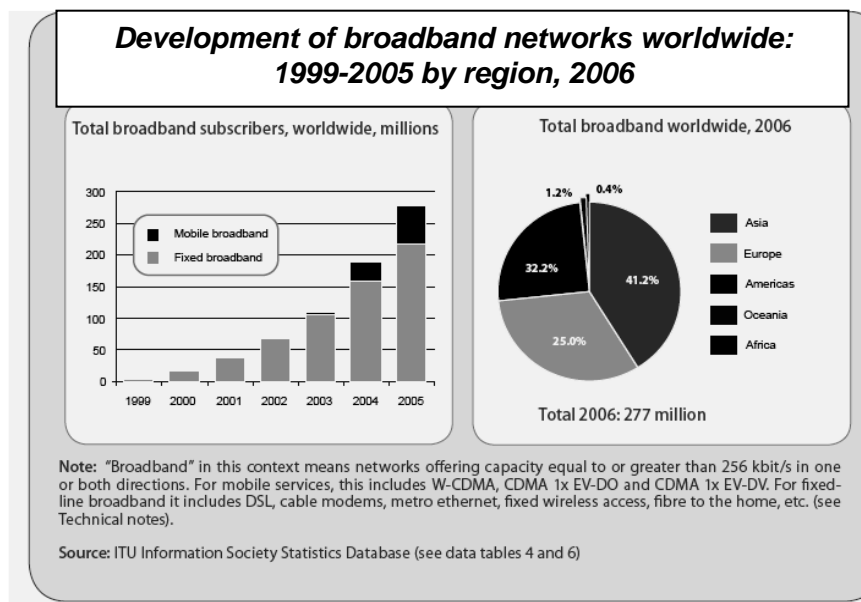


FIG. 1: SOURCE: DIGITAL LIFE ITU INTERNET REPORT 2006

High-speed broadband is fundamental to economic competitiveness. Many of the 21<sup>st</sup> century business sectors that are positioned to greatly expand are tied to high-speed broadband infrastructure capability. Health care, entertainment, increased business service productivity, communications are but a few of the business sectors affected. The questions to ask are: How did the U.S., a leader in the development of the internet in the 1990's lose its innovative edge in high-speed broadband? How did countries like Japan and South Korea take the ascendancy in this technology? And lastly, how can the United States compete in high-speed broadband.

### Broadband Impacts and Global Transformations

Broadband technologies are all about freeing people from having to be connected with regular telephone lines or cables, and letting them have speedier data connections than they ever imagined. The so-called high-speed Internet encompasses all evolving high-speed digital technologies that provide consumers integrated access to voice, high-speed data, video-on-demand, and interactive delivery services, are a fundamental component of the communications revolution. The current broadband services are listed in Table 1.

TABLE 1: CURRENT BROADBAND SERVICES

<b>Service</b>	<b>Description</b>	<b>Bandwidth</b>
X.25	Packet-switching standard that packets of 128 bytes	Up to 1.544 Mbps
Frame relay	Packages data into frames for high-speed transmission over reliable lines but does not use error-correction routines	Up to 1.544 Mbps
ATM (asynchronous transfer mode)	Parcels data into uniform cells to allow high-capacity transmission of voice, data, images, and video between different types of computers	25Mbps~2.5Gbps
ISDN	Digital dial-up network access standard that can integrate voice, data, and video services	Basic Rate ISDN:128Kbps; Primary Rate ISDN:1.5Mbps
DSL (digital subscriber line)	Series of technologies for high-capacity transmission over copper wires	ADSL-up to 9Mbps for receiving and up to 640Kbps for sending data; SDSL-up to 3 Mbps for both sending and receiving
T1	Dedicated telephone connection with 24 channels for high-capacity transmission	1.544 Mbps
Cable modem	Service for high-speed transmission of data over cable TV lines that are shared by many users	Up to 4Mbps

Broadband brings a considerable number of benefits (Table 3). A fully-evolved broadband will virtually eliminate geographic distance as an obstacle to acquiring information, and dramatically reduce the time it takes to access information. Also, a country's economic competitiveness is highly correlated to the diffusion of broadband. This phenomenon is often referred to as the "digital divide." In the International Telecommunications Union's analysis of high income nations and broadband, it was found that 86% of world broadband users were located in high income countries, a far greater relationship than between internet use and income. This is not difficult to understand as only high income countries have the economic capacity to develop the extensive infrastructure necessary for high speed internet; at least, using today's technological platforms. But, a number of interesting events are occurring that could significantly alter this relationship and boast some countries while other nations could decline. First, the U.S. while a global economic leader is losing its capacity to lead in high-speed broadband which could jeopardize its economic leadership. And second, developing countries, with the proper leadership and national policies could utilize newer, less costly technology to "leapfrog" over the first generation of broadband which was dependent on existing built infrastructure, giving richer countries an advantage. These newer technologies, such as WIMAX, could "jump-start" these economies and make them significant competitors in the global economy.



TABLE 2: MAJOR BROADBAND BENEFITS

<p><b>What can broadband benefit your business</b></p>	<ul style="list-style-type: none"> <li>▪ Broadband can increase productivity by enabling the transfer of large data files directly from local offices to head offices located in other cities, or even other countries.</li> <li>▪ Employees can access better training opportunities using broadband by logging on to corporate intranets and the Internet to train for new product offerings or to refresh their knowledge on current products or services.</li> <li>▪ Businesses can use high-capacity Internet to track shipments and to seek out other export markets, enabling them to compete successfully with markets outside the province.</li> <li>▪ Newspapers, or graphic design firms, that want to keep their business in a rural community can use broadband to send and receive large data files needed for production.</li> <li>▪ Broadband allows businesses to conduct net-meetings or face-to-face meetings using videoconferencing to discuss urgent decisions, minimizing travel costs for in-person meetings.</li> </ul>
<p><b>What can broadband benefit your schools</b></p>	<ul style="list-style-type: none"> <li>▪ Broadband connects music students in northern Quebec to violin lessons with musicians in Ottawa using live videoconference.</li> <li>▪ Students in rural and remote communities can easily surf the Web to visit virtual museums.</li> <li>▪ Broadband allows students to develop and post original music and video for school projects online.</li> <li>▪ High-capacity Internet allows teachers to take advantage of many online resources and integrate them into everyday classroom activities.</li> </ul>
<p><b>What can broadband benefit your municipal government</b></p>	<ul style="list-style-type: none"> <li>• Broadband enables a technology-based customer service centre that allows a one-stop shop for town business transactions, including licensing, billings, permits and utilities payments.</li> </ul>
<p><b>What can broadband benefit your community</b></p>	<ul style="list-style-type: none"> <li>▪ Broadband can increase tourism opportunities by enabling online marketing resources to promote local and historical attractions. It also allows for online reservation systems.</li> <li>▪ High-capacity Internet brings a larger audience and buyers to local artisans and craftspeople, allowing them to promote and sell their work via the Internet.</li> <li>▪ Aboriginal communities can accumulate and disseminate their cultural information without the connectivity limitations they now face.</li> <li>▪ Broadband can help ensure that families, businesses and young people in rural and remote areas are not forced to leave in order to find an economic or social future elsewhere.</li> </ul>
<p><b>What can broadband benefit agriculture</b></p>	<ul style="list-style-type: none"> <li>▪ Commercial farming operations can use broadband to network and connect barns, enabling the transfer of data between them using wireless communication.</li> <li>▪ Custom crop spraying operations for grain producers can use broadband to enable voice communication and data transfer to and from operating units and equipment.</li> <li>▪ Broadband can connect livestock farmers with workers in the fields, family at home and other operations using a wireless communication network.</li> <li>▪ Information about the farming industry, growing conditions and animal health is more easily accessed with high-capacity Internet.</li> <li>▪ Broadband opens up opportunity to access larger markets and expanded marketing channels.</li> </ul>

## The Recent State of Broadband in the World

According to Business Week, South Korea, Japan and some other nations or regions such as Canada, Singapore, Hong Kong, Taiwan, Belgium, Iceland, and Denmark have quickly adopted policies to promote broadband years ago. In contrast, no U.S. administration has yet endorsed a comprehensive plan. While the United States has the worlds highest number of broadband subscribers it is not even in the top 15 countries in the world when viewing broadband penetration (See Figure 2).

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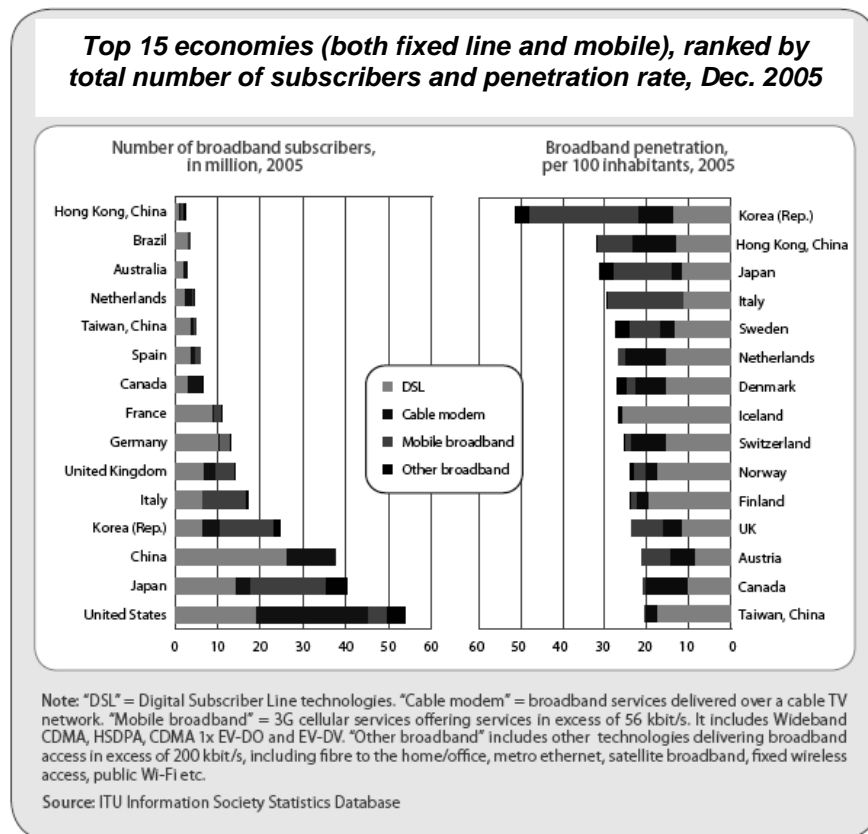


FIG. 2: SOURCE: DIGITAL LIFE ITU INTERNET REPORT 2006

Currently, the U.S. phone companies sell 500K bit per second to 1 megabit digital subscriber line (DSL) connections for around \$20-30 a month, and the cable companies offer cable modems with maximum speeds of 3 megabits for \$40-\$45 a month. Broadband is available to 89% of all U.S. households, but only 28% subscribe today. While the Europe's speeds and penetration are similar to those in the U.S., in South Korea, the recognized world's broadband leader, there are 73% of households subscribe to high-speed Internet. Most Koreans pay \$27 a month for a connection speed of up to 3 megabits. A few thousand choose to pay \$52 a month for a 20-megabit advanced DSL (ADSL) connection which is much faster and cheaper than anything available to Americans. Japanese can get some of the fastest and cheapest broadband service in the world up to 26 megabit for about \$30 a month. Figure 3 shows the relationship between prices and bandwidth. In Japan, for instance, a broadband user can buy 100 kbit/s for 7

cents (U.S.) while in the United States this same amount of broadband will cost 49 cents, seven times as much. The ability of countries such as South Korea and Japan to bring to their citizens high-speed internet at reasonable rates will provide these countries a significant competitiveness in economic activities that demand high-speed connections, i.e. high definition television, video streaming, etc.

<b>Lowest Prices for Broadband per 100 kbit/s per month, April 2006 and change 2005-2006</b>						
Economy	Company	Speed Mbit/s	Price per month USD	Price per 100 kbit/s	Change 2005-06	
1	Japan	Yahoo! BB	51.2	31.19	0.07	-12.5%
2	Rep. of Korea	Hanaro	51.2	40.59	0.08	...
3	Netherlands	internet Access	20.4	27.97	0.14	-81.3%
4	Taiwan, China	Chunghwa	12.3	22.67	0.18	...
5	Sweden		24.6	56.08	0.23	-6.5%
6	Singapore	Starhub	30.7	73.17	0.24	-85.0%
7	Italy	Libero	12.3	37.23	0.30	-73.8%
8	Finland	Elisa	24.6	85.64	0.36	-51.4%
9	France	Free	10.2	37.29	0.36	-90.1%
10	United States	Comcast	4.1	20.00	0.49	...
11	Germany	Freenet.de	6.0	30.95	0.52	...
12	United Kingdom	Pipex	8.1	50.89	0.63	-53.6%
13	Hong Kong, China	Netvigator	6.1	51.17	0.83	...
14	Portugal	Sapo	8.1	75.82	0.93	...
15	Canada	Bell	4.0	41.26	1.01	-3.9%
<b>Unweighted Average</b>			<b>18.3</b>	<b>44.33</b>	<b>0.42</b>	<b>-50.8%</b>

Note: The broadband prices were sampled in July 2005 and April 2006. Price change is shown only for those companies for which equivalent services were available in both periods.

Source: ITU research (see also data table 7)

business.digital



FIG. 3: SOURCE: DIGITAL LIFE ITU INTERNET

Figure 4 compares broadband usage at home in different countries.

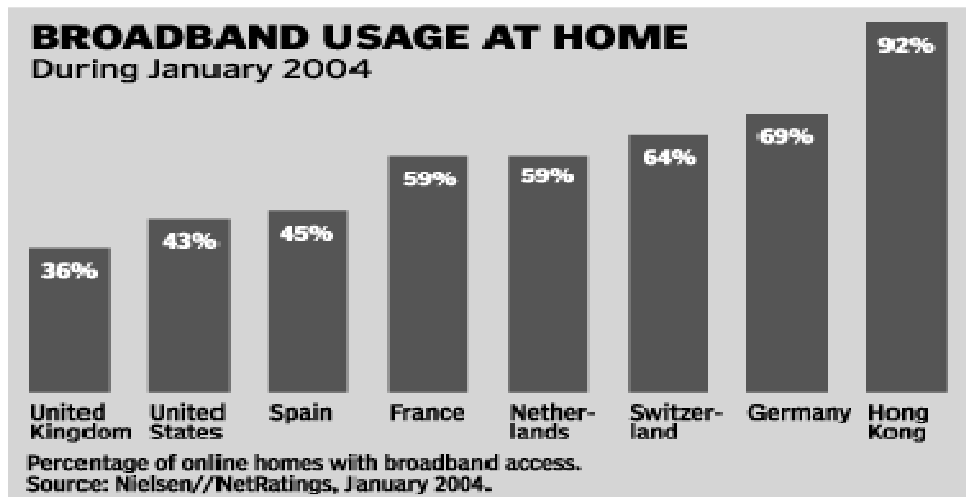


FIG. 4: BROADBAND USAGE AT HOME  
Source: NetRatings

Table 3 summarizes the current status of U.S. broadband deployment:

TABLE 3: THE CURRENT STATUS OF U.S. BROADBAND DEPLOYMENT

Services	Deployment Status
Subscribership To Advanced Services Providing Connections To The Internet	At speeds exceeding 200 kbps in both directions has more than tripled since the FCC's last report, from 5.9 million lines in June 2001 to 20.3 million lines in December 2003
High-Speed Lines	Providing connectivity of more than 200 kbps in at least one direction has almost tripled from June 2001 to December 2003, from 9.6 million lines to 28.2 million lines
Cable Modem And ADSL Service	Providers provide the vast majority of advanced services lines, with cable representing 75.3 percent, ADSL representing 14.9 percent, and other technologies representing 9.8 percent in December 2003. The relative position of cable and ADSL was 56 percent and 16.8 percent at the time of the last report, in June 2001
Further Plans On High-Speed Lines, Cable Services	Looking more broadly, the service represented 58 percent of lines, with ADSL representing 34 percent of lines as of year end 2003.
Advanced Lines Service For Residential And Small Businesses	In December 2003, there were 18.1 million lines serving residential and small business customers, compared to 4.3 million lines in June 2001. The number of high-speed lines for residential and small business subscribers more than tripled, to 26.0 million in December 2003, from 7.8 million in June 2001.
Overall Figures	As of December 2003, only 6.8 percent of zip codes in the U.S. reported no high-speed lines, compared to 22.2 percent of zip codes with no reported lines in June 2001. There also has been a steady growth in the percent of zip codes reporting four or more providers of high-speed lines, from 27.5 percent in June 2001 to 46.3 percent in December 2003.

Source: FCC

## The State of Wireless Broadband

Broadband technologies started with digital cell phones a decade ago, and now have exploded into panoply of radio technologies – from wireless local area networks (WLAN) to smart antennae, ultra-wide band transmission and mesh networks. The 802.11b (Wi-Fi) standard created an entirely new market for wireless networks during the depth of telecom’s worst recession and the time when the broadband Internet started booming. Wireless Internet networks are being deployed to previously underserved areas and are creating new competition for cable and DSL. According to Telecommunications’ Future 2003-2008, analysts at Insight Research Corp. predict that the market for products and services based on the 802.11 specification will grow from revenue of \$7 billion this year to \$44 billion by 2008. Table 4 provides a landscape of current broadband wireless services.

## Fiber Connections in the U.S.

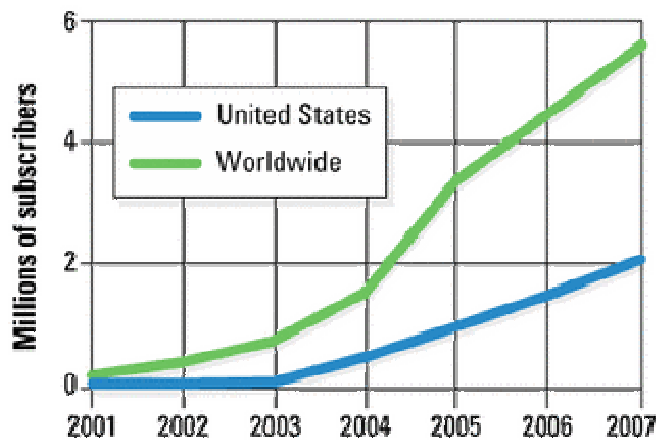
As another major broadband communications channel, fiber-to-the-home (FTTH) is beginning to make significant strides in some parts of the world, and the United States also lags far behind, according to a new report by In-Stat/MDR (Scottsdale, AZ). In Korea, Sweden, Japan, and Italy — strong residential FTTH deployments are already underway. In the United States, FTTH is a small percentage of the total broadband business market, registering under 1%. North America accounts for roughly 50,000 subscribers, while Asia-Pacific and Europe account for 390,000 subscribers. The high cost is a hurdle. Currently, the monthly cost of getting high-speed voice, video, and data access over fiber in the U.S is around \$130. In the future, the subscriber will be able to purchase the entire package for less than \$100, which is what most customers are paying now for high-speed Internet access, voice, and video. Figure 5 compares fiber connections between the U.S and other countries.

TABLE 4: WIRELESS COMMUNICATIONS LANDSCAPE

<b>Broadband</b>	<b>Services Ranges</b>	<b>Tech Features</b>
<b>Wireless LAN – WLAN</b>		
Wireless Fidelity (Wi-Fi) 802-11b	Most mature and widely deployed worldwide. It’s popular within enterprises and for remote access in hotspots	Uses DSSS radio transmission with 2.4GHz band, max 11Mbps speed/375ft
802-11a	Has existed on paper since 1999. Real products began shipping in 2002. Supporting higher end applications	Uses DSSS radio transmission with 5GHz band, max 54Mbps speed/300ft
802-11g	Backward-compatibility with 802-11b. Moving forward as a strong interim solution	Uses 3 incompatible modulation tech with 2.4GHz, max 54Mbps
802-11e	To build quality of service for 802-11x so that they can support voice and video.	Works as 802-11a, 802-11b and -11g
802-11i	To further secure and modify 802-11 includes two main developments: Wi-Fi Protected Access (WPA) and Robust Security Network (RSN).	Modified 802-11a and 802-11b with more secured features
802-11h	Being developed. A modified version of 802-11a to extend use in Europe	Extended 802-11a
802-11n	Starting Aug/2004, World Wide Spectrum Efficiency (WWiSE) use 4x4 MIMO channels to increase throughput – aimed to replace current 802.11a/b/g	200 ~500Mbps at 40Mhz, support 802/11a/b/g at 20Mhz
Bluetooth	A wireless personal area network (PAN) transmitting digital voice, data between mobile devices	Max 1Mbps/33ft
<b>Mobile Broadband</b>	<b>Services Ranges</b>	<b>Tech Features</b>

<b>Wireless Access</b>		
WiMax (802.16)	New generation of BWA. It is designed for mobile clients using PDA or laptops.	7 times faster than Wi-Fi/30 miles with 2~6 GHz bands
802.20	Another broadband wireless standard, this time aimed primarily at mobile users. The standards have been looking particularly closely at the way it works with 802.11. It is designed to deal with high-speed mobility issues, and a direct competitor to 3G	Deliver around 1Mbps to devices on fast move at speeds of up to 250kph, with 3.5GHz bands
<b>Fixed Broadband Wireless Access</b>	<b>Services Ranges</b>	<b>Tech Features</b>
Fixed broadband Wireless Web	Alternative to wired broadband like DSL, cable modem, to access the Internet using wireless computing devices	Max 1Gbps/ 35miles
<b>Mobile WAN</b>	<b>Services Ranges</b>	<b>Tech Features</b>
2G digital cellular	Transmitting data, voice using wireless digital cellular technology	Max 14Kbps/ Nationwide
2.5G digital cellular	With improved speed accessing e-mail and Internet using wireless digital cellular technology	Max 384Kbps/ Nationwide
3G digital cellular	With improved speed transmitting multimedia data and voice using digital cellular technology	Max 2Mbps/ Nationwide
i-Mode	Using 'smart' cell-phone to access Web-based services with cHTML (developed by NTT DoCoMo)	Max 384Kbps/ Nationwide
Wireless Access Protocol (WAP)	Using cell-phone, and other wireless devices to access Internet with WML and micro-browser	Max 384Kbps/ Nationwide

### Comparing worldwide and U.S. FTTH subscribers



Source: In-Stat/MDR

FIG. 5: COMPARING WORLDWIDE AND U.S. FIBER SUBSCRIBERS

## **Why U.S. High-Speed Broadband Has Fallen Behind?**

U.S. high-speed broadband has lagged behind other countries mainly due to the narrowed ranges of spectrum and interferences of useful frequencies. Demanded spectrum and frequencies for broadband communications are governed tightly by the Federal Communications Commission (FCC). These technical limitations are major curbs of broadband development in America. These technical regulations were established over 70 years ago for the purpose of separating broadcasting channels, thereby protecting them from competing neighboring stations. These limitations have produced an atmosphere of protectionism that has maintained itself into the present.

### **Technically Speaking**

Today, a radio is more likely to be a piece of software burned into a digital signal processor chip hopping from channel to channel during a nanosecond, while seeking gaps through which to send bursts of data. The channels of current broadband to communicate can be crammed with no buffer zones between them. Also, when such adaptive digital radios are allowed to co-operate with one another, the network's capacity can actually increase – rather than decrease, as was long believed with every new radio added. Therefore, the interference is irrelevant, and bandwidth, as a measure of communication capacity – is also irrelevant. So we believe that the biggest problem inhibiting broadband in the U.S. is the habit of reserving various radio bands for specific services. Historically, that made sense when it was hugely expensive to build radios that could be turned to more than a few adjacent bands. Today, digital radios that can dynamically jump all over the spectrum are to be had for the price of a microchip.

### **What Is the Holdup?**

As explained above, the so called spectrum and frequency interference are not the reasons blocking the faster broadband speeds. The faster broadband speeds in other countries are less about technological prowess, and more about policy. A clear case is shown in both South Korea and Japan where the national government made the deployment of broadband services a national priority. South Korea deregulated what had been a monopolistic phone system and opened the market to competition. That stimulated a race among providers to wire up the nation quickly. Moreover, those countries are more densely populated than U.S. which has made broadband deployment much easier and cheaper.

In the U.S., in addition to larger territory and population in the country, there are not sufficient broadband services and applications provided, such as online movies, concert or games that need higher speeds. More importantly, the conserved development is largely confined by U.S. telecommunication regulations. For instance, the Bells, the major U.S. broadband technology developer complain that archaic rules designed for traditional telecoms services rather than the Internet, curbed and discouraged them from providing faster DSL services. They further argued that those rules are ambiguous because a different set of overlapping regulations still requires them to share their lines with rivals at government-mandated prices. So far, the U.S. is not having a comprehensive and strategic broadband plan. The U.S. Congress is unlikely to force politically powerful Bells to share their networks, even through lawmakers are expected to rewrite the telecom industry's regulations next year.

Another hitch for moving U.S. broadband quickly is that the best radio spectrum for wireless broadband isn't available. It is being used by TV broadcasters for analog transmissions. American broadcasters have been given another set of airwaves, for digital TV, but they're not eager to forfeit their freebie. (Catherine Yang, September 2004). U.S. broadband developers have complained that wireless broadband is currently being allocated on the wrong spectrum, hampering the growth of the technology, according to former Federal Communications Commission (FCC) chairman Reed Hundt (Roy Mark, April 2004). The problem is said that wireless broadband is being designed where the radio frequencies are very high, and as a result, the radio waves cannot penetrate buildings. This rule was defined in the Telecommunications Act of 1996, and the U.S. congress needs to change this rule before this problem is solved.

The major barriers to U.S. high-speed broadband are both technical and political. In 2006, 30 million American homes and offices have signed up for basic broadband, which is much slower, costly, and less reliable. While the Telecommunications Act of 1996 was designed to open up residential telephone lines to competitors, the regional telecoms have lobbied congress and sought court decisions to reduce competition. Americans connect to the internet mostly through either cable or DSL. It has not been in the interest for either cable companies or telecoms to

support this new technology. Cable companies look at internet television as a competitor to their cable television franchises, and telecoms look at the possible competition from VOIP telephony. Usually, in the policy making area, when there is no national policy, to promote high-speed broadband, as in the case of the United States, it means that there is a policy to protect the existing companies from competition. The loser is the customer and the overall capacity of the American economy to maintain its leadership in the global economy.

#### **Broadband Policy of Japan and South Korea**

It is ironic that the United States, a country that prides itself on supporting the free market and opposing protectionism, is in the position of placing regulatory and license barriers to slow down high-speed broadband development. In contrast, the successful broadband rollout in South Korea and Japan had only minor technical breakthroughs, and no massive governmental subsidies, but had a clear national policy put in place by their governments. They forced the incumbent phone companies to let startups use their networks at reasonable, government-set prices. Startups such as Hanaro in South Korea and Yahoo! BB in Japan competed strongly with their giant rivals, driving speeds up and prices down. Competition created by national governmental policy created a level playing field which benefited the consumer and generated demand for content that stimulates economic growth.

The U.S. is even further behind Japan and South Korea in wireless, mobile-phone based broadband access. A notable success is the story of Japan's NTT DoCoMo, which introduced the "i-mode" service that has provided the Japanese with instant email, financial services and internet access on a cost-effective basis to over 72 million Japanese. The Japanese government has been instrumental in this success. In 2000, Prime Minister Yoshiro Mori appointed the Information Technology Strategy Council which put together a plan to bring high-speed broadband to 40 out of 46 million Japanese households. The government's plan, through a public-private partnership, was to make cost-free spectrum available for each wireless upgrade, thereby supporting the new technologies, while maintaining protections for consumers. This policy has led to a quick transition to fourth generation "i-mode" phones which can support high-definition television; movie downloads, advanced gaming, and other multimedia applications.

### **How to Catch the Rolling Ball?**

To have any hope of joining the world's broadband vanguard, more deregulation is the key. The U.S. must create a viable third competitor (Catherine Yang, Sept. 2004). According to FCC, the U.S. aims to classify both the phone companies' DSL and cable operators' cable-modem operations as "information services". The Commission recently adopted its fourth report on the availability of advanced telecommunications capability in the United States, and that advanced telecommunications capability is being deployed on a reasonable and timely basis to all Americans. (FCC News Report, Sept. 2004)

FCC reported the significant development of new access technologies that has taken place. It highlights the growth in Wi-Fi Internet access hotspots, WiMax, third-generation mobile phones, personal area networks, satellite technologies, fiber to the home, and broadband over power lines, in addition to more familiar cable modem and DSL services. Recently, FCC also described the development of new Internet-based services, such as voice communications over Internet protocol (or VoIP).

Chief among these rival services, 802.16-WiMax looks most promising. It can extend broadband wireless over longer distances and at higher speeds than current Wi-Fi or Bluetooth systems. Its access range is up to around 30 miles (48 kilometers), compared to Wi-Fi's 300 feet (91 meters) and Bluetooth's 30 feet. It supports data transmission speeds up to 75Mbps (bits per second), compared to the popular 802.11b Wi-Fi standard's 11Mbps or the 802.11a's 54Mbps. In addition to its distance and speed advantages, WiMax doesn't require line-of-site transmission. Many experts expect WiMax service to be deployed in rural areas, where high-speed cable infrastructure is either poor or nonexistent. Some also see opportunities to use the technology for backhauling traffic between Wi-Fi hot spots, as well as for creating large wide-area hot spots.

The recent FCC reports demonstrate that the United States is making substantial progress in closing the gaps in access for traditionally underserved areas. Those in rural areas, those with low incomes, and those with disabilities – who stand in particular need of advanced services—are finding advanced services more available.



Federal and State governments can provide other incentives to create a third rival. Government can attract broadband to populated regions without tax dollars by creating pools of local buyers – a measure Canada has adopted to reach its vast rural expenses.

At the same time, from the international point view, no nation is taking the lead in developing a coherent international broadband policy. There is no movement to a common global allocation of spectrum for wireless broadband, for instance. Yet communication is one area where there is a real opportunity for the US and Europe to convene an international forum that would articulate a rule of law for broadband technologies. “What is needed is a new, treaty-based WTO approach to the problem. It would set out a framework covering such matters as a precise definition of universal broadband service and appropriate timetables and target. National and regional measures would follow to ensure public or private funding and oversee implementation.” (Reed Hundt and Scott Beardsley, Dec. 23, 2004)

Anyway, in order to catch up the global race for the next-generation Internet and the new businesses it can spawn, the key is the U.S. must make policy change and create vigorous competition to drive the low prices and high speeds in the country.

## **The Future of High-Speed Broadband**

Over the next few years, broadband connections will go into the air, the home, the taxicab, and the all businesses (Gabriel Allan and Evan Schuman, Business Week, September 2004). Broadband will include a whole new suite of concepts. Those concepts will include everything from Internet security devices to audio and video, from video collaboration and file sharing to distribute computing and data storage. And the much-ballyhooed convergence of voice, data and multimedia also will be a factor. The future of communication is high-speed, wide-band digital with interactive data and voice,” says David Robinson, president of the Motorola broadband communications sector. “A company that offers principally video or data will be able to offer competitive voice. For the business user, that will mean more control, more variety and more choice.” The future of broadband offers great opportunities, as long as executives think about and plan for it in advance. Executives will have exciting new tools for sales, marketing, product development and other business tasks that can be enhanced or simplified by using broadband. But issues of security, robustness, pricing and coverage will continue to arise, and it’s important to watch the changing landscape.

While several broadband leading countries are offering up online digital content market which includes gaming, music, and video, most U.S. broadband providers are only just beginning to roll out services. The high-speed Internet connections running at speeds of 10 to 20 Mbps won’t become available to most consumers for at least three to six years, according to Walt Megura, general manager of Nortel Networks.

## **Conclusion**

The high speed Internet with wired or wireless broadband will certainly leave no field untouched. While several Asia and Europe countries have quickly adopted and developed broadband, the U.S. lags behind the move. As Productivity growth and military power are now driven primarily by information systems, which are becoming heavily Internet-dependent, the broadband problem is becoming a major bottleneck in the U.S. and world economy. The cause is less about technological prowess and more about policy. Policymakers should make structural reforms in industry, policy, and the U.S. regulatory system. Appropriate measures include structural separation of switching, enhanced services, and data transport in the telephone industry; divestiture of content from transport in the cable television sector; mandatory open interfaces for interconnection; increased financial transparency and disclosure; and reforms in regulatory systems to increase their efficiency, high technology expertise, and political independence. In short, more deregulation is the key. A new era in the evolution of broadband is approaching, but it won’t happen overnight.

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# **E-Business Adoption in the SME's: towards an Integrated Theoretical-Empirical Research Framework**

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## **Abstract**

This paper presents the results of an in depth analysis of 189 empirical published research papers between January 1996 and June 2006 focusing in the conceptualizing and measuring of e-business adoption; and develops an integrative research model for assessing the adoption of e-business in the SME's at firm level. The model integrates and combines the key results of the 189 empirical studies reviewed, with the main theoretical models used to explain innovation adoption - the Innovation Decision Process by Rogers, the Technology Acceptance Model by Davis, Bagozzi & Warshaw, the Technology-Organization-Environment framework by Tornatzky and Fleisher-, combined with the Resource-Based Theory, to generate an holistic model that can be empirically tested to explain e-business adoption at firm level. It also integrates in the research framework an entrepreneur perspective since in some e-business studies entrepreneurship and e-business innovation have been connected. The proposed model is part of a theoretical-empirical research project aimed to explain e-business adoption in Mexican exporting SME's.

## **Introduction**

The emergence of the Internet in the business world has affected Small and Medium Enterprises (SMEs) as much as it has large corporations. It was initially viewed as an extraordinarily powerful tool enabling small business to "level the playing field" when compared to larger firms (e.g., Hsieh and Lin, 1998; Zang and Vokurka, 2003). SMEs constitute a great part of the world industry and economy. This and the fact that they have special prerequisites concerning human and technology resources makes them an interesting research focus when looking at the transformation process toward e-business (EB) (Ihlström and Nilsson, 2003). While many small firms have pursued EB activities other have been reticent and slower to adopt these new technologies (Thong, 1999; Auger, Barnir and Gallagher, 2003; Zang and Vokurka, 2003). This phenomena has led several researchers to study the adoption, use and value of electronic business in that way that adoption of EB has emerged into an active research area in the information systems (IS) discipline (Straub et al. 2002) as well as in the management and marketing disciplines. Nevertheless, most of the studies on EC and EB adoption were undertaken in USA and Europe. There are fewer studies from the Asia-Pacific region and almost none from Latin-American countries.

As the purpose of this study is to develop a model aimed to explain EB adoption by Mexican SMEs, two basic questions arise to get insight on EB adoption: *what is e-business adoption?* And *what explains e-business adoption in SMEs?* To answer these questions, three aspects of EB adoption serve as a background for this research: the obvious choice for a theoretical approach appears to be innovation adoption theory. In this line of research, a lot of knowledge has been gathered on conceptualizing innovation adoption, mechanisms of organizational innovation adoption behavior and related firm characteristics. However, in innovation adoption research it is generally assumed that the innovation, often a technological innovation, has stable, pre-determined features and is considered for adoption when the organization judges it to be beneficial to the business. Yet, EB is an innovation that is largely shaped by the adopting organization. After all, it is the organization that decides how to apply ICTs. Also it can be assumed that EB is about generating business and value creation. Innovation is not a goal in itself, but an instrument for a firm to achieve its (strategic) goals. ICTs are applied in order to create business. A second choice is to review the existing literature on empirical research dedicated to explain EB adoption. The review can give an overview of the existing body of empirical knowledge on e-business adoption in SMEs useful in the developing of a theoretical-empirical model aimed to explain EB adoption. A third choice has to do with entrepreneurship. In entrepreneurship

literature, the instrumental role of innovations in creating business can be recognized. It was Schumpeter that pointed at innovativeness as the key ingredient to entrepreneurship (Schumpeter, 1934). As Drucker put it: innovation is the specific tool of entrepreneurs, the means by which they exploit change as an opportunity for a different business or a different service (Drucker, 1985). Technological innovation offers a multitude of opportunities for entrepreneurship. Apparently, some SMEs are very good at discovering and realizing Internet-based business opportunities (e.g. IDC, 2002) while others don't.

Accordingly with the above mentioned, in this study, besides the empirical perspective, the phenomenon of EB adoption is considered from two theoretical perspectives, innovation adoption and entrepreneurship. In reviewing literature from both streams, it becomes clear that innovation and entrepreneurship have a strong relationship. Nevertheless, each perspective has its own view on seizing business opportunities offered by innovations, and emphasizes different aspects of business processes. These three aspects of the innovation literature will be used to develop an integrated theoretical-empirical research model aimed to explain EB adoption.

## Literature Review

### Review of EB Adoption Empirical Literature

To find relevant academic publications, five multidisciplinary databases were used: *Proquest*, *EBSCO*, *Web of Science*, *Emerald Collection* and *Science Direct*. The following keywords were used: *Internet*, *World Wide Web*, *electronic commerce*, *electronic business*, in combination with the keywords: *adoption* and *use*. A was conducted search for studies published between 1996 and June 2006. This time span was determined by two considerations. First, 1996 was the first year in which several academic articles were published concerning the adoption of the Internet (using the aforementioned search engines). Second, the 1st of June 2006 was set as a practical limit to the search so as to enable analysis. Studies focusing on consumers were omitted. In addition to the Internet search results a number of relevant refereed Publications were used, which were either cited in references in the publications found or given to as by colleagues. In total, this procedure yielded 189 studies<sup>1</sup>. There is no guarantee that the review of existing literature from this time span is complete. However, the search engines used safeguard the inclusion of publications on this topic in the most relevant journals. In the studies under review, EB adoption is conceptualized from various viewpoints. Some authors look at the type of applications that are used to characterize EB adoption. Others investigate the value of EB and how this is achieved or the intensity with which applications are used. In most studies a combination of aspects or features is used to obtain a characterization of EB adoption.

Seven dimensions of e-business adoption were found:

- **Activity.** An activity-based aspect offers insight into the way that the company is supported by ICT. Usually, several business processes are listed, such as sending purchase orders to suppliers or offering information to customers. This dimension of adoption was frequently applied in the studies examined (113 out of 189).
- **Application.** In these studies, adoption is measured by the use of certain applications such as e-mail, www, website, Intranet etc. in the company. Sometimes, the variable of adoption is a dichotomous variable referring to the adoption or non-adoption of only one application. Many of the studies (112 out of 189) focused on an application-based measure of adoption.
- **Value creation.** Another category of studies characterizes adoption based on the value that the use of Internet-based applications has for the business. Usually, the respondents are asked about the actual or perceived benefits gained by using e-mail, the Internet or the World Wide Web (for example Daniel & Grimshaw, 2002).
- **Intensity of use.** In this category, measures represent some sort of intensity or frequency: how much, how often or how widespread is the innovation being used? For example, the number of times per day that the Internet is used (Teo, Lim & Lai, 1999) or the number of departments with an Intranet application (Eder & Ibaria, 2001).
- **First time of use.** A classic measure of diffusion is based on the notion that it is possible to classify organizations into adopter categories, based on the point in time when they adopt the innovation relative to

other organizations (Rogers, 1995). For example, Cockburn and Wilson (1996) investigate the number of years a company has access to the Internet. The measure can also be used internally in organizations to measure diffusion (for example Eder & Igarria, 2001).

- **Stage of development.** In only a few studies (42 out of 189), researchers assess the adoption of Internet using a stage or level of development model. This is in contrast with literature on the Internet or e-business strategy, where the use of multi-stage business models is very common to characterize companies and their use of the Internet (for example Fischer, 1998; Venkatraman & Henderson, 1998; Amit & Zott, 2000; Earl, 2000; Timmers, 2000).
- **Other.** Most studies surveyed fall into one or more of the previous categories, apart from a few exceptions. A noteworthy example of such an exception is the study by Cockburn and Wilson (1996), later continued by Ng, Pan and Wilson (1998) and Greaves, Kipling and Wilson (1999), who also characterizes the adoption of the World Wide Web by the cost of maintaining the company's website.

Many of the studies investigate the adoption of the Internet or the World Wide Web in business. This is usually limited to assessing the functionality of the company's website, or the support offered by the Internet for a list of business activities or processes. To describe EB adoption many authors rely on measures from various viewpoints to obtain a richer picture of the phenomenon. In doing so, most authors pass over the conceptualization of their subject of study, and focus on operationalization. Consequently, most studies are clearly empirical observations and do not offer conceptual or theoretical contributions. Among the 189 studies in this survey, 47 focus on explaining the adoption of electronic business<sup>2</sup>. These are surveys as well as multiple case studies. Nine studies aim at explaining adoption on the individual level and the others focus on firm level. A large variety of variables and their relation to e-business adoption have been investigated. The determinants of adoption or use can be roughly divided into two categories: *perceived innovation characteristics*, and *adopter characteristics*.

We also investigated the way in which EB adoption is explained. In 26 of the 47 studies under investigation, the authors' objective is to explain the adoption of ICT technologies. The use of perceived innovation characteristics to explain e-business adoption clearly prevailed in the studies reviewed. In addition, adopter characteristics or network influences were used as explanatory variables. We classified the explanatory variables used into three main categories of explanatory variables. For each explanatory variable we examined its reported relationship to e-business adoption. In the studies under review, EB adoption is conceptualized from various viewpoints. Some authors look at the type of applications that are used to characterize EB adoption. Others investigate the value of EB and how this is achieved or the intensity with which applications are used. In most studies a combination of aspects or features is used to obtain a characterization of e-business adoption. A large number of studies (36 out of 47) examine the role of *perceived innovation characteristics* in the adoption of EB. The attributes of the innovation at hand as perceived by the adopter have proven to be significantly instrumental in predicting adoption (Tornatzky & Klein, 1982). The majority of the studies reviewed examine the adoption of Internet related technologies in the tradition of Rogers (1995). A smaller number of studies use the TAM or Technology Acceptance Model (Davis, 1989; Davis, Bagozzi & Warshaw, 1989). An even smaller number of studies use the TOE or Technology-Organization-Environment model (Tornatzky & Fleisher 1990). The TOE model is consistent with the innovation diffusion theory of Rogers (1995).

The second category of determinants of adoption consists of *adopter characteristics*. The adopter is a firm, or an individual within a firm depending on the level of analysis. Looking at the list of variables found in the review some clusters can be distinguished:

- **Relevant knowledge and experience.** Several determinants of adoption relate to the presence of knowledge and experience relevant to e-business like it-knowledge or experience with information systems. In general, relevant knowledge and experience facilitate e-business adoption. Examples of these variables are adoption of clusters of related it-innovations (LaRose & Hoag, 1996), knowledge barriers (Nambisan & Wang, 2000), organizational readiness in terms of IT knowledge and use (Mehrtens, Cragg & Mills, 2001), and managing director's education (Lal, 2002).
- **Organizational size.** 15 studies investigate the role of firm size on adoption with various results (LaRose & Hoag, 1996; Sillince, Macdonald, Lefang & Frost, 1998; Premkumar & Roberts, 1999; Nambisian & Wang, 2000; Eder & Igarria, 2001; Wei, Ruys, Van Hoof & Combrink, 2001; Daniel & Grimshaw, 2002;

Lal, 2002; Sadowski, Maitland & Van Dongen, 2002; Windrum & De Berranger, 2002; Zhu, Kraemer & Xu, 2003; Oyelaran-Oyeyinka and Lai et al., 2005; Dinleroz & Hernández-Murillo, 2005; Levenburg, 2005 y Zhu & Kraemer, 2005). In some studies, the influence of size on adoption is positive, in others insignificant.

- **Network pressure.** Outside the firm, actors in the firm's network or value chain motivate the firm or exert influence on the firm to adopt e-business. In general, network pressure has a positive influence on e-business adoption in the firm. Examples of variables in this group are external pressure (from trading partners) (Premkumar & Roberts, 1999), competitive pressure (Premkumar & Roberts, 1999; Mehrtens, Cragg & Mills, 2001; Raymond, 2001; Sadowski et al., 2002), customer and supplier pressure (Daniel & Grimshaw, 2002), and e-mail use by trading partners (Sillince et al., 1998). In studies on individual level, equivalent determinants are used. For employees, adoption can be influenced by a normative belief about EB within the firm and a motivation to comply (Cheung et al., 2000; Chang & Cheung, 2001; Cheng, Cheung & Chang, 2002).
- **Network orientation.** A firm can turn to actors in the firm's network for information and support. Several studies demonstrate that EB adoption is facilitated by a network orientation. Examples of determinants in this group are external training and technical support (Premkumar & Roberts, 1999), technological collaboration (Lal, 2002), the degree of involvement of a supply side institution (Nambisan & Wang, 2000), and the involvement of a change agent (De Berranger, Tucker & Jones, 2001). In studies on an individual level, EB adoption is positively influenced when employees are facilitated by training, support and easy access to Internet (Cheung et al., 2000; Chang & Cheung, 2001; Cheng, Cheung & Chang, 2002).
- **Entrepreneurship.** Less evident as a group is a number of variables that refer to a positive and encouraging attitude towards innovation within the firm and strategic importance that is being attached to e-business. Organizational support was found to be positively related to adoption in various studies (Sillince et al., 1998; Premkumar & Roberts, 1999; Beatty, Shim & Jones, 2001). Two studies observe the importance of an in-house champion (LaRose & Hoag, 1996; Mehrtens, Cragg & Mills, 2001). Teo and Too (2000) found that firms with a more strategic view of information systems use the Internet more proactively to tap new business opportunities and achieve competitiveness. Katz and Dennis (2001) found that firms are likely to undertake innovations like e-commerce when they see innovation as central to their vision for the firm. In an individual level study, Busselle, Reagan, Pinkleton and Jackson (1999) found that the adopter's need for innovativeness was the strongest factor in explaining Internet use.

Apparently, characteristics of the adopter play a role in the adoption of EB either through the perception of the attributes of EB or directly. In the e-business literature reviewed six groups of adopter characteristics that were found to be related to the adoption of EB: the organization's relevant knowledge and experience, organizational size, perceived network pressure, network orientation and entrepreneurship. It appears that innovation requires an organization that has a sound knowledge base, is able to acquire and process knowledge, establishes effective external linkages, and encourages innovation. In innovation literature, several authors deal with organizational attributes that enhance organizational innovativeness (Damanpour, 1991). In his meta-analysis on determinants of organizational innovation, Damanpour finds ten statistically significant associations. The majority of determinants deal with internal structural characteristics of the organization: specialization, functional differentiation, professionalism, centralization, administrative intensity, slack resources, and internal communication. Specialization, differentiation, and professionalism represent the firm's complexity (Damanpour, 1991). Rogers reports relations between organizational innovativeness and a group of structural variables comparable to Damanpour: complexity, centralization, formalization, organizational slack, interconnectedness, and size (Rogers, 1995). However, Rogers states that several hundreds of studies show rather low correlations of each of the independent variables with organizational innovativeness.

From the review and the subsequent discussion on the findings, a model emerges of e-business adoption from an innovation adoption perspective. This model of e-business adoption is presented in Fig. 1. Note that the relation between perceived innovation characteristics and e-business adoption has been found repeatedly in literature and is therefore represented by a continuous arrow. The other relationships (dashed arrows) are hypothetical and need further exploration.

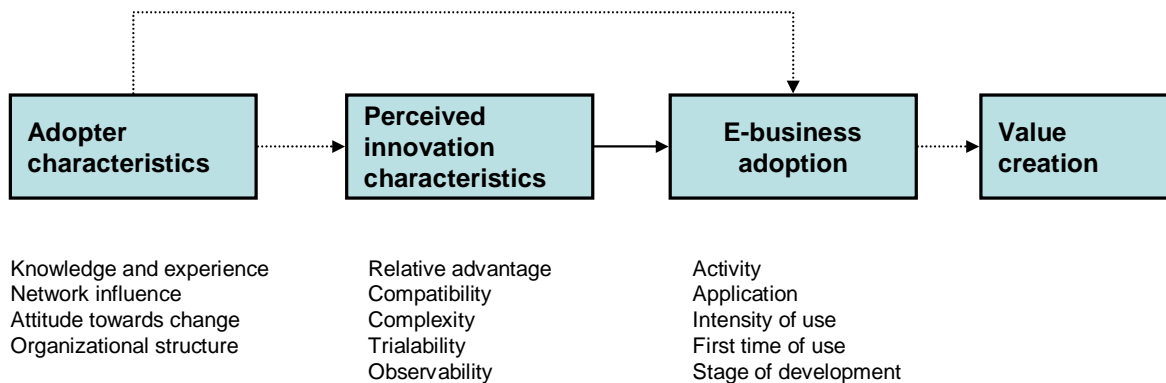


FIG. 1: E-BUSINESS ADOPTION: THE INNOVATION ADOPTION PERSPECTIVE

### Review on Innovation Adoption Theory

The innovation decision process by Rogers (1995)

Rogers conceptualizes innovation adoption as a process through which an individual or other decision making unit passes from first knowledge of an innovation, to forming an attitude towards the innovation, to a decision to adopt or reject it, to the implementation of the new idea and to the confirmation of this decision (see Fig. 2). Central to Rogers' model are the innovation characteristics as perceived by the adopter. Rogers postulates that 'subjective evaluations of an innovation, derived from individuals' personal experiences and perceptions and conveyed by interpersonal networks, drives the diffusion process' (Rogers, 1995: p. 208). Interpersonal networks together with mass media channels make up communication channels through which subjective evaluations of an innovation are communicated to the potential adopter. The adopter's evaluation of certain characteristics of the innovation can inhibit adoption, such as its perceived complexity, or encourage adoption, such as its perceived advantages. In his review, Rogers (1995) investigates five perceived innovation characteristics:

- **Relative advantage.** The degree to which an innovation is perceived as being better than the idea it supersedes,
- **Compatibility.** The degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters,
- **Complexity.** The degree to which an innovation is perceived as relatively difficult to understand and use,
- **Trialability.** The degree to which an innovation may be experimented with on a limited basis, and
- **Observability.** The degree to which the results of an innovation are visible to others.

The Technology Acceptance Model or TAM (Davis, 1989; Davis, Bagozzi & Warshaw, 1989).

This model is an individual level adoption model based on Fishbein and Ajzen's Theory of Reasoned Action (TRA) (1975). Davis introduces the TAM as an adaptation of TRA. TAM is an intention-based model developed specifically for explaining and/or predicting user acceptance of computer technology. The original model is depicted in Fig. 3.

TAM suggests that usefulness and ease of use predict individual attitude toward use of a system, which then influence intention to use and system usage (Davis et al., 1989). TAM proposes two specific belief constructs - perceived usefulness and perceived ease of use as determinants of an individual's technology adoption decision (Davis, 1989). Perceived usefulness (PU) is defined as 'the degree to which a person believes that using a particular system would enhance his or her job performance' (Davis, 1989, p. 320). Perceived ease of use (peou) refers to 'the degree to which a person believes that using a particular system would be free of effort' (Davis, 1989, p. 320). TAM is an individual level adoption model; however Riemenschneider, Harrison and Mykytyn used the model to explain website adoption on *company* level. They justify using the model by arguing that 'it adoption decisions in small businesses are typically made by a single executive' (Riemenschneider, Harrison & Mykytyn, 2003: 270).

Prior conditions:

1. Previous practice
2. Felt needs/problems
3. Innovativeness
4. Norms of the social systems

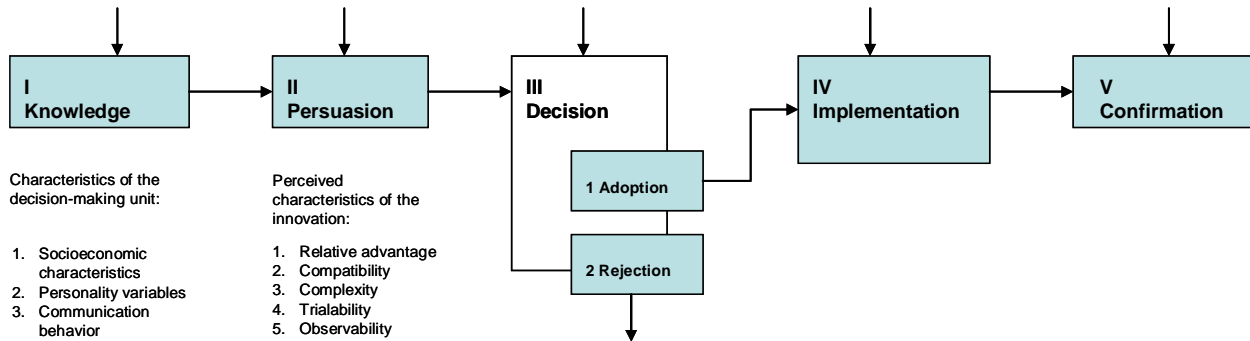


FIG. 2: THE INNOVATION DECISION PROCESS BY ROGERS (1995)

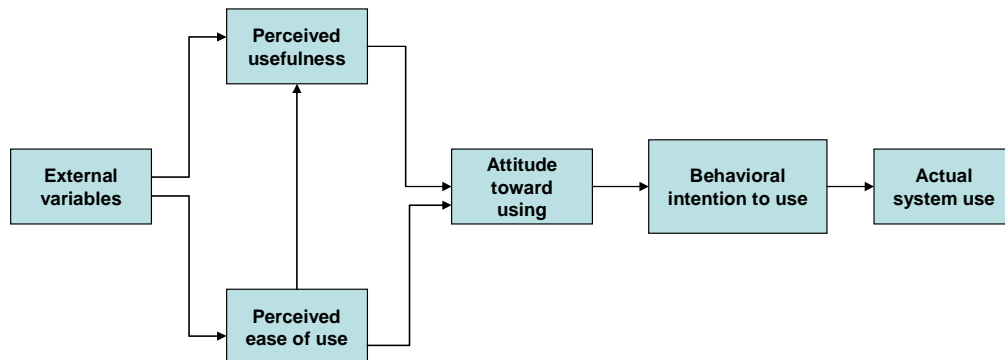


FIG. 3: THE TECHNOLOGY ACCEPTANCE MODEL BY DAVIS, BAGGOZZI & WARSHAW (1989)

The Technology-Organization-Environment or TOE by Tornatzky & Fleischer (1990),

To study adoption of general technological innovations Tornatzky and Fleischer (1990), developed the *Technology -Organization-Environment* (TOE) framework which identified three aspects of a firm's context that influence the process by which it adopts, implements and uses technological innovations: (a) Technological context describes both the internal and external existent technologies in use and new technologies relevant to the firm, as well as the pool of available technologies in the market (b) Organizational context refers to descriptive measures about the organization such as scope, size, the centralization, formalization, and complexity of its managerial structure; the quality of its human resource, and the amount of slack resources available internally. (c) Environmental context is the arena in which a firm conducts its business –its industry, competitors, and dealings with the government (Tornatzky and Fleischer, 1990, pp. 376-383). As a generic theory of technology diffusion, the TOE framework can be used for studying different types of innovations (Zhu and Kraemer, 2005) According to the typology proposed by Swanson (1994), there are three types of innovations: Type I innovations are technical innovations restricted to the Information systems (IS) functional tasks (such as relational databases); Type II innovations apply IS to support administrative tasks of the business (such as financial, accounting, and payroll



systems); and Type III innovations integrate IS with the core business where the whole business is potentially affected and the innovation may have strategic relevance to the firm. From the above, we consider EB a Type III innovation in the sense that EB is often embedded in a firm's core business process. Fig. 4 shows the TOE framework as adapted by Zhu et al., (2003) to investigate EB adoption at firm level.

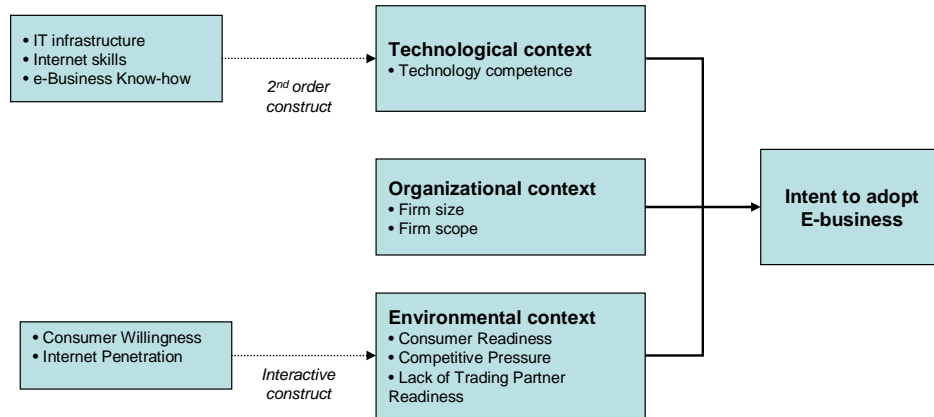


FIG. 4: THE TECHNOLOGY-ORGANIZATION-ENVIRONMENT BY TORNATZKY AND FLEISCHER (1990) AS ADAPTED BY ZHU ET AL. (2003)

Fig. 5 shows a more developed variation of the TOE model proposed by Zhu and Kraemer (2005) for assessing EB use and value at the firm level. They propose to use six factors within the TOE framework as drivers of EB use. They propose to integrate the TOE framework and the resource based theory to develop a conceptual model that can be used to evaluate in an integrative way, the EB adoption phenomena, including the post-adoption variations in usage and value of EB.

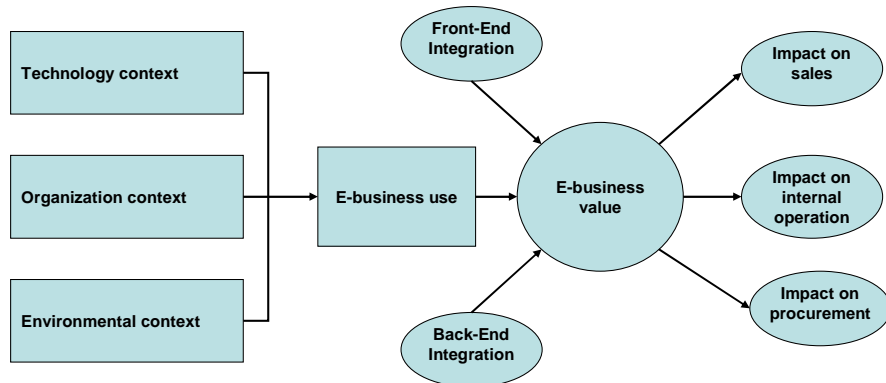


FIG. 5: THE TECHNOLOGY-ORGANIZATION-ENVIRONMENT BY TORNATZKY AND FLEISCHER (1990) AS ADAPTED BY ZHU AND KRAEMER (2005) TO EVALUATE EB ADOPTION

### **Entrepreneurship and Innovation Adoption**

Innovation and entrepreneurship have a strong relationship. This leads many authors to evade discrimination between the concepts and use the concepts interchangeably (Sexton & Camp, 1993). In order to understand the relationship between entrepreneurship and innovation it is important to understand what connects the two concepts as well as what discriminates them. Barton Cunningham and Lischeron (1991) typify this view on entrepreneurship as the 'Classical School'<sup>3</sup>. In this school of thought, innovation, creativity, and discovery are the key factors. It was Schumpeter that pointed at innovativeness as the key ingredient of entrepreneurship (Schumpeter, 1934). He defined innovation as the introduction of a new product or a new quality of a product, a new method of production, a new market, a new source of supply of raw materials or half-manufactured goods, and finally implementing the new organization of any industry (Schumpeter, 1934). In the early works of Schumpeter, much attention is paid to the role of the entrepreneur as the personification of innovation. It is the entrepreneur that introduces new combinations (Hagedoorn, 1996; McDaniel, 2000). In line with this view, entrepreneurship has been defined as the creation of new business, initiated by individuals (for example, Gartner, 1985; Low & MacMillan, 1988). Schumpeter recognized that 'the entrepreneurial function need not be embodied in a physical person and in particular in a single physical person. Every social environment has its own ways of filling the entrepreneurial function.' (Schumpeter, 1989: p. 260). The focus in research shifted from the entrepreneur to entrepreneurship. The majority of definitions of entrepreneurship indeed focus on the pursuit of opportunity (Kirzner, 1979; Stevenson & Gumpert, 1985; Stevenson, Roberts & Grousbeck, 1989; Sexton & Camp, 1993; Churchill & Muzyka, 1994; Venkataraman, 1997; Timmons, 1999; Shane & Venkataraman, 2000). They define entrepreneurship as a process, by which individuals -either on their own or inside organizations- pursue opportunities without regard of the resources they currently control. Research however is dominated by micro-level analysis using the individual or the firm as level of analysis (Davidsson & Wiklund, 2001). Entrepreneurship on firm level is generally called corporate entrepreneurship and refers to new venture creation by individuals or teams within the firm, or strategic renewal i.e. wealth creation through the new combinations of resources (Guth & Ginsberg, 1990). Wiklund defines entrepreneurship as 'taking advantage of opportunities by novel combinations of resources in ways that have impact on the market' (Wiklund, 1998: p. 13). Evidently, entrepreneurship centers around innovation as Schumpeter intended: new combinations. All entrepreneurial behavior can be considered innovative as it entails the discovery and implementation of new ideas. However, innovation does not always result in the creation of profit or wealth (Guth & Ginsberg), or an impact on the market (Wiklund, 1998; Stopford & Baden-Fuller, 1994). It is the exploitation of opportunities resulting in economic value creation that separates entrepreneurship from innovation (Sexton & Camp, 1993; Churchill & Muzyka, 1994). Thus, from an entrepreneurship perspective, the adoption of e-business may be considered an entrepreneurial act when it results in the exploitation of an opportunity.

In the entrepreneurial process, opportunities play a central role. De Bono describes an opportunity as 'something you do not yet know that you want to do – and can' (De Bono, 1978: p. 15). In a business context, Sexton and Camp define opportunities as 'creative ideas that possess a known and accessible potential for generating pure profit or economic wealth' (Sexton & Camp, 1993: p. 199). Christensen, Madsen and Peterson (1994) define an opportunity as a possibility for new profit potential, through (a) the founding and formation of a new venture, or (b) the significant improvement of an existing venture. The exploitation of opportunities is a means to improve the financial performance of a firm. Some opportunities offer competitive advantage that only in time will improve the company's financial performance (Zahra & Covin, 1995). Basically, entrepreneurial opportunities can stem from Schumpeter's five different loci of change: new products of services, new geographical markets, new raw materials, new methods of production and new ways of organizing (Eckhardt & Shane, 2003). The introduction of ICTs in a firm opens up opportunities and may lead to different types of value creation. The adoption of EB may incrementally improve existing ways of working, but may also open up new markets or generate new products or services. In this study, EB adoption is considered entrepreneurial when economic value is created from a new means-end framework resulting in new ways of working for the firm that have an impact on what is offered on the market.

Before an innovation can be exploited, an opportunity must be perceived by the firm (Shane, 2000). Opportunity recognition is considered the important first step in the entrepreneurial process. Moreover, opportunity recognition has been called ‘the core of entrepreneurship’ (Kirzner, 1973; Timmons, Muzyka, Stevenson & Bygrave, 1987). Long and McMullan (1984), Bhave (1994), De Koning (1999), Sigrist (1999), Lumpkin, Hills and Shrader (2001), have modeled the opportunity recognition process. Although they each use different terms, the essence of the process is that an initial idea for creating new business is discovered and subsequently developed into a viable business opportunity. The opportunity recognition process is subdivided into two phases: opportunity discovery and opportunity development (see Fig. 6). Studies on *how* opportunities are discovered revealed that entrepreneurs encounter ideas either by chance or through deliberate search (Vesper, 1989; Vesper, Shragge & McMullan, 1989; Gaglio, 1997; Ardichvili & Cardozo, 2000; Chandler, Dahlquist & Davidsson, 2002).

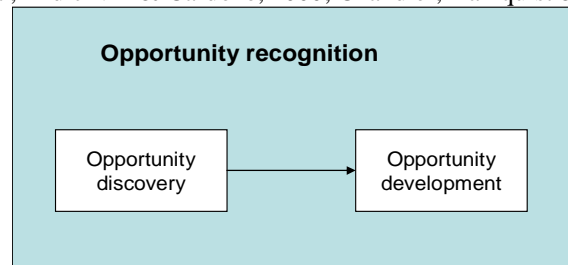


FIG. 6: THE OPPORTUNITY RECOGNITION PROCESS

Having an initial idea for new business is only the starting point of the entrepreneurial process. Many authors show that considerable development, incubation or elaboration is necessary to turn an initial idea into a full-fledged business opportunity (e.g. Long & McMullan, 1984, Bhave, 1994; De Koning, 1999; Lumpkin, Hills & Shrader, 2001). The evaluation of opportunities is an important aspect of developing initial ideas into business opportunities. Insights are evaluated and the feasibility and desirability of the opportunity are checked (Hills, Shrader & Lumpkin, 1999; Lumpkin, Hills & Shrader, 2001). The opportunity must be ‘wanted’, both by potential customers (Singh, 2001), and the entrepreneur (Christensen, Madsen & Petersen, 1994). Some authors focus specifically on the more formal evaluation of opportunities (Timmons et al., 1987; Vesper 1989; Zimmerer & Scarborough, 1998; Timmons & Muzyka, 1994; Timmons, 1999). Evaluation criteria include market and financial analysis, risk assessment, and the qualities of the management team. In sum, opportunity recognition is the process of developing an initial idea into a feasible and desirable business opportunity. In this process, the perceived market need and the (attainable) resources are assessed. The entrepreneur considers the opportunity’s potential to create value and decides to proceed with exploitation of the opportunity or not. As far as e-business adoption is concerned, it is not very difficult to see the relation with opportunity recognition. In order to exploit the possibilities of ICTs and create economic value, an opportunity for EB must be perceived.

Although Schumpeter recognized that every social environment has its own ways of filling the entrepreneurial function (Schumpeter, 1989: p. 260), opportunity recognition research has hardly touched upon the subject on *firm level*. An exception is the longitudinal study by Schwartz and Teach (Teach, Schwartz & Tarpley, 1989; Schwartz & Teach, 2000). Their analysis is on firm level, although they do not discuss their choice for this level of analysis. De Koning and Brown (2001) are explicit in their choice for firm-level analysis. They show that it is possible and fruitful to do research into opportunity recognition antecedents on firm level when firm-level constructs are used. They establish that entrepreneurial orientation and customer orientation have a significant positive impact on entrepreneurial alertness. Actually, De Koning and Brown establish the effect of these factors on the firm’s scanning behavior in different contexts. In these studies there are suggestions that knowledge and experience, network contacts, innovativeness and pro-activeness are important. However the attention for the firm’s strategic orientation stands out. Entrepreneurial behavior is driven by opportunities, which entails an external (market) orientation rather than an internal (resource) orientation. Furthermore, entrepreneurial behavior is oriented towards opportunity pursuit. Acting rapidly upon opportunities involves risk-taking, creativity, and innovativeness

(Stevenson & Gumpert, 1985). Miller (1983) and Covin and Slevin (1991) suggest innovation, risk-taking, and proactiveness are key dimensions of entrepreneurial activity focused on the discovery and pursuit of opportunities. In sum, knowledge and experience, network contacts, and strategic posture may explain opportunity recognition on firm level (depicted in Fig. 7).

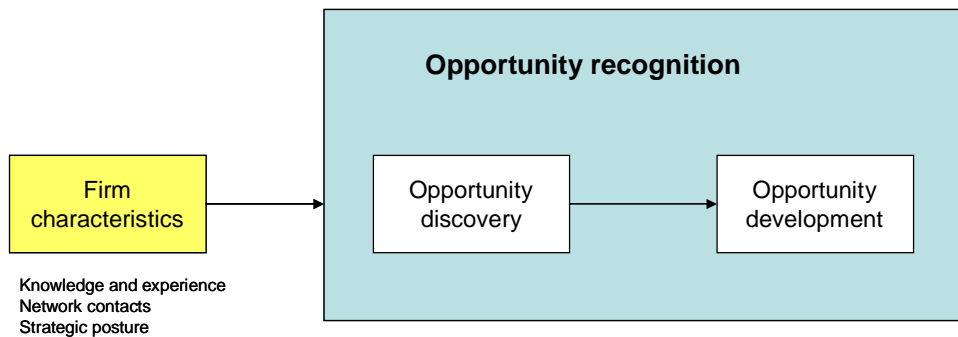


FIG. 7: FIRM LEVEL OPPORTUNITY RECOGNITION

How can an entrepreneurship perspective contribute to explaining the adoption of e-business? The technology is an innovation that forms the basis for an entrepreneurial opportunity. Opportunity recognition literature provides us with an understanding of this process. The entrepreneurship perspective clarifies *why* firms innovate. This is an important addition to innovation theory as it puts innovation into perspective. In sum entrepreneurship and innovation are strongly related, yet they are different concepts. Entrepreneurship and innovation are separated by the exploitation of opportunities resulting in economic value creation. Thus, from an entrepreneurship perspective, the adoption of EB may be considered an entrepreneurial act when it results in the exploitation of an opportunity. The introduction of ICTs in a firm opens up opportunities for e-business and may lead to different types of value creation. E-business may incrementally improve existing ways of working, but may also open up new markets or generate new products or services.

#### **The Resource Based Theory**

The resource-based view (RBV) provides a theoretical base for linking EB use and value (Zhu and Kraemer, 2005). Rooted in the strategic management literature, the RBV of the firm posits that firms create value by combining heterogeneous resources that are economically valuable, difficult to imitate, or imperfectly mobile across firms (Barney 1991; Peteraf, 1993). In the IS literature, the RBV has been used to analyze ICT capabilities (Mata et al., 1995) and to explain how ICT business value resides more in the organization's skills to leverage ICT than in the technology itself (Clemons and Row, 1991; Soh and Markus, 1995, Ross et al., 1996). That is, ICT business value depends on the extent to which ICT is used in the key activities in the firm's value chain. The greater the use and the wiser the use, the more likely the firm is to develop unique capabilities from its core ICT infrastructure (Zhu, 2004). Although the individual components that go into the ICT infrastructure are commodity-like, the process of integrating the components to develop a coherent infrastructure tailored to a firm's strategic context is complex and imperfectly understood (Milgrom and Roberts, 1990; Weill and Broadbent, 1998). Thus, ICT-enhanced capabilities that integrate various resources cannot be easily imitated and have the potential to create business value (Bharadwaj, 2000; Zhu and Kraemer, 2002). The unique characteristics of the Internet can be examined and linked in three ways

through which EB can create value –transactional efficiencies, market expansion, and information sharing (Zhu and Kraemer, 2005). Combining them with the RBV, they developed an EB value hierarchy as shown in Fig. 8. This value hierarchy depicts the unique characteristics of the Internet and how these characteristics enable value creation via EB. The bottom layer of the value hierarchy shows the unique characteristics of the Internet. The Internet is unique in terms of *open standard*, *public network*, and *global connectivity*.

From these Internet characteristics EB creates value in three ways, as shown in the middle layer of the value hierarchy. EB can substantially improve transactional efficiencies (Malone and Laubacher, 1998). Internet-based search capabilities can lead to a closer match between a firm and its customers in greater reach than before. In addition, EB can achieve lock-in by leveraging various interactive applications such as loyalty programs, virtual communities, and customization (Amit and Zott, 2001). At the same time the Internet connects EB to consumers in geographic areas that were costly to reach before the Internet (Steinfeld et al., 2002). Furthermore, conducting business on a platform with open standards facilitates information sharing along the value chain (Zhu, 2004). In sum, the open-standard connectivity and public network characteristics of the Internet enable EB value creation by improving transactional efficiencies, expanding the markets, and achieving information sharing and integration, as shown in the top layer of the value hierarchy in Fig. 8.

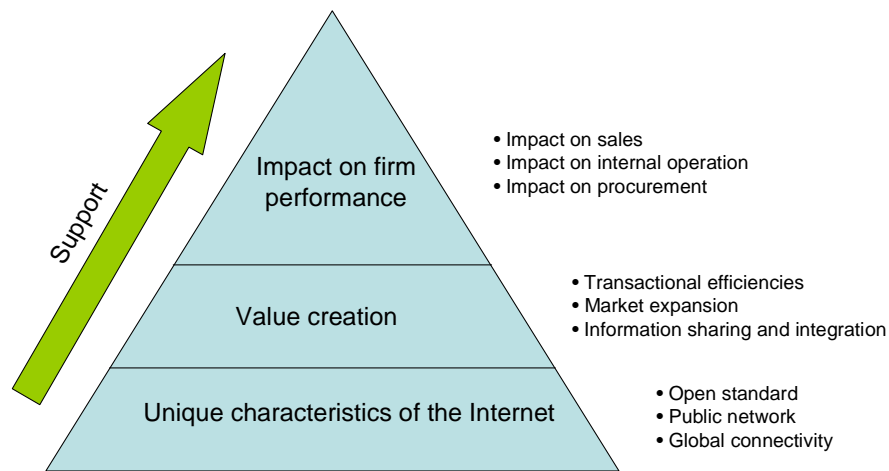


FIG. 8: E-BUSINESS VALUE HIERARCHY: FROM INTERNET CHARACTERISTICS TO VALUE CREATION. ADAPTED FROM ZHU AND KRAEMER (2005)

## The Proposed Research Model

This research aims to answer which firm characteristics explain e-business adoption in firms. The basic proposition in this study is that the ability of a firm to recognize and develop business opportunities for the application of ICTs is an essential factor in explaining EB adoption. Evident from both the innovation adoption and the entrepreneurship perspective is the role of knowledge and experience, the role of network contacts, and the importance of a positive attitude towards change in the adoption of e-business on firm level. On the other hand, entrepreneurship perspective emphasizes that the recognition of opportunities for e-business is facilitated by firm behavior involving innovation, risk-taking and pro-activeness.

In innovation literature, organizational innovativeness is often related to the internal structure of an organization, but in his extensive review, Rogers (1995) found rather weak correlation between organizational innovativeness and various structural variables like differentiation, centralization, formalization etc. More importantly, organizational structure is a non-behavioral organizational attribute, and as such does not make a firm entrepreneurial (Covin & Slevin, 1991). Miller and Friesen (1982) found that determinants of innovation in a firm

are to a very great extent a function of the strategy that is being pursued. As strategic posture is explicitly included in the theoretical model, little additional value of the internal organizational structure to explaining EB adoption is expected so we found that it is justifiable to leave the internal organizational structure out of the model.

Three major firm characteristics remain from the review of innovation adoption and entrepreneurship literature that relate to e-business adoption: knowledge and experience, social network contacts, and strategic posture. Therefore we propose to talk about perceived *opportunity* characteristics in the model. We assume that these perceived opportunity characteristics are the result of an evaluation of the business opportunity by a firm in its context. As in Rogers' model of the innovation decision process (Rogers, 1995), we assume that the characteristics of the firm influence the development of a perception of using the innovation in the firm. However, there are situations conceivable where a positive attitude does not lead to EB adoption. Thus, in the model, we need to allow for firm characteristics to have a direct influence on EB adoption. Finally, EB adoption results in value creation when the business opportunities offered by ICT are exploited. This way, the entrepreneurship perspective on EB adoption is expressed in the model along with the RBV. The proposed theoretical model is depicted in Fig. 9. EB adoption and consecutive value creation are both regarded as dependent variables in the model. Firm characteristics and perceived opportunity characteristics are the independent variables.

#### **Elements of E-business Adoption Model**

##### Value creation

As we discussed in my review on e-business adoption literature e-business is generally associated with supporting business activities by the use of ICT technologies *to gain a certain Benefit*. However, with EB new economic value can be created in a number of ways and from a number of sources (Amit & Zott, 2001). Based on Hammer and Mangurian (1987) Riggins distinguishes three categories of value creation for EB (Riggins, 1999; Riggins & Mitra, 2001):

- Improving efficiency (time and cost-related),
- Improving effectiveness (related to communication) and
- Strategic benefits (related to products, markets and services).

In this study, e-business adoption is regarded an entrepreneurial act when the economic value created can be labeled as strategic. So a distinction is made between two types of value creation:

- *Organizational value creation*: the adoption of e-business leads to value creation related to time, cost, and/or communication,
- *Strategic value creation*: the adoption of e-business leads to value creation related to products, markets, and services.

We expect e-business adoption to lead to organizational and strategic value creation (**propositions 1a and 1b**). Organizational value creation, related to process innovation, is expected to precede strategic value creation, related to new products, services and markets, in the specific situation of e-business adoption (**proposition 1c**). Value creation as discussed before using the RBV is incorporated in the model through propositions 1e, 1e and 1f.

##### Perceived opportunity characteristics

In many innovation adoption studies, the perceived attributes of the innovation at hand play a decisive role in the adoption decision. However, as Moore and Benbasat (1991) note, most authors use Rogers' definitions of perceived innovation characteristics, which are based on perceptions of the innovation itself, and not on perceptions of actually using the innovation. In the case of electronic business, we argue that it is not the ICT-related innovation itself that is being assessed. Companies judge the *opportunity* that ICTs create for them. In entrepreneurship literature several authors focus specifically on evaluation of opportunities (Timmons et al., 1987; Vesper, 1989; Zimmerer & Scarborough, 1998; Timmons, 1999). They mainly focus on business plans or investment opportunities and deal with criteria like market and financial analysis, risk assessment, and the qualities of the management team. We argue that ultimately the *perceived* value of the opportunity determines the likelihood of exploitation. With regard to the selection of attributes that are relevant to assess, Rogers (1995) identified five attributes of innovations: relative advantage, compatibility, complexity, observability, and trialability. Tornatzky and Klein (1982) found a total of 30 different innovation characteristics (including the ones identified by Rogers). They conclude that three innovation characteristics had the most consistent significant relationships to innovation adoption: perceived relative advantage, compatibility, and complexity.

*Perceived relative advantage:* The EB opportunity only exists when the potential adopter perceives a possibility for creating value with ICTs. Therefore, perceived relative advantage is conceptualized as the degree to which an organization believes that with EB value can be created. We propose that the perceived relative advantage of the opportunity is positively related to adoption (*proposition 2a*).

*Compatibility:* Compatibility was originally conceptualized by Rogers (1995) as the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters. Moore and Benbasat (1991: p.199) comment on Rogers' conceptualization that 'the inclusion of "needs" is considered as a source of confounding with relative advantage, as there can be no advantage to an innovation that does not reflect an adopter's needs'. Therefore they suggest eliminating reference to adopters' needs from compatibility. We conceptualize perceived compatibility as the degree to which an organization believes that e-business is congruent with the values and norms in the company, and with existing practices within the company and its value chain. I expect the perceived compatibility of the opportunity to be positively related to adoption (*proposition 2b*).

*Complexity:* Rogers (1995) defined complexity as the degree to which an innovation is perceived as relatively difficult to understand and use. Complexity refers to what makes people perceive the innovation as complex (Tornatzky & Klein, 1982). Davis' construct 'perceived ease of use' (Davis, Bagozzi & Warshaw, 1989) is the antonym of complexity (Moore & Benbasat, 1991). Thus we conceptualize perceived complexity as the degree to which an organization believes that e-business is difficult to understand, oversee and use. A negative relationship between perceived complexity and adoption is expected (*proposition 2c*).

#### General firm characteristics

The company's base of knowledge and experience, its network contacts and pro-active external orientation determine the point of departure for opportunity recognition. In the following sections, we will elaborate on the factors we have chosen to serve as antecedents of opportunity recognition for e-business, and describe and discuss the relations that I expect with the adoption of e-business

*The level of formal knowledge:* Several researchers demonstrate that a higher level of formal knowledge will most likely characterize innovative organizations and promote innovation (Brancheau & Wetherbe, 1990; Rogers, 1995; Tabak & Barr, 1999). Formal knowledge seems to facilitate a deliberate search for opportunities as well as their unexpected discovery. It provides a basis for the interpretation of new information and its conversion to new knowledge. I expect the level of formal knowledge in a firm to have a positive relation with e-business adoption (*proposition 3a*).

*IT knowledge and experience:* Cohen and Levinthal (1990) explain that accumulated prior knowledge enhances the ability to put new knowledge into memory, and the ability to recall and use it. An accumulation of knowledge makes it possible to see connections between different categories of existing knowledge and associate new knowledge with existing knowledge. In addition to prior knowledge, there is an effect of prior experience in learning on the acquisition of new knowledge (Cohen & Levinthal, 1990). This ability enables a firm to discover new opportunities for business by combining new knowledge with existing knowledge. I propose that the knowledge and experience with it in a firm is a positive antecedent for e-business adoption (*proposition 3b*).

*Customer and competitor orientation:* To conceptualize a focus on the market and on customers, it seems obvious to turn to the (marketing) concept of market orientation. However, many explanations exist on what a market orientation contains and there is still no one single definition (for a review, Van Raaij, 2001). Van Raaij effectively conveys the 'relatively simple message' of the discussion in marketing literature about market orientation: 'market oriented organizations are organizations that are well informed about the market and that have the ability to use that information advantage to create superior customer value' (Van Raaij, 2001: p. 275). A market orientation is usually defined as 'the business culture that most effectively and efficiently creates superior value for customers' (Narver & Slater, 1990: p. 20). Therefore we choose to conceptualize a market and customer focus as a customer and competitor orientation. Of course, this conceptualization does not in any way pretend to cover market orientation as discussed in the marketing literature. We expect a customer and competitor orientation to relate to e-business adoption (*proposition 3c*).

*Environment as a source of ideas:* The environment and more specifically the social network acts as a source of ideas and information (Aldrich & Zimmer, 1986; Christensen & Peterson, 1990; Hills et al., 1997).

Entrepreneurs consistently use their social network to get ideas and gather information to recognize entrepreneurial opportunities (Birley, 1985; Moss Kanter, 1988; Smeltzer et al., 1991; Singh, Hills, Hybels & Lumpkin, 1999; De Koning, 1999; Singh, 2000). In short, the ability of a firm to use the environment as a source of ideas, acts as a positive antecedent to EB adoption (*proposition 3d*).

*Entrepreneurial orientation:* Moss Kanter (1988) identifies several conditions at the organizational level that facilitate the ability to see new opportunities. One of these conditions is that the organization should support innovation, not only by providing resources like time and money, but also by favoring change as a culture. A firm's past entrepreneurial experience creates an antecedent for future opportunity recognition. Several authors made attempts to measure a firm's entrepreneurial behavior. The most widely used construct in this respect is 'entrepreneurial orientation' (for an overview, Lyon, Lumpkin & Dess, 2000). Miller (1983) originally suggested that a firm's degree of entrepreneurship could be seen as the extent to which they take risks, innovate and act proactively. This experience in entrepreneurship indicates that a firm has the motivation and the ability to really act upon opportunities. We therefore propose that a firm's entrepreneurial orientation is positively correlated with EB adoption (*proposition 3e*).

#### Specific firm characteristics

Bhave (1994) concludes in his exploratory research that entrepreneurs go through a process of elaborating, filtering and refining opportunities before they decide on pursuing a certain business opportunity. In this process, the entrepreneur matches knowledge, experience, skills and other resources with market needs. In her investigation, De Koning (1999) concludes that opportunities are basically 'formed' through an iterative process in which the entrepreneur discusses the desirability and feasibility of opportunities with network ties and seeks feedback information from experts. Nambisan and Wang (2000) argue that with the emergence of more knowledge intensive technologies like the Internet, opportunities for their exploitation are not so clearly defined and apparent and are often highly context and firm specific. As pointed out earlier, network contacts play an important part in providing information and resources. Firm characteristics that facilitate the development of EB opportunities refer to EB-related knowledge, experience, and network contacts.

*E-business-related knowledge:* The possibilities of ICTs are endless, and outside knowledge is often hardly targeted to the specific needs and concerns of the firm. Especially for new technologies the information available will be focused on the technology (know what) and less on the possibilities for application (know how). The less targeted the information available is, the more important it is to have knowledge inside the firm permitting it to recognize the value of this outside knowledge, assimilate it, and exploit it (Cohen & Levinthal, 1990, p. 140). We therefore expect that the presence of knowledge about EB facilitates the development of opportunities, and therefore the adoption of EB (*proposition 4a*).

*The presence of innovation roles:* In innovation literature often the presence of individuals fulfilling specific roles is stressed as especially important in the innovation process (Rothwell, 1992). An organization's capacity to acquire and assimilate new knowledge will depend on the absorptive capacities of its individual members (Cohen & Levinthal, 1990). We propose that the presence of innovation roles, contributes to the recognition of EB opportunities, and therefore facilitates EB adoption (*proposition 4b*).

*The perceived dedication of resources for e-business:* Turning ideas for innovation into business opportunities requires an organization to play a role in stimulating opportunity development. One way to facilitate this opportunity recognition process is to make sure people in the organization can rely on the release of time and money, when necessary (Moss Kanter, 1988). In innovation literature, the influence of resource availability is raised. Awareness of organizational resource availability reinforces the perceptions of affordability of experimentation with innovations (Tabak & Barr, 1999). We suggest that the perceived dedication of resources for EB is positively associated with EB adoption (*proposition 4c*).

*An activated information network:* Birley (1985) concludes that during opportunity development the entrepreneur uses the network to obtain information on what is available, advice on how to best proceed, reassurance that it will work, and resources. As the concept of a business opportunity is created, the entrepreneur also seeks out potential resources and assesses them in terms of the opportunity. This part of the process seems enhanced by a network of weak ties with many potential resource providers (De Koning, 1999). Singh (2000) concludes that social networks play a vital role in the opportunity recognition process. We expect that the opportunity recognition process



is facilitated when the firm actively approaches several social contacts for information regarding EB. This ‘activated information network’ facilitates EB adoption (*proposition 4d*).

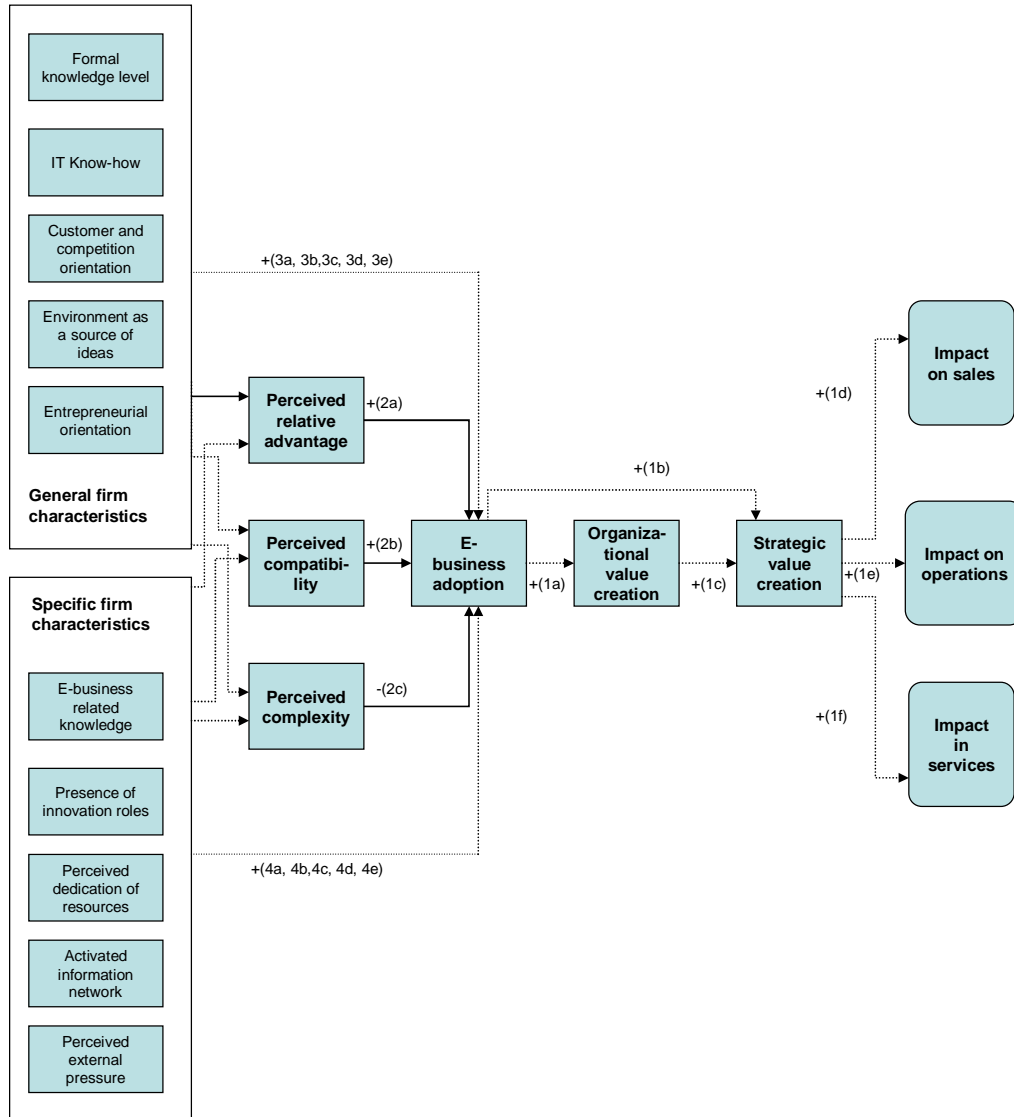


FIG. 9: E-BUSINESS ADOPTION THEORETICAL MODEL. OVERVIEW OF PROPOSITIONS

*Perceived external pressure:* All innovations carry a degree of uncertainty and the adopter has a need for social reinforcement of its attitude towards the new idea (Birley 1985; Rogers 1995). In EB research, the influence of several external parties has been investigated, notably competitive pressure. Some authors found competitive pressure of insignificant importance (Nambisan & Wang, 2000; Sadowski et al., 2002). The social network of the firm may influence the firm’s perception of an innovation, as it is not an isolated entity. The perception of social pressure from for example competitors, change agents, or sector-organizations, can play a part in the evaluation of EB opportunities. This perceived external pressure might even induce a firm to adopt, even when the actual

advantages of EB to the firm are unclear, and create a 'kap-gap'<sup>4</sup>. In short, we expect perceived external pressure to be positively related to EB adoption (*proposition 4e*).

## Conclusions and Future Research Work

The present study develops a theoretical model that can be used to explain EB adoption by SMEs. The research model was developed from three different perspectives: the EB adoption empirical perspective, the innovation adoption theoretical perspective and the entrepreneurship perspective. It also includes the RBV as it can be utilized to better explain EB adoption by SMEs.

The innovation adoption perspective gives an insight into EB adoption. However, EB is not a ready-to-use concept. Therefore we argue that EB adoption cannot be viewed as classic adoption i.e. of a relatively well-defined innovation. Following the implicit definition from the review, EB is about supporting business activities by adopting ICT technologies to gain certain benefits.

Entrepreneurship and innovation are strongly related, yet they are different concepts. Entrepreneurship and innovation are separated by the exploitation of opportunities resulting in economic value creation. Thus, from an entrepreneurship perspective, the adoption of EB may be considered an entrepreneurial act when it results in the exploitation of an opportunity. The introduction of ICTs in a firm opens up opportunities for EB and may lead to different types of value creation.

The goal of the model developed is to answer the following research questions:

1 *What is e-business adoption?*

2 *Which firm characteristics explain e-business adoption in SMEs?*

3 *What are the differences in explaining EB adoption from an innovation adoption perspective compared to an entrepreneurship perspective?*

The model needs to be tested empirically to prove its real value. To test propositions and find variation in EB adoption and firm characteristics using the proposed model, quantitative analysis of a large sample of firms is necessary. The obvious choice is a survey. Further work is needed to make operational the constructs and develop a detailed empirical research method. The model is intended to be tested in the second semester of 2007, using as a population for the research, the Mexican exporter SME's.

## References

Contact authors for the list of references

## End Notes

Contact author for the list of studies and authors.

<sup>2</sup> Ídem

<sup>3</sup> Other schools of thought in entrepreneurship that Barton Cunningham and Lischeron (1991) distinguish are the "Great Person", and the Psychological Characteristics School (assessing personal qualities of entrepreneurs), The Management, and Leadership School (studying the way entrepreneurs act and manage a venture), and the Entrepreneurship School (studies the need for adapting an existing organization).

<sup>4</sup> A kap-gap exists when a relatively high level of knowledge about the innovation (k), and a positive attitude (a) do not lead to adoption of the innovation (p), or vice versa (limited knowledge and negative attitude leading to adoption).

# Determinants of Successful Business Intelligence Deployment: Field Study of Telecommunication Industry

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## Abstract

The concept of Business Intelligence (BI) as an essential competitive tool has been widely emphasized in the strategic management literature. However, deployment of BI in organizations, which involve IT systems and other organizational resources to manage knowledge strategically, is not well explained. While the literature on BI covers various issues, it lacks comprehensive studies of factors and variables of successful BI deployment. This paper attempts to highlight these issues in the context of Telecommunication Industry. A qualitative field study in Malaysia is undertaken in this research, where all of four telecommunication services providers, in various levels of BI deployments, are studied. The study is conducted via interviews with key personnel, whom are involved in decision-making tasks in their organizations. Contents analysis is then performed to extract the factors and variables and a comprehensive model of Successful BI Deployment is developed. The results of the interviews identify nine major variables affecting successful BI deployment as; Accuracy, Govern Design, Development and Deployment of BI, User Training, Retraining and Support, Online Real-time Capability, Fully Integrated to Various Data Sources, Warehouse Concept, Satisfied Users, Good Reporting Features and Reviewed Regularly. The paper also highlights the research and managerial implications of the Successful BI Deployment Model. **Keywords:** Business Intelligence; Successful Deployment; Telecommunication Industry; Qualitative Method; Content Analysis

## Introduction

*“What enables the wise sovereign and the good general to strike and conquer, and achieve things beyond the reach of ordinary men, is foreknowledge”*

---- Sun Tzu, *the Art of War*,  
Over 2,500 years ago!

The above quote highlights that acquiring and utilizing knowledge in sustaining competitive advantage is not a new phenomenon. Human civilizations have been preserving and passing knowledge from generation to generation for better understanding of the past and therefore, the future. In today's business competitive environment, the deployment of business intelligence (BI) as a competitive tool is increasing and the demand for BI in market is stronger than ever before. This is evidenced through BI being in the list of top ten CIO priorities according to a Gartner survey in 2004 [35]. In addition, a survey of 225 Fortune 500 companies in 2001 reported an increasing use of computer-based systems in BI programs [16] and the BI software industry has grown from over US\$2 billion in 1998 to US\$4 billion in 2004. This new trend has called firms' attention to the importance of deploying a successful BI and its role in creating and sustaining competitive advantage due to its knowledge creation capabilities [9, 20, 14, 13, 5, 10, 36; among many others)

Although BI has been studied widely over the last several years, literature suggests that there is a scarcity of empirical studies on successful BI deployment. Like any other information systems, the success of BI deployment depends on its effective use by the users. A number of case studies are available in the literature which present success and failure factors of BI initiatives. However, no comprehensive study on the successful BI deployment found in the literature. What must be done to develop or adopt BI? What factors are important in deploying BI? These are natural questions to investigate in the context of BI development and deployment.

This paper investigates the above questions in the context of telecommunication industry in Malaysia. Basic premise of the study is the extensive literature review on the deployment of BI-related applications. The primary objectives of this paper are two-fold:

- i) To identify various factors and variables of successful BI deployment; and
- ii) To explore and develop a model of Successful BI Deployment

We employ qualitative field study as the research method and use structured interview techniques to collect relevant data. In the next several sections, we first present relevant background literature on BI and the deployment process. The research method is presented next which describes the process of data collection via interview and data analysis via a combination of inductive and deductive approaches of content analysis. Results of the study are then presented in detail, in the form of factors and variables of determinants of successful BI deployment, and a comprehensive model of successful BI deployment as obtained from field study. Finally, conclusions and future directions are presented.

## **Literature Review**

The term business intelligence has been used in many studies. However there is no conclusive definition of BI so far. Gartner first coined BI term in 1996 and popularized by analysts Howard Dresner, which generally refer to the process of turning data into information and then into knowledge [20, 14]. BI is further defined as the ability to access and analyze information as needed and to utilize this information to make sound business decisions [13]. Bernstein et al. [5] defined BI as the utilization of high-level software intelligence that can help organizations to achieve sound business decisions. Chung et al. [10] and Liebowitz [20] put forward the idea that BI enable organizations to understand their internal and external environment through systematic acquisition, collation, analysis, interpretation and exploitation of information in the business domains. Vedder et al. [36] claimed that BI is also known as Competitive Intelligence, which comprises of process and product. BI is defined as a process which is the set of legal and ethical methods used to harness information in achieving success, while as a product BI is the information about competitors' activities from public and private sources comprising the present and future behavior of competitors, suppliers, customers, technologies, acquisitions, markets, products and services, and the general environment. Bergerou [4] later related BI to a process that increases the competitive advantage of a company by intelligent use of available data in decision-making.

### **Successful BI Deployment**

BI-related technologies and strategies have been deployed in various industries for many years. Among the first BI application was for monitoring foreign currency instabilities way back in 1967 [17]. Other industries that have deployed BI include: Logistics for transport management and warehouse management [28], Manufacturing for order shipment and customer support, Retail for user profiling and inventory management, Financial services for claims analysis, risk analysis, credit card analysis and fraud detection [25], Transportation for fleet management, Telecommunications for call analysis, network usage assurance and fraud detection [34], Utilities for power usage analysis, Insurance for premium payment behavior, claim activity, agency performance and potential policy lapses [12] and Healthcare for customer analysis [33] and pharmaceutical R&D supply chain [1].

From the various BI terms defined above and the utilizations in different industries, the emphasis of BI is towards turning available data into the actionable knowledge needed for sound business decision-making, which is relevant to this study. It is argued that knowledge generated from successful BI deployment can be used to sustain competitive advantage of a firm. Unfortunately, in the area of successful deployment of BI, most of the research available focused on the technological and operational aspects. There is very little research, which considers the factors in the managerial and strategic levels. Therefore, the study on antecedents of successful BI deployment that will lead to sustainable competitive advantage is of utmost importance.

### **Antecedents of BI Deployments**

Two groups of potential antecedents of successful BI deployment based on specific BI literature have been defined for the purpose of this study. The first group of antecedents is based on Resource-based Theory [3], which considers firm's internal unique resources in deploying BI. These resources include firm's assets, skills, knowledge and ability that will play important roles in BI deployment. The second group of antecedents is adapted from the Theory of

Innovation Diffusion [29], which takes into account of the perceptions about an innovation before adoption process takes place. Perceptions are important elements in the successful adoption process as it enhances people's awareness of the innovation. In this study, the innovation is the BI systems that are used by the firms.

Four antecedents under the Firm's Resources Group are considered, namely Quality Information (QI), Quality User (QU), BI Governance (BIG) and Business Strategy (BS). These resources will influence firm's successful BI deployment, which will help in making sound business decisions. First of all, BI can only be deployed successfully if users can perceived its full potential [37] and these potentials are categorized into tangible and intangible benefits. The most tangible benefits are time saving and more and better information. The latter includes better decisions, improved business process and support for the accomplishment of strategic business objectives. In a recent study, Nelson et al. [26] added that successful adoption of IS is largely based upon quality, satisfaction and usage. Based on context-based view, information quality is taken to be the most important, which is described as the usefulness of the information in decision-making. The context-based view expands the dimension of information quality beyond accuracy to include dimensions such as relevance, completeness, currency and format. Dijcks [11] and Jarke et al. [19] added that information quality aspect is often ignored in BI implementation and suggested a methodology for embedding data quality into overall BI architecture.

BI can only delivers value if the users are capable of utilizing information gained and turn them into sound business decisions [2]. Therefore, quality users with different set of skill such as technical, business and analytical are needed in order to perform necessary tasks. Avery and Watson [2] defined 4 types of users: (1) power users, (2) business users, (3) technical users, and (4) executives where they have different needs and tasks that are categorized into strategic, tactical and operational. Imhoff and Pettit [18] suggested realizing the different types of analyses and grouping them with similar characteristics can gain a valuable head start in understanding, anticipating, and satisfying their needs.

Another important aspect of BI deployment is BI Governance [21], which is defined as 'defining and implementing an infrastructure that will support firm's goal'. The infrastructure includes the hardware, software, staffing and strategy needed to glean intelligence from data. Moss [23] put forward the idea of the alignment between business and IT in BI governance and suggested that successful BI deployment are initiated and driven by business rather than IT. Sherman [32] suggested that BI steering committee should be formed in order to sponsor and govern design, development and deployment of BI project. It needs both the Chief Information Officer (CIO) and a business executive, such as Chief Financial Officer (CFO), Chief Operations Officer (COO), or a senior Vice President of marketing/sales to commit budget, time, and resources. Users training and support play an important role in BI Governance. Training would include all level of users that differs in their tasks and responsibility about data and information needs in organizations [2].

Another four antecedents under Innovation's Perception Group used for this study are: (1) Relative Advantage, (2) Compatibility, (3) Complexity, and (4) Problem Solver (adapted from Rogers [29] and Mustonen-Ollila [24]). Relative advantage is the degree to which an innovations is perceived as better than it supercedes, Compatibility is the degree to which an innovation is perceived as being consistent with existing values, past experience, and need of potential adopters, Complexity is the degree to which an innovation is perceived as difficult to understand and us [39]. Problem Solver is the desirability of adopting an innovation depending on the problem the innovation promises to solve for the adopter [24].

#### **Other Factors**

Apart from above mentioned antecedents, Organizations culture also plays an important role in BI success [23]. Large percentage of BI applications fails not because of technology but organizational culture and infrastructure dysfunctions. Firms that instill the right organizational culture are foreseen to be successful in deploying BI initiatives. Creating a learning organization culture has become an important strategic objective for many firms that hinges on the acquisition of information [7]. Weir [38] added that knowledge sharing culture is also critical in ensuring the success of BI deployments. For BI to work, the entire organization must participate in intelligence gathering and sharing.

Utilization of BI tools is also been mentioned in literature as an important criterion in deploying and using BI. Carvalho and Ferreira [8] and Chung et al. [10] defined two classes of BI tools. The first class of tool is used to manipulate massive operational data and to extract essential business information. Examples include Decision

Support Systems (DSS), Executive Information Systems (EIS), On-line Analytical Processing (OLAP), data warehouse and data mining systems. They are built from database management systems (DBMS) and are used for query and reporting, statistical analysis and to reveal trends and patterns that would otherwise be buried in their huge operational databases [22]. BI tools now have additional functions of forecasting capability that uses mathematical formulas to manipulate historical data [31] and prediction capability [6]. The second class of tools, sometimes called competitive intelligence tools, aims at systematically collecting and analyzing information from the competitive environment to assist organizational decision-making. Rao [27] claimed that a combination of BI and data warehouse technologies provide the flexibility to support a dynamically changing competitive environment.

However, the factors mentioned above are not empirically tested in the BI literature. Therefore, this calls for further empirical study to assess the factors affecting the successful deployment of BI, especially in Telco industry.

## Research Method

The paradigm of the research is qualitative, in which field study is used as a research method. The field study is appropriate in this context since we are exploring the real industry involved in BI deployment. A convenience non-random method is employed in choosing the samples for the data collection. Semi-structured interview is then performed in getting the required data. The details of our field study are presented below.

### Sample

A convenient non-random type of sampling is used to select 10 executives in all of four service providers in Malaysian Telecommunication industry. According to Zikmund [40], convenience sampling is always undertaken in business research. The main criterion of sample selection is based on their involvement in decision-making and their level of utilizations in BI initiatives. All of the participants are selected based on personal contacts and their responses are on voluntary basis. Table 1 below provides a brief overview of the participants in four Telco organizations who take part in the field study.

TABLE 1: DEMOGRAPHICS OF THE PARTICIPANTS

COMPANY	PARTICIPANT	PARTICIPANT'S POSITION	PARTICIPANT'S EDUCATION	BI UTILIZATION
Company A (Government-owned)	P1	General Manager	PhD	High
	P2	Manager	Masters Degree	Medium
	P3	Chief Financial Officer	Bachelor Degree	Low
Company B (Private Merger)	P4	Senior Vice President	Bachelor Degree	High
	P5	Senior Manager	Masters Degree	High
	P6	Manager	Bachelor Degree	High
Company C (Private)	P7	Manager	Bachelor Degree	High
Company D (Private Merger)	P8	Chief Principal Engineer	Bachelor Degree	High
	P9	Principal Engineer	Bachelor Degree	High
	P10	Manager	Bachelor Degree	High

## **Data Collection**

The semi-structured interview questions have focused on the following areas of information needed in the study:

- i) General perceptions and understanding of BI
- ii) The main factors that influence the successful BI deployment
- iii) Usage of BI-based knowledge in decision-making activities
- iv) Required tools for generating knowledge
- v) The role of organization culture in utilizing BI-based knowledge
- vi) The role of business strategy in BI success especially in aligning between knowledge and business

The interviews are scheduled as per convenience of the interviewees to ensure less disruptions and interruptions in their working schedule. Prior to an interview session, a participant is contacted by telephone to provide an idea of the interview process and some brief understandings of BI. The duration of a one-to-one interview session takes about 1 to 2 hours to complete. Fruitful discussions are observed during the sessions where the interviewer managed to tap some of the information that was not pre-defined in the questions. This may be due to the fact that most of the participants are aware of the subject matter and they are quite involved in BI initiatives. The interview data are noted with the interviewees' permission and their voices are recorded using a micro-audio recorder. To ensure trustworthiness of the data, the write-up of the full set notes is done soon after the event [30]. These are performed immediately to ensure accurate data from participants' body languages and physical and emotional cues. Next, the verbatim transcriptions of all the recorded interviews are completed for data analysis [31].

### **Data Analysis**

Content analysis is chosen to analyze the data because of the qualitative field study is exploratory in nature, rather than confirmatory. There are more than 100 pages of verbatim transcripts from micro-audio and notes to be analyzed despite only 10 participants involved the interviews. Content analysis is carried out in two phases. Phase one involves analysis of an individual script, while phase two deals with integrating these individual scripts [39]. Analysis is conducted manually because of the nature of a simple language used by Malaysian participants. The researcher has to carefully interpret the meaning of every word and sentence uttered by participants. A combination of inductive and deductive approaches is then performed to categorize the factors and variables. Detail of the steps involved in analyzing the data is shown in Appendix A.

All the interview transcripts are first carefully analyzed manually (Step A1). An inductive process is first performed on the transcripts, where every single word and sentence is reviewed to uncover key patterns or themes (Step A2). Keywords or phrases are produced at this stage in order to be used later (Step A3). The key words or phrases are given labels or categories (Step A4). High-level factors and corresponding variables are identified. The relationship between factors from each script is identified next (Step A5). A deductive process is performed here where the identified factors are matched with the ones found in the literature previously (Step A6). These factors are revised and updated accordingly without scarifying any factors and variables obtained from the interviews (Step A7). Tables of factors, variables and their links are finally developed for each interview (Step A9).

The main aim of the second phase of the content analysis is to develop a finalized BI model based on the factors, variables and links that have been identified in the previous phase. The best way to do it is to integrate all the information gathered so far into one single entity. As shown in Step B1, the similarities and differences of variables under each factor are identified. A mathematical 'union' concept is used at Step B2 in integrating the similar variables. The new combined variable is given a new name and unique variables are retained (Step B3). The same 'union' concept is used to integrate the links among the factors (Step B4). Then, Step B5 developed the final tables of factors, variables and their links. Finally, the new combined BI model is developed.

## **Results**

### **Demography**

Table 1 presents the demographics information on the companies involved in the study. There are 10 executives from all of 4 companies in Telco industry in Malaysia willingly took part in the study. It should be noted that all of them had some level of decision-making as part of their responsibilities. Additionally, the levels of BI utilizations

among them were fairly high. As a result, the majority of them were aware of the issues involved in BI deployment and its relationship with company's sustainable competitive advantage, through their working experience. All of the participants were also aware of the importance of acquiring knowledge in decision-making process and they were to certain extent contributing to the organizations' policy-making process.

#### **Factors and Variables of Successful BI Deployment**

From the content analysis mentioned earlier, 12 factors and 68 different variables of successful BI deployment are produced. Different participants have mentioned either similar or different variables during the interview sessions. A complete list of factors and variables with subsequent frequencies is shown in Appendix B. Out of 12 factors, 11 are primary factors. These are: *Quality Information, Quality Users, Effective BI Governance, Relative Advantage, Problem Solver, Organization Culture, Business Strategy, Individual Benefits and Company's Benefits*. It is noted that if possible the factors are labeled in line with the literature. However, some of the variables identified differed in their meaning, as they are intended to represent the responses of the participants in the context of BI deployment.

It is interesting to note that out of 68 different variables; only 9 variables are mentioned by all 10 participants. These variables are *Accuracy, Govern Design, Development and Deployment of BI, User Training and Support, Online Real-time Capability, Fully Integrated to Various Data Sources, Warehouse Concept, Satisfied Users, Good Reporting Features and Reviewed Regularly* and they are called major significant (not in statistical sense) variables.

The responses from the participants confirm the influence of the firm's internal resources factor of Quality Information, Quality Users and Effective BI Governance. Variables *Accuracy, Accessibility, Completeness and Currency* under Quality Information factor receive majority responses by participants. So do variables *Technical Skills, Business Skills and Analytical Skills* under Quality Users factor and variables *Govern design, development and Deployment, User Training, Retraining & Support, Enforcement & Top Down Directive and Management Support* under Effective BI Governance factor. However, there is limited support for the influence of Quality Process Flow although this construct is identified as important factor in the deployment of BI initiatives and IT systems in general [28]. Only one participant, a network manager from leading Telco Company, mentions this factor.

There are also very strong support from amongst the participants for the innovation perception factor of Relative Advantage and Problem Solver. In order to successfully deploy BI in organizations, the concept of anytime, anywhere and fully integrated to legacy systems, data warehouse that store various information in one place, total solutions across departments as well as reliable systems and ease of use are necessary. However, variables of Compatibility and Complexity are not supported by the interview findings, where none of these participants mention them.

Organizational Culture is one of the most significant variables affecting successful IT and other related technology. A *learning organization and sense of business competition* are the right culture to nurture BI deployment. The Use of BI Tools factor may be the most important factor for the success of BI deployment. BI is considered an effective business tool and used for Online Analytical Processing (OLAP) capability, data mining, performance monitoring, customer profiling, revenue and network forecast, among many other usage.

#### **Successful BI Deployment Model**

The model is developed through a process of identifying the similarities and differences between factors in the literature and those identified by all the participants in the field study. By combining the similar factors identified in the interview analysis, the model is finalized as shown in figure 1 below. The figure shows a comprehensive model of the factors and variables that affect the successful deployment of BI. From the model, it is observed that the basic determinants, which are obtained from the literature, apply quite effectively in the successful BI deployment. These determinants are *Quality Information, Quality Users, BI Governance, Business Strategy, Use of BI Tools, and Organization Culture*, which falls under firm's unique resources. The other group of determinants consists of *Relative Advantage, Problem Solver, Individual Benefits and Company's Benefits* belongs to Innovation's Perception group.

Organizations planning to embark on BI can consider these variables as criteria of successful deployment. However, these criteria may not be applicable to all Telco organizations. Careful analysis is first needed to select the appropriate criteria for the company. A multiple criteria modeling approach can then be undertaken to access the



suitability of the company for BI deployment. The criteria under *Use of BI Tool* can be used as a guideline for technology vendors in determining which tools are the most beneficial especially in Telco environment.

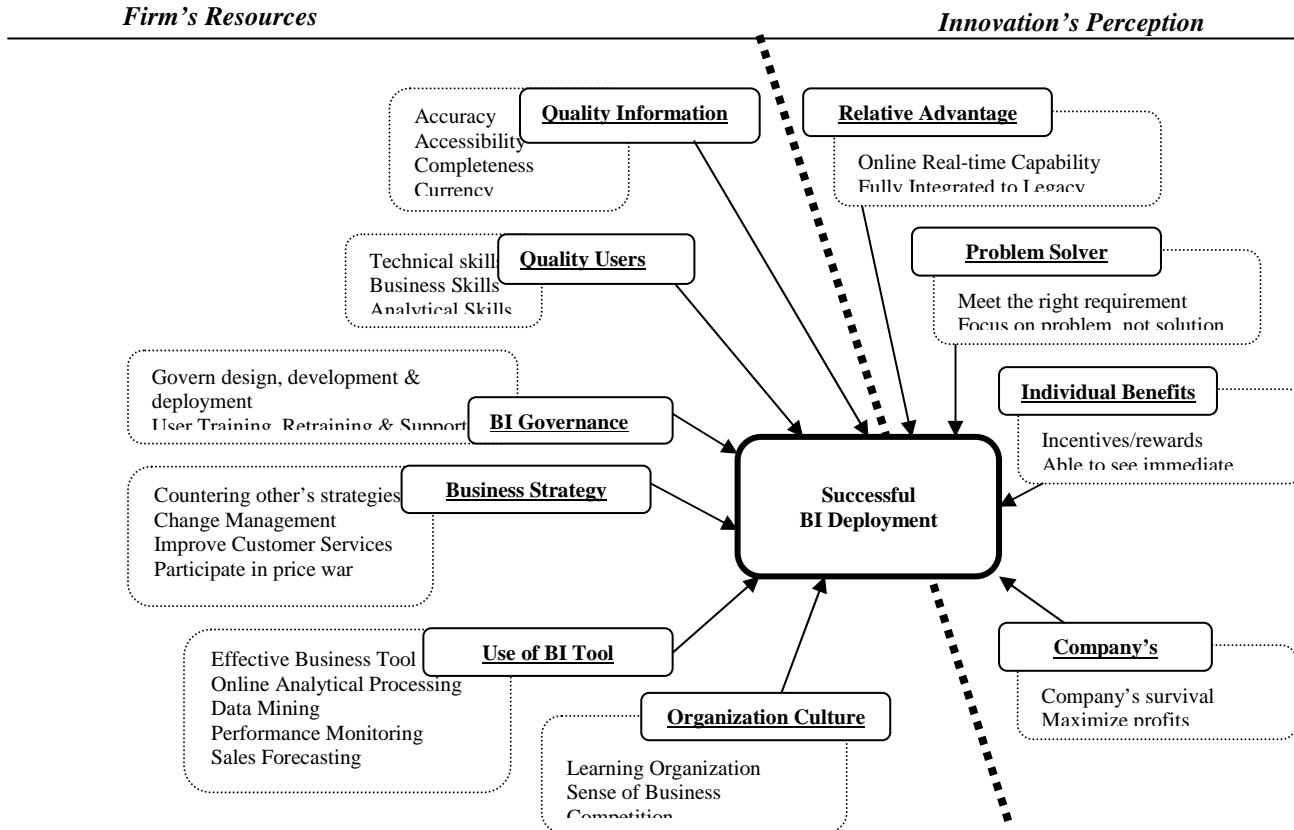


FIG. 1: A MODEL OF SUCCESSFUL BI DEPLOYMENT

## Conclusions and Future Study

This paper presents a comprehensive case study of determinants of successful BI deployment in Malaysian Telecommunication industry. A qualitative approach is employed where all four companies in the industry took part. Semi-structured interviews are conducted with selected 10 executives giving their views on various issues concerning BI deployments. The interviews are transcribed and the contents are analyzed thoroughly using content analysis method, which resulted in 12 factors and 68 different variables. The findings from the literature combined with the field study findings form the final successful BI model. The model represented a comprehensive set of determinants that are believed to influence the successful BI deployment.

This study contributes to the BI literature in the following ways. The model will suggest the types of variables that need to be included in future empirical tests of the relationship between BI and sustainable competitive advantage. Consequently, the model extends understanding of what is becoming increasingly important issue in BI management, especially the relationship between BI and sustainable competitive advantage.

From the practical point of view, it is expected that a better understanding of determinant factors in successful BI deployment will be realized in the context of Malaysian Telco industry. Practitioners especially BI applications developers and BI users such as business analysts and decision makers can also use the model to refine

their thinking about BI and their firm's other strategic resources. The model will suggest the types of BI investments that are most likely to be the sources of sustained competitive advantage.

Our immediate future plan is to study the model further using a structural equation modeling approach. This part of the research will use a quantitative approach, which will test a number of hypotheses and the model itself.

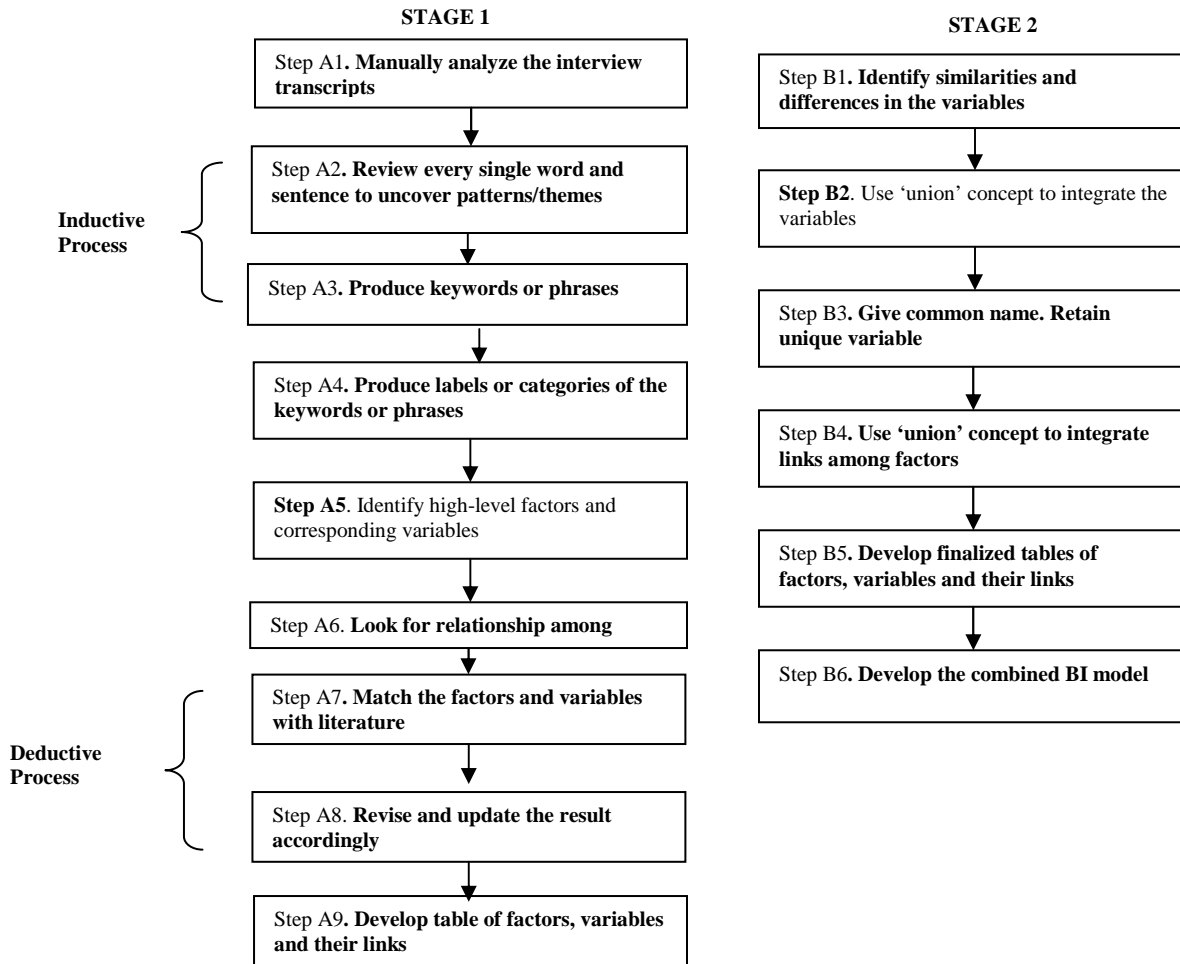
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# Appendix

## APPENDIX 1: CONTENT ANALYSIS PROCESS



APPENDIX 2: FACTORS AND VARIABLES OF SUCCESSFUL BI DEPLOYMENT

Factors	Variables	R 1	R 2	R3	R4	R5	R6	R7	R8	R9	R10
<b>Quality Information</b>	Accuracy	/	/	/	/	/	/	/	/	/	/
	Accessibility			/	/	/	/		/	/	
	Completeness/Comprehensive	/	/	/	/	/	/		/	/	
	Currency	/	/		/	/			/	/	/
	Format/Presentation (Graphical/diagrammatic)	/	/		/	/		/	/	/	
	Availability of internal data (database)	/	/	/	/	/	/	/	/	/	/
	Availability of external data (market/competitor/industry/new technology))	/	/	/	/	/	/				
	Integrity			/		/	/		/	/	
	Meeting company's requirements	/	/	/	/	/	/				
	<b>Quality Users</b>	Technical skills	/	/				/	/	/	/
Business skills		/	/	/	/		/	/		/	
Analytical skill		/	/	/	/	/	/	/		/	
Competence/ Knowledgeable			/	/			/	/	/	/	
Ability to understand requirements well		/	/	/	/	/	/	/	/	/	
Determination to use and act based on data			/	/	/		/	/	/		
Ability to utilize data and turn into knowledge		/	/	/	/		/	/	/	/	
Willingness to optimize the systems capabilities				/	/		/		/		/

<b>Quality Process Flow</b>	Process that drive technology										/
	Total solution										/
	Good communication										/
	Efficient										/
	Effective										/
<b>Effective BI Governance</b>	<i>Govern design, development &amp; deployment of BI</i>	/	/	/	/	/	/	/	/	/	/
	<i>User Training, Retraining &amp; Support for various level of BI utilization</i>	/	/	/	/	/	/	/	/	/	/
	<i>Enforcement to benefit organization/top down directive</i>		/	/		/		/	/		
	<i>Management involvement and support</i>			/	/			/	/	/	
<b>Relative Advantage</b>	Online real-time capability/concept of anytime, anywhere	/	/	/	/	/	/	/	/	/	/
	<i>Fully integrated to legacy systems/various data sources</i>	/	/	/	/	/	/	/	/	/	/
	<i>Warehouse that store all data in one place</i>	/	/	/	/	/	/	/	/	/	/
	Total solutions across departments		/			/	/			/	/
	<i>Reliable</i>		/			/	/	/	/	/	/
	<i>Ease of use</i>		/	/			/	/	/		
<b>Problem Solver</b>	Meet the right requirements	/	/	/	/	/	/	/	/		
	Focus on problem, not solution	/	/						/		
<b>Successful BI Deployment</b>	System dependant	/			/	/	/	/	/	/	/
	Satisfied users	/	/	/	/	/	/	/	/	/	/
	Total reliance on BI	/	/		/	/	/	/	/	/	/
	<b>Decision-making dependant on BI-based info</b>	/	/		/	/	/	/	/	/	/

<b>Organization Culture</b>	Learning organization			/						/	
	Sense of business competition	/	/	/	/						/
<b>Use of BI Tool</b>	Effective business tool	/	/	/	/	/	/				
	OLAP for manipulating massive operational data & extract essential business information to reveal trends & patterns	/	/	/	/	/	/		/		/
	Data mining for forecasting & prediction	/	/	/		/	/		/		/
	Collecting & analyzing information from competitive outside environment	/	/	/	/	/	/				
	Performance monitoring	/	/	/	/	/	/	/		/	
	In-house planning tool (network growth etc)	/		/		/	/	/	/	/	/
	Sales Performance/Forecast			/	/	/	/		/		
	Operational (Network) Performance & Management			/	/	/	/	/	/		
	Product Management/Performance			/	/	/	/	/			
	Customer Profiling/Behavior			/			/			/	
	Revenue/Network Forecast (Revenue Lost)			/	/	/	/		/		/
	Good reporting features	/	/	/	/	/	/	/	/	/	/
<b>Business Strategy</b>	Keep improving and promoting the old investment	/	/		/				/		
	Countering others' strategies				/						
	Provide quality Telco infrastructure						/				
	<i>Change management in terms of human resources</i>	/	/			/	/			/	

	<i>Improve customer services</i>					/	/				
	Venture into different market by introducing unique new product and services	/	/			/	/			/	
	Participate in price war				/	/	/				
	Mission and vision of the organizations		/								
	Reviewed regularly (periodically or ad-hoc)	/	/	/	/	/	/	/	/	/	/
<b>Individual Benefit</b>	<i>Incentive/rewards</i>			/		/			/		
	<i>Able to see immediate benefit</i>			/							
	<i>Incentive/rewards</i>			/							
<b>Organizational Benefit</b>	<i>Company's survival</i>	/	/	/	/	/	/	/	/	/	
	<i>Maximize company's profit</i>	/	/	/	/	/	/	/	/	/	

# **An Analysis of the Relationship between ICT Diffusion and Business Start-Ups in Japan**

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## **Abstract**

**This paper examines two questions: does ICT diffusion act to expand the number of business start-ups in Japan; and does ICT diffusion trigger more business start-ups by Japanese women and seniors? The data set (N=6,783) is from the telework population survey conducted by the Japanese Ministry of Land, Infrastructure and Transport (MLIT) in November 2002. The major findings are: a higher probability for workers who used ICT prior to their current job to establish new businesses than those with no prior ICT experience; a higher probability for workers in specialist/technical occupations to establish new businesses than those in non-white collar occupations, but not to a statistically significant degree; a higher probability for workers aged sixty and over to establish new businesses than those in other age groups; a difference in the rate of business start-ups between males and females; and women with small children show a stronger tendency to opt for establishing new businesses.**

## **Research Background**

### **Diffusion as a Driver of Business Start-Ups**

Whereas the number of self-employed businesses in the Japanese agricultural and retail sectors has fallen consistently since 1975, it has been noted that the increase in the number of specialist and/or technical self-employed businesses during the same period is high (Yahata 1998). This increase is frequently attributed to the emergence of a new group of technologically-savvy self-employed businesses known as SOHOs (Small Office Home Office). In Japan information and communication technologies spread rapidly in the latter half of the 1990s, the number of technologically-savvy self-employed workers as of 2005 reportedly being approximately 1.68 million or 16.5% of all self-employed workers in general (MILT, 2006).

In recent years, the number of non-primary industry self-employed businesses in many European countries including Germany, Denmark, the Netherlands and the United Kingdom has shown a slight increase (Hoffman & Walwei, 2003). Elsewhere, while it is commonly mooted that the diffusion of ICT has led to an increase in the number of non-primary industry self-employed businesses in Europe, the United States and Japan, an exact definition of what constitutes this type of new freelancer or self-employed worker created by the rise of ICT has yet to be established. As a result, it is extremely difficult at present to conduct an international comparison of the number of technologically-savvy self-employed workers using statistical data.

### **Diffusion as a Driver of Business Start-Ups**

There are three main factors behind the increase in small-scale, specialist and/or technical self-employed businesses accompanying the diffusion of ICT. The first is the relatively small amount of capital required to start ICT-based ventures. The vast majority of self-employed workers using ICT are involved in some form of information-related activity. In contrast to the large amount of capital required for plant investment in manufacturing, for example, information-related businesses can be boot-strapped, the amount of initial investment required being minimal especially with the growing progress in smaller and cheaper computers and peripherals since the 1990s. Furthermore, due to the widespread diffusion of ICT, information-based businesses are not as location-sensitive as services that require face-to-face interaction and therefore conveniently located customer premises. As a result, smaller initial costs are deemed to lower the hurdle for starting up businesses.

The second factor is the corporate trend to greater outsourcing and the accompanying drop in the number of employees on the payroll witnessed in the 1990s, a trend common to Europe, the United States and Japan (Ohsawa & Houseman, 2003). The two main causes of outsourcing are the increase in international competitiveness triggered by the global economy and the subdivision of manufacturing processes (ibid.). The adoption of ICT inside firms also



led to a standardization of business processes, thereby opening the way for the outsourcing of in-house tasks. In other words, the need to accumulate specialist in-house human capital has fallen (Abe, 2001).

The third factor does not concern socio-economic change, but rather a growing desire on the part of individual workers to engage in self-employment. For example, Pink (2001), who pointed to the growing number of free agents in the United States, cites two reasons for the trend: 1) the risk inherent in working continuously for a single employer as individual longevity increases but corporate longevity decreases; and 2) the difficulty in meeting both work and family obligations as firms make increasing time demands on their workers as well as the difficulty for women to achieve internal rewards with the so-called “glass ceiling” still firmly entrenched. Accordingly, he sees women as key players in the freelance and/or self-employed market.

In Japan, the number of female workers is increasing, but approximately 70% of women employed before childbirth are reported to leave their jobs following childbirth (MHWL, 2002). The trend to resign from work due to childbirth is especially pronounced among salaried workers, most self-employed workers staying in the workforce (Nagase, 1997). Higher levels of education and longer periods in the workforce before marrying mean that an increasing number of women have accumulated considerable human capital prior to marriage. Should the barriers for establishing a business be lowered, women in salaried employment may not necessarily leave the workforce due to childbirth but opt to start their own business.

Elsewhere, it has been reported that while many firms stipulate sixty years as their retirement age, many individuals wish to remain in the workforce after sixty. The age of pension eligibility has been raised due to Japan’s relatively rapid demographic graying and the government is actively pursuing policies to keep older workers in the workforce. Should the barriers for establishing a business be lowered, seniors may also opt to start their own business.

Based on the above trends, this paper will attempt to answer two questions:

- 1) ICT diffusion is widely seen as lowering the barriers for starting up new businesses, but has ICT diffusion in fact acted to expand the number of business start-ups in Japan at present?
- 2) To date, the majority of new businesses in Japan have been established by males in their late thirties, but does the lowering of entrance barriers really expand the opportunities for women and seniors to establish their own businesses?

## Methodology

### The Data Set

Our research uses data collected at the individual worker level and analyzes individual work status choices to ascertain the relationship between ICT and business start-ups. The data itself consists of the individual survey sheets collected in the *2003 Comprehensive Policy Support Survey for Regional Activity Through the Promotion of Telework & SOHOs*, conducted by the Urban Infrastructure Division in the Urban & Community Infrastructure Bureau of the Japanese Ministry of Land, Infrastructure & Transport (referred to hereafter as the “MLIT Telework Survey”). Table 1 provides an outline of the survey data, which is suitable for our research purpose given that it consists of a random national sample and provides detailed information on ICT usage and work status.

The average age of the sample was 45.3 for males (range: 15-84) and 44.9 for females (range: 16-86). Compared to the *2002 Basic Survey on Workforce Composition* (Japanese Bureau of Statistics), the sample’s ratio of under-twenty year olds is low and the ratio of 40-50 year olds is somewhat high (MLIT 2003). For analysis a data set of 5,346 was used after removing students and primary industry workers. The average age of this subset was 44.8 for males (range: 15-84) and 44.5 for females (range: 18-86).

TABLE 1: AN OUTLINE OF THE MLIT TELEWORK SURVEY

Survey Type	Cross section survey
Survey Subjects	Nationwide, male & female workers 15 years and older
Sampling	Random Digital Dialing (RDD)
Survey Method	Phone interviews
Survey Period	October 25 - November 10, 2002
Sample size	
No. Surveyed	6,899
Valid responses	4,125
Response Rate	59.8%
	(revised sample size for within-household individual selection probability = 6,783)
No. used for analysis	5,346 excluding students and primary industry workers

**Analytical Variables**

The following analytical variables will be used.

**Start-up Operators:** The dependent variable “start-up operators” is 1 and “Others” the 0 dummy variable. Of the items indicating position level, those who corresponded to “company owner/manager” “freelance/self-employed (no employees)” as well as having ten years or less in current job were treated as “start-up operators”. Those in their current job for longer than ten years, employees and/or “family worker” and “piece worker” in the non-employee category were excluded. The cut-off point of ten years was chosen to ensure a sample size large enough to produce robust results in the statistical analysis. It was also felt that the ten-year period would allow us to explore the relationship of ICT and business start-ups, given that ICT started to diffuse rapidly in Japan in the first half of the 1990s.

**ICT Usage:** This is to ascertain whether business start-ups have increased due to ICT diffusion or not, and uses two variables: “ICT use in current job” and “ICT use before current job”. If e-mail and/or the Internet are used for business purposes “ICT use in current job” is 1; if not, 0 is the dummy variable. If length of e-mail use is longer than years in current job “ICT use before current job” is 1; if not, 0 is the dummy variable. The reason for using “ICT use before current job” is to identify a causal relationship, if any, between ICT use and business start-ups. In order to identify whether ICT diffusion has led to a business start-up, it is necessary to distinguish whether prior users of ICT established a business using their ICT skills or whether ICT is being used simply as a means of communication after setting up their business. If more people have been using ICT longer than having their own business, the proposition that new businesses are on the increase due to ICT diffusion will be held to be true.

**Age (Age Group):** This variable is used to ascertain whether older workers are setting up their own businesses or not. Moreover, since there is a large age bias in ICT users, age also acts as an important control variable for examining the effect of ICT itself on business start-ups. Actual age is used and categorized into five groups: 15-29, 30-39, 40-49, 50-59, and 60 and over.

**Human Capital:** The education and occupational variables are used here. The occupation variable is used to ascertain whether business start-ups are increasing in jobs that mainly use information. Since there is also a strong tendency for higher educated, white-collar workers to use ICT, age and education act as important control variables to determine the effect of ICT use. For the education variable, “senior high school graduate” is used as the benchmark, four additional categories being “junior high school graduate” “college graduate” “university graduate” and “graduate school graduate”. The MLIT Telework Survey includes an item on years in current job, but since it does not ask the total number of years in the workforce, age is used as a proxy for work experience. For occupation five categories are used, four white-collar categories from the Japanese Industrial Standard (JIS) classification (“clerical” “managerial” “sales” “specialist/technical”) and “non-white collar” for all other occupations.

Needs: “Life stage” and the “dual income dummy” are used as variables to ascertain individual worker needs for setting up a business and working as a non-salaried worker. The need for non-salaried work, which provides greater work-hour discretion than being employed, is deemed to increase for workers with small children and a working spouse. For life stage, three categories for the various stages of child-raising are given, namely “youngest child 0-2 years of age” “youngest child 3 yrs – preschool” “youngest child at primary school”. An additional category for all others (single, no children in residence, junior high school and above) is also used. A value of 1 is used in the case of a working spouse; if not, 0. The 0 value also includes respondents with unemployed spouses and single respondents.

## Results

Firstly, descriptive results of the share of freelance/self-employed workers by gender, life stage and ICT usage are discussed. This is followed by logistic regression analysis using start-ups as the dependent variable, to identify the factors behind business start-ups. The analysis is conducted for the sample as a whole as well as for the male and female subsets. The full set analysis is used to ascertain whether male or female business start-ups are more numerous after controlling for all other variables. The subset analysis is used due to the large gender gap that exists regarding the share of ICT users and work status choices.

### **Cross-Variable Relationships**

Share of Start-Up Operators: Table 2 provides a summary of the descriptive results for the share of start-up operators, the proportion being 7.3% for non-primary industry workers. Cross-variable analysis and  $\chi^2$  testing show that “ICT Use” “Age” “Occupation” and “Life Stage” are statistically significant. Looking at the statistically different (those with an adjusted residual of 1.96) characteristics of start-up operators, in contrast to the low number who only chose ICT “use in current job”, a statistically significant number chose “use before current job”. Looking at age, the number of start-up operators in the 50-59 years of age group was statistically significantly low, but 60 and over was statistically significantly high.

In terms of occupation, in contrast to existing literature, the proportion of start-ups in “specialist/technical” occupations was not statistically significant. The statistically significantly high results for “managerial” occupations may be a function of the considerably large number of start-up operators employing staff. The share of start-up operators also differs according to life stage, those with “youngest child 3 years – preschool” being statistically significantly high and those with “Single/Youngest child high school or above/No children in residence” low. Based on these cross-variable results alone, there does indeed seem to be a tendency for people using ICT before their current jobs to start-up a new business. Looking at the gender breakdown, the number of male start-up operators is slightly higher, but not statistically significant. While previous research indicates that males in their late thirties dominate new business start-ups, our results show that the proportion of start-up operators aged 60 years and over is high.

TABLE 2: SHARE OF START-UP OPERATORS (%)

	N	Start-up Operators		TOTAL
		yes	no	
Total	5,347	7.3	92.7	100.0
ICT Usage***				
Use in current job*	1,618	3.6	96.4	100.0
Of whom, use before current job**	658	7.8	92.2	100.0
Don't use*	3,072	6.4	93.6	100.0
Gender				
Male	2,953	6.0	94.0	100.0
Female	2,394	5.3	94.7	100.0
Age Group*				
15-29	684	5.1	94.9	100.0
30-39	1,179	5.3	94.7	100.0
40-49	1,356	6.3	93.7	100.0
50-59*	1,418	4.7	95.3	100.0
60 and over**	711	8.0	92.0	100.0
Education				
College	474	6.3	93.7	100.0
University/Graduate School	1,476	5.8	94.2	100.0
Junior/Senior High School	3,397	5.6	94.4	100.0
Occupation***				
Clerical**	1,147	2.9	97.1	100.0
Managerial**	276	12.3	87.7	100.0
Specialist/Technical	1,117	6.6	93.4	100.0
Sales*	838	7.2	92.8	100.0
Non-white collar	1,969	5.3	94.7	100.0
Life stage***				
Youngest child 0-2 yrs	356	7.3	92.7	100.0
Youngest child 3yrs-preschool**	371	10.8	89.2	100.0
Youngest child primary school	656	4.9	95.1	100.0
Single/Youngest child high school or above/ No children in residence	3,964	5.2	94.8	100.0
Dual income				
Yes	2,709	5.6	94.4	100.0
No	2,637	5.8	94.2	100.0

\*\*\*p&lt;.001 \*\*p&lt;.01 \*p&lt;.05

### Logistic Regression Analysis (Business Start-Ups)

Tables 3, 4 and 5 give the results for the total sample, the male subset and female subset in that order. Model 2 includes the Human Capital variables and Model 3 the Needs variables. After ascertaining the impact of age, gender, human capital and needs on business start-ups, Model 4 incorporates the ICT usage variables and examines the effect of ICT use on business start-ups after controlling for all other variables.

Age & Gender: Age and gender (only in the total sample) were loaded into Model 1 to verify whether women and older workers showed a propensity to establish their own businesses. While the cross-variable analysis indicated there were more male start-up operators than female, controlling for age resulted in more female start-up operators than male. In terms of age, start-up operators aged sixty years and over were high in both the total sample (Table 3) and the male sub-sample (Table 4). However, since start-up operators are limited to managers, self-employed and freelancers with 10 years or less in their current job, it should be kept in mind that the start-up operators aged sixty years and over include people who set up their businesses in their fifties.

Impact of Human Capital: Model 2 incorporates the Human Capital variables. Education was not statistically significant in either the total sample or the two sub-samples. However, whereas it was negatively aligned in the male sub-sample, it was positively aligned in the female sub-sample. Of the occupational variables, only “managerial” showed a statistically significant positive alignment across all samples. While not statistically significant, “specialist/technical” loaded positively in all samples, and women in specialist/technical occupations showed higher start-ups than their male counterparts. Looking at the odds ratio, the probability of business start-ups in specialist/technical occupations as compared to non-white collar occupations was 1.17 times higher for males and 1.47 times higher for females.

TABLE 3: SUMMARY OF LOGISTIC REGRESSION ANALYSIS FOR PREDICTING START-UPS (Total sample: N=3,322)

	MODEL 1			MODEL 2			MODEL 3			MODEL 4		
	B	SE B	Odds	B	SE B	Odds	B	SE B	Odds	B	SE B	Odds
Age (RG:15-29)												
30-39	.063	.217	1.065	.049	.218	1.050	-.162	.231	.851	-.023	.232	.977
40-49	.231	.208	1.260	.192	.209	1.212	.205	.218	1.228	.397 <sup>+</sup>	.222	1.487
50-59	-.090	.216	.914	-.178	.219	.837	-.049	.225	.952	.101	.229	1.107
60 & over	.490*	.223	1.632	.400 <sup>+</sup>	.227	1.492	.526*	.232	1.692	.592*	.2380	1.807
Gender(female dummy)	.129	.120	1.138	.002	.130	1.002	-.031	.131	.969	.080	.133	1.084
[Human Capital]												
Ed.(RG:jnr/snr high)				.177	.213	1.193	.224	.214	1.251	.256	.215	1.290
College				-.107	.151	.899	-.124	.152	.884	-.002	.158	.998
Uni/Grad.School												
Occ.(RG:Non-white col)				-.644**	.211	.525	-.626**	.211	.535	-.505*	.218	.603
Clerical				.969***	.223	2.637	.964***	.223	2.621	1.154***	.229	3.171
Managerial				.260	.171	1.297	.239	.171	1.270	.332 <sup>+</sup>	.175	1.394
Specialist/Tech Sales				.329 <sup>+</sup>	.173	1.390	.313 <sup>+</sup>	.174	1.367	.365*	.176	1.441
[Needs]												
Life stage (RG:single/ high school & over/no child. resident)							.539*	.240	1.713	.619*	.241	1.857
Youngest 0-2 yrs							.930***	.208	2.534	1.018***	.209	2.768
Youngest 3-prescl							-.016	.215	.984	.022	.216	1.022
Youngest primary										-.809***	.176	.445
primary										.260	.185	1.297
[IT Use]												
Use in current job												
Use before current job												
Constant												
$\chi^2$		12.239*			55.778***			77.079***			110.361556***	
df		5			11			14			16	

\*\*\*p<.001 \*\*p<.01 \*p<.05 <sup>+</sup>p<.10

Needs' Verification: Model 3 incorporates the variables concerning the need for work styles with a high degree of discretion over work hours. Looking at life stage, the probability of choosing business start-ups was high in all samples for respondents with small children. However, there was a difference in selection probability for males and females. Whereas the probability of males with children “3 years – preschool” opting for a business start-up was 1.93 times that of respondents without small children, the corresponding figure for females was 4.46 times. In the female sub-sample (Table 5), the probability of respondents with children “0 – 2 years” was also high, 5.22 times that of females with no small children. The impact of a working spouse was also explored in the male sub-sample (Table 4), but found not to be statistically significant. Finally, the probability of opting for business start-ups is lower for the 30-39 age groups in all samples in Model 3 as compared to Model 2.

Effect of ICT: Model 4 incorporates the ICT-related variables. It was confirmed in the cross-variable analysis that ICT “use before current job” was statistically significant for business start-ups, indicating that previous use of ICT coincides with a tendency to establish new businesses. Model 4 looks at the impact of ICT vis-à-vis the probability of opting for business start-ups when controlling for other variables.

The ICT variables produced the same results in all samples. Irrespective of the impact of other variables, ICT “use in current job” was statistically significant and loaded negatively for business start-ups. In contrast, ICT “use before current job” was statistically significant and loaded positively across all samples. The probability of male respondents who used ICT prior to their current job starting up a new business was 1.35 times higher than non-ICT users, the corresponding figure for females being 1.30 times.

TABLE 4: SUMMARY OF LOGISTIC REGRESSION ANALYSIS FOR PREDICTING START-UPS (Male sample: N=1,999)

	MODEL 1			MODEL 2			MODEL 3			MODEL 4		
	B	SE B	Odds	B	SE B	Odds	B	SE B	Odds	B	SE B	Odds
Age (RG:15-29)												
30-39	-.288	.280	.749	-.294	.282	.745	-.410	.304	.664	-.222	.305	.801
40-49	-.007	.262	.993	-.016	.265	.984	.053	.285	1.054	.280	.293	1.323
50-59	-.280	.272	.756	-.359	.278	.698	-.250	.292	.779	-.070	.298	.932
60 & over	.512 <sup>+</sup>	.271	1.668	.405	.277	1.499	.474 <sup>+</sup>	.286	1.606	.525 <sup>+</sup>	.297	1.691
[Human Capital]												
Ed.(RG:jnr/snr high)												
College				-.131	.459	.877	-.144	.460	.866	-.102	.462	.903
Uni/Grad.School				-.175	.186	.839	-.175	.186	.839	-.070	.195	.932
Occ.(RG:Non-white col)												
Clerical				-1.094**	.376	.335	-1.108**	.377	.330	-.999**	.383	.368
Managerial				.764**	.255	2.147	.746**	.255	2.109	.948***	.262	2.579
Specialist/Tech				.160	.233	1.173	.127	.234	1.136	.226	.240	1.253
Sales				.270	.222	1.310	.248	.223	1.282	.300	.225	1.350
[Needs]												
Life stage (RG:single/ high school & over/no child. resident)												
Youngest 0-2 yrs							.035	.316	1.036	.091	.318	1.095
Youngest 3-prescl							.659*	.288	1.932	.746*	.289	2.108
Youngest primary							-.332	.332	.718	-.261	.334	.770
Dual Income							-.208	.172	.812	-.213	.174	.808
[IT Use]												
Use in current job										-.756**	.218	.469
Use before current job										.302	.240	1.353
Constant	-2.709			-2.672			-2.647			-2.726		
$\chi^2$		13.695*			42.372***			51.487***			72.217***	
df		4			10			14			16	

\*\*\*p<.001 \*\*p<.01 \*p<.05 +p<.10

Comparing Model 4, which incorporates the ICT variables, and Models 1-3, the “60 years & over” coefficient is high in all models, but especially in Model 4. If the probability of respondents sixty years and over starting up a new business was to fall when incorporating the ICT usage variables, this would suggest that ICT usage would account at least partially for this probability. The results, however, indicate the opposite, namely that start-up operators age sixty and over are not ICT users.

TABLE 5: SUMMARY OF LOGISTIC REGRESSION ANALYSIS FOR PREDICTING START-UPS  
(Female sample: N=1,323)

	MODEL 1			MODEL 2			MODEL 3			MODEL 4		
	B	SE B	Odds	B	SE B	Odds	B	SE B	Odds	B	SE B	Odds
Age (RG:15-29)												
30-39	.571	.358	1.771	.575	.359	1.778	.324	.375	1.382	.395	.379	1.484
40-49	.603 <sup>+</sup>	.349	1.827	.543	.352	1.721	.820*	.377	2.271	.977*	.388	2.656
50-59	.222	.362	1.248	.177	.368	1.193	.659 <sup>+</sup>	.393	1.933	.785 <sup>+</sup>	.402	2.193
60 & over	.437	.396	1.548	.467	.401	1.595	.880*	.418	2.410	.999*	.427	2.716
[Human Capital]												
Ed.(RG:jnr/snr high)												
College				.268	.250	1.307	.394	.254	1.482	.423 <sup>+</sup>	.256	1.527
Uni/Grad.School				.150	.262	1.162	.135	.267	1.144	.224	.276	1.251
Occ.(RG:Non-white col)												
Clerical				-.354	.275	.702	-.325	.278	.772	-.210	.291	.811
Managerial				1.682**	.502	5.374	1.558**	.516	4.751	1.682**	.529	5.375
Specialist/Tech				.388	.257	1.474	.337	.260	1.400	.413	.265	1.512
Sales				.439	.281	1.551	.394	.284	1.482	.429	.287	1.536
[Needs]												
Life stage (RG:single/ high school & over/no child. resident)												
Youngest 0-2 yrs							1.653***	.384	5.221	1.775***	.390	5.898
Youngest 3-prescl							1.495***	.317	4.459	1.568***	.321	4.798
Youngest primary							.340	.294	1.405	.354	.294	1.424
[IT Use]												
Use in current job										-.727*	.302	.483
Use before current job										.265	.297	1.304
Constant	-3.292			-3.467			-3.962			-4.084		
$\chi^2$		5.097			26.797**			55.817***			64.990***	
df		4			10			13			15	

\*\*\*p<.001 \*\*p<.01 \*p<.05 +p<.10

## Concluding Remarks

Using data from a nationwide telework survey, this paper has explored whether the perceived impact of ICT diffusion on lowering of barriers for establishing new businesses actually affects workers' choices to start up new businesses or not. The major findings can be summed up as follows.

### Relationship between ICT & Business Start-Ups

There is a higher probability for workers who used ICT prior to their current job and workers in specialist/technical occupations to establish new businesses than those with no prior ICT experience, but not to a statistically significant degree. Conversely, the number of ICT users among start-up operators was small. Existing research (Fujioka, 2004) shows that the larger the place of employ, the greater the share of ICT users. Therefore, the small scale of start-up businesses may explain this low level of ICT usage. However, despite the fact that the number of ICT users is low among start-up operators, the fact that the findings show a tendency for ICT users to opt for establishing new businesses suggests that workers in ICT-based occupations are more likely to set up new businesses than non-ICT based occupations. It also suggests that despite the fact that the number of new business start-ups has been falling in recent years in Japan, ICT diffusion has led to a small increase in the new type of technologically savvy self-employed workers.

### Relationship between Age/Gender/Life Stage & Business Start-Ups

The probability for workers aged sixty and over to establish new businesses was found to be statistically significantly higher than those in other age groups. However, no difference in the rate of business start-ups between

males and females was seen. Additionally, women with small children showed a stronger tendency to opt for establishing new businesses.

Bearing in mind that males in their thirties have to date accounted for the majority of business start-up in Japan, the high number of over-sixty start-up operators and the lack of a significant difference between start-up rates for the male and female samples, would seem to suggest that business start-up opportunities for older workers and female workers are indeed expanding. Taking into consideration the trend for over-sixty start-up operators to not use ICT, however, their high rate of business start-ups cannot necessarily be attributed to ICT diffusion. Rather women with small children and the over-sixty age group may merely be refusing to engage in jobs with a low level of discretion over work-hours, or are forced to opt for self-employment by being shut out of salaried employ due to age barriers. Accordingly, the spread of so-called decent jobs with a high degree of working hour discretion and job stability in the labour market may be a greater determinant of whether workers opt for self-employed business start-ups or not.

There are two main issues where future research would be valuable. The first concerns occupational classifications. In this paper, we used four categories for white-collar work, but in order to accurately ascertain the relationship between ICT and business start-ups, more detailed categorization such as the degree of work ICT dependence proposed by Sakamoto et al (2003) would seem advisable<sup>1</sup>.

A second issue concerns the need to obtain more long-term data on start-up operators' careers before and after setting up their businesses. Existing research has highlighted SOHO operators' tendency to display little interest in growing their businesses over the long-term, but we were unable this time to analyze whether women with small children remain self-employed through various life-stages or whether they choose work status to match a given life-stage's work requirements. This area could be clarified by event history analysis after obtaining sufficient information on start-up operators' job experience.

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## **End Notes**

<sup>1</sup>1) Jobs predicated on the diffusion and use of ICT (jobs directly involved with ICT, e.g. website design, programming, etc.); 2) jobs where the diffusion of ICT has changed a major part of how that job is performed (formerly paper-based jobs, e.g. design, finance, etc.); 3) jobs where the diffusion of ICT has changed a minor part of how that job is performed (jobs directly handling physical goods or dealing directly with clients, e.g. agriculture, transportation, retail sales, etc.).

# Can Organizational Type Be a Significant Predictor of Information Technology Adoption?

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## Abstract

Organizations need to constantly adopt new technological innovations one way or another in order to improve or keep their efficiencies or competitive advantages in business. What are the factors of an organization that can influence its adoption of new information technology? Can organizational type be a significant predictor of an organization's IT adoption? The present study examined organizational type and its relationship with the adoption of an information technology, asynchronous transfer mode technology, in organizations. Research results provided significant evidence that there is a statistically significant relationship between organizational type and ATM technology adoption in organizations.

## Introduction

Paisley (1985) stated that technological change has placed communication in the front lines of a social revolution. While some companies have the opportunities and resources to take advantage of low labor costs by moving their production facilities to low labor cost countries, other companies are forced to compete in this environment by making themselves more efficient (Ariss, et al., 2000). One way to improve their efficiency is to exploit modern technology (Millen & Sohal, 1998). As we moved from the Industrial Age into the Information Age (Toffler, 1980), means of communication and the exchange of information and information resources have come to rely increasingly upon computer-based information technologies and information systems. The computer-based information systems brought a very basic change in human communication (Rogers, 1986). Currently, personal computers and workstations are commonplace in organizations. Information technology and computers have given organizations the ability to establish effective information systems for business functional areas and even share hardware, software, and data resources with business partners. The increasing power of personal computers permits multimedia, virtual reality, streaming video, instant messaging, and other applications to be conducted on computer networks and over the Internet, especially in organizations. To exchange these applications of high-speed digital bits a great deal more bandwidth is required on the network, even with further onset of compression (Roberts, 1994). The commonly-used Ethernet and Token Ring networking technologies cannot deliver bandwidth on demand, particularly at the switching level. As more traffic is added to the network, especially voice and video, traditional technology becomes ever more incapable of satisfying the demands of business users. A solution for solving the bandwidth problem is needed to form a unified broadband network which can deliver high bandwidth on demand.

The incompatibilities between different types of LANs and WANs have existed for a long time. Data and voice messages need to be carried via different networks. There is a definite need for a unified broadband network. To provide such a broadband network, a switching and multiplexing technology suitable for the design of high capacity switches is the core. As many technologies failed their promises for the requested broadband services, asynchronous transfer mode (ATM) has stood out as one technology that has fulfilled its promise. ATM is a switching and multiplexing mechanism operating over a fiber based physical network. The essential features of ATM are a fixed-length packet (called a cell, a 53-byte packet with 5 bytes for header/footer and 48 bytes for information payload), which is switched based on a virtual circuit identifier in the cell header. All information types (voice, data, and video) are transported inside the cell. The most significant advantage of ATM is in its ability to do

statistical multiplexing and thus can effectively handle the bursty variable bit rate (VBR) and constant bit rate (CBR) traffic types. It is primarily a connection-oriented technology using a combination of virtual circuits (VC) and virtual paths (VP) to establish an end-to-end connection. End-hosts request that the network sets up a virtual circuit via a signaling control protocol that allows them to specify the desired quality of service (Chatterjee & Xiao, 1997; Kalmanek, 2002). According to McDysan and Spohn (1995), ATM takes on many forms: provides software and hardware multiplexing, switching, and cross-connect functions and platforms; serves as an economical, integrated network access method; becomes the core of a network infrastructure; provides quality to the much-touted ATM service. ATM technology is one of the most important developments in internetworking in the last two decades. It has the potential to transform our network communication process. However the debate over the merits of such a technology is still going on (Crowcroft & McAuley, 2002).

Today, ATM is used to provide VPN (Virtual Private Network) services to businesses, consisting primarily of point-to-point virtual circuits connecting customer sites. ATM services represented a 2 billion dollar business in 2001. ATM provides the underpinning of DSL (Digital Subscriber Loop) services, which are growing rapidly. ATM is also used as the core network infrastructure for large Frame Relay networks and for some IP networks (Kalmanek, 2002). Based on the far-reaching significant position ATM possesses in networking, it can be seen that ATM will play a more important role in the building of a new utility infrastructure for communications technologies (Neff, 1994). The adoption of ATM technology will probably change the current networking systems, upgrade the quality of current networks, and provide increased services.

Despite the increasing deployment of ATM technology and the important role it plays in today's information technology infrastructure, little research has been found devoted to its study. A few recent researchers have examined organizational characteristics, such as organizational size, and their relationships to organizational adoption of technological innovations (Damanpour, 1987; DeLone, 1981; Eder & Igarria, 2001; Kimberly & Evanisko, 1981; Lind, et al., 1989; Marcotte, 1989; Yap, 1990). However, no research has been found that studies ATM adoption in institutions of higher learning, nor has any research of this nature been found in other information technology and organizational studies. This research examined ATM technology adoption in university settings to determine whether university type is related to ATM adoption.

It has been proposed that organizational variables have been clearly the best predictors of adoption of technological innovations (Kimberly & Evanisko, 1981). Identification of such organizational variables as university size and type will provide valuable information to researchers in their study of information technology adoption in universities, as well as similar information technology innovation adoptions in other settings. Furthermore, previous and current theories on new technology adoption focus primarily on issues at the individual level (Venkatesh & Brown, 2001). This study, however, brings a constructive contribution to the deposition of IT innovation adoption research, based on organizations, under the theory of innovation adoption and diffusion. The study originally included several organizational variables. However, organizational type was selected from among others for presentation in this paper to fit with the conference themes, paper scope, and size requirements. Therefore data analysis and discussions will be focusing on findings of this variable and its related indications.

## **Conceptual Model and Research Question**

Since the publication of Lewin's (1952) organizational change model and Rogers' (1983) innovation diffusion theory, studies of organizational change have been increasingly associated with organizational innovation adoptions. Over the years and based on Lewin's model, Kwon and Zmud (1987) developed their own information systems implementation model, which examines six stages of information systems implementation: initiation, adoption, adaptation, acceptance, use, and infusion. A number of studies have emerged from this model to examine the adoption and use of technological innovations in organizations (Eder & Igarria, 2001). In fact, organizational study journals have recently published a number of papers that directly explore the consequences of adopting and using information technologies (Constant, et al., 1996; DeSanctis & Poole, 1994; Jarvenpaa & Leidner, 1999; Mitchell & Zmud, 1999; Orlikowski & Yates, 1994; Walther, 1995). This is because information technology research can benefit from incorporating institutional analysis from organizational studies, while organizational studies can benefit

even more by following the lead of information technology research in taking the material properties of technologies into account (Orlikowski & Barley, 2001).

Among the characteristics of organizational structure, organization type as a variable to study technological innovation adoption has been favorably examined. Damanpour (1991) observed that organizations of all types adopt innovations to respond to changes in their external and internal environments. However, organizational factors may unequally influence innovation in different types of organizations, as extra organizational context and the industry or sector in which an organization is located influence innovativeness (Van de Ven, 1986). Miller and Friesen (1982) observed that the impact of organizational variables on product innovation differs considerably between entrepreneurial and conservative firms. Hull and Hage (1982) found that the association between innovativeness and structural variables differs among traditional, mechanical, organic, and mixed organizations.

In distinguishing types of organizations between manufacturing and service, Damanpour (1991) reported that considerable differences in the technologies and underlying dimensions of structure exist in these organizations. In the same paper, Damanpour also stated that differences can also exist among facilitators of the adoption of innovation in each type. The nature of activities of manufacturing and service organizations differ. Mills and Margulies (as cited in Damanpour, 1991) pointed out that unlike the situation in manufacturing organizations, in service organizations (a) the output is intangible and its consumption is immediate, and (b) the producer is close to the customer or client—they must interact for delivery of the service to be complete. Thus, in a service context, technical core employees must deal with client variety and unpredictability, whereas in a manufacturing context, buffering roles reduce uncertainty and disruptions of the technical core (Daft, 1989). These differences would unequally affect both the determinants of innovation and the strength of their influence in each context (Damanpour, 1991).

The same distinction applies to institutions. Different institutions have different missions and educational functions, and different institutions offer different degrees. The Carnegie Classification of higher education groups American colleges and universities on the basis of their missions and educational functions (Boyer, 1987). It is its different mission and educational function of each individual university that distinguishes itself from others. Accordingly, Research Universities give higher priority to research (The Carnegie, 1994), while non-research institutions give higher priority to teaching and other institutional missions.

According to Carnegie Classification (The Carnegie, 1994), Research Universities I & II give higher priority to research. They receive more federal support and award more Ph.D. degrees than non-research universities annually. Boyer (1994) expressed research universities' distinguishing missions and educational functions in this way:

“America must continue to support a core of world-class research centers; they are essential to the advancement of knowledge and to human achievement. Such activity is costly, however, and it is crucial that we have available the fiscal resources needed to sustain an expanding network of institutions devoted to scholarly research” (p. vii).

Institutional type has been used in some institutional related research works as an organizational variable, most of the time as one of the independent variables. Taggart (1994) used institutional type as one of his seven independent variables in his study on how the seven variables interact with budget decision criteria used by chief fiscal officers at 179 selected Research I, Research II, and Doctorate-Granting institutions of higher education. Dennison (1994) included institutional type and size as independent variables to examine what effect, together with other variables, they had on the described leadership behaviors of on-campus public radio station managers.

Organizational type in institutions can be defined as research and non-research, or as public and private. In Matthews' (1993) study, university type was defined as research university and teaching university. For the purpose of this study, university type is defined as Research University (which includes both Research Universities I and Research Universities II classified by The Carnegie Foundation for the Advancement of Teaching) and Non-Research University (which includes Doctorate-Granting Colleges and Universities I and II and Comprehensive Colleges and Universities I and II classified by The Carnegie Foundation for the Advancement of Teaching).

Based on the literature drawn from technological innovation adoption and diffusion, the present research is guided by the research model developed by Damanpour (1987), Kwon & Zmud (1987), and the theoretical framework from Roger's (1995) innovation diffusion theory. The study intends to answer such a research question:

What is the relationship between organizational variable, namely university type, and university's adoption of ATM technology? In other words, is there a statistically significant relationship between university type and ATM technology adoption in university settings? If the question is tenable, then organizational type can serve as a predictor of information technology innovation adoption.

## Methodology

The research design for this study was correlational since this method permits analysis of the relationships among a number of variables in a single study (Borg & Gall, 1989). The sample subjects were randomly selected from the population of university domain LAN administrators in the United States. University domain LAN administrators are those who are directly involved in planning, constructing, administering university domain LAN infrastructure plus adopting and implementing state-of-the-art technology innovations, such as ATM. The preference of only university domain LAN administrators makes the selected subjects homogeneous so that more accurate data of the variable can be obtained (Borg & Gall, 1989). University type was defined as research university and non-research university (non-research doctorate-granting and neither research nor doctorate-granting) for this study. The list of research and non-research universities was obtained from the technical report published by The Carnegie Foundation for the Advancement of Teaching (The Carnegie, 1994).

A survey questionnaire was designed to identify the current and future status of ATM adoption in universities. It contained categorical items identifying ATM adoption status of participating universities. The questionnaire used in present research was reviewed by five experts in networking/telecommunications and ATM technology. Two of them were university domain LAN administrators. Suggestions from these experts were used to modify the questionnaire. The questionnaire was posted on the World Wide Web. E-mail was used to distribute the cover letter of the questionnaire to each university domain LAN administrator. A total of 554 user addresses were actually sent through via the Internet. From the 554 user addresses sent through, 208 responses were received for a response rate of 37.55%. Out of the 208 responses, 9 were unusable, leaving 199 usable, yielding a usable response rate of 35.92%. The response rates are shown in Table 1.

TABLE 1: SUMMARY OF RESPONSES

Out of 554 Mailed	Initial Mailing	1st Follow-up	2nd Follow-up	Total	Rate%
Responded	67	113	28	208	37.55%
Unusable	2	7	0	9	
Total Usable	65	106	28	199	35.92%

## Data Analysis

Logistic regression was employed to study the relationship between organizational variables and the ATM technology adoption status of a university. According to Hosmer and Lemeshow (1989), regression methods have become an integral component of any data analysis concerned with describing the relationship between a dependent variable and one or more independent variables. Very often the dependent variable is discrete, taking on two or more possible values. Logistic regression, in many fields, has become the standard method of analysis in this situation. The dependent variable in this study is dichotomous (adoption and non-adoption) with an objective of describing the relationship between the dependent variable, ATM technology adoption, and the independent variable of university

type. Therefore, logistic regression was an appropriate statistical analysis method for this study. The data were analyzed by using Statistical Package for the Social Sciences (SPSS).

## Findings

### ATM Adoption Status

Of the 199 responses received, 58 universities indicated that they had adopted ATM technology, which was 29.1% of the responses. Of these 58 universities which have adopted ATM, 51.7% (n = 30) were research universities and 48.3% were non-research universities. Among the non-research universities, 22.4% (n = 13) were doctorate-granting universities, and 25.9% (n = 15) were neither research universities, nor doctorate-granting universities. The frequencies of ATM adoption are shown in Table 2.

TABLE 2: FREQUENCIES OF ATM ADOPTION STATUS

University Type	Adopted		Non-Adopted		Total
	Freq.	Percent	Freq.	Percent	
Research	30	51.7	16	11.4	46
Doctorate	13	22.4	23	16.3	36
Neither	15	25.9	102	72.3	117
Total	58	100.0	141	100.0	199
Total %		29.1		70.9	100

### Speed, Bandwidth, and Efficiency Improvement

About 93% (n = 54) of the universities, which had adopted ATM, reported that their networks' speed, bandwidth, and/or efficiency had been improved since they adopted ATM. Only about 7% (n = 4) of the universities did not indicate speed, bandwidth, and/or efficiency improvement on their networks since they adopted ATM. Table 3 shows the frequencies of the speed, bandwidth, and/or efficiency improvement.

TABLE 3: FREQUENCIES OF IMPROVEMENT

Status	Freq.	Percent
Improved	54	93.1
Not Improved	4	6.9
Total	58	100.0

### Logistic Regression Results

Nested models were used to analyze model variables. Logistic regression coefficients for the nested models are listed in Table 4. According to Norusis (1994), logistic coefficient can be interpreted as the change in the log odds associated with a one-unit change in the independent variable. Logit (the log of odds) is represented by coefficient value  $\beta$ . Since it is easier to think of odds rather than log odds (Norusis, 1994), the logistic model uses  $Exp(\beta)$  (exponential function of coefficient) to represent odds, which can be interpreted as by increasing the value of independent variable's coefficient from 0 to 1 the odds are increased by a factor of the value under  $Exp(\beta)$ . If the independent variable's coefficient value  $\beta$  is positive, this factor will be greater than 1, which means that the odds are increased; if the  $\beta$  value is negative, the factor will be less than 1, meaning that the odds are decreased. Based on this rule of thumb and the coefficient values revealed in Table 4, interpretations of these models are stated in each of the individual sections to follow.

#### Model 2

Model 2 included independent variable UTYPE (university type).  $\beta$  coefficient for UTYPE is 1.6733. The  $Exp(\beta)$  value for UTYPE is 5.3297. The p-value for university type is less than .001. Therefore, it reveals that there is a statistically significant relationship between ATM Adoption and university type. To be more specific, the odds ratio of 5.3297 shows that, in this model, the odds of adopting ATM for research universities is about 433% greater than that for non-research universities.

Model 2 has a Model  $\chi^2$  of 37.519 relative to two degrees of freedom, which is statistically significant ( $p < .05$ ). Compared to Model 1, Model 2 improves the goodness-of-fit ( $37.519 - 23.979 = 13.540$ ) ( $2 - 1 = 1$ ). As a result, Model 2 is better than Model 1 because the variable university type further improves the fit by  $\Delta \chi^2 = 13.540$  relative to one degree of freedom.

#### Model 3 and Model 4

The odds ratio for UTYPE is 5.2095 in Model 3, which indicates that, the odds of adopting ATM for research universities is 421% greater than that for non-research universities. The p-value for university type is less than .001. There is a statistically significant relationship between university type and ATM adoption. It is apparent that university type is a significant predictor of ATM adoption. Model 3 shows a Model  $\chi^2$  of 53.953 relative to three degrees of freedom, which is statistically significant ( $p < .001$ ). Compared to Model 2, Model 3 improves the goodness-of-fit ( $53.953 - 37.519 = 16.434$ ) ( $3 - 2 = 1$ ).

In Model 4, the p-value of UTYPE is less than .01. The odds ratio for UTYPE is 4.5740, which indicates that the odds of adopting ATM for research universities are 357% greater than that for non-research universities. This allows us to conclude that, again, there is a statistically significant relationship between university type and ATM adoption. Model 4 yields a Model  $\chi^2$  of 59.618 relative to five degrees of freedom, which is statistically significant ( $p < .001$ ). Compared to Model 3, Model 4 improves the goodness-of-fit ( $59.618 - 53.953 = 5.665$ ) ( $5 - 3 = 2$ ). See Table 4 for details.

TABLE 4: LOGISTIC REGRESSION COEFFICIENTS AND GOODNESS-OF-FIT FOR THE NESTED MODELS

Variable	Model 1		Model 2		Model 3		Model 4	
	$\beta$	Exp( $\beta$ )	$\beta$	Exp( $\beta$ )	$\beta$	Exp( $\beta$ )	$\beta$	Exp( $\beta$ )
ENRO	.000	1.0001	.00003	1.0000	.00002	1.0000	.00002	1.0000
LLMT	.08** *							
UTYPE			1.6733***	5.3297	1.6505***	5.2095	1.5204**	4.5740
NTBUDGET					.0528***	1.0542	.0526***	1.0540
MT1							.6980*	2.0098
MT2							.3479	1.4161
Model $\chi^2$	23.979		37.519		53.953		59.618	
Df	1		2		3		5	
Significance	.0000		.0000		.0000		.0000	

\*p<.05; \*\*p<.01; \*\*\*p<.001



## **Conclusion and Discussions**

The results of logistic regression statistical analysis satisfied the research question that statistically there is a significant relationship between ATM technology adoption and university type. University type revealed a strong association with ATM adoption. The data analysis findings in Model 4 indicate that research universities are 357% more likely to adopt ATM than non-research universities. Therefore, we can conclude that organizational type can be used as a significant predictor of information technology adoption.

Table 3 presents that 6.9% (n = 4) of the universities did not indicate an improvement of their networks' speed, bandwidth, and/or efficiency since they adopted ATM. Does this mean that ATM adoption was not a good choice for these universities or does it mean something else? A comparison of the data reveals that three out of the four universities adopted ATM in the same year as the survey was administered, and the survey was sent out in the last two months of the year. This could signify several possibilities. It could be that they were not in the adoption evaluation phase to determine whether their network's speed, bandwidth, and efficiency had been improved or the systems implementation of the technology was still in progress by the time they were administered the survey.

## **Limitations, Implications, and Recommendations**

The subjects of the study were randomly selected from universities throughout the United States. Since the data were obtained from surveys and other means of data collection conducted by third party organizations, such as The Carnegie Foundation for the Advancement of Teaching, their data collection is presumably to be accurate, reliable, and unbiased. Thus, the generalizability of the results of this study may be subject to the influence of the findings of the above-mentioned factors. Moreover, the generalizability of this study may be limited to organizations with similar settings, levels, and technologies. Within this limitation, the following implications are posited.

The results of the study provided strong evidence to support the postulation that university type is significantly related to ATM technology adoption in universities. The results support the earlier findings (Bayless & Johnson, 1990; Damanpour, 1987; Ellis, 1994; Lind, et al., 1989; Marcotte, 1989; Yap, 1990) that organizational type is a necessary factor when applied to the study of organizational adoption of information technology innovations. Thus the study has brought a constructive contribution to the deposition of information technology innovation adoption literature.

The positive association between ATM adoption and university type indicates that organizations of certain types may have higher likelihood of adopting information technology innovations in order to keep their leading positions in the industry or academic standings. Being early adopters of new information technology may be one of the major factors that these organizations can sustain their current positions. Information technology vendors, on the other hand, can benefit from the research findings by realizing that certain types of organizations, such as research universities, are often early adopters of cutting-edge information technologies. These vendors ought to target markets based on their in-depth understanding of their current clients and potential customers, including their organizational characteristics, to establish larger and long-lasting markets for ATM technology and other new information technologies. Organizations which have adopted ATM technology may be prepared to adopt new ATM technology products as well as post adoption management and maintenance. At the same time, they may need to cope with the changes in their organizational structure as a result of their new information technology adoptions.

Given the seminal and exploratory nature of the study, further studies of ATM and other information technology adoption may want to look into additional organizational variables, such as organizational structure, information systems structure, etc. In doing so, these studies may yield more valuable and enriched information for guiding IT/IS implementation practices in organizations. It is also recommended that examination of the relationship between organizational type and information technology innovation adoption, as it is in this study, be replicated in future studies to confirm the validity of our findings.

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### Abstract

As in many countries, Malaysia has adopted ICT and technology in various sectors such as manufacturing, banking, finance, and telecommunication, to name a few. To identify the level of ICT and technology adoption in industrial sectors, a survey was conducted using a random sample of organizations representing the industrial and government sectors in Malaysia. The study suggested that the awareness by the industrial sector in adopting ICT and other advanced technology is important in order to generate higher value-added economy. The findings on technology adoption also suggests the direction the industry should take towards integrated technology as integrated solutions become more and more feasible and economical as organizations enter the era of globalization and become more competitive. In addition, productivity performance for service based industry increases from double in the low to moderate productivity to almost triple at the high productivity category due to ICT and technology adoption. This result may suggest that more focus should be given to the service industry in order to help accelerate the Malaysian economy, particularly in our efforts to become a fully developed nation in the not too distant future. **Keywords:** ICT Adoption, Technology Adoption, Information and Communication Technology

### Introduction

The role of information and communication technology (ICT) in boosting productivity and in promoting human resource development cannot be underestimated. Small and medium enterprises (SMEs), in particular, have to grapple with the technological innovations that challenge operations, efficiency, and productivity vis-à-vis human resource capabilities. SMEs play a significant role in Malaysian economy and in providing employment opportunities. In a world of global competition, the use of technological resources has become a major strategic challenge for SMEs (Marri, Gunasekaran, & Kobu, 2003). The claim of ICT implementation is critical to SMEs strategies because the absence of suitable and sufficient knowledge on this topic exposes a “rhetoric versus reality” argument (Shiels, McIvor & O’Reilly, 2003). As part of the efforts to nurture the development of small and medium-scale enterprises (SMEs) in view of their strong growth potential, Bank Negara Malaysia initiated the establishment of the National SME Development Council in 2004, chaired by the Prime Minister.

The manufacturing sector has been a major driver of growth for the Malaysian economy since the country’s independence. Today, the manufacturing sector’s share of total GDP amounts to about 31 per cent, contributes more than 80 per cent of Malaysia’s total exports. Given the manufacturing sector’s importance, scholars and policy-makers have attempted to ascertain the stage of technological development in the sector. Thus far, most empirical studies on technological development in the country have concentrated on selected industries (notably the electronics and automotive sectors) and firms (Jomo, Felker & Rasiah, 1999).

Under the 9<sup>th</sup> Malaysia Plan (2006-2010), the Malaysian government will boost the adoption and use of ICT in the country. The number of MSC status companies is projected to grow from 1421 as at 2005 to some 4,000 by 2010 and these are expected to create 100,000 new jobs and generate about 1,400 new intellectual properties. It

is also projected that the manufacturing, the services and the agriculture sectors are the main drivers of the growth of the economy. The economy is expected to grow at an average of 6% annually for the next five years. It is projected that there is an increase in productivity, competitiveness and valued added in these three focus sectors. The use and adoption of technology are anticipated to increase productivity and efficiency in the manufacturing sector. In the service sector, the ICT development in the banking and finance, insurance, transportation and logistics are emphasized in the SME sectors.

In Malaysia, there is a distinction between small and medium scale enterprises (SMEs) and small scale industries (SMIs). The SMEs are usually referred to those involved in non-manufacturing activities and usually are business traders of finished goods and services. The business activities involve: wholesale, distribution, retailing, contractors, and food processing, farming, financing and mining. There are also “informal” traders/ micro business/ street traders participating in the economy. SMIs are usually defined and referred to those involved in the manufacturing/production/processing/engineering sectors.

As in many countries, Malaysia has adopted ICT and technology in various sectors such as manufacturing, banking, finance, and telecommunication, to name a few. To identify the level of ICT and technology adoption in industrial sectors, a survey was conducted using a random sample of organizations representing the industrial and government sectors in Malaysia.

## **ICT and Technology Adoption in the Industry**

In the developed countries, an increasing number of industries are adopting ICT in their effort to develop a competitive advantage and maintain their position in the marketplace. A study in the UK found that even small industrial firms with less than 100 employees adopt IT using at least one PC to support their business (Dahalin and Golder, 1998). Lees and Lees (1987) found that the reasons firms adopt IT are to improve operational procedures, to produce information at a lower cost, to make available new management tools for decision making, to facilitate billing and invoicing, to facilitate business growth, to facilitate inventory control, and to be innovative. The benefits derived include better record keeping, timely, accurate, and expanded information, improved customer service, increased productivity, and enhanced management control and decision making. This many benefits encouraged more and more firms in the industrial sector to adopt IT. However, studies have also shown that the industrial sector, constituting more than 90% of small and medium industries (DTI, 1997), generally have end-users with low level of computer literacy and received elementary formal education.

Licht and Moch (1999) found that ICT has important impacts on the qualitative aspects of service innovation. Firms that introduced process innovation in the past are particularly successful in using ICT; the output elasticity of ICT capital for these firms is estimated to be about 12 per cent, about four times that of other firms (Hempell, 2002). This suggests that the productive use of ICT is closely linked to innovation in general, and to the re-engineering of processes in particular. Studies in other countries also confirm this link. For example, Greenan and Guellec (1998) found that organizational change and the uptake of advanced technologies (which assume that ICT investment has been made) seemed to increase the ability of firms to adjust to changing market conditions through technological innovation.

According to Fuller (1996), the computers and software programs (information technology or IT), are business tools which can be used, for example, to reduce costs, create stronger linkages with customers, innovate, and facilitate niche marketing. The term adoption is used generically to include the purchase of IT equipment and software, and the implementation of this in the individual enterprise. The terms ‘infusion’ and ‘absorption’ are also used to describe the increasing use and involvement of IT in the individual enterprise.

## **Related Studies**

Shiels, McIvor and O’Reilly (2003) indicate that the characteristic of the firm and the industry sector are contributory factors to the extent of adoption and exploitation of ICTs by SMEs, to support business processes. In the United Kingdom, it was found that firms with relatively high (low) proportions of skilled workers were expected

to have a competitive advantage in minimizing the cost both of ICT adoption and of learning how to make best use of ICTs (Forth and Mason, 2004). Peansupap and Walker (2005) studied on factors affecting ICT diffusion in three large Australian construction contractors. The study of ICT diffusion within construction organizations consisted of two phases: gathering quantitative and qualitative data. In order to understand ICT diffusion within construction organizations, a case study methodology was adopted. The reason for choosing this methodology was to provide qualitative data that could understand better how ICT is initiated within construction organizations and to expose factors that supported ICT diffusion. The data collection from the case interviews were conducted from October 2002 to May 2003. Phase 1 of the research comprised one contractor, one consulting engineering organization and a government department. In phase 2, three large main construction contractors were interested in participating in this research, including the contractor from phase 1. The research team conducted semi-structured interviews. To receive the from cross-organizations, data were collected from the ICT application implementer/facilitator and five to six professional users including project managers, engineers, and foremen. Each interview took approximately 30-35 minutes. Results from the study found that 11 factors influence ICT diffusion. The report on phase 2 study results within three construction organizations based on the 11 factors found to influence ICT diffusion. Semi-structured interviews were undertaken with five to six ICT users and an implementer for each of the case study companies. It is clear that people diffuse ICT innovation and they must feel motivated to do so. This introduces the importance of support mechanisms that includes not only technical solutions such as superior hardware and software operational features, but also software support that is championed by supervisors who behave as role models.

Mazuki, Mohd Rizal and Maimun (2004) studied the integration of information technology among 106 small and medium-sized enterprises in Malaysia. The results show that the higher levels of IT integration among manufacturing companies that produce high technological goods and services exhibits higher integration levels. The overall correlation is significant to substantiate the hypothesis that higher levels of IT integration leads to better performance efficiencies in all functional areas. In terms of organization size, SMEs with larger number of employees have higher levels of IT integration.

Until the 1980s, firms in sectors such as mechanical and electrical engineering depended mainly on the skills of their designers, draftsmen, production engineers and draftsmen for their technology. The various stages of the production and distribution process, along with the interfaces between organizations in the supply-chain, are now codified and managed electronically. As a result, traditional craft and production engineering skills for example have been replaced by computer design skills, and the ability to integrate successfully the various elements of computer-controlled work and information flows within and across company boundaries is now a key competence in many industries (Clarke, 2001). Haskel and Heden (1999) found that computerization reduces the demand for manual workers, even when controlling for endogeneity, human capital upgrading and technological opportunities. In addition, Caroli and Van Reenen (1999) found evidence that human capital, technology and organizational change are complementary, and that organizational change reduces the demand for unskilled workers.

Lal (2004) conducted a case study approach to examine both direct and indirect employment associated with the adoption and production of new technologies. The study covers a wide spectrum of large firms ranging from skill intensive sectors such as garment manufacturing and E-business technology producing firms. The sample includes firms that produce e-business technology as well as those use such technologies. Within the technology using firms there are two extremes of the industrial spectrum – the modern industry segment represented by consumer electronic and component-manufacturing firms, and the traditional, labour intensive, industry represented by garment manufacturing firms. Samples were selected on the basis of their sales turnover over the past few years of the firms on the map of India. Data covering a period of nine years in 1994-1995 to 2003-2004 were used in the analysis. The results of the study did not find any evidence to support the argument that adoption of e-business technologies leads to a loss of jobs. The results do indicate, however, that the adoption of e-business technologies might result in the restructuring of business organizations.

Another study conducted by Atrostic and Nguyen (2002) identifies the effects of computers on productivity, particularly using information technology in firms. The sample of data on the use of computer networks and electronic business processes in the manufacturing sector of the United States were collected in 1999. The findings of this study indicate that there is a strong link between labour productivity and the presence of computer networks. Marri, Gunesekaran and Kobu (2003) found that the implementation of computer-integrated

manufacturing (CIM) in small and medium enterprises in companies provides benefits for both employers and employees. The findings also show that 33 per cent of companies achieved a good degree of flexibility after the implementation of CIM in their companies whereas 33 per cent of companies indicated that they reached an average degree of flexibility.

To this end, it is the intention of this paper to assess the level of ICT and technology adoption of the Malaysian industry as well as the public sector in terms of the end-users and various technologies such as Stand-alone, Intermediate, and Integrated technology.

## **Methodology**

The study was based on a field study in the form of a survey research using a cross-sectional approach where a sample of firms representing the production and manufacturing firms listed in the Federation of Malaysian Manufacturers (FMM, 2002) and government and government linked companies were sought. A questionnaire was developed by the researcher based on literature review and formal interviews with companies' officers (such as HR managers) to get an overview about ICT and technology adoption. The questionnaire is divided into several parts, namely:

Part A: Background of the Company

Part B: Information and Communication Technology (ICT) Adoption

This section requests respondents to disclose information on the extent of their ICT adoption through the use or non-use of automation in the workplace.

Part C: Technology Adoption

This section seeks information on how the company utilizes certain form of technology.

Sampling technique in the form of proportionate random sampling was used taking into account the different sample frame sizes according to the industries (Kerlinger, 1986). A total of 1000 firms were selected in which questionnaires were sent and 120 returns were received. Out of these, 46 firms were categorized as small having less than 50 employees, 29 firms were medium sized having between 50 to 199 employees, and 45 were large with 200 and more employees.

## **Findings**

Table 1 shows the distribution of respondents according to the States in Malaysia. As can be seen, all States are included with the exception of Sabah, and only one respondent each coming from the States of Sarawak and Negeri Sembilan. The highest percentage of respondents in the sample came from the States of Penang and Selangor each with 19.2 percent of the total sample size of 120. Next came Kedah with 15 percent and this is followed by Perak (13.3 percent). Smaller samples came from the State of Johore (7.5 percent), Federal Territory Kuala Lumpur (5.8 percent), States of Melaka (5 percent), Kelantan (4.2 percent), Trengganu (4.2 percent), and Pahang and Perlis each at 2.5 percent.

Distribution of the sample by region shows that the majority of the sample respondents came from the Central Region with 38.33 percent. This is followed closely by the Northern Region with 36.67 percent. The Southern Region and East Coast are less represented with each account for 13.33 percent and 10.83 percent, respectively.

TABLE 1: DISTRIBUTION OF SAMPLE BY REGION

Region	States	Frequency	Percentage
Northern Region	Perlis, Kedah, Penang <b>Total:</b>	3, 18, 23 44	36.67
Central Region	Perak, Selangor, Kuala Lumpur <b>Total:</b>	16, 23, 7 46	38.33
Southern Region	Negeri Sembilan, Melacca, Johore <b>Total:</b>	1, 6, 9 16	13.33
East Coast Region	Pahang, Trengganu, Kelantan <b>Total:</b>	3, 5, 5 13	10.83
East Malaysia	Sabah, Sarawak <b>Total:</b>	0, 1 1	0.83
	<b>TOTAL</b>	120	100.00

The distribution of the sample may suggest the concentration of the ICT industry and high technology industry is in the central and northern regions of Malaysia. This is particularly true with the development of industrial and high-technology parks and free trade zone areas in the Klang Valley areas situated in the Central Region, and the Bayan Lepas Free Trade Zone, Prai Industrial area, and the Kulim High Technology Park in the Northern Region. The sample therefore appears to be proportionate to the distribution of the industry targeted for this study and findings from this report may well represent the technology and ICT industry in Malaysia.

General background of the responding companies participated in the survey will not be complete without examining the size of the companies in terms of the number of employees. Table 2 shows the distribution of the companies in the sample by category, that is, small, medium and large. The table shows that small companies in the survey with employee size of less than 50 accounts for 38.3 percent of the sample. Medium sized companies with 50 to 199 employees made up 24.2 percent of the sample. Large companies of 200 and above employees constitute the remaining sample amounting to 37.5 percent. From the sample it can be seen that majority of the respondents belonged to the small and medium enterprises (SMEs) accounting for 62.5 percent of the sample.

TABLE 2: CATEGORY OF COMPANY BY SIZE OF EMPLOYEE

Category	Size of Employee	Frequency	Percent
Small	49 and below	46	38.3
Medium	50-199	29	24.2
Large	200 and above	45	37.5
	<b>Total</b>	<b>120</b>	<b>100%</b>

The next section of the survey analyzes availability of skilled workers for the technology and/or ICT adoption in the company and the results are displayed in Fig. 1.

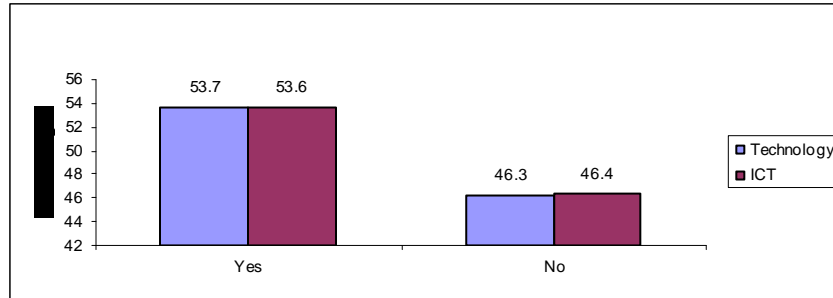


FIG. 1: AVAILABILITY OF SKILLED WORKERS IN TECHNOLOGY AND ICT ADOPTION

As can be seen from Fig. 1, more than half of the sample indicated having skilled workers in both technology and ICT with both categories have about the same proportion. Though this may look encouraging, quite a significant proportion (46 percent) of respondents indicated they did not have adequate skilled workers in both technology and ICT. Considering the majority of the sample respondents came from the industrial areas, this finding is quite disturbing as significant number of organizations within the industry are still finding it difficult to fill up positions that requires skills and expertise. A closer look at the distribution of skilled workers shows that for the technology industry, slightly above 30 percent, have 10 or less skilled workers. Twenty-three percent of the technology sample indicated having more than 50 skilled workers, and about 45 percent have skilled workers in the range 10 to 50. For the ICT category, 25.5 percent have less than 10 skilled IT workers, and the same proportion indicated having more than 50 skilled workers. The remaining half of the sample of ICT category has between 10 to 50 skilled workers.

The comparisons on the level of ICT adoption in the administration, operation, and software usage is presented in Fig. 2. With the exception of software usage, the level of ICT adoption appears to be higher in the administration compared to the operations. In the administration, an average of 55.6 applications is used as semi-automated and only 31 applications are fully automated. In the operations, an average of 49.4 applications is used as semi-automated and only 28.2 applications are fully-automated. The results indicate semi-automated applications are dominant in both administration and operations functions. It is interesting to note that there is still manual usage of traditional word processing (usage of typewriter), manual spreadsheet, project planning, and human resource planning though on the average only 8.43 applications are manually done. It is understandable that software usage in fully-automated applications is the highest with an average of 61.9 percent. The sample respondents also indicated that a number of applications are in their planning with software usage top the list at 4.86 applications. The results also show more operations applications are in the pipeline as compared to the applications supporting the administration function.



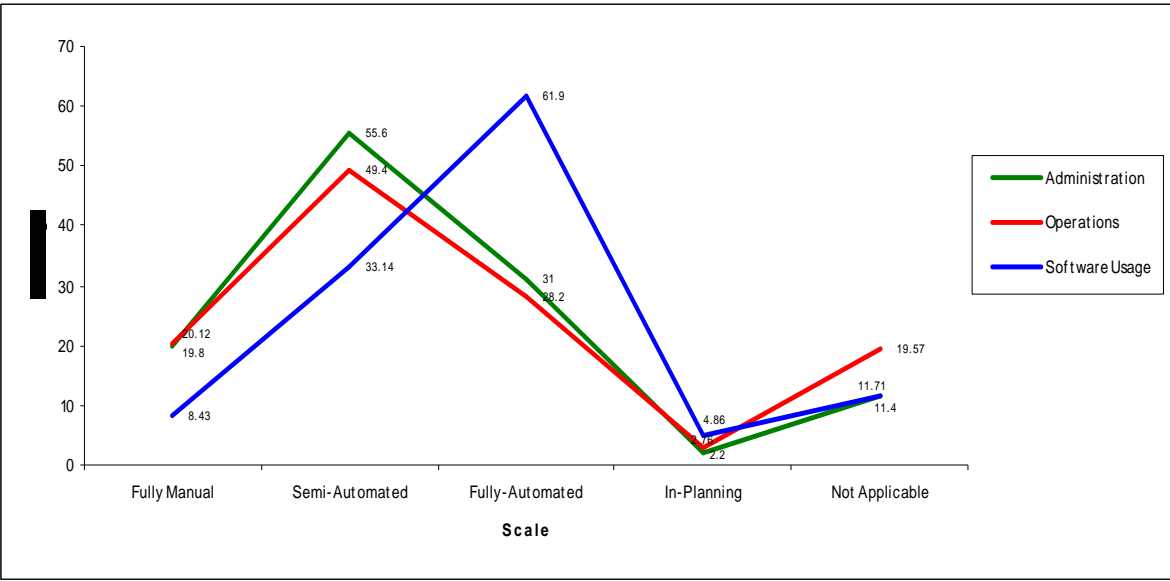


FIG. 2: COMPARISON OF LEVEL OF ICT ADOPTION

Adoption of ICT in the workplace was also explored, specifically in terms of administration and operations. As shown in Fig. 3, more than 200 (n = 208) of the companies surveyed utilized ICT in administration-related work like purchasing, tender, and bookkeeping, among others. More than a hundred (n = 134) were fully automated, while 78 were fully manual. Seven companies were still in the planning process of ICT adoption in administrative work, while 18 said it was 'not applicable'.

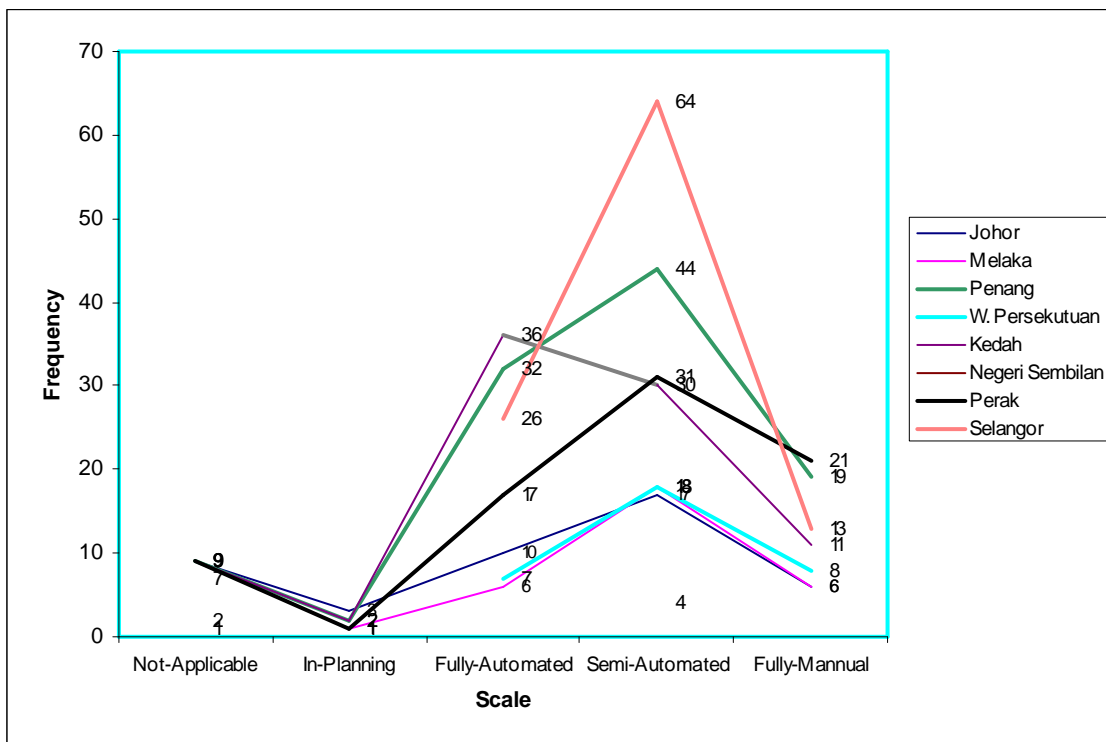


FIG. 3: ICT ADOPTION IN ADMINISTRATION IN WEST COAST

Apparently, ICT was highly adopted in operational work, such as material control, scheduling, selling, and product development, to name a few. Fig. 4 shows that more than 700 (n = 738) of the companies in the west coast utilized semi-automated technology for operations-related jobs, while close to 400 (n = 387) were fully automated. More than 200 (n = 237) were fully manual, 42 said they were in the planning phase of such ICT adoption, and 259 said it was 'not applicable' in their working environment.

Adoption of ICT in terms of administration and operations in the states of Sarawak, Kelantan, Pahang and Terengganu was also examined in the study. In terms of administration, the majority (n = 41) of the companies involved in the study were semi-automated, with a number of them in Terengganu (n = 19). Many were also fully automated (n = 18), posting the highest in number. Other companies covered in the study were fully manual (n = 15), with companies in Kelantan (n = 7) taking the lead for such a practice. Some (n = 8) companies did not find the need for ICT adoption necessary, while the remainder was still planning for it.

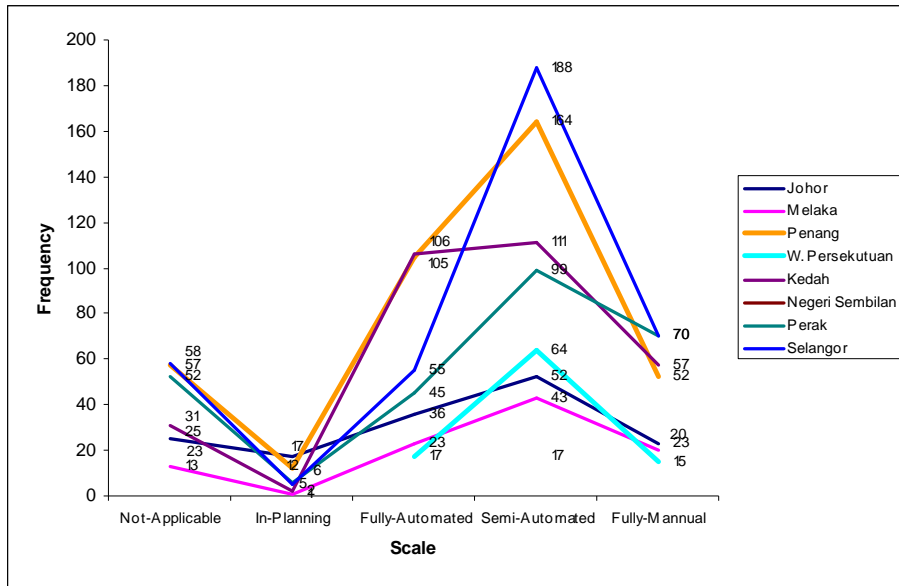


FIG. 4: ICT ADOPTION IN OPERATIONS WEST COAST

ICT adoption in operations was relatively substantial and extensive yet not applicable to several companies in the east coast. The companies studied were mostly fully automated (n = 95) and semi-automated (n = 80) in their operations. The bulk of fully automated (n = 32) as well as semi-automated (n = 36) companies in terms of operations was found to be in Terengganu. The findings also showed that a number of fully manual-based operations were in Kelantan (n = 14). Seventy-four companies found ICT adoption in operations ‘not applicable’, while a small number (n = 5) was in its planning stage.

Close to 400 (n = 382) companies were fully automated in their ICT software adoption, while nearly 200 (n=172) were semi-automated; 52 companies said they utilized fully manual technology, and 21 were planning for software usage. Fifty-nine responded that such usage was not applicable in their work environment (see Fig. 5).

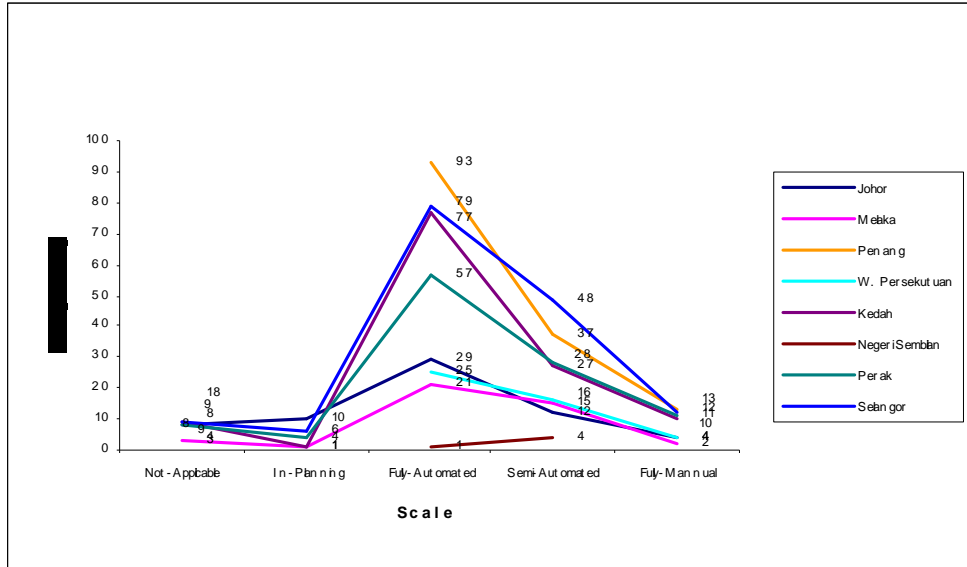


FIG. 5: USAGE OF SOFTWARE ICT ADOPTION IN WEST COAST

Software usage in the east coast was also evident among the companies covered in this study, such as word processing, spreadsheet, and database, to name a few. Of the companies studied, 49 were fully automated, with 17 of them based in Terengganu. Thirty-five were semi-automated, with 12 of them located in Pahang. Three companies were fully manual, which are all based in Kelantan. Ten were in the planning stage, while 23 of them responded ‘not applicable’.

Fig. 6 presents the findings on the types of business in ICT adoption in the west coast-located companies. As observed, twenty-six companies were fully manual, while 29 were semi-automated. Although 72 companies indicated fully automated technology, 87 were still in the planning stage. Likewise, 69 mentioned that it was applicable in their business context.

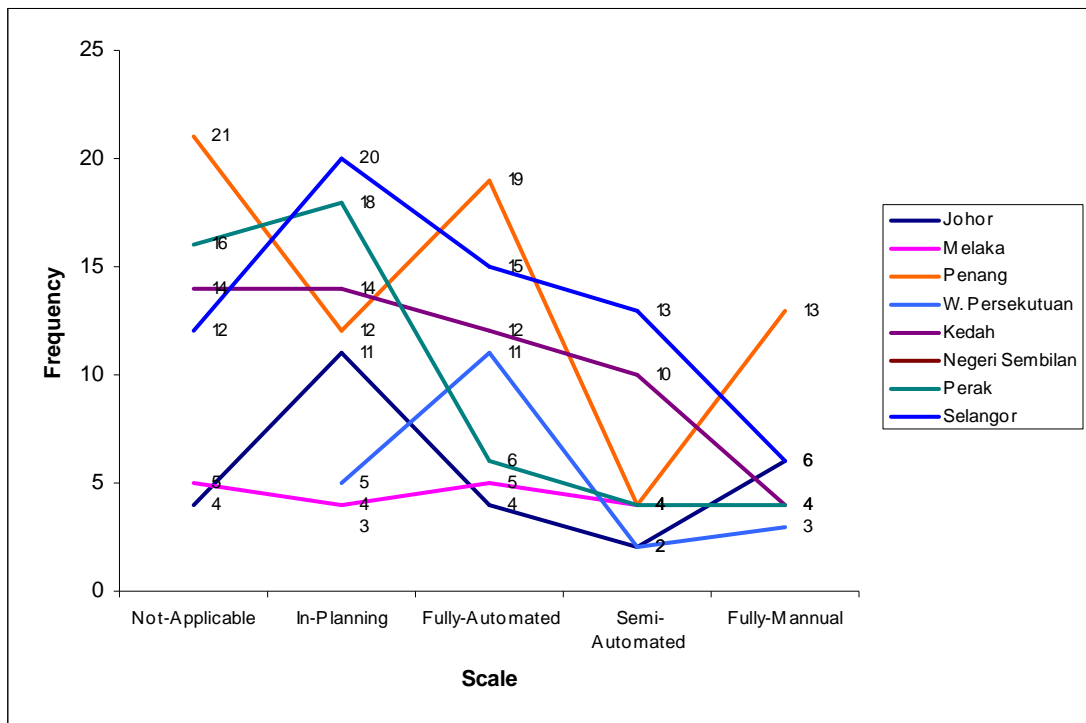


FIG. 6: TYPES OF BUSINESS ICT ADOPTION IN WEST COAST

The companies involved in this research were operating on business to business, business to customers, and business to government transactions. Only eight of these companies in the east coast were fully automated, half of which were located in Terengganu. Ten were semi-automated, with about half also based in Terengganu (n = 4). Fifteen of them were in the planning phase, while nine responded ‘not applicable’

The adoption of stand-alone, intermediate, and integrated technology among companies in the west coast was also explored. As shown in Fig. 7, a large number (n = 369) of the respondents did not find stand-alone technology (such as computer-aided technology and material working laser) applicable in their business operations. Almost a hundred (n = 99) of them were full automated, 71 were semi-automated, and the remainder (n = 6) utilized fully manual technology. About fifty (n = 49) of the companies were in the planning process in terms of stand-alone technology adoption.

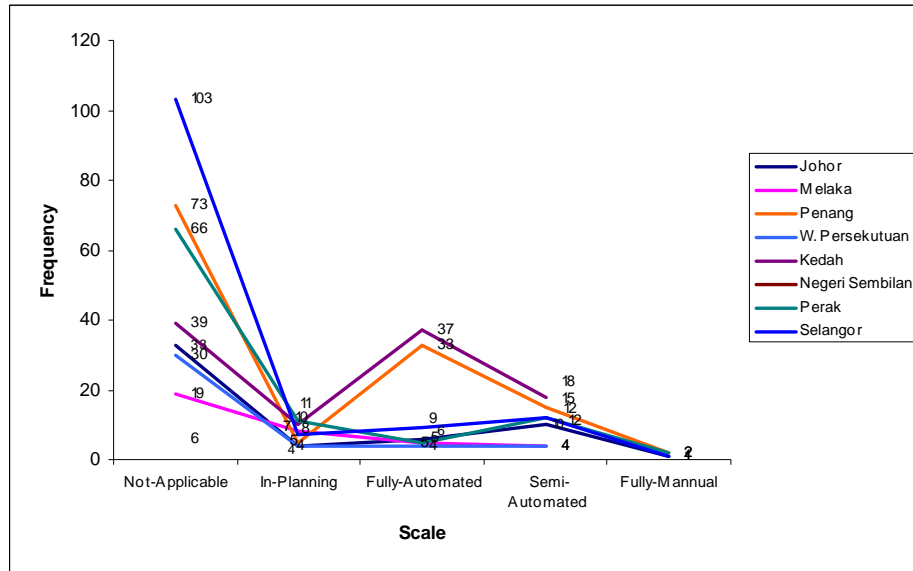


FIG. 7: STAND-ALONE TECHNOLOGY ADOPTION IN WEST COAST

In terms of technology adoption, the companies that responded to this study adopted stand-alone (e.g., engineering technology and design), intermediate (e.g., material control technology), and integrated (e.g., just-in-time) forms of technology. For those that adopted stand-alone technology in the east coast, only a few were fully automated ( $n = 12$ ), half of which were based in Terengganu. Nine of the companies were semi-automated, with two-thirds ( $n = 6$ ) of them in Sarawak. A number of them were still in the planning stage ( $n = 16$ ), and a great majority ( $n = 65$ ) said this was not applicable yet.

With regard to the adoption of intermediate technology in the west coast, about fifty ( $n = 46$ ) were full automated, 55 were semi automated, and 28 were full manual. Eighteen companies were in the planning stage, while more than a hundred ( $n = 113$ ) responded 'not applicable' (see Fig. 8).

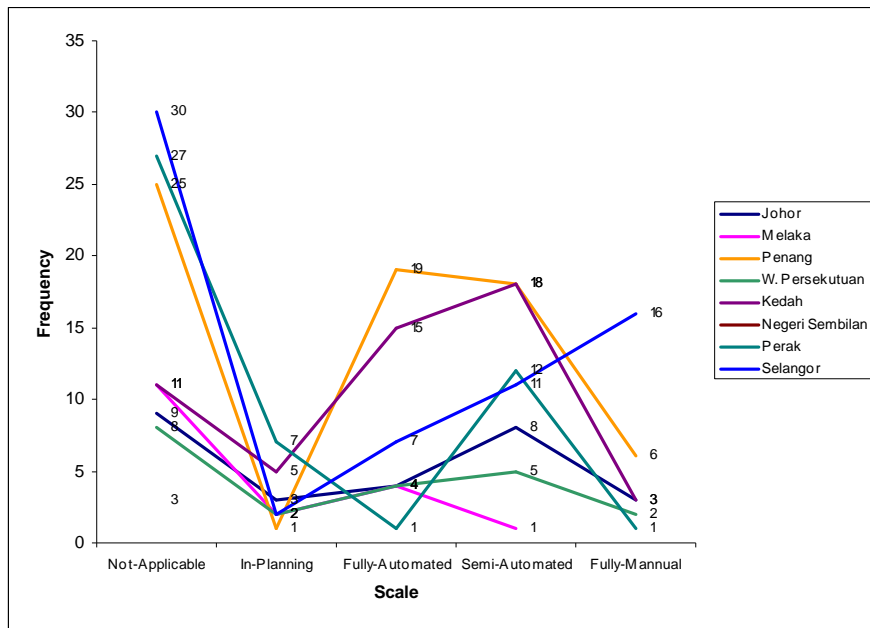


FIG. 8: INTERMEDIATE ICT ADOPTION IN WEST COAST

Of the companies that adopted intermediate technology in the east coast, nine were fully automated, five of which were located in Terengganu. Seven were semi-automated, six of which were based in Pahang. Eleven were in the planning phase, while 19 said 'not applicable'.

Adoption of integrated ICT technology was also not in full swing yet, as shown by 267 companies which said that this was 'not applicable' in their organizations. Thirty-five companies were 'in-planning' for it, while 52 companies were fully automated. About a hundred (n = 97) were semi-automated, while 13 were fully manual as shown in Fig. 9.

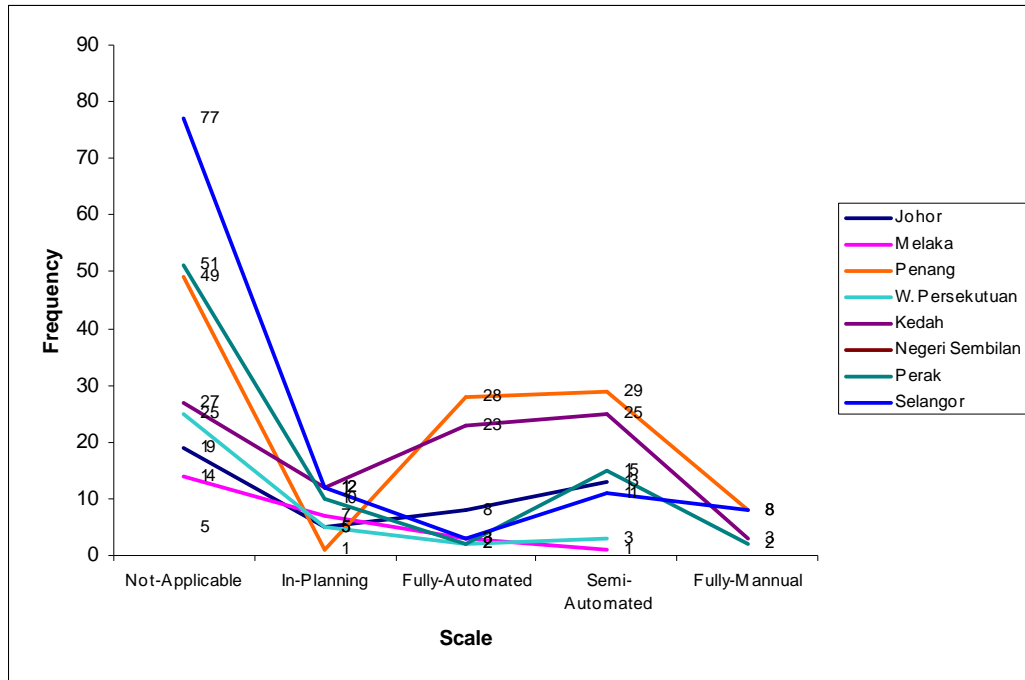


FIG. 9: INTEGRATED TECHNOLOGY ICT ADOPTION IN WEST COAST

Many of the companies in the east coast said that integrated technology was not applicable (n = 35) in their companies, 24 of which were based in Pahang. Thirteen companies were fully automated, while eight were semi-automated. Four were fully manual, while others (n = 14) were in the planning stage.

On technology adoption, intermediate technology appears to be dominant in the fully and semi automated categories. This may suggest that solutions for technology adoption are currently most popular in the intermediate technology which could be more economical than integrated technology but have the power and capability that goes beyond stand-alone technology. Fig. 10 shows the trends in technology adoption from fully manual technology to fully automated technology. Intermediate technology is also dominant in the fully manual category. For future planning however, the trend indicates a shift to the integrated technology. This may suggest the direction the industry should take towards integrated technology as integrated solutions become more and more feasible and economical as organizations enter the era of globalization and become more competitive.



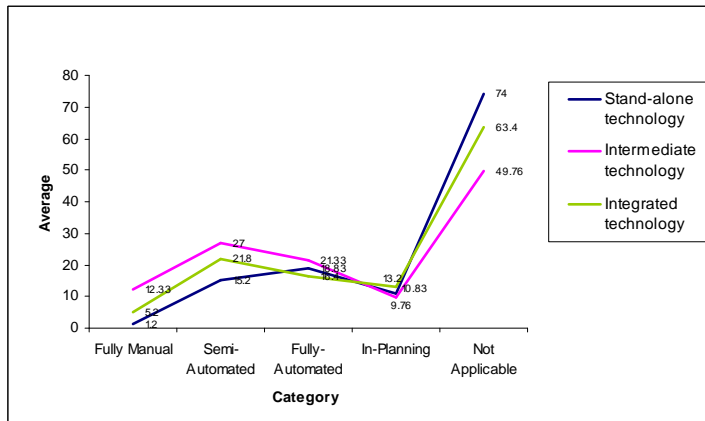


FIG. 10: TECHNOLOGY ADOPTION

The questionnaire also examined the productivity of the respondent companies based on whether the companies are production based or service based companies, or both. Fig. 11 shows the result of the productivity trends from low, moderate to high productivity as indicated by the respondents. The result indicates that service based companies have better productivity performance than production based companies. The graph indicates productivity performance for service based industry increases from double in the low to moderate productivity to almost triple at the high productivity category. This result may suggest that more focus should be given to the service industry in order to help accelerate the Malaysian economy, particularly in our efforts to become a fully developed nation in the not too distant future.

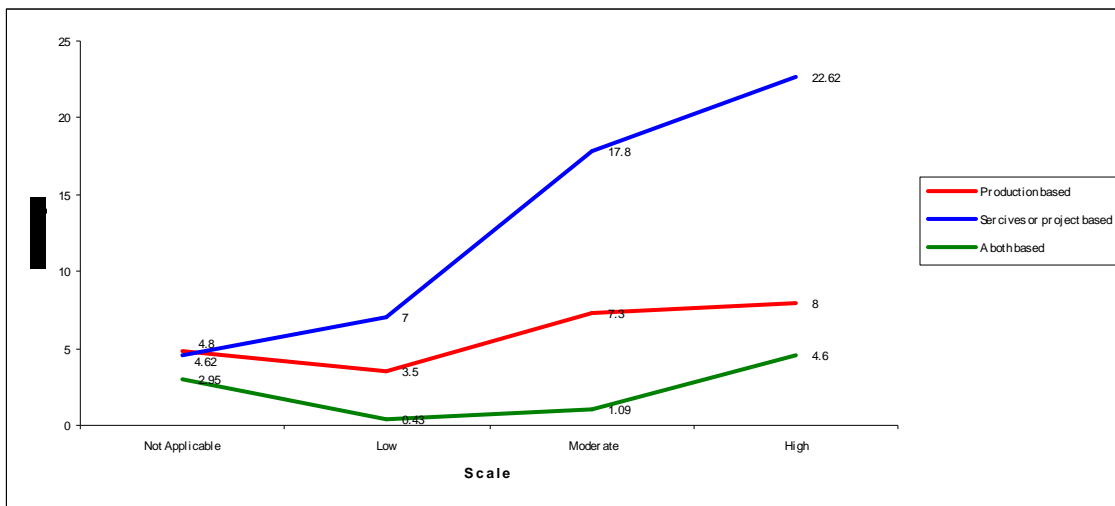


FIG. 11: MEASUREMENT OF PRODUCTIVITY

## Conclusion

The study suggested that the awareness by the industrial sector in adopting ICT and other advanced technology is important in order to generate higher value-added economy. The findings on technology adoption also suggests the direction the industry should take towards integrated technology as integrated solutions become more and more feasible and economical as organizations enter the era of globalization and become more competitive. In addition, productivity performance for service based industry increases from double in the low to moderate productivity to almost triple at the high productivity category due to ICT and technology adoption. This result may suggest that more focus should be given to the service industry in order to help accelerate the Malaysian economy, particularly in our efforts to become a fully developed nation in the not too distant future.

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# A Study on Factors Affecting e-Commerce Adoption in Steel Industry

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## Abstract

The purpose of this research is to analyze the factors that affect the use of e-commerce in steel industry. Data from 51 companies are collected. The influence of e-commerce utilization on corporate performance was also examined. It was found that several factors known to influence e-commerce use such as transaction methods preferences and the level of information-orientation did not actually have a significant impact. Rather, factors such as the maturity of e-commerce experience and perceptual compatibility between product characteristics and e-commerce turned out to have a significant influence on the utilization of e-commerce. The level of e-commerce utilization had a significant impact on each of the three performance dimensions: internal performance, external performance and financial performance.

## Introduction

Steel products are used virtually in all industries such as automobile, construction, appliances, oil and gas, packaging, railroads, shipbuilding, and industrial and agricultural equipments. The steel industry as a whole generates some \$300 billion in annual revenue and employs some 2 million people. In 2001 the world consumed 765 million metric tons of finished steel products.

The introduction of Internet is believed to increase the effectiveness of business practices by changing business processes of organizations. It also has the potential to increase competitiveness by creating new customers and markets. However, the steel industry seems to have preference to traditional off-line processes. One of the reasons might be that the industry doesn't have strong influential factors such as appropriate policy measures.

However e-commerce adoption is a complicated phenomenon, and needs to be analyzed taking social, economic, and governmental aspects into consideration. Traditional trade process provides only a limited support to growth to sustain the power of a company in the age of a fierce competition. This paper summarizes the relationship between various industrial factors and the level of e-commerce utilization as well as the relationship between the level of e-commerce utilization and corporate performances. The result of the study will help us successfully upgrade Internet infrastructure and use e-commerce in steel industry.

## Theoretical Background

### Industrial Factors Affecting e-commerce in Steel Industry

A narrow definition of e-commerce is "to buy and sell goods and services via the Internet among consumers and firms." A broad version includes all economic activities such as production, procurement, distribution, advertising, marketing, and customer services.' [Kalakota,1996].

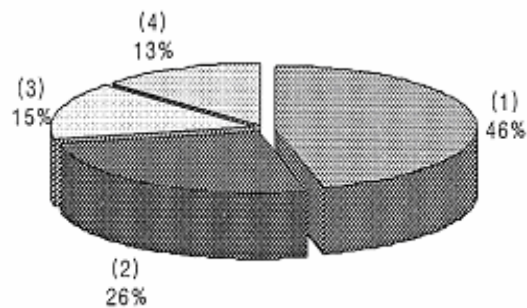
According to WSD (World Steel Dynamic) Journal, the amount of steel transaction through e-commerce is expected to grow by 50% annually from 5million tons in 2000 until 2010, when it will reach 45.8% (\$400million) tons of the world's total steel transaction. Thus, B-to-B e-commerce will become the norm of the industry by that time. [Korea financial newspaper, 2002]

However, on a negative side of the fact, MetalSite, the representative online steel marketplace, finally suspended sales activities due to hostile market situation and increased burden from high system costs. As can be

seen from the case of MetalSite, the introduction of B2B in steel industry is not simple. To introduce e-commerce practice, steel industry should be prepared with a very careful plan, because of several unique risks in this industry.

According to MBR(Mercantile Bancorp Report), obstacles of e-commerce (B2B) utilization in steel industry include: □ security-related problems, □ technical retaliation problems, □ distribution and logistics problems, □ widespread insensitivity to customer services, □ lack of understanding and experience on e-commerce processes. Obstacles of e-commerce (B2B) utilization in Korean steel industry can be summarized differently as in [FIGURE 1]. (Kim, 2001).

FIG: 1 OBSTACLES TO ACTIVATE UTILIZATION OF E-COMMERCE IN STEEL INDUSTRY



- (1) Lack of support to overall integration in the process by way of e-commerce
- (2) Lack of mutual understanding and cooperation between trading companies and manufacturers.
- (3) Decrease of competence of domestic steel companies due to the introduction of e-commerce among major steel companies in the world.
- (4) Difficulty of constructing e-commerce system due to the lack of sufficient resources.

Furthermore, Korea Industrial Informatization White Paper (Korea National Computerization Agency, 2001), pointed out the followings as main obstacles to e-commerce (B2B) utilization in Korean steel industry: □ multiple standards exist for steel products even in one nation, □ over-reliance on account payable, □ over-emphasis on informal personal relationships, □ taxes regarding e-commerce utilization, □ loss of intellectual property, □ lack of rules and regulations related to privacy and related issues, □ uncertainty intrinsic to credit, distribution, processing and transportation, □ excessive and subjective request toward on-line transaction.

**Major Industrial Factors Affection e-commerce**

POSCO is the largest and representative steel producer in Korea. For the last few years, POSCO extensively pursued process innovation (PI) project, which includes the development of 'POSPIA' and 'Steel-N.com'. POSPIA is a task and process innovation system. Steel-N.com is a cyber market for B2B e-commerce focusing on steel products. POSCO has been trying transmitting information online to customers, and utilizing e-commerce in every aspect of their processes.

POSCO faced with many problems during establishing integrated system for B2B; □ Unique and stringent organizational culture of POSCO □ miss-focused team work with vendor companies and excessive expectation from consultants, □ mistrust and dissatisfaction of internal staff with the changes, □ shortage of flexibility due to too much application modules, etc. The obstacles to the active use of e-commerce (B2B) identified from the case analysis include: □ lack of interface with legacy systems, □ lack of understanding and participation of existing clients, □ dissatisfaction of existing customers from the potential loss of established relationships, □ insufficient electronic catalogs and difficulties caused by new order processing mechanism and product classification, □ increased potential sensitivity to the diffusion of system errors, (6) retaliation from local business against electronic B2B procuremen (Kim, J.W. 2003).

In another case, since March, 2000, Anysteel.com, an e-market operator of nonferrous metals and steel products, has been doing e-commerce business in steel industry. AnySteel.com actually failed to complete even a single transaction. The main obstacles of e-commerce (B2B) utilization in Korean steel industry identified from these cases include: (Kim,J.W 2003) (1) fear related to tax evasion, (2) reliance on traditional bill transactions, (3) cash settlement custom (paying cash 20days after deadline.), (4) lack of governmental support regarding tax exemption, (5) uncertainty of participants, (6) increased security concern on trade information , (7) insufficient supply of professional experts.

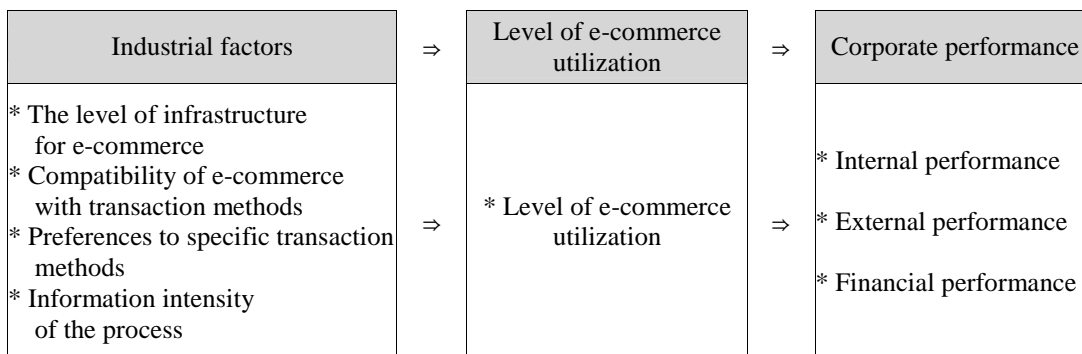
## Research Model and Method

### The Research Model and Hypotheses

**Research Model:** The model and selected variables are based on prior studies and exploratory interviews. The model includes 3 dimensions; (1) industrial factors, (2) level of e-commerce utilization, (3) corporate performance. The research model is presented in [Figure 2].

The first part of the model hypothesized the relationship between the industrial factors of e-commerce and the level of e-commerce utilization. The second part of the model aims at examining the relationship between the perceived level of e-commerce utilization and corporate performances.

FIG: 2 RESEARCH MODEL



**Hypotheses:** To address the research questions explained in the previous section, this research presents the following hypotheses.

[Hypothesis 1] Industrial factors affect the level of e-commerce utilization.

H 1-1: The level of infrastructure for e-commerce affects the level of e-commerce utilization.

H 1-2 : The compatibility of e-commerce with transaction methods affects the level of e-commerce utilization.

H 1-3 : Preferences to specific transaction methods affect with level of e-commerce utilization.

H 1-4 : Information intensity of the process is positively correlated to the level of e-commerce utilization.

[Hypothesis 2] The higher the level of e-commerce utilization, the higher the level of performance.

H 2-1 The higher the level of e-commerce utilization, the higher the internal performance.

H 2-2 The higher the level of e-commerce utilization, the higher the external performance.

H 2-3 The higher the level of e-commerce utilization, the higher the financial performance.

### Research Method

**Data Collection:** The survey was conducted on Korean manufacturing companies, value added resellers of POSCO and those specialized in secondary processing and distribution. Middle to high level managers (IT, the planning section, administrative section, and marketing section) of these companies were chosen as respondent. 51 companies

participated in this research. Questionnaires were distributed out to these companies accompanied by telephone interviews. Data only from companies with multiple informants with more than 1 person were used to ensure face validity.

**Sample Characteristics:** According to survey results, the majority of respondents were between 30 and 40 (90.1%) in their age, and 88.3% of respondents were college graduates. 47.17% of respondents were department heads, and 47.1% of respondents were in marketing departments. Most of the companies had 30 to 500 employees, and average annual revenue fell in the range of 50 to 300 Billion KRW.

## Research Results

### Validity and Reliability of Measure

The constructs were first assessed for reliability and validity. The questions were tested for validity using factor analysis with principal components and varimax rotation. Results of industrial factors in e-commerce and results of corporate performance factors, are presented in [TABLE 1] [TABLE 2].

TABLE 1: ANALYSIS INDUSTRIAL FACTORS IN E-COMMERCE

Item number	The level of infrastructure for e-commerce	The compatibility of e-commerce with transaction methods	Preferences to specific transaction methods	Information intensity of the process
1.3	0.855			
2.2	0.850			
2.3	0.850			
2.1	0.824			
2.4	0.759			
1.2	0.746			
1.1	0.649			
1.4	0.633			
3.7		0.877		
3.6		0.839		
4.2		0.607		
4.1		0.554		
4.6		0.479		
4.8			0.831	
4.9			0.801	
4.7			0.771	
4.3			0.441	
3.1				0.912
3.2				0.849

TABLE 2: ANALYSIS OF CORPORATE PERFORMANCE FACTORS

	Internal performance	External performance	Financial performance
1.2	0.846		
1.3	0.799		
1.1	0.787		
1.4	0.745		
2.1		0.814	
2.3		0.806	
2.2		0.781	
3.3			0.720
4.1			0.682
3.1			0.682
4.2			0.624

Detailed item consistency for all constructs was checked using Cronbach's  $\alpha$  (Cronbach 1951). All Cronbach's  $\alpha$  value exceeded 0.8. Nunnally (1978) suggested that a value of at least 0.60 indicated adequate reliability. [TABLE3] presents the results of reliability tests.

TABLE 3: ANALYSIS OF RELIABILITY

Variable - Name	Item of details	Number of item	Chronbach's $\alpha$
Level of e-commerce utilization	Level of e-commerce utilization for the e-commerce system	7	0.861
Corporate - performance	Internal performance	4	0.946
	External performance	3	0.910
	Financial performance	4	0.952
Industrial factors	The level of infrastructure for e-commerce	8	0.929
	Compatibility of e-commerce with transaction methods	5	0.819
	Preferences to specific transaction methods	4	0.831
	Information intensity of the process	2	0.817

### Hypothesis Tests

**Test Related to Level of e-commerce Utilization:** 4 industry factors were used as independent variables to explain the level of e-commerce use. [Table 4] and [Table 5] shows results from multiple regression analysis on the level of e-commerce utilization. The level of infrastructure for e-commerce and compatibility of e-commerce with

transaction methods among independent variable were found to have a significant influence. Preferences to specific transaction methods and information intensity of the process were not supported.

TABLE 4: MULTIPLE REGRESSION ANALYSIS FOR LEVEL OF E-COMMERCE UTILIZATION

Dependent variable	Independent variable	B	T	Significance
Level of e-commerce utilization	Constant	0.528	0.762	0.450
	The level of infrastructure for e-commerce	0.462	4.598	0.000 **
	Compatibility of e-commerce with transaction methods	0.289	2.149	0.037 *
	Preferences to specific transaction methods	0.270	1.722	0.092
	Information intensity of the process	0.071	0.874	0.387

(  $R^2 = 0.482$ ,  $F = 10.712$  )

TABLE 5: TEST RESULTS ON E-COMMERCE UTILIZATION.

[Hypothesis 1] Industrial factors affect level of e-commerce utilization.	
H1-1 The level of infrastructure for e-commerce affects the level of e-commerce utilization.	Supported
H 1-2 The compatibility of e-commerce with transaction methods affects the level of e-commerce utilization.	Supported
H 1-3 Preferences to specific transaction methods affect the level of e-commerce utilization.	Not Supported
H 1-4 Information intensity of the process is positively correlated to the level of e-commerce utilization.	Not Supported



**Test of the Impact of e-commerce Utilization on Corporate Performance:** The impact of the level of e-commerce utilization on internal performance, external performance, and financial performance is summarized in [Table6] and [Table7].

TABLE: 6 SIMPLE REGRESSION ANALYSIS OF INTERNAL PERFORMANCE CORRELATED WITH E-COMMERCE

Independent variable	Dependent variable	R <sup>2</sup>	F-test	B	Beta	T-value	Significance
Level of e-commerce utilization	Internal Performance	0.466	42.696	1.076	0.682	6.534	0.000 **
	External Performance	0.353	26.782	0.857	0.594	5.175	0.000 **
	Financial Performance	0.516	52.288	1.085	0.718	7.231	0.000 **

TABLE 7: MODEL 2 –HYPOTHESIS AND RESULTS OF TEST.

[Hypothesis2] The higher the level of e-commerce utilization, the higher the corporate performance.	
H2-1 The higher the level of e-commerce utilization, the higher the internal performance.	Supported
H2-2 The higher level of e-commerce utilization, the higher the external performance.	Supported
H2-3 The higher level of e-commerce utilization, the higher the financial performance.	Supported

## Conclusions

This study examined manufacturing companies specialized in secondary processing and distribution of steel products. The purpose of this research was to investigate triggers and outcome of the level of e-commerce utilization in the steel industry. It was found that many factors that were known be influential to e-commerce in the steel industry such as preferences to specific transaction methods and the information intensity of the process did not actually have a significant impact. Rather, items such as how mature the individual corporation's level of infrastructure for e-commerce and how compatible is the process of transaction with e-commerce, turned out to have a significant influence on the level of e-commerce utilization. Further, the level of e-commerce utilization had significant impact on all of the three performance categories; internal, external and financial performances. The result implies that companies in the steel industry should be prepared to adapt to rapidly changing market, and have to implement and utilize e-commerce to remain competitive. A more aggressive investment and support is needed to prepare an effective e-commerce infrastructure. At the same time more, effort should be exerted to improve and change perceptions of managers on the nature of the transaction processes.

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# Performance Improving Factors on E-Business System Stages

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## Abstract

The e-business strategies ultimately pursue creating the maximal value for customers through the competitive advantages and business opportunities newly created on the basis of information technologies. For the realization of e-business strategies, the successful implementation and operation of e-business system must be the crucial activities in and out of an organization. Therefore, in physical world, there were lots of interests that what kind of key factors can lead the success of e-business system. Moreover, in the field of academia also, there have been many research results for investigating and finding out the key success factors for e-business system. However, the perceptual level of the significance of key success factors that organization members perceive can be changed over each phase of system life cycle(hereafter "SLC") such phases as introduction(1st stage), growth(2nd stage), maturity(3rd stage), and decline(4th stage). This study investigated that there might be significant differences in the perceptual level regarding importance of success factors among phases of SLC.

## Introduction

According to system development life cycle(hereafter "SDLC") methodology, after completed system development and deployed at workplace, the age of e-business system will rise up (O'Brien, 2005; Choi, 2005). On the system maintenance process, the reason why system age gives the crucial implications to an organization is for that efforts in the process of operations are required more than in system development (Hana, 1993; Swanson & Dans, 2000). Companies, therefore, have to periodically assess the remnant life expectancy (Swanson & Dans, 2000). From the beginning of system operations, system maintenance will be sustained and repeatedly performed the system upgrading (Chappin, 1988). Thus, the e-business SLC can be defined as system age from deployment after finishing development to system replacement or major upgrade. The SLC may be dependent upon organization sizes, system types, or the purpose of system. Zvegintzov (1984) had suggested five reasons for replacing software with new one: (1) it is no longer needed; (2) it no longer runs on its hardware; (3) its hardware should be replaced; (4) it is not adaptable to changing physical fields; (5) the alternative software is developed or available for purchase. In our research, considering the situation of Korean companies, we classified the system ages into four phases such as first phase as below one year after deployment, second phase, between one and two years, third phase, between two to four years, and fourth phase, more than four years.

The many literatures related to the e-business system success have presented a variety of key success factors, which those were in early stage of deployment. These factors, however, have been in one lump sum without any division with e-business system ages or phases of SLC. Because, according to the system ages, the perceived importance regarding these factors can be changed. Namely, although, in initial stage of system deployment, some factors were dealt with the crucial things, as time passed, those may lose their gravity or be not important (Park, 2004). Based on previous study, the key success factors in ERP system, for example, are top manager's support and intention, the alignment between business and system strategies, innovation of business process, and system competence in an organization (Park & Cho, 2004; Chang et al., 2000; Davern & Kauffman, 2000; Akintoye, 2000; Markus & Tanis, 2000; Nah & Lah, 2001). Through this research, we suggest ten elements as core influential factors like managerial supports, strategic alignment with business, cooperative relationship with partners, project planning capability, system competence in organization, change management, proper system design for fieldwork, collaboration among teams, standardized business process, and competitive investment in IS(information system (Park & Cho, 2004).

Drawing from these basic intentions, we are especially interested in investigation on which there might be significantly different from the perceptual level regarding importance of success factors among phases of SLC. Thus, according to the phases of SLC, organizations have to focus on the crucial factors in each phase. We believe that the findings of research can give vital implications for the successful e-business strategies and maintenance processes.

## **E-Business System Evolution**

In generally, the e-business SLC or system age implies software's residual life consisting of information system. Because hardware components can be easily upgraded, however, the advanced features of software should be newly redeveloped or have to purchase new version products. Thus the e-business system life cycle is just the life of software (Park et al., 2006, Chappin, 1988).

According to researcher's experience, as the system age may be dependent upon companies' traits or cultural characteristics, it is difficult to clearly classify each phases of system evolution. However, this study proposed four stages for system ages based on system deployment period.

*Phase One (introduction): less than one year after IS deployment*

We defined first phase of system age as below one year after system development or deployment. Generally, when organizations newly start on system operation, they need to educate and train employees for adaptation and solve organizational conflict and adaptive period. In addition, during this period, possible software errors like programming errors or logic errors should be fixed and modified (Choi, 2005).

*Phase Two (stabilization): from one to two years*

This phase, under two years, is the stabilized period of system, which completely fixed errors and stabilized. At this phase, almost employees are familiar with system environment. In this phase, successful achievement of system investment should be based on alignment between business goals and system strategies (Segars and Grover, 1998). And collaborative relationship with business partners might be critical and vital process (Davernport, 1998; Brynjolfsson and Kemerer, 1996; Bingi et al., 1999).

*Phase Three (accustomed): from two to four years*

If the system fully stabilizes and end-users accustom themselves to the system, there may not be improperness or inconvenience to use. Without system, all of business activities can not be sustained. At this phase, rapid change of organizational structure and business environment may positively drive system upgrading or new development.

*Phase Four (upgrade): more than four years*

The fourth phase, which hardware and software should be upgraded or newly developed, can be defined as phase that gradually decrease system usability in an organization.

## **E-Business System (hereafter "IS") Payoff Assessment**

The issues of IS investment payoff has been important research areas of work over last two decades (Bakos, 1991; Christiaanse and Venkatraman, 2002). As for the business value, some researchers focused on efficiency gains from deployment of powerful dedicated systems in mid-1980s (McFarlan, 1984; Porter and Millar, 1985). Meanwhile, the possibility of deploying IS for revenue enhancement was emphasized through business scope changes in mid-1990s (Venkatraman, 1994). Three views including such as organizational performance, industrial organization, and information economics perspectives as for theoretical perspectives were proposed by Bakos and Kemerer (1992). The potential and realized value obtained after implementing IS systems are emphasized the importance of considering both types of values for both *ex ante* project selection and *ex post* investment evaluation (Davern and Kauffman, 2000). The effects of electronic data interchange (EDI) technology were analyzed into just-in-time (JIS) delivery and performance (Srinivasan et al., 1994). A few researchers focused on the process-driven values such as capacity utilization, inventory turnover, quality, price, and innovation under the context of EC (electronic commerce) technology investment (Barua et al., 1995). And the values of IS as cost savings, improvements in quality, customer service, and new product developments were identified (Brynjolfsson and Hitt, 1998).

As diversity of the views, the heterogeneity of corporate characteristics causes diverse assessment views and approaches and value gaps in most cases. Harris and Katz (1989) examined the usefulness of two information technology managerial control ratios as discriminating factors for differentiating between levels of organizational performance in a set of insurance companies. The control ratios were the IS cost-efficiency ratio, defined as the ratio of IS expense to premium income, and the IS expense ratio, defined as the ratio of IS expense to total operating expense. The dependent variable, the operating expense ratio, defined as the ratio of no interest operating expense to premium income, served as an inverse measure of profitability and productivity. And companies can have several their own approaches to measuring IS payoff that may be suited to the level of investment or the nature of industry.

## Research Model and Hypotheses

### Research Model

This research established the research model as below figure and hypotheses. In order to verify research model, I proposed nine hypotheses. Also, on the basis of researcher's field experiences and survey results, the system ages were classified into four phases.

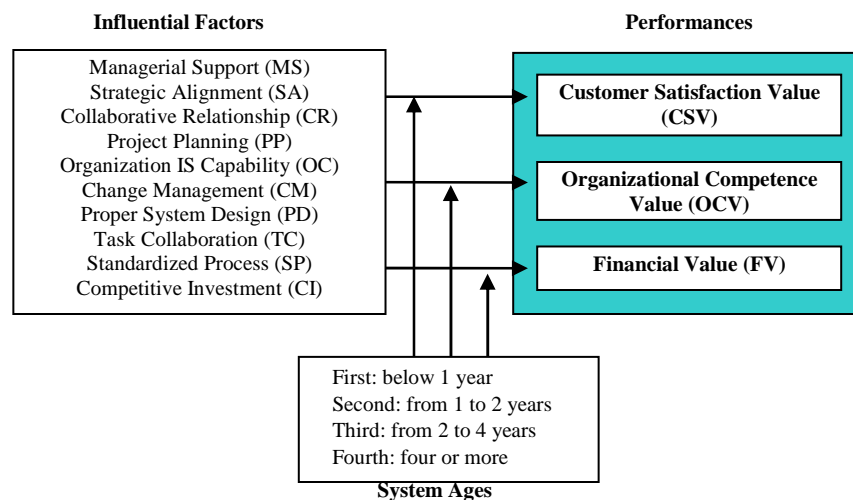


FIG. 1: RESEARCH MODEL

## Hypotheses

### Managerial Support (MS)

Many researchers have suggested the key success factors of IS investment. However, it might be true the structured researches about the unpredicted factors inducing the value gap during information system operation are relatively lack. In order to succeed the IS strategy, top-management support has been frequently emphasized by lots of researchers and consistently proposed as one of IS success factors (Smith, 1988; Yoon et al., 1995; Jang et al., 2000).

H1: According to each of the system phases, the cognitive level of importance of the MS (managerial support) affecting organizational performances is different.

H1a: The cognitive level of importance of the MS affecting CSV is different in each system phase.

H1b: The cognitive level of importance of the MS affecting OCV is different in each system phase.

H1c: The cognitive level of importance of the MS affecting FV is different in each system phase.

### Strategic Alignment(SA)

Generally accepted that one of key IS success factors is the close linkage of the IS strategy and business strategy (Segar and Grover, 1998; Henderson and Venkatraman, 1993).

H2: According to each of the system phases, the cognitive level of importance of the strategic alignment affecting organizational performances is different.

H2a: The cognitive level of importance of the SA affecting CSV is different in each system phase.

H2b: The cognitive level of importance of the SA affecting OCV is different in each system phase.

H2c: The cognitive level of importance of the SA affecting FV is different in each system phase.

#### **Collaborative Relationship(CR)**

By extending interorganizational networking, whether easiness of interrelationship between seller and buyer, seller and seller, buyer and buyer and so on exist or not became crucial factor in IS valuation. For example, not only intrafirm BPR but also interfirm process reengineering and the mutual sharing of process importantly played a role in ERP system environment (Davernport, 1998; Brynjolfsson and Kemerer, 1996). And in SCM environment, interactive information sharing and strong collaborative relationship with business partners should be continuously emphasized and conducted (Rhonda et al., 2000).

H3: According to each of the system phases, the cognitive level of importance of the strategic alignment affecting organizational performances is different.

H3a: The cognitive level of importance of the CR affecting CSV is different in each system phase.

H3b: The cognitive level of importance of the CR affecting OCV is different in each system phase.

H3c: The cognitive level of importance of the CR affecting FV is different in each system phase.

#### **Project Planning and Management Capability (PP)**

To maximize the effects of IS investment, the project planning capability is important (Markus and Tanis, 2000; Nah and Lah, 2001). Also, through the right man in the right place, the active communication among related teams, and the adequate IS investment, needs, which satisfy field workers, can elevate the effect of system investment (Cameron and Meyer, 1998; Bingi et al., 1999).

H4: According to each of the system phases, the cognitive level of importance of the project planning and management capability affecting organizational performances is different.

H4a: The cognitive level of importance of the PP affecting CSV is different in each system phase.

H4b: The cognitive level of importance of the PP affecting OCV is different in each system phase.

H4c: The cognitive level of importance of the PP affecting FV is different in each system phase.

#### **Organizational IS Capability(OC)**

In general, new technologies change the existent equilibrium state within organizations. Information systems, specifically ERP, SCM, have the potential to significantly change the work practices and procedures in the production, logistics, and distribution. In the progress of change, role ambiguity is possibly generated.

H5: According to each of the system phases, the cognitive level of importance of the organizational IS capability affecting organizational performances is different.

H5a: The cognitive level of importance of the OC affecting CSV is different in each system phase.

H5b: The cognitive level of importance of the OC affecting OCV is different in each system phase.

H5c: The cognitive level of importance of the OC affecting FV is different in each system phase.

#### **Change Management Capability (CM)**

To successfully stabilize rapid changes in the managerial environment in organization, sharing the information and communication should be patiently progressed (Cummings and Huse, 1989). Against the organization-wide changes, there must be conflicts from conservative persons. Under this situation, whether these conflicts could be overcome or not can be the influential factors in occurring IS performance discrepancy. Also, inadequate incentive system or process design can be barriers against effective system use (Davern and Kauffman, 2000).

H6: According to each of the system phases, the cognitive level of importance of the change management capability affecting organizational performances is different.

H6a: The cognitive level of importance of the CM affecting CSV is different in each system phase.

H6b: The cognitive level of importance of the CM affecting OCV is different in each system phase.

H6c: The cognitive level of importance of the CM affecting FV is different in each system phase.

### **Properness of System Design (PD)**

The factors that create the end-user's satisfaction and influence the effects of IS investment are quality of IS, quality of reported information, and properness for field task processing (Seddon and Kiew, 1994; Delone and Mclean, 2003). Therefore,

H7: According to each of the system phases, the cognitive level of importance of the properness of system design for fieldwork capability affecting organizational performances is different.

H7a: The cognitive level of importance of the PD affecting CSV is different in each system phase.

H7b: The cognitive level of importance of the PD affecting OCV is different in each system phase.

H7c: The cognitive level of importance of the PD affecting FV is different in each system phase.

### **Interdepartmental Task Collaboration (TC)**

The degree of cooperation is important in order to reduce the potential conflict which may jeopardize the implementation of strategic IS plans (Henderson, 1990). In SCM system, the interdepartmental information sharing and the close cooperation between teams must be the vital factor to improve the effect of system investment (Robert & Kilpatrick, 2000).

H8: According to each of the system phases, the cognitive level of importance of the interdepartmental task collaboration affecting organizational performances is different.

H8a: The cognitive level of importance of the TC affecting CSV is different in each system phase.

H8b: The cognitive level of importance of the TC affecting OCV is different in each system phase.

H8c: The cognitive level of importance of the TC affecting FV is different in each system phase.

### **Business Process Standardization (SP)**

The process-centric perspective argues that IS creates value for the organization by improving individual business processes, or inter-process linkages, or both. Consequently, the greater the impact of IS on individual business processes and on inter-process linkages, the greater will be the contribution of IS to firm performance (Tallon et al., 2000). Thus,

H9: According to each of the system phases, the cognitive level of importance of the standardized business process affecting organizational performances is different.

H9a: The cognitive level of importance of the SP affecting CSV is different in each system phase.

H9b: The cognitive level of importance of the SP affecting OCV is different in each system phase.

H9c: The cognitive level of importance of the SP affecting FV is different in each system phase.

### **Competitive Investment (CI)**

By the exploratory study, lots of companies, unfortunately, experienced the failure of IS investment cause of imitative or competitive investment (Cho and Park, 2003). The unclear goal of system deployment or inter-organizational conflict as barrier factors against successful IS implementation arise from imitative or competitive investment (Ginsberg, 1988). Hence,

H10: According to each of the system phases, the cognitive level of importance of the interdepartmental task collaboration affecting organizational performances is different.

H10a: The cognitive level of importance of the CI affecting CSV is different in each system phase.

H10b: The cognitive level of importance of the CI affecting OCV is different in each system phase.

H10c: The cognitive level of importance of the CI affecting FV is different in each system phase.

## **Research Findings**

### **Data Collection**

The data for this study were collected from 315 questionnaires completed by 48 Korean domestic companies using IS systems such as SCM, ERP, or CRM. Two incomplete questionnaires were eliminated from analysis. The total survey period took one month. To ensure a high response rate and reliability, surveys were conducted in person. After factor analysis, excluding the CI (competitive investment), Cronbach's alpha as criteria of reliability of independent variables was above .70, indicating construct unidimensionality.

The collected sample consists of 216 current system users and 97 system developers. The IS usage period after deployment consists of 2-4 years (40.6%) followed by 1-2 years (30.7%), and above 4 years (12.5%)

sequentially. The majority of the respondents deployed the foreign-made solution (58.5%) followed by subcontracted development (15.7%), and in-house development (14.4%). The percentage of domestic packages (10.5%) is lower than foreign-made solutions (58.5%). The job title of respondents consists of 39.9 percent as managers, 29.6% as senior employees, 28.4% for employees working for 2-3 years, and 1.6% as directors.

TABLE 1: RELIABILITY AND VALIDITY OF MEASURES

Factor and items	Eigenvalue	Loadings	Cronbach's $\alpha$
<b>Factor 1. Management support (MS)(H1)</b>	14.176		0.8935
Participation in operation		0.827	
Participation in development		0.808	
Interest in system user satisfaction		0.686	
Emphasis of strategic importance to employees		0.671	
Financial support		0.614	
Human resource support		0.592	
<b>Factor 2. Strategic alignment (SA)(H2)</b>	2.757		0.8701
Emphasis of IS importance to top management		0.748	
Degree of strategic investment		0.740	
Clear goals of investment		0.592	
Organizational consensus of IS role		0.566	
Understandability of strategic benefits of IS		0.555	
Connectivity with strategic goals		0.548	
Perceptual level of business strategy of IS employees		0.523	
<b>Factor 3. Collaborative relationship (CR)(H3)</b>	1.989		0.8864
Co-working to solve problems		0.838	
Cooperative participation in developing process		0.778	
Perceptual level of common goals		0.767	
Easy to share operational information		0.724	
<b>Factor 4. Project planning (PP)(H4)</b>	1.729		0.8652
Rationale performance evaluation criteria		0.734	
Reasonable forecasting skill of investment effects		0.710	
Collaborative level with system users		0.667	
Acceptability of requirement from field workers		0.611	
Flexibility of risk management		0.604	
<b>Factor 5. Organization IS capability (OC)(H5)</b>	1.58		0.861
Clear role assignment of operating team		0.658	
IS professionals		0.621	
Clear goal of development team		0.603	
Evaluation skill of vendors or company outsourced		0.561	
Capability of IS usage		0.555	
Understandability of IS technology		0.546	
Clear goals in resource allocation		0.485	
<b>Factor 6. Change Management (CM)(H6)</b>	1.51		0.7925
Perceptual level of necessity of change		0.824	
Positive activities for solving conflict against change		0.723	
Persistent training of reason for change		0.706	
<b>Factor 7. Proper system design (PD)(H7)</b>	1.312		0.8027
Easy to maintain		0.744	
Scope of adaptability		0.594	
Easy to use		0.562	
<b>Factor 8. Interdepartmental task collaboration (TC)(H8)</b>	1.155		0.8375
Easy to cooperate within an organization		0.824	
Sharing the necessary information		0.810	
<b>Factor 9. Business process standardization (SP)(H9)</b>	1.047		0.8155
Code standardization in identical industry		0.856	
Business process standardization in identical industry		0.788	
<b>Factor 10. Competitive investment (CI)(H10)</b>	1.021		
Competitive and imitated investment		0.941	

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 8 iterations.



TABLE 2: SYSTEM-RELATED FREQUENCIES

	Freq.	Percentage	Valid percent	Cumulative percent
<b>Role</b>				
User	216	69	69	69
Developer	97	31	31	100
<b>IS Usage period</b>				
< 6 months	23	7.3	7.3	7.3
6 months - 1 years	28	8.9	8.9	16.3
1 - 2 years	96	30.7	30.7	47
2 - 4 years	127	40.6	40.6	87.5
above 4 years	39	12.5	12.5	100
<b>Deployment type</b>				
Foreign-made	183	58.5	58.5	58.5
Domestic product	33	10.5	10.5	69
In-house	45	14.4	14.4	83.4
Subcontract	49	15.7	15.7	99
ASP	3	1	1	100

**Hypotheses Test**

Linear Regression estimates coefficients of the linear equation, involving one or more independent variables, which best predict the value of the dependent variable. This study used a stepwise procedure for variable selection. As criteria of variable selection, F-value was used and some of predictors as entered variables were selected with more significant level than  $\alpha=.05$ , otherwise removed from regression equation.

To determine whether the multicollinearity exist or not, as the statistical criteria, the tolerance (TOL) or variance inflation factors (VIF) are used in general. As the tolerances of each regression model were greater than .10. the multicollinearity problems of predictors did not exist. First of all, not considering the system age, I conducted the multiple regression analysis to investigate relationship and principal factors between system performance and independent variables. I determined three variables (CSV, OCV, and FV) as the dependent variables and ten variables (managerial support, collaborative relationship with business partners, etc) as independent variables. Null and Alternative hypotheses for this study are as follows:

$$\text{Null hypothesis (H}_0\text{): } \beta_0 = \beta_1 = \dots = \beta_n = 0$$

$$\text{Alternative hypothesis (H}_a\text{): not all of } \beta_i \text{ are zero.}$$

As depicted in ANOVA table, hypothesis (H<sub>0</sub>) is not supported at significant level ( $\alpha=0.01$ ) because all of significant probabilities are .000 for three dependent variables. This implies that the critical success factors significantly affect the performances including CSV, OCV, and FV. The explanatory powers concerning three regression models are .347, .431, and .339 each. The critical influential factors influencing CSV are project management, strategic alignment with business strategic goals, and proper system design for field work. Project planning, interdepartmental task collaboration (TC), strategic alignment (SA), and proper system design (PD) may be principal and significant to improve the OCV. To improve the FV, the critical success factors are SA, SP, PP, and OC.

TABLE 3: ANOVA BETWEEN FACTORS AND PERFORMANCES (W/O DEMARCATON OF SYSTEM AGE)

Dependent Variable		Sum of Squares	df	Mean Square	F	Sig.	R	R <sup>2</sup>	Adj. R <sup>2</sup>
CSV	Regression	34.021	5	11.340	53.425	.000 <sup>a</sup>			
	Residual	63.892	301	.212			.589	.347	.341
	Total	97.912	305						
OCV	Regression	29.692	4	7.423	56.411	.000 <sup>b</sup>			
	Residual	39.212	298	.132			.656	.431	.423
	Total	68.904	302						
FV	Regression	25.491	4	6.373	38.392	.000 <sup>c</sup>			
	Residual	49.632	299	.166			.583	.339	.330
	Total	75.123	303						

- a. Predictors: (Constant), project planning, strategic alignment, proper design, Dependent Variable: customer satisfaction
- b. Predictors: (Constant), project planning, task collaboration, strategic alignment, proper design, Dependent Variable: organization capability
- c. Predictors: (Constant), strategic alignment, standardized process, project planning, IS capability, Dependent Variable: financial value

To determine whether the multicollinearity exist or not, as the statistical criteria, the tolerance ( $TOL$ ,  $TOL_i = 1 - R_i^2$ ) or variance inflation factors ( $VIF$ ,  $VIF_i = 1 / TOL_i$ ) are used in general. As the tolerances of each regression model were greater than .10. So, the multicollinearity problems of predictors did not exist.

TABLE 4: REGRESSION COEFFICIENTS (W/O DEMARCATON OF SYSTEM AGE)

Dependent Var.	Factors	Non-standardized		Standardized	t-value	Multicollinearity	
		B	Std. Error	Beta		Tolerance	VIF
CSV	(Constant)	1.268	0.175		7.245 <sup>***</sup>		
	Project Planning	0.176	0.058	0.205	3.028 <sup>***</sup>	0.475	2.105
	Strategic Alignment	0.270	0.058	0.276	4.621 <sup>***</sup>	0.606	1.650
	Proper System Design	0.186	0.052	0.217	3.581 <sup>***</sup>	0.593	1.687
OCV	(Constant)	1.318	0.147		8.940 <sup>***</sup>		
	Project Planning	0.125	0.047	0.173	2.680 <sup>***</sup>	0.457	2.189
	Task Collaboration	0.148	0.042	0.190	3.551 <sup>***</sup>	0.665	1.504
	Strategic alignment	0.187	0.047	0.227	4.009 <sup>***</sup>	0.593	1.686
FV	Proper System Design	0.163	0.043	0.225	3.788 <sup>***</sup>	0.539	1.854
	(Constant)	1.221	0.172		7.084 <sup>***</sup>		
	Proper System Design	0.204	0.054	0.238	3.801 <sup>***</sup>	0.563	1.776
	Standardized Process	0.192	0.052	0.212	3.712 <sup>***</sup>	0.677	1.477
FV	Project Planning	0.109	0.050	0.145	2.165 <sup>**</sup>	0.493	2.030
	IS Capability	0.102	0.050	0.127	2.027 <sup>**</sup>	0.560	1.785

\*\* $p < .05$ , \*\*\* $p < .01$ .

Concerning the relationship between system age and organization performances, by passing time of system operation, we assumed that the critical factors influencing system achievements may be different. Table shows that all of regression models on system age each have statistical significance.

TABLE 5: ANOVA BETWEEN SYSTEM AGE AND FACTORS

System Age	Performance	SS	df	MS	F	Sig.	R	R <sup>2</sup>	Adj. R <sup>2</sup>	
First (< 1 year)	CSV	Regression	4.946	1	4.946	19.967	.000	.538	.290	.275
		Residual	12.139	49	.248					
		Total	17.085	50						
	OCV	Regression	3.886	2	1.943	15.184	.000	.622	.387	.362
		Residual	6.142	48	.128					
		Total	10.028	50						
	FV	Regression	4.228	2	2.114	22.033	.000	.692	.479	.457
		Residual	4.606	48	.096					
		Total	8.834	50						
Second (1-2 years)	CSV	Regression	6.939	2	3.470	22.508	.000	.588	.346	.331
		Residual	3.103	85	.154					
		Total	20.042	87						
	OCV	Regression	3.509	2	1.754	14.718	.000	.512	.262	.244
		Residual	9.893	83	.119					
		Total	13.402	85						
	FV	Regression	4.001	2	2.001	16.051	.000	.524	.274	.257
		Residual	10.594	85	.125					
		Total	14.596	87						
Third (2-4 years)	CSV	Regression	16.289	3	5.430	27.994	.000	.643	.414	.399
		Residual	23.082	119	.194					
		Total	39.371	122						
	OCV	Regression	17.536	3	5.845	43.834	.000	.725	.525	.513
		Residual	15.869	119	.133					
		Total	33.404	122						
	FV	Regression	18.164	3	6.055	31.957	.000	.670	.448	.434
		Residual	22.357	118	.189					
		Total	40.521	121						
Fourth (above 4 years)	CSV	Regression	9.057	2	4.528	15.457	.000	.685	.469	.439
		Residual	10.254	35	.293					
		Total	19.310	37						
	OCV	Regression	7.098	4	1.774	21.240	.000	.849	.720	.686
		Residual	2.757	33	.084					
		Total	9.855	37						
	FV	Regression	4.344	3	1.448	9.654	.000	.678	.460	.412
		Residual	5.100	34	.150					
		Total	9.444	37						

First, for the customer satisfaction value(CSV), factors affecting the CSG, CR with business partners at first phase, CR and PP at second phase, PP, SA, and PD at third phase, and for fourth phase, SA, TC, OC, and CR were significant at .01 or .05 level each. Thus, hypotheses H2a, 3a, 4a, 7a, and 8a are supported.

Second, for the organization capability value(OCV), factors such as PD for work and SP at first phase, PD and CM at second phase, PP, TC, and PD at third phase, and SA, TC, OC, and CR at fourth phase at significance level of 1%, 5% each were influential factors to the OCV. Thus, the hypotheses, H2b, 3b, 4b, 5b, 6b, 7b, 8b, 9b were supported.

Third, for the financial value discrepancy (FV), factors affecting FV were such as SP and PD at first phase, CR and SA at second phase, OC, PP, and SP at third phase, and at fourth phase, SA, CI, and CR at fourth phase were influential factors to the OCV. Thus, the hypotheses, H2c, 3c, 4c, 5c, 7c, 9c, 10c were supported.

TABLE 6: REGRESSION COEFFICIENTS

System Age	Performance	Factor	Non-standardized		Standardized	t-value	Multicollinearity				
			B	Std. Error	Beta		Tolerance	VIF			
First (less than 1 year)	CSV	(Const.)	1.874	.363	.538	5.166 <sup>***</sup>	1.000	1.000			
		CR	.480	.107		4.468 <sup>***</sup>					
	OCV	(Const.)	1.648	.383	.417	4.308 <sup>***</sup>	.704	1.421			
		PD	.278	.090		3.095 <sup>***</sup>					
	FV	SP	(Const.)	.273	.127	.288	2.141 <sup>**</sup>	.704	1.421		
			(Const.)	1.360	.331	.404	4.105 <sup>***</sup>	.704	1.421		
	PD	(Const.)	.253	.078	.384	3.249 <sup>***</sup>	.704	1.421			
		SP	.340	.110		3.088 <sup>***</sup>					
Second (1-2 years)	CSV	(Const.)	1.535	.278	.408	5.511 <sup>***</sup>	.876	1.142			
		PP	.326	.075		4.352 <sup>***</sup>					
		CR	.245	.076		3.246 <sup>***</sup>					
	OCV	(Const.)	1.986	.260	.311	7.634 <sup>***</sup>	.797	1.255			
		PD	.223	.076		2.945 <sup>***</sup>					
		CM	.202	.074		2.742 <sup>***</sup>					
FV	(Const.)	1.619	.305	.381	5.314 <sup>***</sup>	.959	1.043				
	CR	.262	.065		4.037 <sup>***</sup>						
	SA	.236	.077		3.072 <sup>***</sup>						
Third (2-4 years)	CSV	(Const.)	1.245	.242	.268	5.143 <sup>***</sup>	.417	2.400			
		PP	.220	.089		2.465 <sup>**</sup>					
		SA	.261	.087		.285			3.000 <sup>***</sup>	.548	1.826
		PD	.153	.072		.195			2.115 <sup>**</sup>	.580	1.724
	OCV	(Const.)	1.190	.197	.333	6.023 <sup>***</sup>	.556	1.799			
		PP	.252	.064		3.931 <sup>***</sup>					
		TC	.265	.061		.324			4.382 <sup>***</sup>	.729	1.372
		PD	.158	.062		.218			2.538 <sup>**</sup>	.540	1.851
	FV	(Const.)	.860	.257	.335	3.345 <sup>***</sup>	.605	1.652			
OC		.316	.083	3.815 <sup>***</sup>							
PP		.246	.075	.295		3.289 <sup>***</sup>			.581	1.722	
	SP	.161	.081	.165	2.000 <sup>**</sup>	.684	1.463				
Fourth (above 4 years)	CSV	(Const.)	.369	.580	.479	.636	.718	1.392			
		SA	.534	.162		3.293 <sup>***</sup>					
		TC	.346	.169		.298			2.049 <sup>**</sup>	.718	1.392
	OCV	(Const.)	.706	.330	.453	2.139 <sup>**</sup>	.498	2.009			
		SA	.361	.104		3.472 <sup>***</sup>					
		TC	.286	.096		.345			2.992 <sup>***</sup>	.638	1.567
		OC	.318	.108		.372			2.948 <sup>***</sup>	.532	1.880
		CR	-.201	.098		-.248			-2.046 <sup>**</sup>	.577	1.733
	FV	(Const.)	1.722	.439	.782	3.920 <sup>***</sup>	.628	1.592			
		SA	.611	.124		4.918 <sup>***</sup>					
		CI	.196	.072		.345			2.714 <sup>***</sup>	.986	1.015
		CR	-.332	.125		-.418			-2.643 <sup>**</sup>	.635	1.574

\*\* $p < .05$ , \*\*\* $p < .01$

TABLE 7: INFLUENTIAL FACTORS

Factor	CSV					OCV					FV				
	Total	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th
MS															
SA	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
CR		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>
PP	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>			<input type="checkbox"/>	
OC										<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	
CM								<input type="checkbox"/>							
PD	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			
TC					<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>					
SP							<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
CI															<input type="checkbox"/>

Remark) : Statistical Significant Factors

TABLE 8: RESULTS

Hypotheses		Factor	System Age			
			First	Second	Third	Fourth
H1	1a(CSV) 1b(OCV) 1c(FV)	Managerial Support				
H2	2a(CSV) 2b(OCV) 2c(FV)	Strategic Alignment		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H3	3a(CSV) 3b(OCV) 3c(FV)	Cooperative Relationship	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H4	4a(CSV) 4b(OCV) 4c(FV)	Project Planning		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H5	5a(CSV) 5b(OCV) 5c(FV)	Organization IS Capability			<input type="checkbox"/>	<input type="checkbox"/>
H6	6a(CSV) 6b(OCV) 6c(FV)	Change Management		<input type="checkbox"/>		
H7	7a(CSV) 7b(OCV) 7c(FV)	Proper System Design	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
H8	8a(CSV) 8b(OCV) 8c(FV)	Task Collaboration			<input type="checkbox"/>	<input type="checkbox"/>
H9	9a(CSV) 9b(OCV) 9c(FV)	Standardized Process	<input type="checkbox"/>		<input type="checkbox"/>	
H10	10a(CSV) 10b(OCV) 10c(FV)	Competitive Investment				<input type="checkbox"/>

Remark) : Supported Hypothesis

## Implications and Conclusion

In an organization, we are interested in which factors are the principals for gaining organizational performances based on the phases of SLC. On the basis of previous researches, we divided the SLC into such four phases as introduction (less than one year), stabilization (between one and two years), accustomed (between two and four years), and upgrade (more than four years). For empirical analysis, we suggest ten elements as core influential factors like managerial supports, strategic alignment with business, cooperative relationship with partners, project planning capability, system competence in organization, change management, proper system design for fieldwork, collaboration among teams, standardized business process, and competitive investment in IS. We are especially interested in investigation on which there might be significantly different from the perceptual level regarding importance of success factors among phases of SLC. Thus, according to the phases of SLC, organizations have to focus on the crucial factors in each phase. We believe that the findings of research can give vital implications for the successful e-business strategies and maintenance processes.

Differently with the previous research results, the managerial support factor was not significant for performance in all phases. This implies that the informatization of firms can not be strange any more and the managerial support, not principal factor. The variable, the strategic alignment, as a whole (CSV in third and fourth phase, OCV in fourth, and FV in second and fourth), influences the dependent variables. This also suggested that the positive effects from IS strategic aligning with business strategies indeed need not short term but long term period. Next, the cooperative relationship affects CSV in first and second, OCV in third and fourth, and FV in second and fourth phase each. This means that the cooperative relationship may be understood a very important factor for customer satisfaction in early phase. Moreover, as time passed, this variable gradually influences OCV. From early stage (first, second and third) in system age, the principal and the crucial variable affecting improving OCV was proper system design for fieldworks.

In summary, almost independent variables except for the managerial support were influential factors that showed the differences in statistical significance on each phases of SLC. At first phase, the significant variables influencing performances were the cooperative relationship with partners, the proper system design for fieldworks, and the standardization of business and task processes. Differently with first phase, at second phase, the strategic alignment with business strategies, the cooperative relationship with partners, the project planning competence, the change management, and the proper system design for fieldworks. The principal factors at third phase were the strategic alignment, the project planning, the IS competences, the task collaboration, and the business process standardization. Lastly, at fourth phase, the strategic alignment, the cooperative relationship, the IS competences, the task collaboration, and the competitive investment. Accordingly, based on the above research findings, we found out that the influential factors may be different from on each system phases. Thus, firms should focus system investment on those factors for raising the organizational performances.

The limitations of this research are as follows. First, as the system ages were defined by author's field experience or subjective judgment, not based on the general criteria, the system age should be classified with more reasonable and valid criteria. Second, the system age may be different in organizational size, system platform, or system usage. The reason is why we guess that the smaller organization size is, the more sensitive the perceptual level of importance concerning the key success factors is. However, we did not take into account the firm's size, so research findings may have weak reliability and validity. Third, in addition to firm's size, we excluded the industry types. Further researches should be investigated to get more reliable results with the SLC strictly classified by criteria like organizational size and industrial types as pointed out above limitations.

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# Expressing Emotions on Blogs: A Content Analysis Comparison between the U.S. and Mexico

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## Abstract

Internet users have emoticons as a way to use images to show their emotions. Emoticons are usually found among Internet blogs, which are user-generated website where entries are made in journal style and displayed in a reverse chronological order. Despite the quantity of free information available users from different countries may express and interpret online information in a different manner, such as some users employ more often images than words to express their feelings and ideas. This study addresses emoticon usage of personal blog postings from the U.S. and Mexico. The results supported the hypothesis that cross-country differences do exist in the use of emoticons between the U.S. and Mexico. The results showed that Mexican users employ emoticons more frequently to express their emotions than their American counterpart. In addition, Mexican users showed a larger preference to use a large variety of emoticons to express their emotions.

## Introduction

As a web-based communication tool, the term "blog" is a blend of the words web and log (Web log). A blog entry is a diary-style site in which the author, a "blogger", writes and post ideas or short articles displayed in a chronological order (Lamb and Johnson, 2006). In addition, the blogger can link other web pages that he or she finds interesting which are usually posted in reverse chronological order (Perrone, 2005).

Blogs either provide commentaries or news on a particular subject, such as food, politics, or local news or function as personal online diaries. A typical blog combines text, images, and links to other blogs, web pages, and other media related to its topic. The ability for readers to leave comments in an interactive format is an important part of earlier blogs. Most blogs are primarily textual, although some focus on photographs (photoblog), sketches (sketchblog), videos (vlog), or audio (podcasting) (Blog, 2007).

The word *emoticon* is the mixture of words "emotion" and "icon" and invented in 1981 by Scott Fahlman (Tanskanen, 1998) used to express an emotion (Mallon and Oppenheim, 2002). Initially, emoticons were also called smileys, which were a series of typed characters that, when turned sideways, resemble facial expressions. However, the set has extended to many other characters not only involving faces but also other body parts, such as "thumbs up" (Serviere, Hernandez, and Minor, 2005). As DeFranco (2005) mentioned, "*Emoticons are shorthand feelings. Their purpose is to express non-verbal attitudes, which are lost or misunderstood in simple text messages. A statement made with a smile is often better received and remembered than one without emotion*" (pg. 6). Hence emoticons may be useful to express feelings that might be expressed through tone of voice or behavior in speech (Mallon and Oppenheim, 2002).

Consumption is now seen as involving a constant flow of fantasies, feelings, and fun encompassed by what is called the "experiential view." This experiential view considers consumption as a primarily subjective state of consciousness with a variety of symbolic meanings, hedonic responses, and esthetic criteria (Holbrook & Hirshman, 1982).

## Literature Review

Nowadays the consumers require marketing products providing experiences for the consumer (Schmitt, 1999). The consumers may be able to make valid perceptions or affective distinctions among several brands (Holbrook & Hirshman, 1982). Internet is a mean that provides such experiences, and the possibility to reach consumers from the entire world, using several marketing tools for the consumers.

The previous efforts of marketing were always transmissions from the companies, one way communications, intended for target the highest quantity of visitors as possible, such as announcements, emergent windows in Internet and alike. Marketers use banner ads, design websites to be reminiscent of product brochures, and make available “show rooms” to consumers (LaFerle et al., 2002).

With blogs, the site becomes closer to the customers, since each blog reader is doing it for his/her own desire, each reader is choosing to interact with the business and each reader wants to listen more about the business (Wright, 2007). The acceptance and use of images to represent an idea may be different from country to country. Choong and Salvendy (1998) made an experiment between the U.S. and China. It was determined that in cognitive questions, the American participants had advantages over the Chinese participants when textual models were used. However, when models with graphics were used, the Chinese participants performed better. Moreover, for certain cultures the use of images is more valuable than the use of texts. Such uses of images over text emphasize the cultural differences that have to be accounted for in the design of a site. This is because different cultures might expect a certain web design and when they encounter a different one, they might react differently (Fang and Pei-Luen, 2003). For example, if the design of a website is displeasing, the visitors might simply choose not to revisit the site, leading to losing potential customers.

As part of research on online images, some studies have been conducted regarding the usage of emoticons. The research addressing gender differences in emoticon use in newsgroups by Wolf (2000) found that female users, when in a predominantly female group, were more emotional than male users as they utilized emoticons in a more frequent and varied manner. However, once in a mixed-gender newsgroup, male users employed emoticons at the same rate of their counterparts. On another study, Serviere, Hernandez, and Minor (2005) compared the underlying set of emotions expressed by five Latin American online community users, particularly users from Argentina, Chile, Mexico, Peru, and Venezuela. The results strongly suggested that the use of emoticons and the sense of freedom provided by the Internet highly motivated online users to express their emotions. Among the five Latin American countries included in the study’s sample, Argentina, Mexico, and Venezuela exhibited the highest number of emoticons. Among these countries, Argentina and Mexico were the countries with the largest variety of emotions expressed (Serviere, Hernandez, and Minor, 2005).

## Methodology

Richins (1997) defined an emotion as an affective reaction to perceptions of situations. According to this definition, the criteria followed in the selection of emoticons were based on Richins’ (1997) criteria and adapted where necessary. The criteria utilized to identify the emotions expressed included all kinds of emoticons. Although labeled as a cognitive state, the emoticon for “confusion” was included in the criteria because this is a commonly used emoticon referring to this emotion.

The technique used for the content analysis was netnography (ethnography on the Internet) as proposed by Kozinets (2002). This marketing research technique was appropriate since it was particularly developed for the analysis of the content of online communities. Furthermore, this technique was appropriate for this study because the purpose was to investigate and identify insights into the emotions expressed by bloggers of two culturally different countries: the U.S. and Mexico. The netnographic data collection procedure requires the selection and extraction of data from online postings which in this case were extracts from blogs.

To test the hypothesis for this research a content analysis was conducted. The analysis started with the selection of blogs where *emoticons* were used as part of the comments for a post. The sites where no *emoticons* were showed were discarded. The hypotheses tested were:

H1: There is a significant cross-country difference in the use of emoticons between Mexico and United States.

H2: There is a significant cross-country difference in the use of different emoticons between Mexico and United States.

## Data Collection







A total of 61 personal blogs that showed emoticon usage were selected for each country. To be able to collect a sufficient amount of postings, a total of 244 blogs had to be reviewed. To conduct the data collection process, the comments or responses that people posted about a blog were reviewed. Because of the quantity of comments that might be posted after an author has placed his or her personal entries, a specific date, April 8<sup>th</sup>, 2007, was selected for reviewing the postings. To be selected for the study, the postings should have been generated between April 2006 and April 2007. Only the response posts displayed in the first page of each blog showing an emoticon were reviewed and counted. The Mexican blogs were personal blogs gathered from www.blogsmexico.com. As a blog was opened, the posts and their comments were analyzed to check if they had emoticons. It was determined that for every four blogs, only one had comments with emoticons. A total of 244 blogs were reviewed of which 61 were collected. This represents a 25% of emoticon usage based on the first pages count. For the American blogs, the selection criterion was the same as the one followed for the Mexican blogs. American blogs were gathered from www.blogger.com. For every 13 blogs, only one had emoticons in its comments. From a total of 793 blogs reviewed, only 7.69% blogs were using emoticons.

To increase research objectivity, three independent persons were reviewing the comments and counted the emoticons in the selected postings. This was done to accomplish the minimum of three judges proposed by Kassirjian (1977) for content analysis.

## Statistical Analysis and Results

The statistical analysis program STATGRAPHICS + Version 4 was used to test hypotheses 1 and 2. The results showed that for American blogs, 126 emoticons were used in 523 comments. In Mexico, there were 237 emoticons found within the 517 comments that were reviewed. The relationship of comments with emoticons per type is showed in the Table 1.

TABLE 1: TYPE OF EMOTICONS IN COMMENTS PER COUNTRY

Emoticon	Emoticon Type in characters	Descriptor	Total of comments using <i>emoticons</i> per type in blogs from USA	Total of comments using <i>emoticons</i> per type in blogs from Mexico
	= ] or :-) or :) or =) or :^)	Happiness	110	183
	:-S or :S	Confusion	1	10
	:-( or :( or =( or D:	Sadness	9	31
	XP or >:-O or >:-:( or >:[ or >:E	Mad/Angry	0	3
		Support	1	6
	¬3¬ or ¬w¬ or ¬.¬ or ¬¬ or ¬¬	Sarcastic	5	4
Total of comments with <i>emoticons</i> in 61 blogs			126	237
Total of <i>emoticons</i> used in total of comments			126 / 523 comments	237 / 517 comments

For H1, a Hypothesis Test was run. The size for the U.S. sample consisted of 61 observations with a mean of 0.28 and a standard deviation of 0.14. Mexico's sample size consisted of 61 observations as well, with a mean of

0.5, and a standard deviation of 0.24. The computed t statistic equals -6.18413. Since the P-value for the test is less than 0.05, the null hypothesis is rejected at the 95.0% confidence level. The confidence interval shows that the values of  $\mu_1 - \mu_2$  supported by the data fall between -0.290436 and -0.149564. Therefore, our sample provided support for H1. Overall results indicate there is a significant cross-country difference in the use of emoticons (TABLE 2).

TABLE 2: HYPOTHESIS TEST RESULTS FOR H1

	USA	Mexico
Sample Means	0.28	0.5
Simple Standard Deviations	0.14	0.24
Simple Sizes	61	61
95.0% confidence interval for difference between means:	-0.22 +/- 0.070436 [-0.290436, -0.149564]	
Null Hypothesis:	Difference between means = 0.0, $\mu_1 - \mu_2 = 0.0$	
Alternative Hypothesis:	Not equal, $\mu_1 - \mu_2 \neq 0.0$	
Computed t statistic:	-6.18413	
P-Value:	8.92496E-9	
Reject the null hypothesis for alpha	0.05	

Multifactor ANOVA was performed to test H2, which addresses differences in the frequency used per type of emoticon per country. The frequency on the use of emoticons was used as a dependent variable and contrasted with type of emoticon per country. The ANOVA table decomposes the variability of Frequency into contributions due to various factors (TABLE 3). The contribution of each factor is measured having removed the effects of all other factors. The p-values test the statistical significance of each of the factors. Since 3 P-values are less than 0.05, these factors were deemed to have statistically significant effect on Frequency at the 95.0% confidence level. There is a significant difference between the use of emoticons and the countries, having the Mexican blogs the highest amount of them (FIGURE 1), and there is also significant difference between the quantities of emoticons per type used in the two countries, being the Mexican blogs were most of them are used (FIGURES 2 and 3).

For both countries, the most used emoticon was happiness (FIGURE 4). After happiness, the usage of emoticons was as follows for Mexican blogs: mad, sad, sarcastic, support, and confusion. For American blogs, the usage was: sad, sarcastic, support, and confusion.

TABLE 3: RESULTS FOR MULTIFACTOR ANOVA FOR FREQUENCY

Source	Sum Of Squares	Df	Mean Square	F-Ratio	P-Value
Main Effects					
A: Country	0.467555	1	0.467555	34.36	0.0000
B: Emoticon	8.30713	5	1.66143	122.08	0.0000
Interactions					
AB	0.444281	5	0.0888563	6.53	0.0000
Residual	9.7986	720	0.0136092		
Total (Corrected)	19.0176	731			

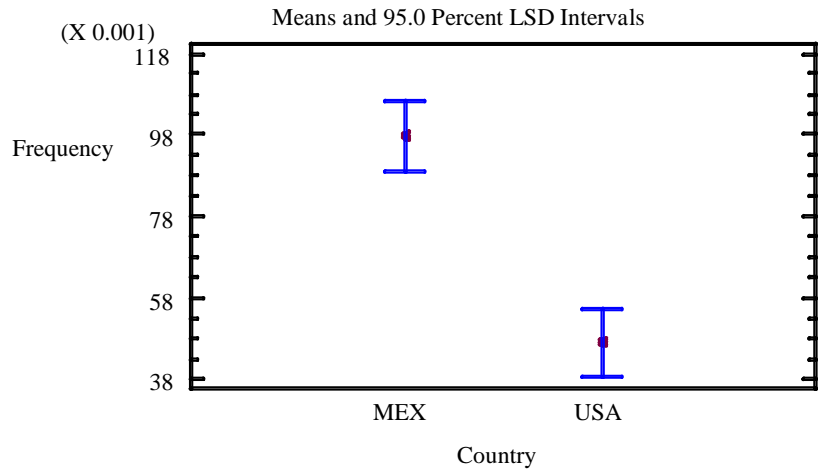


FIG. 1: FREQUENCY OF EMOTICONS VS. COUNTRIES

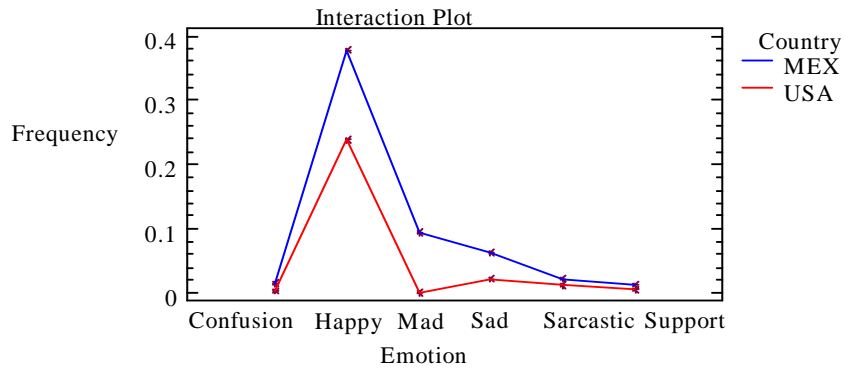


FIG. 2: TYPE AND FREQUENCY OF EMOTICONS PER COUNTRY

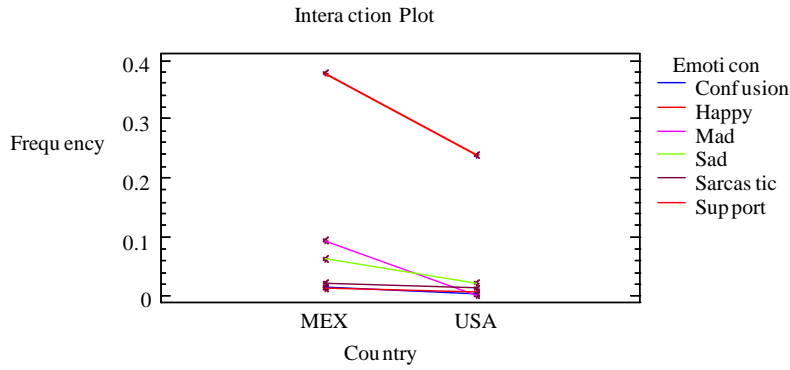


FIG. 3: TYPE AND FREQUENCY OF EMOTICONS PER COUNTRY

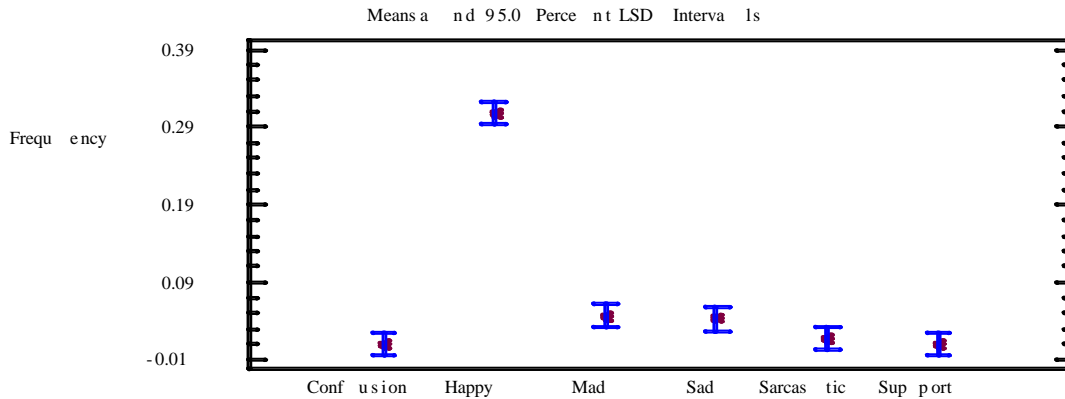


FIG. 4: FREQUENCY OF EMOTICONS IN BOTH COUNTRIES.

## Discussion

The results supported the hypothesis that cross-country differences do exist in the use of emoticons between the U.S. and Mexico. The results showed that Mexican users employ more frequently emoticons to express their emotions than their American counterpart. Out of 517 comments reviewed, Mexican users employed 237 emoticons as part of their postings. In contrast, American users only employed 123 emoticons on a set of 523 postings. The fact that Mexican users almost double their usage of emoticons when compared to American users perhaps denotes a more expressive society. We cannot infer that Mexican users are more emotional only from their higher usage of emoticons, but it does seem that they are a more expressive online community. It appears that the Mexican users prefer visual aides to express their views, concerns, and emotions.

From these results, it seems appropriate to recommend that online campaigns aimed towards Mexican users use a great deal of visual aids to attract and keep interest of potential consumers. This preference for emoticons uncovers a person that prefers to be highly expressive through visual tools. Online design, such as web pages, ads, and emails, should try to communicate not only with words but, with the support of vivid imagery. This approach

would contrast with the one aimed towards the American user who denoted a preference for written content only. The lesser usage of emoticons of the American user should not be interpreted as a sign of a less expressive user. American users can be as expressive as the Mexican users but American users chose words rather than images to convey their feelings and thoughts.

Regarding the usage of a large variety of emoticons, Mexican users showed a larger preference for these. In addition, Mexican users showed a larger preference to use a large variety of emoticons to express their emotions. Their usage included a wide variety of emoticons such as the ones available to denote happiness, confusion, sadness, anger, support, and sarcasm. The American user opted for a smaller variety of emoticons showing again their preference for a communication style that largely prefers words.

The limitations of the study are inherent to the nature of online data. Since most of the data required to post comments on blogs is optional, our study was not able to provide demographic information such as gender, age, level of education, and income. This encourages future research to collect additional postings to obtain a larger sample size in order to achieve more generalized results. Profiles of Internet users by country based on their emotions expressed should also be considered. In addition, analyses could also be performed to study how online users make decisions or form attitudes based on their emotions.

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# Sustainability of IT Industries in India: What makes India's IT industry Competitive?

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## Abstract

This article tries to reveal how India's IT industry will sustain in this high-tech competitive world, i.e. survival of the fittest. So to keep fit India, this study tries to highlight and investigate the hidden treasures of driving forces that plays a great role behind the sustainability of IT industries in India and to gain the competitive advantage. What are the major factors that influence the India's IT industry that has been discussed in this paper followed by governmental incentives, human resources, clustering and so on.

## Introduction

To sustain in this modern competitive world and also to keep pace with the continuously increasing complex network of social, political and economic entities is not an easy job. On the other hand achieving success is also no longer a simple task for an individual firm and to get a best position in a global market. Though it's not easy to get success but still there some success stories that inspire us to know. Behind every success always there are some motivating factors that stimulate to get success. This article is going to deal with one such success story, i.e., the sustainability of Information Technology (IT) industries in India. Recently it has been observed that India's IT sector is moving very fast to compete globally in compare with other sectors. Now the question arise what makes India's IT sector so powerful to meet the global challenges? And how India can keep on go ahead its progress in near future. This article will try to answer of all these questions.

This article argues that how the different motivating factors, especially the *governmental incentives, human resources, and clustering* providing a major contribution to the IT industries in India. How these factors are adding values by aligning various strategies and driving forces with business needs and connecting people from divergence. Finally this article tries to give a special reference of Bangalore, as an example how it becomes a special hub of IT industries in India with the existence of IT cluster that foster high levels of productivity and innovation and lays out the implications for competitive strategy and economic policy. Economic geography in an era of global competition poses a paradox. Today's economic map of the world is characterized by what Porter calls clusters: critical masses in one place that linked industries and institutions [1-3].

## Overview of IT Industry in India

This article is going to talk about the success of India's IT industry so we must know about the status and position of India's IT industry. Over the past decade, Information Technology (IT) industry in India has become one of the fastest growing industries in India as well as the fastest growing segment of the Indian economy. The software and IT Enable services (ITES) raises the exports in India from US\$12.9 billion to US\$ 17.7 billion in the year 2004-2005. Strong demand over the past few years has placed India amongst the fastest growing IT markets in the Asia-Pacific region. The Indian software and ITES industry has grown at a Compound Annual Growth Rate (CAGR) of 28 % during the last five years. The industry's contribution to the national Gross Domestic Product (GDP) has risen from 1.2 % to a projected 4.8 % during the year 2005-06.

India has a competitive advantage with respect to this sector owing to cost advantage, skilled manpower advantage, reasonable technical innovations, Indian domestic market growth, and multi- country service delivery capabilities among others. It is expected that the contribution of IT and IT Enable services (ITES) of national GDP

will rise up to 7% by 2007-08 against 4.8% in 2005-06. The total number of IT and – Business Process Outsourcing (BPO) professionals employed in India has been estimated that have grown from 284,000 in 1999-2000 to 1,287,000 in the year 2005-06. It is growing by 230,000 in the last year alone. In addition, it has been observed that Indian IT - ITES have also helped to create an additional 3 million job opportunities through indirect sources and induced employment opportunities.

TABLE 1: PRODUCTION AND GROWTH OF IT INDUSTRIES IN INDIA [4]

Year	Production (Rs. Crore)	Growth (Percentage)
2000-01	68,850	31.3
2001-02	80,124	16.4
2002-03	97,000	21.1
2003-04	118,290	18.2
2004-05	152,420	28.8
2005-06	185,660	21.8

According to National Association of Software and Services Company (NASSCOM), Indian IT software and services sector grew by 31.4% during 2005-06. It is notching up the aggregate revenue up from US\$ 22.5 billion in 2004-05 to US\$ 29.6 billion in 2005-06. This performance of the IT sector in India in 2005-06, encouraged the IT and ITES sector to be more confident enough to achieve the US\$ 60 billion milestone in export by 2010 [4]. The continuous production and growth trends of IT sector in India during the last five years shown above in Table 1 that gives us an idea about the progress of India's IT industry.

### What makes India's IT Industry Competitive?

In our previous discussion we have already seen the trend of progress of India's IT industry that makes us curious to know what are those driving forces or factors behind this success that makes India to be competitive in compare with other competitors. We know that there cannot be a single factor that enhances the progress of India's IT industry. A bundle of factors or forces are always remaining behind every success. In case of India's IT industry also occurred the same situation. Through research it has been observed that there are several different factors lying behind India's success that enable India's IT industry to gain competitive advantage. Now the question is what is meant by competitive advantage? Competitive advantage can be described as the unique position of an organization or a region which develop a relative competition among its competitors. According to Michael Porter, "The competitive advantage theory not only considers the factor endowments such as human resources, physical resources, knowledge resources, capital resources or the infrastructure inherited by organizations industries or regions, but also it emphasizes how these factors are creating and upgrading consistently". Thus competitive advantage becomes sustainable when it resists erosion by competitive behaviour and when the resources and capabilities enhance its market opportunities [5].

So let us see those factors that makes India's IT industry so competitive are as follows:

- ◆ Governmental incentives
- ◆ Human resources
  - *Low labour cost*
  - *Brain circulation*
- ◆ Clustering
- ◆ Outsourcing
- ◆ Time difference

Thus we can say that all these above mentioned number of factors seem to be propelled India to maintain the position of a dynamic IT player in the world.

**Governmental Incentives**

Under governmental incentive it has been observed that Government of India (GOI) has taken a major step towards promoting the domestic industry to achieve the full potential of the Indian IT entrepreneurs through venture capital by the formation of a new ministry for IT. It is necessary to highlight some major activities of GOI that open our eyes that what GOI is doing to make India's IT to be successive. As an example we can say that to promote the Indian IT industry, the Government has set up a National Task Force on IT and Software Development to examine the feasibility of strengthening the industry. The Government of India is also actively providing fiscal incentives and liberalizing norms for Foreign Direct Investment (FDI) and raising capital abroad. Recently, an IT committee was set up by the Ministry of Information Technology, Government of India, comprising Non Resident Indian (NRI) professionals from the United States to seek expertise and advice and also to step up U.S. investments in India's IT sector. Government of India is stepping up the number and quality of training facilities in the country to capitalize its extraordinary human resource. It is estimated that India has over 4 million technical workers, over 1,832 educational institutions and polytechnics, which train more than 67,785 computer software professionals every year that helps the Indian economy to sustain higher rate of growth and the policy makers are fully aware of this achievements [6].

**Human Resources**

Another important force or factor for the rise and growth of IT industry in India is human resource that we must agree, which is also a great advantage of India. As we all know that the international competitiveness of a firm mainly depends on its backbone, i.e. strength of human resources to respond and to face the competitive pressures in international markets that already exists in India.

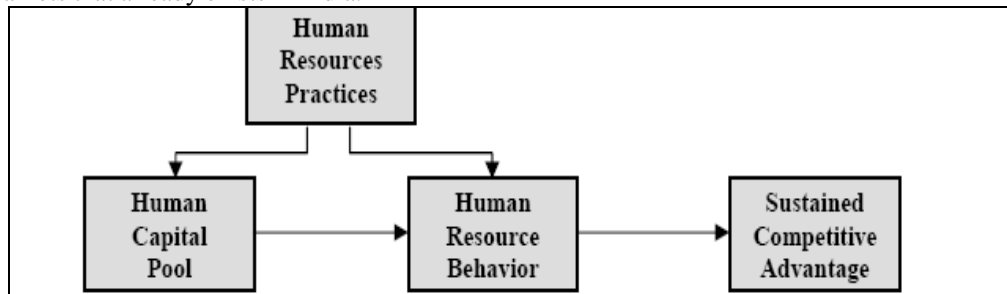


FIG.1: A MODEL OF HUMAN RESOURCES AS A SOURCE OF SUSTAINED COMPETITIVE ADVANTAGE [7].

From the above mentioned Fig. 1 we can have a look that in India how Human Resource (HR) is adding value to the business houses through its large pool of human capital, human behaviour that lead India towards competitive advantage. Explicitly, it ensure the presence of competent employees that enable an enterprise, i.e. IT industries in India to build its competitiveness that motivate those employees concerning to their development.

**Low Labor Cost**

According to resource-advantage theory of Hunt and Morgan [8], a firm strives for superior financial performance by enabling its resources to capture a position of competitive advantage in a certain market or market segment. This position is captured if two conditions are satisfied: (1) if the firm can creates more customer value than competitors do, and (2) if the firm has lower investment costs than competitors. In the case of India's IT industry this two conditions were satisfied and facilitate India to gain the competitive advantage.

The low labor cost appears to be the most convincing factor that worked in favor for the progress of India's software companies. From a global perspective, it can be said that salary levels in India are comparatively lower than in Western nations which is also benefiting India to achieve success. Research shows that he entry level of professionals in India are amongst the lowest (if not the lowest paid) in the Asia Pacific region. Research shows that India has a vast pool of talent comprising educated and computer literate personnel, where every year approximately 9.1 million students are enrolled for tertiary education in India. However, recruiting the right candidate for the right job remains a challenge [5].

### Brain Circulation

India has also benefited in great deals from immigrants of Indian origin who had pursued technological careers in developed economies. This brain circulation not only helped in transfer of technology through movement of the skilled personnel or through the companies they helped and start, but has proved to be a unique factor for the development of this sector [5].

### Clustering

According to Porter, “an industrial cluster is a set of industries related through buyer-supplier relationships, or by common technologies, common buyers, common distribution channels, or by common labour pools.” Such type of relationship leads to improve the efficiency and international competitiveness of micro small and medium enterprises (MSMEs). Porter claims that clusters have the potential to affect competition in three ways [9]:

- By increasing the production of the companies in the cluster.
- By driving innovation in the field.
- By stimulating new business in the field.

In general cluster has three kinds of embedding. Namely: *Institutional embedding* relates the impact of regulation and norms of conduct, taxes, subsidies, legal system, infrastructure, schooling, research and labour market. *Structural embedding* relates the features of networks, density, centrality and the stability of the structure i.e. the rate of entry and exists. *Relational embedding* relates the social network to build the linkage between one firm and another that strengthen the ties, bonds and alliances of the inter-organizational relationships [10]. Clustering is also another important aspect behind the success of India’s IT industry. On the other hand it can also be said that clustering is a part of networking. Clusters are defined as concentration of activities belonging to the same sub sector. So without any hesitation we can consider the presence of cluster in India is also another major driving force, that has a great influence behind the success of India’s IT industry.

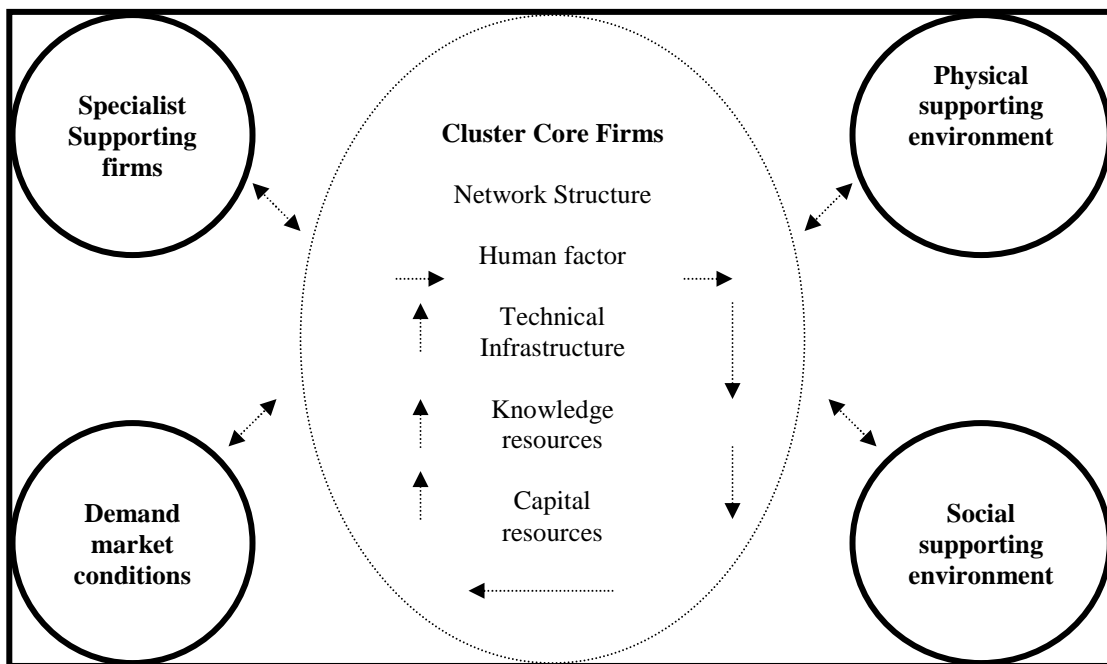


FIG. 2: THE INTEGRATED MODEL OF CLUSTER MAP [1]

The above mentioned Fig. 2 is an example of main driving forces of a cluster that facilitate the IT industries in India. Basically a *cluster core firms* has five main factors i.e., *the human factor, the technical infrastructure, the network structure, capital resources and knowledge resource*, which become more competent with the existence of certain supporting conditions like (a) specialist supporting firms, (b) physical supporting environment, (c) social supporting environment and (d) demand market conditions that has a great impact on innovation and competitiveness of firm's management. These five "balloons of competitiveness" are interrelated. Each of them measures the competitiveness of a firm. Each condition has a close inter-relationship between them to make an efficient and effective firm [1].

#### **Outsourcing**

Outsourcing is another aspect of a new business model and undoubtedly a business niche that is an advantage or plus point for India, which leads India to face the competitive world. A survey conducted by Sobol and Apte in 1995 [5], revealed that a significant proportion of the US companies had outsourced at least one of their information system function to a domestic provider, i.e. India. India's outsourcing business is based on the country's decade old experience in this area, i.e. the fluency in the English language, supportive government policy infrastructure, and high quality offerings.

#### **Time Difference**

Time difference between the clients and the service providers in India added a round-the-clock proposition to the business and reduced total cycle time. With the advancement of telecommunications infrastructure in India, the software developers in the US and Europe could send application specifications to India at the close of their business [5]. And then the Indian programmers start working on the same program on the other side of the world and delivered the code before the US developers could resume work the next day. This needs to be counted for the sustainability of IT industry in India.

In a nut shell we can say that the above mentioned all facts and figures enable us to give a clear vision about the driving forces that enable India's IT industries to be competitive. Observing all these situations government of India (GOI), took the initiation to build and create an enabling environment to enhance the emergence of IT cluster in India especially in Bangalore.

### **Bangalore IT Cluster: Case Study**

The rise of the Bangalore IT cluster is a concrete example of the success story of IT industry in India that guaranteed us the possibilities of India's IT industry will be more competitive. Bangalore have some positive externalities that were generated by agglomerations through the availability of (i) skilled labour and inputs; (ii) certain types of infrastructure; and (iii) innovation generating informal exchanges that makes Bangalore a special hub of IT industries (Fig.3) that enable India to sustain its IT industries.

This process of networking and clustering contribute to the competitiveness and growth of the "participating" firms in Bangalore. Industrial clustering in India has a number of benefits like: rapid interchange of information and knowledge (about best practices, about market opportunities), locational economies (it is cheaper to provide infrastructure to a cluster of software firms than to the same number of firms that are scattered), and a raised marketplace profile [11].



FIG.3: SPECIAL HUB OF IT INDUSTRIES IN INDIA [12]

Research shows that GOI has taken the initiative for IT industry in Bangalore by creating a special group. Where the group will [6]:

- Monitor global IT developments and refine Indian IT policy to meet global requirements.
- Promote the growth of human resource development in the IT sector with the aim of creating quality-based education;
- Promote R&D in the sector by identifying thrust areas and drawing up a blueprint for action.

On the other hand from the clustering point of view research shows that 40% of country's industrial output and over 30% of direct exports goes through clustering, the rise of Bangalore IT cluster has become successful. So we can say once again that the above mentioned factors like clustering are really enhancing the sustainability of IT industries in India.

The ICT cluster in Bangalore, India has also attracted much research and media attention as it is often referred to as the Silicon Valley of India, where it boasts over 1500 IT firms like Infosys, Wipro, Texas Instruments and Hewlett Packard [13]. Hence from the above mentioned discussion it shows that around one third of all India's software exports are from the city of Bangalore that open our eyes how India is taking the upliftment with the existence of cluster. Above mentioned brief picture of Bangalore will clear our ambiguity and ensure how it will be possible for India to be more competitive and successive.

### How India's IT Industry will become more Competitive?

We have already discussed in our earlier part of this article about the factors and driving forces behind the success story of India. Now the question arises is it possible for India to be more competitive with those above mentioned motivating factors? If so, then how? This study allows us to ensure that yes it is possible for India to become more competitive with those motivating factors by following ways as follows:

1. Building networks and reducing the cultural difference
2. Building and creating an enabling environment by public policy

3. Linking multinational firms and large private firms:
4. Linking the relationship between Academy and Industry
5. Inter and Intra-Cluster linkages

#### **Building Networks and Reducing the Cultural Difference**

Study shows that building networks enables a firm to be competitive and on the other hand it also reduces the gap of cultural differences. For example in India it has been observed that the talented and skilled immigrants who have studied and worked abroad, while back home they transfer not only technology and capital but also their managerial skills and institutional know-how. They try to link the local producers directly to the market opportunities to enhance the networks and reduce the cultural barriers. As a result in India that many entrepreneurs have started companies like Mastech, Syntel and Information Management Resources (IMR) in U.S. that relied on Indian programmers to provide support to the domestic clients. Bangalore IT industry is an example discussed in earlier part of this article where there are 71 to 75 multinationals in Software Technology Park (STP) were headed by Indians who lived and worked overseas.

#### **Building and Creating an Enabling Environment by Public Policy**

Public policy means the role of government's initiative is one of the main and most important criteria that will benefit the IT industries in India. As like Bangalore if GOI will take the same or more initiation like (i) establishing number of universities, institutions and colleges; (ii) trade protection and liberalization for exports and export – oriented foreign investment; (iii) set-up electronic parks and infrastructure to meet the demand at an international level one day obviously India will be more competitive. Government must take initiative for creating a physical supporting environment, modern and diverse transport systems and advanced technical communication systems other than Bangalore to facilitate the India's IT market.

#### **Linking Multinational Firms and Large Private Firms**

In earlier part of this article we have already mentioned about the various activities of cluster that enhance a firm's competitiveness where small firms can get in touch with the large firms. As result small IT firms in India have started to offer their workforce on project basis to the large firms in an arrangement of contact basis. Such as System Logic, Datacons Pvt. Ltd, Intertec Communications and Nataraj Technologies are lending a part of their workforce to the multinational firms as Texas Instruments (TI) Hewlett Packard (HP), Robert Bosch to get the work done efficiently and effectively within a short period of time. Thus we can say that this is also another way how India can be more competitive to get the optimum level of outcome and to sustain in the long run.

#### **Linking the Relationship between Academy and Industry**

Another important aspect to be more competitive is to link the relationships between the academicians and the industrialist to uphold the performance of IT industries, which is possible through clustering. In our earlier study we have seen that India has a large pool of knowledgeable manpower, so government should take initiative to open more institutions and technical universities near to the Software Technology Park (STP) complex or in other parts of India. So that fresh candidates can easily absorb in the professional field and provide their modern knowledge and skills to the industries. It has been observed that academia-industry linkages in Bangalore make Bangalore a special hub of IT industries.

#### **Inter and Intra-Cluster Linkages**

Inter and Intra-cluster linkages of India's IT cluster also build a strong relationship among the same category of firms. It is to be noted that Bangalore IT firm has a close network system within India and even outside India that boost the social as well as the political stability in India to avoid labour conflicts, to establish a techno park, improving the physical infrastructure [11,13 -14]. As result we have seen IT cluster in India derive more benefits due to their proximity with customers and suppliers. So we can say that the above mentioned different paths can facilitate India to be more competitive. As Bangalore IT cluster is a special reference of all these above mentioned paths.

## **Conclusion**

Finally we can conclude that above mentioned all factors and ways are the means how India is progressing to sustain in this dynamic world with the help of various above mentioned factors specially with government incentives, with its large pool effective and efficient manpower and with clustering that broaden the scope of networking of IT industries. It gives us an insight about the competitive advantage of India's IT industry. It necessary to say that cluster in India represent a new way of thinking about national, state, and local level that provides a new role for companies, government, and other institutions for enhancing the competitiveness of a firm. India's IT industry is not exception of it.

Though we have viewed in our previous discussion that how India's IT industry is moving forward, but it is also need to keep in mind that nothing in the world remain static so to keep pace with the ever changing world GOI must keep its eye open and develop more network and effective cluster based firm to reach every corner of the world. To maintain and to uplift the India's present status certain things need to be taken into account such as:

- Human capital that determines the growth of every industry. Without the creation of high quality human capital, other advantages are not going to be of much helpful. Government of India must invest more to build high quality educational institutions for high quality personnel.
- Location is also a positive aspect of any industry. As we have seen due to locational advantage Bangalore becomes a hub of IT industry. So government of India should also search for another new location which will be suitable for building another software technology park like Bangalore.
- Technology is also another important aspect that plays a vital role. Government of India must invest more on research and development for technological upgradation and to keep pace with the changing environment.
- Ultimately, despite locational advantages, what matters is quality. It has to be remembered the largest concentration of IT companies in the world are in locations like Bangalore with the highest level of quality certifications.
- Last but not the least it might be good to create a competition among different IT clusters in the same country. Most of the IT clusters in India are viewing with each other in attracting new startups. Thus the local governments are prodded further and further to have ever increasing proactive roles which has immensely benefited India as a whole

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# Intelligent Information Processing for Educational Funding Institutions

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## Abstract

There are number of educational funding institutions such as PTPTN, JPA, MARA and state institutional bodies (SELO) that support learning of higher education in Malaysia with loan or scholarship to students for their allowances and fees. In every intake, the funding institutions have to process, screen and approve loan applications. For this purpose, several processes and decision makings are required for ensuring loans or scholarships are granted to an eligible student with a sufficient of amount. The funding institution usually employs loan officers to make credit decisions or recommendations for that particular institution. These officers are given some hard roles in processing and evaluating the worthiness of each application. As the number of applications increases every year, the loan processing and approval tasks have become more challenging and difficult especially for the funding institutions which are still practicing manual or semi-manual processing. In addition, due to inefficient filing system, some funding institutions face a problem in tracing back the higher learning leavers for payment back purpose. As a result of interviews, observation and analysis, this study suggests the educational funding institutions to employ a web-based intelligent information system that integrates 3 systems, namely web based office automation system, knowledge-based system and artificial neural network. Hence, with integration of those three systems, the institution would be able to improve its services and reduce the time, cost and manpower to manage loan application process.

## Introduction

Loan or scholarships are required in supporting the teaching and learning of higher education. Certain amounts of fund are given to students for their allowances and fees, thus learning institutions can provide more facilities for a well conducive learning environment. Nowadays, there are number of institutions that offer loans or scholarships including PTPTN, JPA, MARA and state intuitional bodies. Prior to mortgaging loan or scholarship, a few processes and procedures are required for ensuring loan or scholarship are granted to an eligible student with a sufficient of amount. The institution usually assigns loan officers to make credit decisions or recommendations for processing and screening submitted application. These officers are given some hard roles in evaluating the worthiness of each application. As the number of applications increases every year, the loan processing and approval tasks have become more challenging and difficult especially for the funding institutions which are still practicing manual or semi-manual processing. This may delay the loan or scholarship payment for students of higher learning institution. In addition, due to inefficient filing system, some funding institutions face a problem in tracing back the higher learning leavers for payment back purpose.

In improving routine office tasks that include data processing and reporting, a number of applications have been invented such as Microsoft Word, Access and Spreadsheet. In addition, various information systems also developed to meet specific organization's needs. Nevertheless, today's demands are not only for documenting and reporting, most of organizations' tasks deal with decision-making which some decisions that may require the presence of experts in the domain. For office tasks automation purposes, existing information systems are useful in summarizing data, processing data to information and representing diagnostics information but it lack of prediction and explanation capability which some organizations might need this facilities to answer questions such as why did July's sales drop down? or can sales be increased next month?, and what is the characteristic of students enrolled in this May or what types of student will be registering next May?. The answers can only be provided by the experts in that particular domain who have years of experience to predict and explain certain occurrences.

Hence, one of the principal courses of action in making modern automated systems of the organizational-information type more efficient is to lend them a measure of intelligence (Kozichev, 2004). This means that in

addition to the usual functions of collecting, storing, accumulation, searching, processing and transmission of data, information systems should also include analysis, advisory and forecasting facilities which form the basis of intelligent information systems (IIS). IIS consists of knowledge base, database, and model base (Potter, Somasekar, Kommineni & Rauscher, 1999). The model base includes decision support models, forecasting models, and visualization models that require appropriate techniques.

On the other hand, the needs to mimic or replicate human thinking processes have motivated the research in Artificial Intelligence (AI). The capability of AI techniques in predicting, diagnosing and advising has made AI becoming popular. A number of AI techniques have been integrated into various information systems including Knowledge-based Systems (expert systems) (KBS), Fuzzy Logics and Artificial Neural Network (ANN).

In this study, an integration of web-based office automation system and AI techniques specifically knowledge-based system and ANN is proposed. Web-based automation system can assist both applicants and management in performing loan application processing, while the AI techniques can be as helpful tools in loan approval decision making.

#### **Intelligent Information Processing**

Information systems can be defined as computer-based systems which access a variety of computer-stored or generated base data, and select and process that data to provide specific information to aid management in their routine tasks (Mahling, Craven & Croft, 1995). However, in the computing tasks needed to support higher levels processing such as analysis, decision support and forecasting, artificial intelligence techniques are essential, since the regularity appropriate to algorithmic approached is typically lacking in ordinary information system. Due to this, a number of AI techniques have been integrated with information systems in various domain that such system known as intelligent information system.

Among discussed IISs include Qiang, Bing and Yijun (2005) that incorporated artificial neural network technique specifically Amnestic Neural Network, which simulates human cognitive behavior of forgetting, to solve the problem of cross-temporal data selection. The effective of Amnestic Neural Network was tested by the application on stock price prediction experiment in the stock market of China. Meanwhile, Patel and Ranganathan (2001) integrated ANN, KBS and Fuzzy Logic for intelligent control of urban traffic that is important in providing a safe environment for pedestrians and motorists. The performance of the proposed IIS was evaluated by mapping the adaptable traffic light control problem. The results of extensive simulations using the three approaches indicate that the integrated system provides better performance and leads to a more efficient implementation. For similar integration, Weiren, Lixu, Li and Xin (2003) had also employed ANN, KBS and Fuzzy Logic in evaluating the potential public works based on both quantitative and qualitative factors to assist the decision makers to make the right decision for the sake of providing the government with an optimal prediction.

In medical domain, Liping and Lingyun (2005) discussed the use of ANN, KBS and Rough set integrated in IIS specifically for prognosis of coronary artery disease. The system correctly classified 83.75% of the testing set at a tolerance level of 0.25, and 85% at a tolerance level of 0.30. In another application, Lin, Yurong, Yanhui and Hong (2006) presented web based intelligent system for spare parts joint replenishment in a nuclear power plant. They integrate the artificial neural network and gene algorithms-based spare parts criticality class identifying system to confirm the target service level, and the web-based joint replenishment system to obtain reasonable inventory control parameters that can be helpful for reducing of total inventory holding costs. The proposed IIS was successful in decreasing inventories holding costs significantly by modifying the unreasonable purchase applications while maintaining the predefined target service level.

Since in educational loan processing tasks require the use of forecasting and advising techniques, there is a natural tendency to integrate artificial neural network and knowledge-based technique techniques with web based office automation system that such integration can be beneficial to assist the decision maker in making decisions regarding loan application. ANN provides a means for discovering the relationships in historical data, while ensuring those relationships discovered will generalize to the future data. In addition, knowledge based system supports the management by performing reasoning that can provide decision explanation which ANN is not good at this due to its "black box processing" mechanism. This integration is useful in assisting loan officers of educational funding institutions to determine whether to accept or reject an application.

## Background and Motivation

In general, application for loan or scholarship is announced in every academic term each year. A funding institution announces the release of the application form via newspaper and or media, but there are still institutions that require applicants to go to the main office to get and to return the application form personally with an amount of price.

Starting from the submission, funding institution staffs will collect all the application forms and calculate the merit for each complete application form. Merit is given by accumulating the total mark for each applicant based on the criteria defined by the institution. The range of merit that indicates the eligibility of the applicants is determined by each institution. The list of eligible applicants will then be tabled in the institution committee board meeting. In the meeting, the number of applicant selected is based on the quota allocated for each public and private university. For the number of applicant that is less than the university's quota, the applicant will be selected based on the rank of merit. Once the approved applicants are selected, the offer letters and the agreement will then be posted to them. When the acceptance letters are received from the applicants, their profiles will be stored in files for further use. The application process will take about couple of months, starting from the submission of application up to listing out those approved applicants.

From the managerial point of view, every application of loan needs to be processed and revised for every criteria defined by particular funding bodies. As number of applicants increases year by year, the application processing has become challenging and difficult, which creates problems when most of the processes are still done manually with no systematic filing system and database. Instead of using hardcopy form, a few managements have moved to online form for the application purposes (Kozichev, 2004; Jingtao & Chew, 2001). This may reduce the task of encoding and storing applicants' information into a database. However, evaluation to select or shortlist applicants are still consuming more time as number of application increases every year.

In addition, any funding institutions that are still practicing manual merit system will have more workload as number of applicant increases. The approval of any loan or scholarship is time-consuming as the evaluation is done manually based on human judgment. There was an issue due to qualified student were not granted applied loan or scholarship. This could be due to inconsistency in judging the loan or scholarship. Inefficient file system also could create problems in tracing the student's status for the payment back purposes. This issue had also been raised in our media that reported the funding institutions are facing problems regarding loan payment back by the graduated students. In addition to student unawareness of this issue, the inefficient of file system also contributes to the same problem.

With the rapid evolution of electronic technology, information systems were developed that provided for the storage, manipulation, computation, reporting, and transmission of large amounts of information (Baker, 1996). These information systems were designed as a single piece of stand-alone equipment or as a work station or terminal linked to a mainframe, mini-computer, or local area network. Nowadays, information systems are integrated with AI techniques to provide facilities that require intelligence as most organizations are constantly faced with making important decisions and almost always uses prior knowledge or experience in determining them. In addition, the necessity to solve problems of practical nature and size, always arrive at correct solutions, and adapt to the changes in the application environment are the main reasons AI techniques have been applied in various domains. There are two common approaches for intelligent information system, one based on learning systems, such as the ANNs, and the other based on knowledge-based systems. In a learning system, the decisions are computed using the accumulated experience or knowledge from successfully solved examples meanwhile in knowledge-based system, decision is based on stored rules captured from the domain expert (Patel & Ranganathan, 2001).

During knowledge acquisition, the knowledge base is formed with the aid of an expert interacting with a knowledge engineer. The knowledge acquisition process consists of subtasks that include knowledge extraction, formal representation of knowledge, coding and validation. Since the quality of knowledge representation affects the efficiency, speed, and maintenance of the system, the method of knowledge representation is critical. The choice is usually limited by the application domain, the preferences of the knowledge engineer, and the expert. In learning systems such as ANNs, the knowledge acquisition task is performed by the training process. However, the training

process, in most cases, is a time-consuming task requiring the application of input training patterns in an iterative manner (Sima & Cervenka, 1998).

An important aspect in intelligent information system design is decision explanation, which involves supplying a coherent explanation of its decisions (Kasabov, 2002). This is required for acceptability of the solution and correctness of the reasoning. The knowledge-based systems can explain the reasoning process by evaluating the trace generated by the inference engine or by analyzing the rule base (which typically use IF THEN rules). In learning systems such as ANNs, knowledge is represented in the form of weighted connections, making decision tracing or extraction difficult. Thus, using an ANN or a knowledge-based system approach to intelligent information system leads to different levels of performance depending on the model as well as the application. By integrating the two approaches, it is possible to overcome the deficiencies associated with using a single approach.

### Knowledge Based Systems

Knowledge-based systems (KBS) (Fig. 1) use human knowledge to solve problems normally requiring human intelligence. The aim is to model and implement human expert knowledge. A knowledge-based system can act as a human expert in diagnosing and troubleshooting of certain problem. Due to this, most of the KBSs developed are concentrating in advising that the main purpose is to automate such facility as well as to provide consistent decision. In addition, the deployment of the KBS may also be able to assist the administrative in decision-making, thus to succeed they should possess performance at the same level as the human expert.

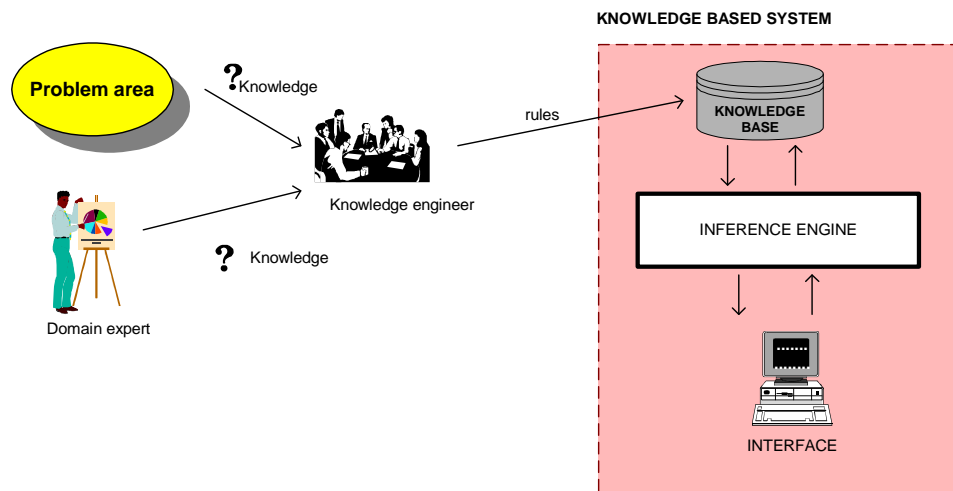


FIG. 1: KNOWLEDGE BASED SYSTEM

Among researchers that discussed the use of KBS include McGowan, Gleeson & McGowan (1998) that highlighted “expert” admissions system that was developed to screen and evaluate applicants’ information (e.g., undergraduate college, grades on specific courses, etc.) for American Medical College Admission. In addition, Harlan (1994) also proposed the Automated Student Advisor, a KBS that provides the user with an accurate picture of the progress a student has made towards graduation and to assist in selecting courses for the upcoming semester. Meanwhile, McAninch (1998) proposed Principia Student Advisor, an expert system for advising on course prerequisites, all college requirements and off campus study program of Computer Science majors at Principia College. As an advisory system, KBS has the capability to explain and justify the “why” and “how” certain decision is inferred. These are suchalso systems that have been used in industry and finance (Pomykalski, Truszkowski & Brown, 1999), and government (Shrobe, 1996)) for many years.

### Artificial Neural Networks

With the advent of modern computer technology and information science, sophisticated information systems can be built that can make decisions or predictions based on information contained in available past data. Such systems are called learning systems and are currently used for the purpose of classification and prediction (Principe, Euliano & Lefebvre, 2000). ANN are popular AI techniques for classification and prediction problem.

An artificial neural network system is an artificial intelligence model that replicates the human brain's learning process. Tsoukalas & Uhrig (1997) define a neural network as: "A data processing system consisting of a large number of simple, highly interconnected processing elements (artificial neurons) in an architecture inspired by the structure of the cerebral cortex of the brain."

In an artificial neural network, a number of inputs, or attributes, and their corresponding outputs, or classes, are given. A training algorithm uses these sample inputs, called the training set, to design a decision function that can accurately predict the class for any sample thereafter. The algorithm response is compared to the actual response to determine how well the classifier performs (Barker, Trafalis & Rhoads, 2004).

Nodes are used to represent the brain's neurons and these nodes are connected to each other in layers of processing. Fig 2 illustrates the three types of layers of nodes: the input layer, the hidden layer or layers (representing the synapses) and the output layer. The input layer contains data from the measures of explanatory or independent variables. This data is passed through the nodes of the hidden layer(s) to the output layer, which represents the dependent variable(s). A nonlinear transfer function assigns weights to the information as it passes through the hidden layer nodes, mimicking the transformation of information as it passes through the brain's synapses. The goal of the artificial neural network model is that the effect of these weights will result in a response that is equivalent to the response that would result from the relationship that really exists between the input independent variables and the output, or dependent, variable(s).

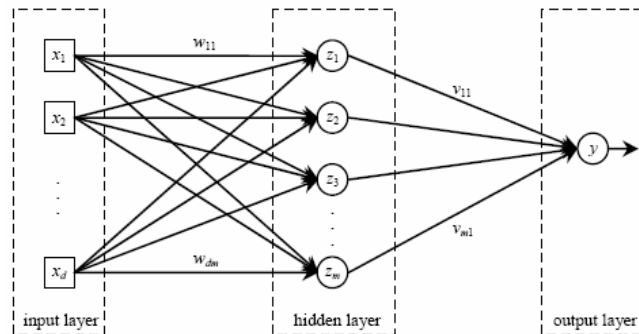


FIG. 2: NEURAL NETWORK ARCHITECTURE

In contrast, a traditional knowledge-based system would have rules encoded within it that a designer has previously identified. The advantage of artificial neural network systems is that it is not always possible for a human designer to express and encode rules in a reasonable time-frame or even express them at all. A further disadvantage of knowledge-based systems is that if the rules change for some reason then it is necessary for the designer to reincorporate the new rules within the rule-base (Barker *et al.*, 2004)

Integration of artificial neural network had been discussed by Mullier, Moore and Hobbs (2002) that proposed an automated system for predicting the grade and the questions in a tutorial with minimal input from the human teacher. In addition, Cripps (1996) discussed the use of artificial neural networks to predict degree program completion, earned hours, and GPA for college students. Carlson (2000) also proposed the deployment of artificial neural network to predict which applicants are likely to enroll at Hopkins College. The use of artificial neural network also may be able to help administrators with a variety of other planning chores, such as precisely predicting the demand for student services, or estimating how much space on the campus to devote to which uses.

Another applications of ANNs found in literature also include in business (Hanke & Reitsch, 1998; Hall, 2000; Siraj, Zakaria, Ab Aziz & Abas, 2003), economy (Siraj & Junoh, 2002), financial (Kaastra & Boyd,1996; Perez,1999; Surkan, 1999; Siraj, Zakaria, Yasin & Ishak, 2000; Jingtao & Chew, 2001), and education (Whitson, 1999; Carlson, 2000; Mullier,2001; Gonzalez & Des Jardins, 2002; Siraj &Asman, 2002; Siraj & Rahman,2003; Siraj & Sudin, 2003; Yusoff & Siraj, 2006; Barker, 2004).

### Intelligent Information System for Educational Funding Institution

In improving the capability of information system this study suggests funding institutions to integrate two AI techniques namely, knowledge-based system and artificial neural network. In essence, the potential use of such a system can be accelerated to promote any organizations as an efficient and effective organization that has competitive advantage. Fig. 3 illustrates the intelligent information system.

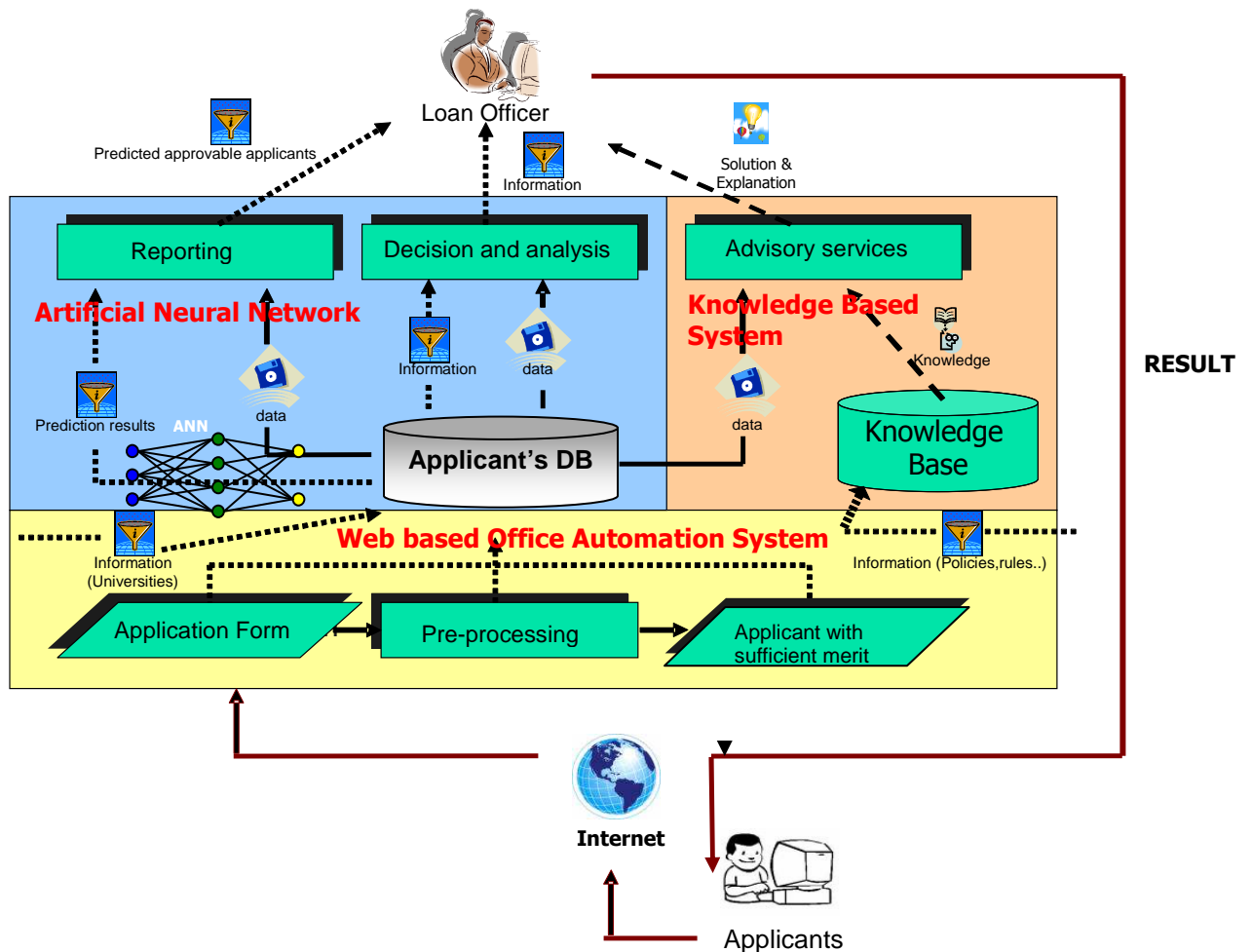


FIG. 3: INTELLIGENT INFORMATION SYSTEM FOR EDUCATIONAL FUNDING INSTITUTIONS

As depicted in Fig. 3, the proposed intelligent information system comprises 3 main subsystems; Web based Office Automation System, Knowledge-based System and Artificial Neural Network.

#### **Web-based Office Automation System**

Web based office automation system can be implemented to ease the loan application access with some payment mechanisms such as online payment. The form application can filled up and submitted through online. As an application submitted, the information will automatically be stored into the system database. Before evaluation takes place, the merit calculation for each application can be done automatically whenever the management needs the information. Even the acceptance letter can be generated automatically. The stored information can accessed easily with some authorization procedures when the evaluation to be performed.

#### **Knowledge-based Approach**

The integration of knowledge based system can provide advisory services to the management in loan approval decision making. The system consists of rules that explicitly explain why an application is recommended to be accepted or rejected. In addition to knowledge-based system, artificial neural network system can help the management to predict which application to accept or reject. This can be done as ANN has trained previous batch of loan application data and stored association between application characteristics (attributes) that explains which applications were accepted and rejected. The association in previous data can predict the new current application data with same characteristic but no loan acceptance result (Garret & Leatherman, 2000; Baesens, Van Gestel, Stepanova & Vanthienen, 2003; Handzic, Tjandrawibawa & Yeo, 2003).

#### **Artificial Neural Network Approach**

In this study, the NN approach involves 2 main processes that include data training and prediction. Data training involved in obtaining a set of weight coefficients ( $[v]$  and  $[w]$ , see Fig. 4) from historical data collected earlier. The sampling consists of 1062 records of previous loan application from Lembaga Basiswa Negeri Kedah (LBNK), one of the state educational loan bodies that have been accepted and rejected. Many of the questions found on the survey closely resemble student attributes appearing in the LBNK's loan application form and other educational research. The data set consists of respondents' academic, demographic, and socio-economic backgrounds have been identified as the number of input nodes in the input layer. The target output or the classification variable is divided into two categories of loan application status, reject or accept. The collected data was pre-processed and cleansed prior to training. The result from training indicates that ANN obtained 99.06% prediction accuracy.

Once training is completed, the web based prediction module is able to predict the status of an application (accept or reject) using a feedforward Neural Network algorithm. The algorithm uses the weight obtained from the training process and also the Binary Sigmoid Function (as 1) to predict the educational loan application status.

$$\text{Application status, } y_k = 1/(1 + \exp^{-y_{\text{in}}^k}) \quad (1)$$

Prior to predicting the application status, the user of the prediction system has to respond to some questions based on his/her academic, demographic, and socio-economic background. During the testing phase, 200 hundreds of applications can be processed and predicted the acceptance status in less than half an hour. The ANN process can be illustrated in Fig. 4.



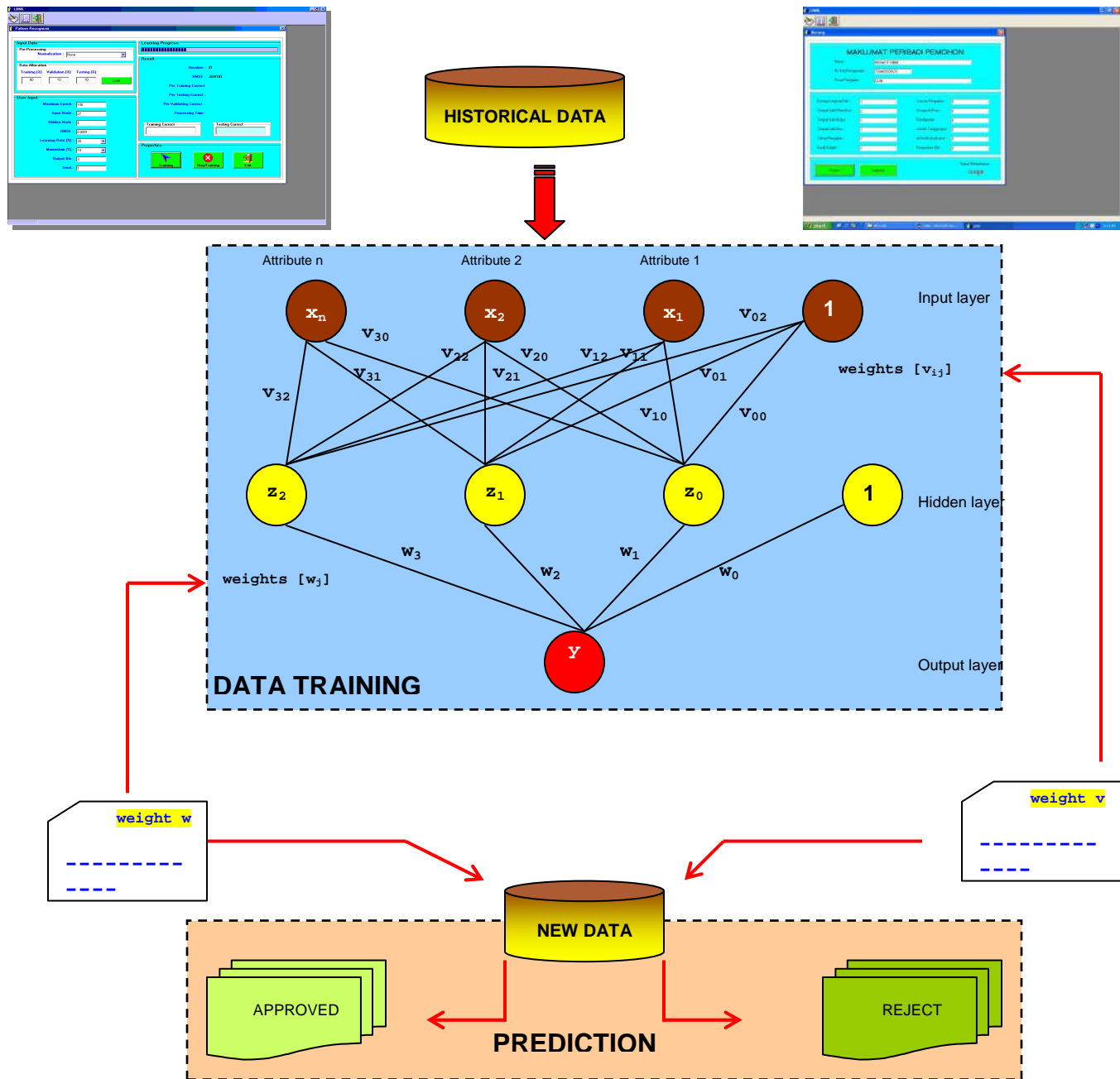


FIG. 4: ARTIFICIAL NEURAL NETWORK PROCESS

ANN and knowledge-based systems have been extensively explored as approaches for decision making. While the ANNs compute decisions by learning from successfully solved examples, the knowledge-based systems rely on a knowledge base developed by human reasoning for decision making. It is possible to integrate the learning abilities of an ANN and the knowledge-based decision-making ability of the KBS. Both knowledge-based and ANN system can assist the management in evaluating application. The management only needs to agree or disagree to the system recommendations and advices without reviewing each application one by one. All the information and explanation provided by system are based on human represented knowledge or previous loan application results. The proposed integration can be beneficial in reducing the time required for loan application processing and with efficient database management system, the information can be updated easily that can ease the process of tracing the graduated students for payment back purposes.

## **Conclusion**

This study focuses on loan or scholarship application processing, emphasizing on the information management perspectives, specifically the way the educational funding institution manages loan application processes. From the information management point of view, this study identifies several flaws in loan application processing. One of the apparent problems is the time taken for processing application forms. Since the number of staffs that have to deal with the applications is small, the processing time is bound to increase as the number of applicants increases from year to year. Therefore, the importance of automation system in loan application processing is undeniable. Consequently, once the automatization of the information system takes place, the paper-based management can be transformed into paperless management which form web based office automation system. In effect, the cost of providing application forms is reduced and the number of staff required is minimal.

However, as the result to overcome lacking in existing information system, an intelligent information system has been presented in this study. The system consists of web based automation system, artificial neural network and knowledge-based system. Web based office automation system is useful that it may ease the loan application process. The form application can be filled up and submitted through online. As an application submitted, the information will automatically be stored into the system database. For initial screening purpose, the merit calculation for each application can be done automatically whenever the management needs the information. ANN can be used to predict an application is to be accepted or rejected. This can be done as ANN has trained previous batch of loan application data and stored association between application characteristics (attributes) that explains which applications were accepted and rejected. From experiment of data training that had been conducted in this study, it was shown that ANN has achieved satisfactory result with 99.06% classification accuracy. The result indicates that ANN has strong potential as a forecasting technique in classifying educational loan application. Meanwhile the integration of knowledge-based system can provide advisory services to the management in loan approval decision making. The system consists of rules that explicitly explain why an application is recommended to be accepted or rejected. Nevertheless, the final decision is based on the management whether to agree or disagree with the system's recommendations.

By integrating this system into any funding institutions' systems, inevitably it can ease the decision-making for the institutions especially in the loan process application. This system can also assist in screening for eligible applicant. Hence, with integration of those three systems in funding institution information system, the institution would be able to improve its services and reduce the time, cost and manpower to manage loan application process.

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# Optimal Learning Path in Distance Learning using Neuro-Fuzzy Approach

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## Abstract

Internet evolution has affected all industrial, commercial, and especially learning activities in the new context of e-learning. Due to cost, time, or flexibility, e-learning has been adopted by participators as an alternative training method. By development of computer-based devices and new methods of teaching, distance learning has been emerged. The effectiveness of such program is depended on powerful learning management systems. In this paper, a neuro-fuzzy approach is proposed based on evolutionary technique to obtain an optimal learning path for each learner. Therefore, the neural network approach has been applied to make personalized curriculum profile based on individual learner requirements in a fuzzy environment. **Keywords: e-learning, optimal path, distance learning, neuro-fuzzy**

## Introduction

Internet has significantly impacted the establishment of Internet-based education, or e-learning. Internet technology evolution and e-business has affected all industrial and commercial activity and accelerated e-learning industry growth. It has also fostered the collaboration of education and Internet technology by increasing the volume and speed of information transfer and simplifying knowledge management and exchange tasks. E-learning could become an alternative way to deliver on-the-job training for many companies, saving money, employee transportation time, and other expenditures. An e-learning platform is an emerging tool to corporate training. Employees can acquire competences and problem solving abilities via Internet learning for benefits among business enterprises, employees, and societies while at work.

Currently e-Learning is based on complex virtual collaborative environments where the learners can interact with other learners and with the tutors or the teacher. It is possible to give to the learner's different synchronous and asynchronous services. The former group includes virtual classrooms and individual sessions with the teacher or tutors. The latter group includes the classic didactic materials as well as Web-based seminars or simulations always online. These functions can be usually accessed by the means of software platforms called Learning Management Systems (LMSs). Among the other functions, the LMS manages learners, keeping track of their progress and performance across all types of training activities. It also manages and allocates learning resources such as registration, classroom and instructor availability, monitors instructional material fulfillment, and provides the online delivery of learning resources.

User and student modeling is a fundamental mechanism to achieve individualized interaction between computer systems and humans [Paiva, A., 1995]. It is usually concerned with modeling several user related issues, such as goals, plans, preferences, attitudes, knowledge or beliefs. The most difficult task in this context is the process of interpreting the information gathered during interaction in order to generate hypotheses about users and students behavior [Paiva, A., 1995], and involves managing a good deal of uncertainty. Interactive computer systems deal in general with more meager and haphazardly collected users' data than it usually happens when humans are engaged in face-to-face interaction [Jameson, A., 1996]. Thus, the gap between the nature of the available evidence and the conclusions that are to be drawn is often much greater [Jameson, A., 1996]. Numerical techniques have been employed in several cases in order to manage uncertainty, [Beck, J., Stern, M., Woolf, B.P.,

1997; Conati, C., Gertner, A., Vanlehn, K., 2002; Hawkes, L.W., Derry, S.J., 1996; Herzog, C., 2005; Katz, S., Lesgold, A., Eggan, G., Gordin, M., 1992; Lascio, L.D., Gisolfi, A., Loia, V., 1998; Panagiotou, M., Grigoriadou, M., 1995], and neural networks have been used in order to add learning and generalization abilities in user models and draw conclusions from existing user profiles [Chen, Q., Norcio, A.F., Wang, J., 2000; Harp, S.A., Samad, T., Villano, M., 1995; Magoulas, G.D., Papanikolaou, K.A., Grigoriadou, M., 2001; Mengel, S., Lively, W., 1992; Mengel, S., Lively, W., 1990; Posey, C.L., Hawkes, L.W., 1996; Stathacopoulou, R., G.D. Magoulas, M. Grigoriadou, 1999; Yasdi, R., 2000].

According to Self, [Self, J., 1991], student modeling is the process of creating and maintaining student models. It is divided into the design of two different but tightly interwoven components [VanLehn, K., 1988]: (1) the student model which, in its simplest form, is a data structure that stores information about the student; (2) the diagnostic module which performs the diagnostic process that updates the student model. Student models are distinguishing features of Artificial Intelligence, (AI), based computer-based instructional systems.

This work focuses on an application of student modeling in Intelligent Learning Environments (ILE). ILEs are considered as generalization of traditional Intelligent Tutoring Systems (ITSs), which are based on objectivist epistemology, and embrace instructional environments that make use of theories on constructivism and situated cognition [Akhras, F.N., Self, J.A., 2002]. Naturally, a ground for building student models for ILEs is provided by research conducted in the area of ITSs [Brusilovski, P., 1994]. The student model-centered architecture is also proposed for ILEs in order to support student driven learning and knowledge acquisition [Brusilovski, P., 1994].

Ideally, the student model should include all the aspects of student's behavior and knowledge that have repercussions for their performance and learning [Wenger, E., 1987]. In practice, the contents of the student model depend on the application. It includes learner goals and plans, capabilities, attitudes and/or knowledge or beliefs, and is used as a tool to adapt ILE's behavior to the individual student [Holt, P., Dubs, S., Jones, M., Greer, J., 1991]. Inferring a student model is called diagnosis because it is much like a medical task of inferring a hidden physiological state from observable signs [VanLehn, K., 1988], i.e. the ILE uncovers the hidden cognitive state (student characteristics) from observable behavior.

Evidence shows that human teaching is not based on fine-grained diagnostic behavior [Reusser, K., 1996]. In particular, studies in human tutoring have found little evidence to suggest that human tutors build detailed cognitive models as a basis for understanding student performance and adapting their tutoring strategy [McArthur, D., Stasz, C., Zmuidzinas, M., 1990; Putman, R.T., 1987]. More recently, researchers have tried to identify the constructs that tutors use to classify and discriminate among different students states for the purpose of adapting tutoring to student individual differences [Derry, S.J., Potts, M.K., 1998].

The neural network-based fuzzy model presented in this paper investigate the optimal path for a student in a distance learning educational system based on items such as capabilities, attitudes, knowledge level, motivation and learning style. Fuzzy logic is used to provide a mode of qualitative reasoning, which is closer to human decision making since it handles imprecision and vagueness by combining fuzzy facts and fuzzy relations, whilst neural networks provide a convenient way to achieve adaptability of the diagnostic process for reasoning and judgments.

## **Fuzzy and Neural Approaches to User (Instructor) and Student Modeling**

As already mentioned a variety of numerical techniques have been employed in user and student modeling systems in order to handle the imprecise information provided by the users, and reason under vagueness and uncertainty; a comparative review of techniques can be found in [Jameson, A., 1996]. For example, Bayesian networks have been successfully used to relate in a probabilistic way user's knowledge and characteristics with user's observable behavior. The key to success with all Bayesian network models lies in accurately representing the probabilistic dependencies in the task domain [Conati, C., Gertner, A., Vanlehn, K., 2002]. Fuzzy logic techniques have also been used for this task effectively. When considering the use of such techniques in a user or student modeling system, the addressed arguments do not concern in principle the question of whether or not fuzzy logic provides accurate or useful results by rather the usability of fuzzy logic techniques in the design of the specific system, in terms of

knowledge engineering requirements, programming effort, empirical model adjustment, computational complexity, human-likeness, interpretability and justifiability [Jameson, A., 1996].

One of the first attempts in using fuzzy student modeling has been made by Hawkes et al. [Hawkes, L.W., Derry, S.J., 1996]. In this context fuzzy logic has been proposed as a flexible and realistic method to easily capture the way human tutors might evaluate a student and handle tutoring decisions, which are not clear-cut ones. Clearly, the capability to deal with such imprecision is a definite enhancement to both ITSs and ILEs. This approach, which has been revised some years later [Hawkes, L.W., Derry, S.J., Rundensteiner, E.A., 1990], was used to evaluate students in a system called TAPS, and applied degrees of membership to linguistic labels that match student's solutions to "acceptable" solutions with the use of informal fuzzy reasoning.

Towards this direction, several other attempts have been proposed in the literature. In Sherlock II [Katz, S., Lesgold, A., Eggen, G., Gordin, M., 1992] and in the MDF tutor [Beck, J., Stern, M., Woolf, B.P., 1997] the uncertainty in student's performance was managed using fuzzy distributions and a set of rules for their formulation and update. Several other systems have been employed based on fuzzy logic concepts. In an ITS for the physics domain, the, so called, "Knowledge and Learning Student Model" [Panagiotou, M., Grigoriadou, M., 1995] has been proposed to infer student's knowledge level and cognitive abilities through processing and aggregating membership functions that represent teacher's assessments. Fuzzy rules have been proposed in the BSS1 tutoring system [Warendorf, K., Tsao, S.J., 1997] to implement a general fuzzy logic engine that can better manage student's learning, and in SYPROS [Herzog, C., 1994] to help determine student's plans. A fuzzy algebraic structure has been proposed as a dynamic model of user's states during navigation to monitor cognitive variables of the user model in a multimedia tutoring system [Lascio, L.D., Gisolfi, A., Loia, V., 1998].

The development of fuzzy logic in user or student modeling systems was motivated largely by the desire to make the arbitrary specification of precise numbers unnecessary [Jameson, A., 1996]. For certain types of problems, such as learning to interpret complex real-world sensor data, neural networks are among the most effective learning methods currently known [Mitchell, T.M., 1997]. In the user or student modeling field, neural networks have been proposed in the literature mainly due to their ability to learn from noisy or incomplete patterns of users' or students' behavior, generalize over similar cases, and then use this generalized knowledge to recognize unknown sequences [Chen, Q., Norcio, A.F., Wang, J., 2000; Yasdi, R., 2000]. Particularly in student modeling, neural networks have been originally proposed to simulate student's cognitive process of performing subtraction with the aim to predict student's responses and errors [Mengel, S., Lively, W., 1992].

A problem, which comes up when trying to apply a neural network in modeling human behavior, is knowledge representation [Yasdi, R., 2000]. The fact that student models need to be inspectable, [Wenger, E., 1987], explains the small number of neural network-based student models as opposed to symbolic approaches [Sison, R., Shimura, M., 1998].

Neural networks and other numeric-based AI methods have been criticized as unable to support learning interactions because they only allow for implicit understanding [Self, J., 1995]. However, several attempts have been made to incorporate the powerful learning abilities of neural networks in existing student modeling systems taking advantage of synergies with other AI methods. A hybrid approach, where each node and connection has symbolic meaning, has been proposed in TAPS [Posey, C.L., Hawkes, L.W., 1996]. The back-propagation algorithm has been used to modify weights that represent importance measures of attributes associated with student's performance, in order to refine and expand incomplete expert knowledge. Another approach combining ideas from neuro-fuzzy systems has been proposed [Shi, Y., Mizumoto, M., Yubazaki, N., Otani, M., 1996]. In [Magoulas, G.D., Papanikolaou, K.A., Grigoriadou, M., 2001], the model of [Shi, Y., Mizumoto, M., Yubazaki, N., Otani, M., 1996] has been expanded to incorporate evaluation mechanisms that used multi-attribute decision making for synthesizing various judgments to estimate student's knowledge levels and personal characteristics in order to plan the content of a Web based course.

The proposed model allows exploiting and efficiently processing structured knowledge in the form of linguistic rules. Of course it is not always possible to elicit this knowledge from the teachers. Teachers, sometimes, although they can easily classify students by observing their actions, they cannot articulate rules that reproduce their decisions. In addition, teachers are able to classify students with respect to specific characteristics, whilst in the case of ILE-supported learning students' behavior cannot be defined accurately. To alleviate these problems, a neural

network-based implementation of the diagnostic process is adopted. Specialized neural networks are trained through examples of existing students' profiles, or using examples that represent teacher's experience.

Knowledge is represented by developing association of student's behavior patterns with particular characteristics through neural network learning and is expressed, if necessary, with fuzzy IF-THEN rules. Thus, it is possible to encode structured and non-structured knowledge.

#### **The Fuzzy-based Diagnosis System**

Student's observable behavior is considered important source of diagnostic evidence to both human tutors and ILEs. In the terminology of ILEs, student's behavior refers to a student's observable response to a particular stimulus in a given domain. The response, together with the stimulus, serves as the primary input to the student modeling system [Sison, R., Shimura, M., 1998]. The input can be an action or the result of that action, and can also include intermediate results [Sison, R., Shimura, M., 1998]. However, it is not generally clear what type of information is available during interaction, and which features of student's behavior should be selected as inputs to the diagnostic process. Human tutors obtain diagnostic information from observing what students would say and do, and how something is said and done, i.e. tone of voice, inflection, hesitancy, etc. [Derry, S.J., Potts, M.K., 1998]. Studies in human tutoring found that tutors use as diagnostic evidence for adapting their tutoring not only errors and student's responses to queries, but also features of interaction, e.g. the timing of student responses, the way of delivering a response and others [Derry, S.J., Potts, M.K., 1998].

In order to alleviate the problem of limited information that is caused by the restricted communication channel between student and ILE, our system implements a close monitoring mechanism of student's actions over time, where each response such as keystroke, mouse move or drag can be timed and recorded. In this manner student's observable responses are summarized into  $n$  groups. Each group contains information about student's behavior of a specific type of knowledge data, chronometric data, try data or navigation data. A teacher usually defines specific types of responses that enable him or her to discriminate among students with regards to a particular characteristic.

The set  $B = \{B_1, B_2, \dots, B_i, \dots, B_n\}$ , where  $B_i$  ( $i = 1, 2, \dots, n$ ) is a word or a sentence describing the  $i^{\text{th}}$  type of response that is observed, describes linguistically the  $k$  aspects of student's observable behavior that will serve as inputs to the diagnostic process. The term observable, here, stands for measurable. The  $n$  measured responses constitute a set of numeric information that represents student's behavior. Each type  $i$  ( $i = 1, 2, \dots, n$ ) takes its values in a set of positive numbers  $U_i$ . The numerical input  $X = \{x_1, x_2, \dots, x_i, \dots, x_n\}$ , where  $x_i \in U_i$  and  $U_i$  is the universe of discourse of the  $i^{\text{th}}$  input; each  $U_i \subset \mathfrak{R}^+$  ( $i = 1, 2, \dots, n$ ) represents the measured values of  $B_i$  and formulates an input to the diagnostic process.

The output of the diagnostic process updates the student model regarding  $L$  different student learning characteristics  $H_1, H_2, \dots, H_L$ , such as student's abilities, motivation or learning style. Student's evaluation regarding each characteristic  $H_l$  ( $l = 1, 2, \dots, L$ ) is described qualitatively with the use of linguistic values. Depending on the  $l^{\text{th}}$  characteristic we use a different number  $m_l$  of linguistic values that describe  $H_l$  ( $l = 1, 2, \dots, L$ ). Student's evaluation regarding each characteristic is assessed by processing the numerical input  $X = \{x_1, x_2, \dots, x_i, \dots, x_n\}$ , of student's behavior. The process consists of three stages: fuzzification, inference, and defuzzification (see Fig. 2). In the first stage a qualitative description of student behavior is obtained by transforming the numeric input data into linguistic terms. The  $i^{\text{th}}$  fuzzifier  $i = (1, 2, \dots, n)$  transforms the numeric input  $x_i$  into membership degrees of the linguistic values that describe  $B_i$ . In the second stage, the inference process provides a fuzzy assessment of student's characteristics,  $H_1; H_2; \dots; H_L$ , by assessing membership degrees to the linguistic terms that describe each characteristic  $H_L$ . To this end, an ensemble of specialized fuzzy systems, where each system infers about a particular characteristic  $H_L$  is used to make a fuzzy assessment from a fuzzy precondition. A fuzzy system of this type combines linguistic values and realizes fuzzy relations operated with the *max-min* composition. These relations represent the estimation of a human tutor to the degree of association between an observed input  $X = \{x_1, x_2, \dots, x_i, \dots, x_n\}$ , and a fuzzy assessment of a particular student characteristic  $H_l$  ( $l = 1, 2, \dots, L$ ). Finally, in the third stage, the fuzzy assessments are defuzzified to non-fuzzy values, i.e. evaluation

decisions for the characteristics  $H_1, \dots, H_L$  by using a defuzzifier from the ensemble of the  $Q$  defuzzifiers. Each defuzzifier has a different number of inputs. Therefore, depending on the number of linguistic values  $m_l$  of each characteristic  $H_l$  ( $l= 1, 2, \dots, L$ ) a different defuzzifier  $Q$  is used in order to evaluate student's characteristic.

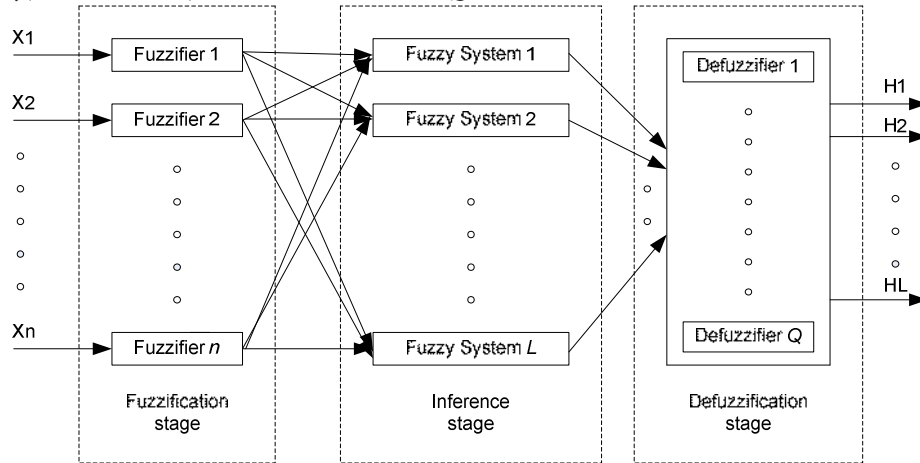


FIG. 1: SCHEMATIC OF THE FUZZY DIAGNOSIS MODEL

#### Fuzzification Stage for Fuzzy Knowledge Representation

This stage represents in linguistic form teacher's subjective description of student's responses when acting face-to-face communication during instruction (e.g. the time needed to solve the exercises was short; the student answered enough questions during instruction). The types of responses  $B_1, \dots, B_i, \dots, B_n$  are treated as linguistic variables. Each variable  $B_i = (i= 1, 2, \dots, n)$  can take different number of linguistic values  $f_i$ . The number  $f_i$  of the linguistic values and their names  $V_1, V_2, \dots, V_{f_i}$  are defined by the developer with the help of experts, and depend on each variable. The set  $T(B) = \{V_{i1}, V_{i2}, \dots, V_{if_i}\}$  is the term set of  $B_i$ . For example, let us consider the linguistic variable  $B_i =$  "time on task". The corresponding term set could be  $T(B_i) = T(\text{time on task}) = \{Short, Normal, Long\}$  including three ( $f_i=3$ ) linguistic values, or any classification such as  $T(B_i) = T(\text{time on task}) = \{Very Short, Short, Normal, Long, Very Long\}$  including five ( $f_i=5$ ) linguistic values, depending on the required resolution.  $T = \{T(B_1), \dots, T(B_i), \dots, T(B_n)\}$  is the set of all term sets that represent the overall observable behavior  $B$  (for all  $B_i; i = 1, 2, \dots, k$ ). Thus, the numeric input  $X = \{x_1, x_2, \dots, x_i, \dots, x_n\}$ , that represents the measured values of  $B_1; \dots; B_i; \dots; B_n$  is fuzzified by means of linguistic values  $V_{11}, V_{12}, \dots, V_{1f_1}; V_{i1}, V_{i2}, \dots, V_{if_i}; V_{n1}, V_{n2}, \dots, V_{nf_n}$ . Hence, the student behavior  $B$  is represented as a set of numeric values  $Y = \{(y_{11}, y_{12}, \dots, y_{1f_1}), \dots, (y_{i1}, y_{i2}, \dots, y_{if_i}), \dots, (y_{n1}, y_{n2}, \dots, y_{nf_n})\}$  in  $[0,1]$ , which represent the degree of membership of each numeric value  $x_i$  ( $i = 1, \dots, n$ ) into the term set of  $B_i$  with linguistic values  $V_{i1}, V_{i2}, \dots, V_{if_i}$ .

#### Inference Stage for Fuzzy Knowledge Representation

This stage represents teacher's reasoning in categorizing students qualitatively according to their abilities and personal characteristics, such as attentive, rather slow, good, etc. Teachers' can provide a series of IF-THEN rules that approximates their reasoning. For example, *if the time spent to read the theory is short and the number of correct answers is high, and few attempts to find the correct answers have been made then the student learning rate is fast.*



In our model, a qualitative description of student's characteristics  $H_1, H_2, \dots, H_L$  is performed by treating student's characteristics as linguistic variables. Each linguistic variable  $H_L$  can take a different number of linguistic values  $m_l$ .  $T(H_l) = \{H_{l1}, H_{l2}, \dots, H_{lm_l}\}$  is the term set of  $H_l$ . The expert-teachers set the number  $m_l$  of the linguistic values and their names  $H_{l1}, H_{l2}, \dots, H_{lm_l}$  for each characteristic  $H_l$  according to their personal judgment. For example, if we treat the linguistic variable  $H_1$  "learning rate of the student" using five linguistic values ( $m_1=5$ ) then the term set could be:  $T(H_1) = T(\text{learning rate}) = \{\text{Slow, Rather Slow, Normal, Almost Fast, Fast}\}$ . In this way, a mode of qualitative reasoning, in which the preconditions and the consequents of the IF-THEN rules involve fuzzy variables [64], is used to provide an imprecise description of teacher's reasoning:

*IF  $B_1$  is  $V_{1I_1}$  AND  $B_2$  is  $V_{2I_2}$  ... AND  $B_n$  is  $V_{nI_n}$  THEN  $H_1$  is  $H_{1L_1}$  AND  $H_2$  is  $H_{2L_2}$  ... AND  $H_L$  is  $H_{LL_L}$*

where  $I_1 = 1, 2, \dots, f_1; I_2 = 1, 2, \dots, f_2; I_n = 1, 2, \dots, f_n; L_1 = 1, 2, \dots, m_1; L_2 = 1, 2, \dots, m_2; L_L = 1, 2, \dots, m_L$ .

All possible combinations in the preconditions, denoted as PCP below, are represented by the Cartesian product of the sets in  $T = \{T(B_1), T(B_2), \dots, T(B_n)\}$ :  $PCP = T(B_1) \times T(B_2) \times \dots \times T(B_n)$ , and the number

$N = f_1 \times f_2 \times \dots \times f_n$  of possible cases in the preconditions equals to the number  $N$  of elements of PCP. Each fuzzy system  $l$  (see Fig. 2) infers a fuzzy assessment of a different characteristic  $H_l$  ( $l = 1, 2, \dots, L$ ). Within each fuzzy system, the intersection (corresponding to the logical AND) between the membership functions associated with the linguistic values of each precondition is the *min* operation, and results in the numerical truth-value  $p_n$  of the precondition. Thus, student's current behavior is described by a vector  $P = [p_1, p_2, \dots, p_n]$ , where  $p_1, p_2, \dots, p_n$  are in the interval  $[0,1]$ , representing degrees of fulfillment of preconditions. By means of a fuzzy relation, [44,45], as described below,  $P$  is translated into fuzzy assessments by exploiting teacher's subjective judgments (denoted by the symbol  $R_l$  in the relation right below) with respect to a characteristic  $H_l$

$$P \circ R_l = H_l,$$

where  $H_l$  is an  $m$ -dimensional vector  $H_l = [h_{l1}, h_{l2}, \dots, h_{lm_l}]$  with  $h_{l1}, h_{l2}, \dots, h_{lm_l}$  in  $[0, 1]$  representing the fuzzy assessment of student's characteristic  $H_l$ , i.e. an assessment with membership degrees  $h_{l1}, h_{l2}, \dots, h_{lm_l}$  on each linguistic value ( $H_{l1}, H_{l2}, \dots, H_{lm_l}$ ) of the linguistic variable for the characteristic  $H_l$ ;  $R_l$  is a  $n \times m_l$  weight matrix representing teachers' estimations of the degree of association between precondition  $P$  and the linguistic values of student's characteristic  $H_l$ ; the symbol  $\circ$  denotes the *max-min* composition operator.

#### Defuzzification Stage

This stage represents teacher's final decision in classifying a student in one of the predefined linguistic values  $H_{l1}, H_{l2}, \dots, H_{lm_l}$  of the characteristic  $H_l$ . This process is performed by weighting the fuzzy assessment. Depending on the number of linguistic values  $m_l$  of each characteristic  $H_l$ , we use an appropriate defuzzifier from the ensemble, i.e. implementing a different defuzzification procedure that "imitates" a teacher's subjective decisions. Teacher's decisions may be clear-cut or marginal.

#### Neural-network Based Implementation of the Fuzzy Model

##### Fuzzification

Depending on the linguistic variable  $B_i$  and the linguistic value  $V_{i1}, V_{i2}, \dots, V_{if_i}$ , we subjectively define different membership functions, which assign to each element  $x_i$  of the universe of discourse  $U_i$  ( $1, \dots, n$ ) a degree of membership  $y_{if_i}(x_i)$  to the linguistic value  $V_{if_i}$  of  $B_i$ . In this way they contribute to the semantic rule that associates each linguistic value  $V_{if_i}$  of  $B_i$  with its meaning [Zadeh, L.A., 1972]. In general, the form of a membership function depends on experts opinions [Zadeh, L.A., 1965].

In our case, we have adopted an approach that simplifies the implementation by approximating the membership functions using a library of regular shapes and implementing the fuzzifier stage as a group of fixed weight neural networks that calculate such regular shapes. Since membership functions are subjective and generally

context-dependent, [63], a set  $M = \{m_1, m_2, \dots, m_n\}$  of parameters that adjust the membership functions [53] is defined to allow a range of adaptations to teacher's subjective judgments. Thus, for each one of the linguistic values of the set  $T = \{T(B_1), T(B_2), \dots, T(B_n)\}$ , the fuzzifier stage calculates the output  $Y$  of numeric values in  $[0, 1]$  based on the input vectors  $X = \{x_1, x_2, \dots, x_i, \dots, x_n\}$ , and  $M = \{m_1, m_2, \dots, m_n\}$

$$Y = \left\{ \left\{ y_{11}(x_1, m_1), y_{12}(x_1, m_1), \dots, y_{1f_1}(x_1, m_1) \right\}, \left\{ y_{21}(x_2, m_2), y_{22}(x_2, m_2), \dots, y_{2f_2}(x_2, m_2) \right\}, \dots, \left\{ y_{n1}(x_n, m_n), y_{n2}(x_n, m_n), \dots, y_{nf_n}(x_n, m_n) \right\} \right\}$$

Thus, in our implementation, shown in Fig. 2, we have used sigmoid functions ( $\alpha$ ) as membership functions for the extreme linguistic values  $V_1, \dots, V_{f_i}$ , and the pseudo-trapezoidal function (composed of two sigmoid functions) for the intermediate values,  $V_2, \dots, V_{f_{i-1}}$ ; the adjusting parameter  $m_i$  is the expected mean value of a measured value  $x_i$ , as estimated by the teacher of the specific teaching subject.

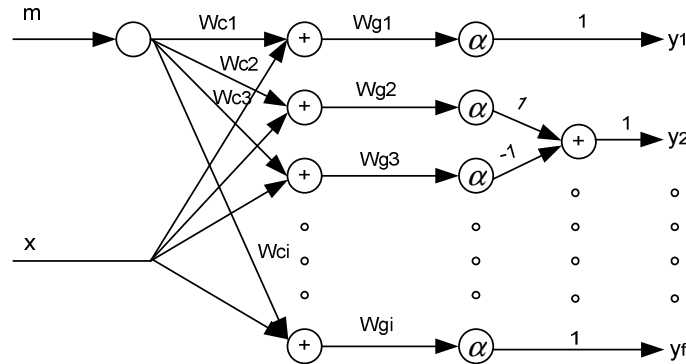


FIG. 2: THE IMPLEMENTATION OF A FUZZIFIER

Each fuzzifier  $i$  ( $i = 1, 2, \dots, n$ ) of Fig. 1 is implemented with a network of the type shown in Fig. 2. The network of Fig. 2 is used to calculate the membership grades of the linguistic values  $f_i$ , when  $x_i = x$  and  $m_i = m$ . The left and the right extreme fuzzy sets are given by

$$y_1(x, m) = \frac{1}{1 + \exp(-w_{g1}(x + w_{c1}m))}, \quad w_{g1} < 0;$$

$$y_f(x, m) = \frac{1}{1 + \exp(-w_{gi}(x + w_{ci}))}, \quad w_{gi} > 0;$$

where  $i = 2(f-1)$ . An intermediate set  $j$  is given by

$$y_j(x, m) = \frac{1}{1 + \exp(-w_{gi}(x + w_{ci}m))} - \frac{1}{1 + \exp(-w_{gi'}(x + w_{ci'}m))},$$

where  $j = 2, \dots, f-1$ ,  $w_{gi} > 0$ ,  $w_{gi'} > 0$  ( $i = 2(j-1)$ ;  $i' = i+1$ ).

In the above relations,  $x$  indicates the current measurement of the observed response;  $w_{ci}$  and  $w_{gi}$ , are defined in advance according to human teachers opinions;  $w_{ci} \cdot m$  ( $i = 1, \dots, 2(f-1)$ ), is the central position of the sigmoid function;  $w_{gi}$  ( $i = 1, \dots, 2(f-1)$ ) is the gradient of the sigmoid function.

### Inference Stage

The preconditions  $P = [p_1, p_2, \dots, p_n]$  are produced by a single layer of  $n, n = f_1 \times f_2 \times \dots \times f_n$ , nodes. The network realizes the intersection by performing the *min* operation on the membership functions ending at each node. Thus, each node is activated to the degree of the numerical truth value  $p_n$  of the precondition in  $[0, 1]$ .

Each fuzzy system  $l$  (see Fig. 1) contains a precondition layer and realizes a fuzzy relation  $P \circ R_l = H_l$  which is implemented by a two layer network with  $n, n = f_1 \times f_2 \times \dots \times f_n$ , input nodes and  $m_l$  output nodes. The output nodes perform the *max-min* composition and the synaptic weights  $r_{il} (i = 1, \dots, n; l = 1, \dots, m_l)$  are the elements of the  $R_l$  matrix.

### Defuzzification

We have used a neural network-based approach, which allows the system to adapt the defuzzification to individual teacher's opinion by training. A three layer neural network with  $m_l$  input and  $m_l$  output nodes and a hidden layer was trained with a modified back propagation algorithm that uses variable step size, called BPVS [Magoulas, G.D., Vrahatis, M.N., Androulakis, G.S., 1997]. Training the network results in encoding teachers' unstructured knowledge, and during operation the network acts as a "generalizer" that defuzzifies in a way that imitates teachers' decision procedure.

## The Proposed Neuro-Fuzzy Learning System for Students

Automatic definition of a model starting from of numerical data can be done efficiently through methodologies in the area of Soft-Computing, a new computing paradigm which synergically integrates different information processing methods, such as neural networks, fuzzy systems and evolutionary programming, in order to deal with uncertainty, typical of real-world domains, while preserving characteristics of processing and robustness. Especially, considerable work has been done to integrate the learning capabilities of neural network with explicit knowledge representation given by fuzzy systems, resulting in the neuro-fuzzy modeling approach [Arons, A.B., 1990].

As it is represented in Fig. 3 in this model, students are considered to choose the best curriculum for themselves regarding to the profile of each course and their requirements. The neural network is used to obtain student's curriculum within a distance learning educational system. In the former system a fuzzy based management (diagnosis) system is applied for the qualitative items in order to reach the optimal learning path for a student in such a system. The first layer, which is considered as the input layer, is the number of students who want to select the courses for a semester. The second layer is the number of courses that are offered in a semester. Those courses have instructors for varied levels of students, Strong; Moderate; Weak, i.e. students can choose a course with one of those instructors regarding to their capability as the following (if .... then) fuzzy rules that are being constructed in the management system:

- If a student chooses instructor with "strong" title then the weight is 3, •*
- If a student chooses instructor with "moderate" title then the weight is 2, •*
- If a student chooses instructor with "weak" title then the weight is 1, •*

And also students choose their courses regarding to the criteria such as capabilities, attitudes, knowledge level, motivation and learning style by their preferences according to TABLE 1:

TABLE 1: COURSE PREFERENCES AND THEIR RELATED NUMERICAL VALUES

Preferences	Numerical value
Extremely Preferred	9
Very Strongly Preferred	7
Strongly Preferred	5
Moderately Preferred	3
Equally Preferred	1
Preferences among the above preferences	2,4,6,8

The fourth layer shows the excessive facilities that the educational system provides for the students, such as e-library, e-lab, different workshops, and etc. The next layer is a fuzzy rule based diagnosis (management) system that is used to analyze the qualitative items. The last layer shows the optimal path for each student according to their own profiles.

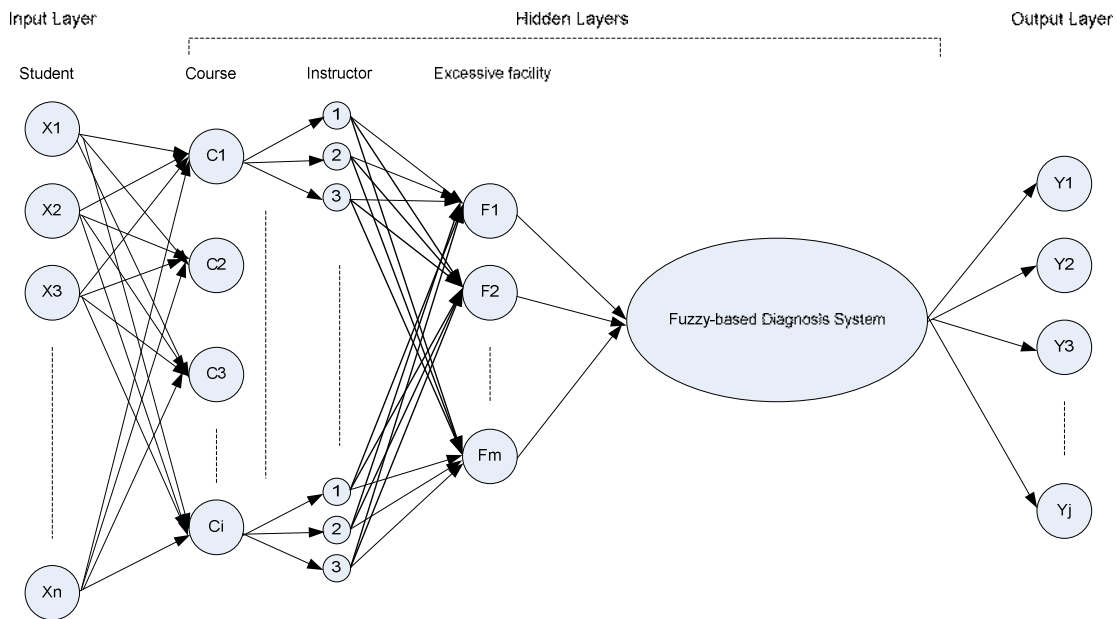


FIG. 3: THE NEURO-FUZZY LEARNING SYSTEM

Considering the above descriptions the optimal path for student is a path that enables a student to use the maximum amount of services that the educational system provides considering the students requirements and criteria.

**Mathematical Model**

Subscriptions:

- |     |                                  |                            |            |
|-----|----------------------------------|----------------------------|------------|
| $n$ | Number of students               | $n=1,2,3,\dots, N$         | Notations: |
| $i$ | Number of courses                | $i=1,2,3,\dots, I$         |            |
| $m$ | Number of excessive facilities   | $m=1,2,3, \dots, M$        |            |
| $j$ | Learning paths for each students | $j=1,2,3, \dots, J$        |            |
| $P$ | Level of instructor              | $p=Strong, Moderate, Weak$ |            |

- $X_n$       The  $n^{th}$  student
- $C_i$       The  $i^{th}$  course
- $F_m$       The  $m^{th}$  facility
- $Y_j$       The  $j^{th}$  path
- $W_i$       The weight for course  $i^{th}$
- $W_p$       The weight for instructor  $p^{th}$

Decision variables:

$$\psi_{ni} = \begin{cases} 1 & \text{If student } n \text{ choose the course } i \\ 0 & \text{O.W} \end{cases}$$

$$\phi_{nm} = \begin{cases} 1 & \text{If student } n \text{ use facility } m \\ 0 & \text{O.W} \end{cases}$$

$$\text{Max} \sum_i \sum_p (\sum_n W_i \psi_{ni} W_p + \sum_m \phi_{nm}) \tag{1}$$

S.t:

$$X_1 + X_2 + \dots + X_n = A \tag{2}$$

$$L \leq C_i \leq U \tag{3}$$

$$0 \leq F_m \leq M \tag{4}$$

Equation (1) is the objective function which presents the maximum service of the educational system that is the optimal learning path. Equation (2) specifies the number of students who try the course selection. Equation (3) identifies the lower and upper bound for course numbers. Equation (4) presents the number of facilities that the educational system prepare for being used by the students.

The noticeable parameters are  $W_i$  and  $W_p$  that are the weights of the criteria in the course selection. The  $W_p$  is based on the fuzzy rule-base engine that explained before but  $W_i$  s will be identified by a multi criteria decision making approach. In this paper the analytical hierarchy procedure (AHP) is applied to find the weights.

#### **Determining Weights by AHP Approach**

The analytical hierarchy procedure (AHP) is proposed by Saaty (1980). AHP was originally applied to uncertain decision problems with multiple criteria, and has been widely used in solving problems of ranking, selection, evaluation, optimization, and prediction decisions [Golden, Wasil, & Levy, 1989]. Harter and Vargas (1987) stated that ‘‘AHP is a comprehensive framework designed to cope with the intuitive, rational, and the irrational when we make multi-objective, multi-criteria, and multi-factor decisions with and without certainty for any number of alternatives.’’

The AHP method is expressed by a unidirectional hierarchical relationship among decision levels. The top element of the hierarchy is the overall goal for the decision model. The hierarchy decomposes to a more specific criterion a level of manageable decision criteria is met [Meade & Presley, 2002]. Under each criterion, sub-criteria elements relative to the criterion can be constructed. The AHP separates complex decision problems into elements within a simplified hierarchical system [Shee, D. Y., Tzeng, G. H., & Tang, T. I., 2003].

The purpose of the AHP enquiry in this paper is to construct a hierarchical evaluation system based on the independent factors as capabilities, attitudes, knowledge level, motivation and learning style, the AHP method could gain factor weights and criteria, and then obtain the final effectiveness of each course.

The AHP usually consists of three stages of problem solving: decomposition, comparative judgments, and synthesis of priority. The decomposition stage aims at the construction of a hierarchical network to represent a decision problem, with the top level representing overall objectives and the lower levels representing criteria, sub-criteria, and alternatives. With comparative judgments, users are requested to set up a comparison matrix at each hierarchy by comparing pairs of criteria or sub-criteria. A scale of values ranging from 1 (Equally Preferred) to 9 (Extremely Preferred) see Table 1, is used to express the users preference. Finally, in the synthesis of priority stage, each comparison matrix is then solved by an eigenvector method for determining the criteria importance and alternative performance. The following list provides a brief summary of all processes involved in AHP applications:

- Specify a concept hierarchy of interrelated decision criteria to form the decision hierarchy. .1
- For each hierarchy, collect input data by performing a pair wise comparison of the decision criteria. .2
- Estimate the relative weightings of decision criteria by using an eigenvector method. .3
- Aggregate the relative weights up the hierarchy to obtain a composite weight which represents the relative importance of each alternative according to the decision-maker's assessment. .4

One major advantage of AHP is that it is applicable to the problem of group decision-making. In group decision setting, each participant is required to set up the preference of each alternative by following the AHP method and all the views of the participants are used to obtain an average weighting of each alternative.

In this paper regarding to the stated criteria, the following hierarchy is proposed. The aim is to obtain the weight for each course to be used in the objective function of optimal path. The hierarchy is presented in Fig. 4.

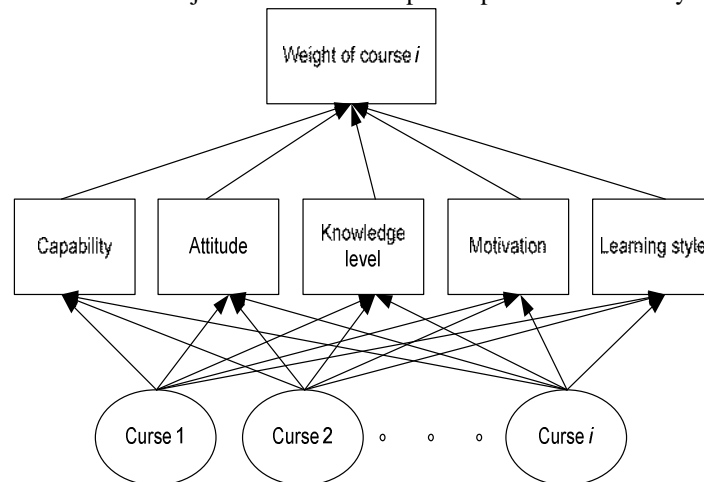


FIG. 4: THE HIERARCHY OF THE PROPOSED MODEL

According to Fig.4 the following matrix is used to calculate the weights ratio each of the criteria i.e. courses are evaluated ratio capabilities, attitudes, knowledge level, motivation and learning style based on the preference numbers ( $A_{bc}$ ) of the courses considering Table 1:

Matrix 1

Capability	Course 1	Course 2	Course <i>i</i>
Course 1	1	$A_{12}$	$A_{1i}$
Course 2	$1/A_{12}$	1	$A_{2i}$
·	·	·	·
·	·	·	·
Course <i>i</i>	$A_{i1}=1/A_{i1}$	$A_{2i}=1/A_{i2}$	1

The same matrix is used for other criteria (attitudes, knowledge level, motivation and learning style) we call this dual comparison of courses. After calculating the above matrixes, a matrix that indicates the weights ( $W_{bc}$ ) of the courses for the mentioned criteria is formed as follows:

Matrix 2

	Capability	Attitude	Knowledge level	Motivation	Learning style
Course 1	$W_{11}$	$W_{12}$	$W_{13}$	$W_{14}$	$W_{15}$
Course 2	$W_{21}$	$W_{22}$	$W_{23}$	$W_{24}$	$W_{25}$
·	·	·	·	·	·
·	·	·	·	·	·
Course <i>i</i>	$W_{i1}$	$W_{i2}$	$W_{i3}$	$W_{i4}$	$W_{i5}$

After that the criteria dual comparison matrix is configured as follows:

Matrix 3

	Capability	Attitude	Knowledge level	Motivation	Learning style
Capability	1	$A_{12}$	$A_{13}$	$A_{14}$	$A_{15}$
Attitude	$1/A_{12}$	1	$A_{23}$	$A_{24}$	$A_{25}$
Knowledge level	$1/A_{13}$	$1/A_{23}$	1	$A_{34}$	$A_{35}$
Motivation	$1/A_{14}$	$1/A_{24}$	$1/A_{34}$	1	$A_{45}$
Learning style	$1/A_{15}$	$1/A_{25}$	$1/A_{35}$	$1/A_{45}$	1

Now we reached the weight of each criterion by the above matrix. Therefore, the weight for each course considering the criteria is achieved as follows:

$$\text{Total weight for course 1} = W_{11} \times W_C + W_{12} \times W_A + W_{13} \times W_K + W_{14} \times W_M + W_{15} \times W_L$$

$$\text{Total weight for course 2} = W_{21} \times W_C + W_{22} \times W_A + W_{23} \times W_K + W_{24} \times W_M + W_{25} \times W_L$$

·

·

$$\text{Total weight for course } i = W_{i1} \times W_C + W_{i2} \times W_A + W_{i3} \times W_K + W_{i4} \times W_M + W_{i5} \times W_L$$

Where  $W_C$ = capability's weight,  $W_A$ = attitude's weight,  $W_K$ = knowledge level's weight,  $W_M$ = motivation's weight,  $W_L$ = learning style's weight, that are obtained by matrix 3. In this way the weights are calculated to be used in equation (1) and the optimal path for students will be identified after solving the simple mathematical model.

## Conclusions

In this paper a neuro-fuzzy model of the diagnostic process was proposed for inferring student characteristics and for identifying the optimal path of students in applying distance learning courses based on their profile. A main advantage of the new approach is that the neuro-fuzzy model allows creating an interpretable knowledge

representation, which can be developed on the basis of rules when reasoning is well defined, as well as it can be trained when the reasoning strategy is purely intuitive and ill-defined. In addition the model can be easily tailored to a teacher's personal view. This approach can be used to implement an open student model, which will be interactively adjusted by the teacher.

AHP approach is applied to find the optimal path in the proposed virtual learning environment based on the qualitative parameters regarding to the students characteristics. Our current work targets the extraction of knowledge from existing student profiles to drive model's adaptation during operation with the aim to adapt the feedback and pedagogical strategy to students' learning style. Future works will be about the implementation of the model and the experimental results which will represent the pros and cons of our model.

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## Online Services Delivered by NTO Portals: A Cross-Country Examination

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### Abstract

This study compares the online services currently delivered by the Official National Tourism Organisations (NTO) portals of the 25 EU states, to assess their capability in evolving into powerful marketing communication tools. A conceptual framework that identifies 129 online service quality attributes is developed based on the 2QCV3Q model (Mich and Franch, 2002) and on four different perspectives: *marketing*, *customer*, *technical* and *information for the destination* (So and Morrison, 2004). The 25 portals are compared by means of content analysis. Our rankings provide a first time assessment of the NTO online offerings and indicate high variability in their performance. Surprisingly, Greece and Italy, two of the most popular tourism destinations, underperformed with respect to all of the four perspectives examined. We provide out-of-sample evidence that affluence levels explain the variation in the observed scores, while e-readiness, popularity of tourism destination and cultural richness are not statistically significant.

### Introduction: the Role of National Tourism Organisations' Portals

Among the Destination Management Organisations (DMO), prominent is the role of the National Tourism Organisations (NTO<sup>1</sup>) in marketing a destination at a national level. Prior to the Internet era, the DMOs, have been rather passive and limited to the distribution of printed tourist promotional material on demand (So and Morrison, 2004; King, 2002). However, the adoption and the diffusion of e-commerce applications, has provoked unprecedented changes (Wöber, 2003). All the EU countries, have invested in the development of websites with different levels of interactivity (Morgan *et al.*, 2002). Essentially, these portals undertake the management of "content information" relating to a tourist destination, arriving from a wide variety of different sources (Turban *et al.*, 2004: 322). By assuming the role of on line brokers of information providers, they become responsible for matching cross culturally demand of individual tourists with the destinations' tourism service supply (Scharl *et al.*, 2004).

Different studies indicate that NTO portals should not be perceived exclusively as information seeking facilitators (Morgan *et al.*, 2002). Instead, they should aim to evolve into powerful interactive marketing communication tools (Griff and Palmer, 1999<sup>2</sup>; Cano and Prentice, 1998) that have the potential to enhance the overall attractiveness of a travel destination and to evoke an optimal experience for their on line users, offering to different customer groups' superior value (Nysveen *et al.*, 2003). However, while the trend of internet being the first point of embarkation for prospect tourists is gaining *momentum* (Buhalis and Licata 2002) and the presence of NTOs through internet is becoming better established (Feng *et al.*, 2002), there is still a *paucity* of research regarding the online offerings and the internet marketing strategies undertaken from them.

Under the recognition that it is important to examine NTOs in an *exploratory way*, where the dimensions of online quality from a customer perspective will serve as a framework, this study compares the official European NTO portals online offerings. The aim is to examine what information and services of value added each of the 25 EU NTO portals is offering and what do these offerings reveal regarding the underlying internet marketing strategies currently adopted. To this end, as first objective, there were identified the online services that may facilitate the tourist search, evaluation of information and purchase of services via the NTO sites, based on a deep inspection of the e-SQ literature (paras 2-3). Secondly, these portals were compared by means of content analysis (paras 4-6), in order to document what information and online services currently are provided, allowing to make inferences as to up to which extent they are using their potential as customer-led marketing tools.

## Extant Approaches in Measuring E-service Quality

The way e-SQ is conceptualized is still at an exploratory stage. Researchers not only have tried to combine known dimensions that influence product quality and SQ, but also to discover some unique factors, relevant to the virtual operations only. The e-SQ attributes seem to depend on the level of web-based technology readiness of the different users (Zhu *et al.*, 2002) and do not to demonstrate a linear relationship, since “more” of an attribute is not necessarily perceived as better (O’Neill *et al.*, 2001).

In order to define e-SQ, some authors take into account both the *pre* and *post* web sites services aspects (Santos, 2003; Liu and Arnett, 2000), while others consider only the interaction with the site itself (Zeithaml *et al.*, 2002). Additionally, in contrast to the traditional service offerings, online users tend to regard e-SQ more as an universal concept, deriving from their overall online experience, rather than from sub-processes (Van Riel *et al.*, 2001).<sup>3</sup> The *focus* of each individual research (e.g. consumer buying procedure), as well as the *types of web sites* used (e.g. portals, retailing sites, etc.); determine how the definition of e-SQ may be conceptualised (Kim *et al.*, 2006). Given that the NTO portals’ core activity is to help customers at different stages in the information search process, the definition of website quality used in this study is based on the concept of value added services as provided by Nysveen, (2003) and Lexhagen (2005): “Services giving access to various forms of information about the tourism products offered on a website”, disregarding approaches tailored for e-commerce shopping (Zeithaml *et al.*, 2002), or based on an ex-ante definition of e-services (Santos, 2003: 235).

Not only defining, but also measuring the multidimensional construct of e-SQ continues to generate increased academic debate. Many different scales have been proposed during the last eight years based on different classifications of quality dimensions and attributes (O’Neill *et al.*, 2001; Madu and Madu, 2002; Zhu *et al.*, 2002; Yoo and Donthu 2001; Santos, 2003; Zeithmal *et al.*, 2002; Parasuraman *et al.* 2005, etc.), either emphasizing the *human and soft* elements of service quality or the *technical dimensions* of on line efficiency, or both (Sigala, 2004).

An extended framework, which incorporates many of the e-SQ dimensions proposed by previous approaches, has been developed by Madu and Madu (2002). Their model included some of the product quality dimensions according to Garvin (1984), as well as the 5 quality dimensions of the SERVQUAL scale (Parasuraman *et al.*, 1988), while it identified some unique, new dimensions, appropriate only for virtual contexts. Even if the proposed dimensions have never been tested empirically, it is interesting the evolutionary approach it adopts, encompassing both product and services features.

Barnes and Vidgen (2000)<sup>4</sup> based on 54 students’ evaluations of British online bookstores, have extended the SERVQUAL scale of Parasuraman *et al.*, (1988) to an online context, encompassing softer service related attributes by introducing 24 different measurement items under their index named WebQual. They focused on the following aspects: *reliability, competence, responsiveness, access, credibility, communication and understanding*. Later on, Loiacono *et al.*, (2002)<sup>5</sup> proposed the WebQual<sup>TM</sup> scale which emphasised again the technical aspects of the website in the evaluation of its online quality, developing 12 web design features. This approach has been criticised by Zeithaml *et al.*, 2002 and Parasuram *et al.*, 2005, for having limited capabilities in capturing important quality dimensions (e.g. “fulfilment”, customer service), since these scales have been produced by using convenience samples of students rather than actual online purchasers. A further drawback derives from the fact that the participating students have rated researcher specified categories that had not emerged through a qualitative study.

Parasuramam *et al.*, (2005) recently have developed the well known E-S-QUAL model. Under the latter, e-service quality dimensions have been divided into 7 categories: efficiency, fulfilment, privacy, service recovery dimension, compensation, contact. A recent application of the E-S-QUAL model has been undertaken by Kim *et al.*, (2006) which evaluated the performance of 111 US apparel retail websites in providing on line service attributes that facilitate efficient and effective shopping, purchasing and delivery of garments. Such on line service attributes were examined by means of content analysis, by considering the E-S-QUAL categories, accommodated to include other dimensions: *personalisation, information and graphic style*, regarded relevant for the specific retail context. Overall, it was found that the e-SQ level of the sample companies was unsatisfactory.

## Empirical Literature on DMO

Previous studies have investigated tourism websites from three different perspectives: a) from a business, b) from a customer perspective and c) a combination of the previous two. The former implies that the on line quality is evaluated as superior according to where the business is in the transformation process: *if a site is only informative or whether it offers more advanced features such as on line booking services, etc.* (Hart *et al.*, 2000<sup>6</sup>; O' Connor, 1999<sup>7</sup>; Doolin *et al.*, 2002). Representatives of this strand: Doolin *et al.*, (2002), extended and applied an internet commerce adoption metric (eMICA) developed by Burgess and Cooper (2000)<sup>8</sup> for bench marking the relative maturity of 26 New Zealand's Regional Tourism Organisations (RTO) websites and concluded that the majority of them displayed moderate to high levels of interactivity. The customer perspective encompasses two different approaches: the former, assesses the websites according to their level of customer support during the information searching process, thus following a "consumer behavior theory"; whereas the latter, according to their level of design features superiority. Finally, under the last approach the business and customer perspectives are combined together, within different contingent evaluation frameworks, ranging from technical approaches, such as the Balanced Score Card (Morrison *et al.*, 1999; Ismail *et al.*, 2002; Feng *et al.*, 2002; So and Morrison, 2004), to more theoretical ones, such as the Marketspace model (Blum and Fallon, 2002), which emphasized the marketing mix and the customer relationships.

Moreover, so far, research in assessing websites effectiveness in the tourism sector, has been mainly focused on either a) opinions of experts of tourist services providers (Chung and Law, 2003; Hudson and Lang, 2002; Jung and Butler, 2000) or b) end users (tourists) evaluations (e.g. Jeong *et al.*, 2003, Tierney 2000<sup>9</sup>) or c) by applying quantitative measures (e.g. Scharl *et al.*, 2004, Wöber, 2003). Regardless of whether the end users or the tourist experts have been focused upon, both directions' research findings seem to converge in one common admittance: *the importance of the online content* in terms of richness of information, features and services (Huizingh, 2000; Scharl *et al.*, 2004; Cai *et al.*, 2004b) and *content quality* (Aladwani and Pavia, 2002) as critical success factor of tourism websites. In particular, as far as destination portals are concerned, their content has been broadly recognised (Doolin *et al.*, 2002, Cano and Prentice, 1998) as being responsible for creating the perceived image of the destination. Finally, there is also a recent research stream (Skadberg *et al.*, 2005; Chen and Wells, 1999, Hoffman and Novak, 1996<sup>10</sup>) who supports that since tourism is mainly experiential, the overall web site effectiveness depends on the flow experience of the online visitors in tourism destination websites.

It can be argued that even though different studies *did* include some DMO websites in their sample, very few have been focusing on the evaluation of them *per se* (Cano and Prentice 1998; Bauer and Reid, 2000<sup>11</sup>; Doolin *et al.*, 2002; Mich and Franch, 2002; Morrison *et al.*, 2002, Ismail *et al.*, 2002; So and Morrison, 2004). Moreover, only a few comparative studies have been carried out (Mich and Franch, 2002, 2003; Feng *et al.*, 2002, Ismail *et al.*, 2002; So and Morrison, 2004) and none of them has covered the enlarged EU as a whole. Namely, Cano and Prentice (1998) examined by means of content analysis, through a questionnaire survey addressed to 14 area tourist boards and 32 local authorities, 983 different Scottish websites and concluded that a variegated image of Scotland is promoted world wide, where the absence of a common communicative style and a distinctive design style contributed to the underselling of the whole Scotland as a tourist destination product.

Recently, Feng *et al.*, 2002, Ismail *et al.*, 2002 and So and Morrison, 2004, in three papers, by means of content analysis, compared the performance of DMO websites of different countries, based on the Balanced Scorecard Approach, developed by Kaplan and Norton (1996)<sup>12</sup>. These studies acknowledge tourism website performance in a holistic way, encompassing four different perspectives. The first study compared 36 Chinese DMO websites to 30 US DMO websites and concluded that the latter were superior in terms of marketing strategies and destination information provided. The second study examined website's information content and photos from a cultural point of view, while the third one compared 15 East Asian NTO sites, concluding that none of them had been particular effective as an online marketing tool.

Finally, Mich and Franch, 2002 have developed a meta-model 2QCV3Q, to compare the regional tourist boards (RTB) websites in the area of Alps. In their approach, quality of web site has been identified as the ability to satisfy the needs and objectives of all the online users involved. Their model by asking a set of questions identifies

seven dimensions of quality, according to which the tourism websites' overall quality was assessed, revealing a poor performance in terms of dissemination of information and use of modern technology.

From the above e-SQ and empirical literature, it can be concluded that regardless of the numerous different approaches developed through the last years, there still does not exist a detailed framework that provides a comprehensive understanding of e-SQ which could be used for the evaluation of websites and portals *independently* of sector of belonging. A common practice instead, has been to tailor the different e-SQ models according to the specific research areas each time. However, in the case of tourism websites, to the extent of our knowledge, no empirical study has defined and confirmed through surveys specific qualitative attributes which could be particularly relevant to the assessment of the NTO portals.

## Research Method, Sample and Coding Instrument

In order to carry out the comparative analysis of the online offerings of the NTO portals in EU, content analysis was used since it allows, from a customer perspective, to capture and quantify both the richness of the NTO's information content and the number of useful services provided to the customers, which in turn shape important e-SQ dimensions.

Our sample consists of the 25 EU Official National Tourism Organisations (NTO) portals, evaluated between June and July 2006. The latter organisations have been chosen, due to their unquestionable importance as primary suppliers of online information and services to market a destination and as coordinators of the other local/regional tourism authorities' initiatives (Ismail *et al.*, 2002; Cai *et al.*, 2004a). By observing the global tourism statistics (UNCTAD, 2005; WTO, 2005), in terms of number of international arrivals and volume of tourist receipts, it was decided to focus on the whole population of EU states NTO portals since it was confirmed that the majority of the most significant tourism markets (e.g. France, Italy, UK, Spain, Germany, Austria, etc) are found among those.

According to Weber (1985: 21–25), content analysis requires a process of creating and testing a coding instrument to know when a particular category occurs. This process includes the following: a) define the categories; b) define the recording unit; c) test code on a sample of text; d) assess reliability; e) revise the coding rules; f) repeat steps 3 to 5 until reliability is satisfactory; g) code all text; h) assess achieved reliability.

A prior-research driven approach (Boyatzis, 1998: p. 99) was followed in order to define the coding categories. The developed conceptual framework has emerged after taking into account the e-SQ literature discussed above and previous empirical studies on website evaluation. More analytically, the initial list of evaluation criteria was formed by incorporating the majority of the quality characteristics defined by the 2QCV3Q model (Mich and Franch, 2002), best practices recommended by the World Tourism Organisation (WTO, 2005) and a series of evaluation criteria used by Davidson and Yu, (2005), Kim *et al.*, (2006); Feng *et al.*, (2002); Ismail *et al.*, (2002) and So and Morrison, (2004) in tourism related websites evaluation studies. Together, it was generated a list of 129 attributes which were accommodated into 4 qualitative categories: *destination information, marketing, customer and technical perspective*, following the framework of the modified Balance Score Card, as applied by So and Morrison, (2004). The latter, was chosen due to its strong emphasis on customer service and marketing, both important features in evoking high levels of perceived e-SQ in tourism portals. Fig. 1 and Tab. 6 illustrate the four categories and the full list of items, respectively. The material analysed consisted of the English homepage including links, pictures and text information. However, links as hypertexts within a unique resource locator (URL) that would lead to a separate and independent web page, were not further considered. Neither it was analyzed information accessible to registered users.

TABLE 6: LIST OF PERFORMANCE ITEMS

	Frequency in percentage		Frequency in percentage
<b>Marketing perspective (43)</b>	<b>51</b>	Management of information	61
Segmentation	51	Option to search for lodging by type (e.g. stars)	72
No hotel lodging alternatives	88	Directions of how to reach destinations	36
Spa	92	List of "highlights" (e.g. main attractions)	56
Fitness	60	Option to request material on line	56
Dining per categories	48	Option to download on line	84
Nightlife	44	Printing options (e.g. full page, some areas etc.)	80
Kids corner	36	Audio	28
Youth section	32	Route planner	40
Business tourism	84	Interactive maps	92
City break	52	Information updated	52
Gay/lesbian	32	FAQ section	40
Religious tours	32	Advanced search engine	100
Wedding organisations	20	Ease of contact	61
Educational courses	36	NTO address	80
Thematic forms of tourism	52	NTO operating hours	28
Tangibility of destination	58	Web-master e-mail	84
Photos different landscapes, all regions	88	NTO telephone number	88
Maps	100	NTO fax number	76
Photo gallery	76	Call centre	12
Virtual tours	40	Navigability	73
Video clips	52	Graphic design changes for each different section	76
Web cams	12	Site map	68
E-cards	40	Advanced search engine	40
Branding	59	Link avoiding homepage	84
Environment statements	20	Link to homepage from all pages	80
Quality certification	28	Principal elements visible before entire loading	84
Logo in homepage	100	Web site visible without images loaded	80
Logo in other webpages	84	Accessibility	28
Information behind public entity	96	Information for disabled accessibility in hotels	68
URL among the first 5 findings	76	Portal version in "bigger fonts"	8
Site popularity	60	Seperate specialised accessibility section	8
Data on use	4		
Relationship marketing	34	<b>Destination information (35)</b>	<b>67</b>
Customised research	32	Culture	76
Feedback forms	44	Artistic heritage	100
Sharing of information to counterparters	52	Local culinary traditions	100
News letters	72	Local handicraft/trades	64
Send comments	8	Local famous people	68
View reviews	12	UNESCO listed sites	76
Travel plans favourites	36	Local events	84
Memory settings	12	Food recipes	40
Marketing research, customer database	55	General information	66
Links to lower level tourisit organisations	84	Popular sports	96
Tracking country of origin	52	Dining facilities	56
Portal versions according to country of choi	44	Natural assets	92
Registration within the site	76	Political information	64
Online surveys	24	Religion	68
On line competitions	48	Economic information	40
<b>Customer perspective (45)</b>	<b>47</b>	information	76
Privacy and trust	24	Geographical information	96
Identification of information source	24	Highlights for the next year	8
Un registration option	24	Practical information	65
Statements of personal data privacy	36	Public transportation	100
Terms of use	44	Car rental	72
Security certification	8	National public holidays	88
Last update date	8	Opening/business hours	76
Service integration	12	Pricing and payment methods	80
Accomodation booking on line	32	Currency information	76
Holiday package on line	8	Discounts	40
Air plane ticket on line	4	Custom/taxes information	68
Other facilities on line	12	Immigration/work permit	24
Track state of orders	8	Entry requirements	84
Virtual community	8	Real estate information	4
Service aggregation	47	Traffic & parking rules	68
Native language expression	28	Regulations for pets	52
Press office	60	Taxis	64
List of articles, books, guides	24	Voltage	72
Weather forecast	60	Embassies and consulates	36
Exchange convertor	64	International phone access code	76
		Climate	84
		Emergency numbers	68

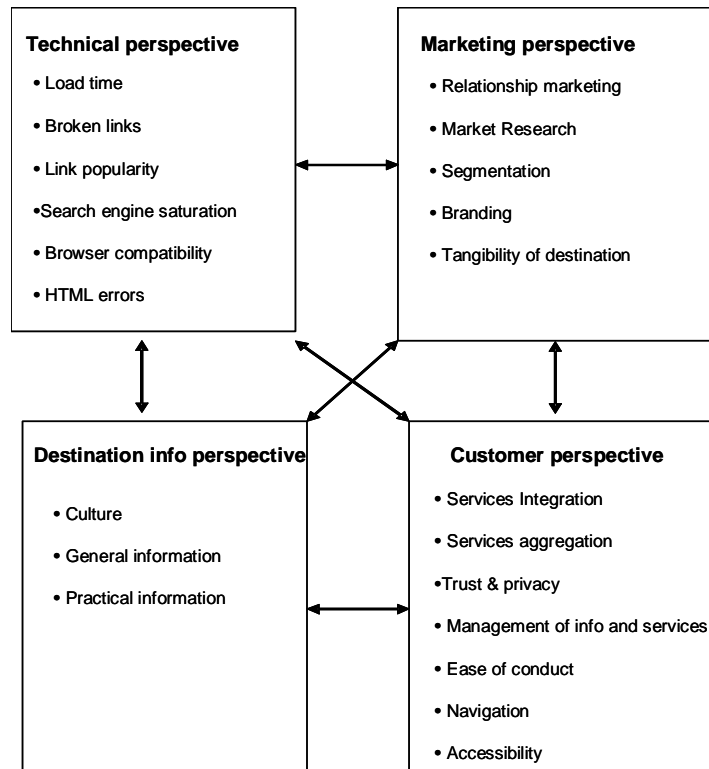


FIG. 1: BSC FRAMEWORK

## Reliability Assessment, Scoring System and Determinants of NTOs' Performance

In performing content analysis it is essential to refine the coding instrument until a satisfactory level of reliability is achieved (Krippendorff, 1980). From the three types of reliability. a) *stability over time*; b) *accuracy*; c) *inter-coder reliability*; the last has been demonstrated through the assessment of the coefficient of agreement and the Krippendorff's alpha coefficient. Two randomly chosen websites were analysed independently by the second author and 23 pairs of disagreement were found, out of a total number of 246 (123 criteria for each portal). This implied a coefficient of agreement of 0.90 per cent, well above the cut off value of 70 per cent recommended by the literature (Boyatzis,1998:156). Similarly, Krippendorff's alpha, has been found 81.29 per cent, again above the suggested limit.

The coding unit is represented by the single items. Contrary to web evaluation based on a Likert type scale (Davidson and Yu, 2005; Morrison *et al.*, 1999), a binary code (Mich and Franch, 2002; Feng *et al.*, 2002) was followed where a score of 1 was given if the item was available, and 0 if not. According to the coding instrument's rules, multiple references of the same item were ignored. Following coding, the overall score (*Score*) for each of the three categories (*j*) was quantified as follows:

$$Score_j = \sum_k S_k / TOTS \quad (1)$$

where: *j* = the perspective category, *j* = 1, 2, 3; *k* = the item subscript, *k* = 1, ...,129; *s<sub>k</sub>* = the number of items found in each NTO portal (answered as "yes"); TOTS = the total maximum number of possible items for each perspective (i.e 45 for customer perspective). Based on this score, each portal, within each of the 3 perspectives (marketing, destination information and customer), was ranked in a descending order from 1 to 25, with means assigned to ties. Only, in the case of the technical perspective, each portal has been ranked within each of the 6 technical criteria used, six different times (Tab. 1).

TABLE 1: TECHNICAL RANKINGS

NTO EU member state	HTML errors <sup>a</sup>		Compa tibility Problems <sup>b</sup>		Link Popularity <sup>c</sup>		Search Engine Saturation <sup>d</sup>		Down loaded time at 56K <sup>e</sup>		Broken Links <sup>f</sup>		Sum of Rankings
Netherlands	0	1	0	1	12.105	18	230.900	4	0,2	3	8	3	30,0
Poland	1	2	3	2	10.834	19	153.895	9	3,09	4	1	2	38,0
Czech Republic	3	4	8	7	76.155	7	96.028	12	0,02	1	21	8	39,0
Austria	1	2	14	12	101.019	3	145.404	10	19,37	13	17	6	46,0
Cyprus	2	3	3	2	17.937	15	58.818	14	18	11	0	1	46,0
Italy	6	7	12	10	56.231	8	2.492.975	2	17,76	10	26	11	48,0
Malta	1	2	7	6	31.427	11	177.388	8	26,98	14	25	10	51,0
France	2	3	4	3	86.426	6	58.169	15	14,73	6	72	19	52,0
Finland	2	3	0	1	33.628	10	98.689	11	39,69	17	26	11	53,0
UK	16	12	3	2	163.552	1	3.318.441	1	48,65	21	38	16	53,0
Lithuania	0	1	0	1	6.262	22	30.201	18	0,06	2	27	12	56,0
Denmark	11	10	6	5	154.463	2	186.448	6	74,12	23	26	11	57,0
Slovenia	0	1	10	8	6.283	21	36.699	16	7,2	5	17	6	57,0
Estonia	5	6	4	3	43.130	9	22.289	20	16,87	9	33	15	62,0
Germany	0	1	16	14	90.997	5	77.148	13	35,39	16	31	14	63,0
Slovakia	0	1	0	1	10.522	20	23.030	19	47,57	20	12	4	65,0
Greece	2	3	3	2	3.453	23	819	24	14,76	7	22	9	68,0
Portugal	4	5	5	4	12.205	17	230.330	5	45,84	19	67	18	68,0
Spain	48	16	29	16	93.293	4	177.489	7	42,55	18	18	7	68,0
Sweden	19	13	11	9	22.384	13	2.287	22	16,74	8	14	5	70,0
Latvia	2	3	8	7	523	25	59	25	18,61	12	8	3	75,0
Luxembourg	27	15	7	6	13.510	16	255.001	3	194,12	24	64	17	81,0
Belgium	9	9	13	11	23.522	12	1.180	23	34,56	15	29	13	83,0
Ireland	8	8	23	15	1.718	24	32.096	17	54,13	22	0	1	87,0
Hungary	24	14	15	13	21.189	14	5.650	21	241,22	25	38	16	103,0

Notes: a) refers to the number of errors, as estimated by www.netmechanic.com; b) refers to any unsupported HTML tags and attributes that block viewing on specific NTOs' browsers, as estimated by www.netmechanic.com; c) refers to the number of pages in each search engines index that contains a link to a portal's domain, as estimated by www.marketleap.com; d) refers to the number of pages a given search engine has in its index for the NTO website domain, as estimated by www.netmechanic.com; e) refers to the download times (seconds), as estimated by www.watson.addy.com; f) refers to the total links, as estimated www.netmechanic.com.

Kendall's Coefficient of Concordance (W) was calculated to test the degree of association among the 4 different rankings as follows (Siegel and Castellan, 1988: 271):

$$W = \frac{\sum_{i=1}^N (\bar{R}_i - \bar{R})^2}{N(N^2 - 1)/12} \quad (2)$$

where: N = the number of portals to be ranked;  $\bar{R}_i$  = the average of the ranks assigned to the *ith* portal,  $\bar{R}$  = the average (or grand mean) of the ranks assigned to a portal across all the categories. Since the sample consisted of 25 EU NTO portals, this coefficient can be approximated by a chi-square distribution ( $X^2$ ) with 24 degrees of freedom.

A univariate analysis was conducted to investigate the extent to which country context variables could explain differences in the NTOs' performance. Namely, the following independent variables were considered: a) *popularity of a tourism destination*; b) *level of affluence*; c) *e-readiness level*; d) *cultural richness*. As no one of the empirical literature relates e-SQ to NTO portals and because there may be different competing explanations, the following null hypotheses have been stated:

- H 1. *Tourism popularity*. The on line offerings performance (in terms of marketing, destination information, customer and technical perspectives) of NTO portals' is equal in popular tourist destinations and in less popular tourist destinations, within the EU;
- H 2. *Affluence levels*. The on line offerings performance of NTO portals' is equal, in affluent destinations and in less affluent destinations, within the EU;
- H 3. *E-readiness*. The on line offerings performance of NTO portals' is equal in e-advanced destinations and less e-advanced destinations, within the EU;
- H 4. *Cultural richness*. The on line offerings performance of NTO portals' is equal in cultural rich destinations and in less cultural rich destinations within the EU.

In order to test the hypotheses, the sample of portals' was split into the 8 independent groups as illustrated in Tab.2.

TABLE 2: PROXY MEASURES USED TO CLUSTER THE 25 EU STATES

EU member state	International tourist arrivals (1000) for 2004 <sup>a</sup>	Destination tourism popularity above the EU average	GDP per capita at ppp in \$ (2005) <sup>b</sup>	Levels of affluence above the EU average	Economist E-readiness classification 2005	2005 E-readiness classification above average	No of UNESCO heritages	Cultural richness
Austria	19.400	1	33.822	3	8	5	8	8
Belgium	6.710	2	31.196	3	8	5	9	8
Cyprus	2.349	2	21.602	4	n.a	7	3	8
Czech Republic	6.061	2	18.404	4	6	7	12	8
Denmark	3.358	2	34.673	3	9	5	4	8
Estonia	1.750	2	16.452	4	6	5	2	8
Finland	2.840	2	31.237	3	8	5	7	8
France	75.100	1	30.356	3	8	5	30	7
Germany	20.100	1	30.489	3	0	5	32	7
Greece	14.000	1	23.314	4	6	5	16	7
Hungary	12.200	2	16.852	4	6	7	8	8
Ireland	6.982	2	41.767	3	8	5	2	8
Italy	37.100	1	28.597	3	7	5	41	7
Latvia	1.080	2	12.666	4	5	7	2	8
Lithuania	1.491	2	14.236	4	5	7	4	8
Luxembourg	874	2	68.869	3	8	5	1	8
Malta	1.156	2	19.708	4	n.a	7	3	8
Netherlands	9.600	2	30.784	3	8	5	7	8
Poland	14.300	1	12.864	4	6	7	13	7
Portugal	11.600	2	19.387	4	7	7	13	7
Slovakia	1.401	2	16.168	4	6	7	5	8
Slovenia	1.499	2	21.846	4	6	5	1	8
Spain	53.600	1	26.642	3	0	5	39	7
Sweden	3.003	2	30.049	3	9	5	14	7
UK	27.800	1	30.648	3	9	5	27	7
mean	13.414		26.505		6		12	

Notes: 1 (2) means tourism popular (less tourism popular) countries; 3 (4) means affluent (less affluent) countries; 5 (6) means e-ready (less e-ready) countries; 7 (8) means rich cultural (less rich cultural) countries; a) source: WTO , 2005; b) source: Euromonitor database, 2006.



## Findings and Analysis: Destination Information Category

The results of the BSC approach to evaluate the EU NTO portals are summarised in Tab. 3. It emerges that Denmark achieved the best overall ranking (4.8), implying that currently the Danish portal is the most customer led one, whereas the Latvian (19.9) and the Greek portal (21.1) occupy the last positions, with the latter being the worst of all in terms of the marketing perspective.

TABLE 3: OVERALL RANKINGS THROUGH THE BSC FRAMEWORK

EU Member state	URL	Marketing Ranking	Customer Ranking	Destination Info Ranking	Technical Ranking	Total
Denmark	<a href="http://www.visitdenmark.com">http://www.visitdenmark.com</a>	3	1	2,5	12,5	4,8
UK	<a href="http://www.visitbritain.com">http://www.visitbritain.com</a>	1	2,5	7	9,5	5,0
Netherlands	<a href="http://www.holland.com">http://www.holland.com</a>	7,5	12,5	1	1	5,5
Austria	<a href="http://www.austria.info">http://www.austria.info</a>	9,5	5	7	4,5	6,5
Spain	<a href="http://www.spain.info">http://www.spain.info</a>	2	2,5	7	18	7,4
France	<a href="http://franceguide.com">http://franceguide.com</a>	4,5	8,5	18	8	9,8
Malta	<a href="http://www.visitmalta.com">http://www.visitmalta.com</a>	4,5	15	13,5	7	10,0
Sweden	<a href="http://www.visit-sweden.com">http://www.visit-sweden.com</a>	9,5	8,5	7	20	11,3
Slovenia	<a href="http://www.slovenia.info">http://www.slovenia.info</a>	6	4	24	12,5	11,6
Czech Republic	<a href="http://www.cheztourism.com/">http://www.cheztourism.com/</a>	14	10	23	3	12,5
Ireland	<a href="http://www.discoverireland.com">www.discoverireland.com</a>	11	11	4	24	12,5
Finland	<a href="http://www.visitfinland.com">http://www.visitfinland.com</a>	16,5	18	7	9,5	12,8
Cyprus	<a href="http://www.visitcyprus.org.cy">www.visitcyprus.org.cy</a>	16,5	22	10	4,5	13,3
Germany	<a href="http://www.germany-tourism.de">http://www.germany-tourism.de</a>	7,5	15	16	15	13,4
Hungary	<a href="http://www.hungary.com/">http://www.hungary.com/</a>	12	6	16	25	14,8
Belgium	<a href="http://www.visitbelgium.com">http://www.visitbelgium.com</a>	14	21	2,5	23	15,1
Estonia	<a href="http://www.visitestonia.com">http://www.visitestonia.com</a>	20	12,5	16	14	15,6
Luxembourg	<a href="http://www.ont.lu">http://www.ont.lu</a>	20	7	13,5	22	15,6
Slovakia	<a href="http://www.slovakiatourism.sk">www.slovakiatourism.sk</a>	20	17	11,5	16	16,1
Portugal	<a href="http://www.visitportugal.com">http://www.visitportugal.com</a>	14	15	19,5	18	16,6
Poland	<a href="http://www.poland-tourism.pl">http://www.poland-tourism.pl</a>	20	24	21,5	2	16,9
Italy	<a href="http://www.enit.it">http://www.enit.it</a>	20	19,5	25	6	17,6
Lithuania	<a href="http://www.travel.lt">http://www.travel.lt</a>	24	19,5	19,5	11	18,5
Latvia	<a href="http://www.latviatourism.com">http://www.latviatourism.com</a>	23	24	11,5	21	19,9
Greece	<a href="http://www.visitgreece.gr">http://www.visitgreece.gr</a>	25	24	21,5	18	22,1

Kendall's coefficient of concordance was found  $W=0.410$ , considering the four rankings of the BSC approach, adjusted for ties, and equal to 0.647 excluding the technical ranking. It is evident that this value is not perfect, however  $X^2$  (39.35) is statistically significant at 5 per cent level and it can support the conclusion that the Danish portal has the best performance in terms of the four perspectives combined.

Tab. 4 presents the descriptive statistics of our sample. The average scores in the three categories indicate that the NTOs' performance was higher in terms of Destination information in comparison to the Marketing and Customer categories of the BSC approach. Of the overall sub-categories of the scoring list, "culture" and "navigability" are the ones with the highest performances, averaging 76 and 73 per cent respectively (consult Tab. 6 for the sub-totals and frequencies of the single items).

TABLE 4: DESCRIPTIVE STATISTICS

Perspectives	Minimum	Maximum	Mean	Std. Deviation
Marketing	0.28	0.77	0.507	0.146
Customer	0.29	0.73	0.478	0.130
Information	0.17	0.86	0.674	0.143
Technical	30.00	103.00	60.760	16.741

Figure 2 shows the distribution of Destination information scores across the 25 portals. It reveals that the NTO portals are performing quite similarly, implying high degrees of standardisation in the levels of information provided online. This pattern may be further investigated by considering Tab. 6. For example, as expected, the vast majority of NTO sites provide practical advices covering basic useful travelling information (e.g. transportation, public holidays, entry requirements, etc.). However, less than half of them (40%) show increased sensitivity for the tourists' needs by including useful tips, such as information regarding tourist discounts, or information regarding foreign embassies and consulates in their country (36%).

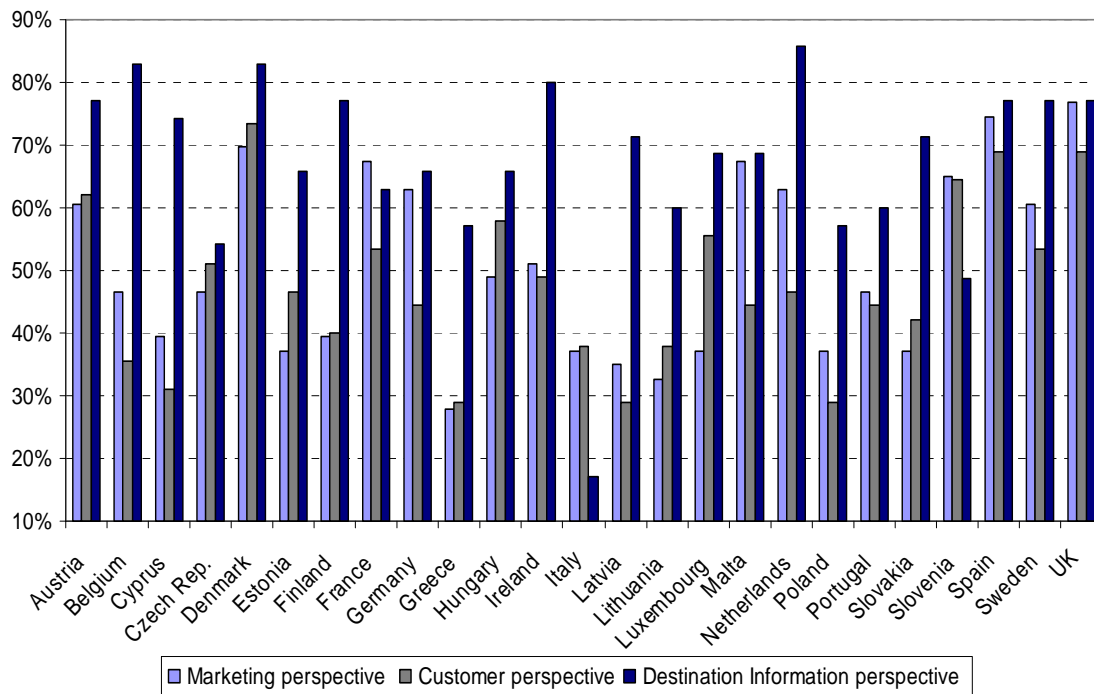


FIG. 2: DISTRIBUTION OF BSC SCORES ACROSS PORTALS

The Dutch portal manages better to promote Holland through the provision of an impressively rich and well organised content. The practical advices provided go beyond the “typical” basic practical information before visiting the destination, covering aspects such as immigration and work permit regulations. The last place in this category is occupied by the Italian NTO portal since the latter fails completely to transmit a comprehensive picture about the diversity of the different Italian regions and it gives very limited attention to the Italian cultural assets such as local events. In addition, its content is poor and sometimes even outdated. By consulting the sub-category *Culture* (Tab. 6), it emerges that the EU countries have understood the power of internet for marketing their own culture. All the websites maintain separate sections where the artistic heritage of the destination such as castles, churches, museums, as well as the local culinary traditions are thoroughly described. Moreover, the majority of them (21 portals) is in the

position to provide an updated database, which covers the main incoming local events, with a particular emphasis on the small characteristic local festivals. Although it is evident that some destinations put more effort in marketing online their culture more extensively (e.g. Belgium, Netherlands, etc.), again it can be argued that the cultural cues used to promote a destination are characterised by relatively high degrees of standardisation. Only when it comes to examining the promotion of local handicrafts, trades and local food recipes, some higher degrees of individualism arise, with only 64% of them promoting the former and 40% of them providing the latter. Finally, interestingly enough, the relatively low destination information percentages of countries possessing rich cultural heritage such as Italy, France, Greece and Spain imply that the latter do not appear to leverage particularly successfully their NTO portals to promote it. Thus, it is confirmed the realisation of the Ismail *et al.*, (2002: 175), that there is no evidence of particular effectiveness of NTO websites from destinations with high number of cultural attractions and resources. The latter statement has been tested statistically in section 6.

## Customer Perspective Findings

Among the 25 portals, Denmark and UK scored higher within this category with the former having 33 out of the 45 identified items (73.3%) and the latter having 31 (68.9%) respectively. Both these NTO have realised the importance of “one site shop” as a driver of superior customer service for the contemporary demanding and time sensitive visitors. Both of them are offering direct online booking for accommodation, holiday packages and even more specialised vacation items, such as theatre and other attraction tickets. In addition, the British portal supports the acquisition of airplane tickets and it is offering a well organised online shop, where buyers can track the state of their orders.

By consulting the sub-category *Privacy and trust* (Tab. 6), it emerges that a) a “terms of use” section, b) a “privacy statement” for the collection of personal data and c) a “security certification” are often missing. In particular, the lack of the above, combined with: “neglecting to stating the source of information provided” in 19 out of 25 portals (76%), and to “guarantee any last updating date for the site’s content, antecedent of the last 2 months” in a stunning: 23 out of 25 portals, definitely influence the building of trust between the entity behind the website and its online visitors. Since trust and control of online users have been regarded as key components of e-SQ (Parasuraman *et al.*, 2005; Nysveen *et al.*, 2003) it exists a big margin for improvement.

The three web sites with the most disappointing performance in the customer perspective are the Latvian, the Polish and the Greek one (Fig. 2). These portals can be regarded as “product driven” ones, where emphasis is given on the presentation of as much as possible information about the country, failing to organise this information and to “empower” their visitors, through the provision of advanced search engines which allow them to discover on their own *only* that kind of information they are mostly interested about.

Disappointing is the picture regarding the measures undertaken by the portals for assuring *accessibility*, accommodating different users’ needs and capabilities. More specifically, while the majority of the websites under examination (17) include sufficient information regarding accessibility for travellers with special needs, only 2 of them (the Spanish and the British NTO) declare that their portals are adhering with the legal imperatives for accessibility according to the web content accessibility guidelines (<http://w3.org>). This is consistent with the findings of Williams *et al.*, (2004) who found discouraging low levels of accessibility for tourism related websites in Germany and UK. A further category where the sample portals are performing particularly weakly is *service integration*, averaging 12 % across the total sample. Virtual communities are recognised as services of value added (Nysveen *et al.*, 2003; Hjalager, 2001) however, only 2 NTO websites (the Slovenian and the Irish one) are making use of them. As far as it concerns the category *management of information* the majority of portals (23 portals, or 92%) make extensive use of modern internet applications such as interactive maps, whereas less than half of them (9 portals or 36%) offer a complete value added service including the provision of directions of *how* to reach different destinations and/or a route planner (10 portals, or 40%) and even fewer are providing directions for alternative ways of transporting. Finally, it is worthy mentioning that, regardless the portals’ large size, the majority of them (73%) include functions which enhance navigability.

## Marketing and Technical Perspective Findings

As Fig. 2 reveals, the UK NTO website has scored higher in the marketing category, with 33 out of the 43 examined items (76,7%) being present. It appears as highly interactive with strong brand identity and satisfactory information customisation and personalisation features. Moreover, its design effectively supports market research and targeted marketing activities, and finally it assists the tangibility of destination through the provision of a wide variety of helping cues. On the other hand, the Greek and the Lithuanian portal have the poorest on line presence in terms of marketing functions (27.9% and 32.6% respectively) and need urgently to improve their efforts in marketing segmentation, tangibility of destination and market research. Finally, many websites such as the NTO portals of Estonia, Italia, Poland, Luxembourg and Slovakia have scored equally low (37,2%) implying the existence of significant margins for improvement.

A closer examination of the single items highlights some specific features within the *relationship marketing* category. First of all, it can be argued that the websites employ relatively low levels of interactivity, with only 11 or 44% of them supporting online feedback forms, and only two of them (Slovenia and Portugal) including users' ratings on: a) price offers and/or b) usefulness of the information received. Once more, very few of them (only 3) seem to have realised the importance of "word of mouse" and provide the possibility to browse other users' experiences and comments on certain issues. Similarly, there have been detected varying levels of customisation and personalisation of information. In terms of personalisation items, the sample websites did not perform well since only 36% of them (9 portals) are allowing online visitors to select, organise, and store personal interest information into a "favourites section" and even less (12% or 3 portals) maintain in memory previous settings such as "choice of language".

As far as it concerns the *segmentation category*, the vast majority of them (23), in conformity with one of the strongest trends of the last years, are providing extensive information for spas and fitness centres, in an attempt not only to satisfy better the needs of their online users, but also to target more effectively the most valuable market segments. Moreover, slightly more than half of these portals (52%) are including a city break section, another important trend gaining popularity among the time sensitive tourists of nowadays. On the other hand, segmentation according to lifestyle is not extensively used. Indeed the provision of a separate nightlife section, with information regarding entertainment options is a less strong trend (only: 44% or 11 portals). The other emerged targeted segment is business tourism, with 21 portals (84%), providing separate, specialised web-sites within their main portal. In terms of the number and kind of cues used to enhance the *tangibility of the destination*, although almost every portals makes use of tools such as maps (100%) and photographs of landscapes of different regions (88%), more sophisticated and advanced tools such as virtual tours (10 portals or 40%) or video clips (13 portals or 52%), and webcams (3 portals or 12%) are not yet fully employed.

Eight items have been used to examine whether the NTO are *branding* their site sufficiently. Among these: a logo is included in the homepage of all the portals(100%), as well as in the rest pages (84%). However, the sites often miss a quality certification (only 7 out of 25 portals do have one), failing to assure their visitors for the content of the information provided. Finally, they hardly include data on their use, such as number of registered users, number of hits, etc. (1 out of 25 portals only). By consulting the *marketing research and customer database* category, it emerges that the majority of the NTO portals (76%) are maintaining a customer database since they allow their visitors to register online. A less popular way to gather personal data regarding their visitors, is through online competitions (12 portals or 48%). In terms of market research and targeting: 52% of the websites (in total 13 portals) track the country of origin of the different visitors and 11 portals provide multiple versions of their website, with content adjusted to reflect the local tourist market conditions of each country.

As Tab. 3 reveals, the Dutch NTO portal was the one which scored higher in the technical perspective. Indeed, the latter portal gained the highest ranking position in terms of HTML errors and browser compatibility problems, an equally high classification in terms of broken links and overall downloaded time at a 56K speed connection (3<sup>rd</sup> position), and the 4<sup>th</sup> position in terms of search engine saturation (Tab. 1). On the other hand, the Hungarian website was rated as the least technically sound NTO portal with serious delays in downloading time. Finally, the high positions of some of the accession states, such as the 2<sup>nd</sup> position of Poland, the 3<sup>rd</sup> position of

Czech Republic in contrast to the lower classifications of more e-advanced nations such as Sweden and Ireland (Economist, 2005) support the position that Internet empowers new players and boosts competitiveness regardless the smaller internet penetration rates of the latter.

## Hypothesis Testing

The Wilcoxon-Mann Whitney has been calculated to test whether the online performance were equal in the 8 groups of countries defined in para. 4.2. It emerged that the variable affluence (see Tab. 5), has a significant influence on the online performance in terms of marketing, destination information and customer perspective. The Austrian, French, German, Belgian, Danish, Finish, Irish, British, Italian, Dutch, Swedish, Spanish and the Luxembourg NTO portals with a mean rank of 16.31 in terms of marketing, 15.85, in terms of customer and 16.96 in terms of destination information, perform almost twice as the portals from the less affluent countries (Greece, Portugal and the ten Accession states) with a mean rank of 9.42, 9.92 and 8.71, respectively. On the contrary, the “affluence” variable does not have any significant influence on the online performance of the NTO portals in terms of technical perspective. The remaining three independent variables were not found to have a statistically significant influence on the NTO portals’ online performance.

TABLE 5: WILCOXON-MANN WHITNEY TEST

Perspectives	Groups	N	Mean Rank	Sum of Ranks	Z
Marketing	Affluent	13	16.31	212.0	-2.352 <sup>***</sup>
	Less affluent	12	9.42	113.0	
Customer	Affluent	13	15.85	206.0	-2.017 <sup>**</sup>
	Less affluent	12	9.92	119.0	
Information	Affluent	13	16.96	220.5	-2.817 <sup>***</sup>
	Less affluent	12	8.71	104.5	
Technical	Affluent	13	13.31	173.0	-0.218
	Less affluent	12	12.67	152.0	

<sup>\*\*\*</sup> and <sup>\*\*</sup> indicate statistical significance levels of 5 percent and 1 per cent , respectively, in two-tailed tests

Finally, an univariate correlation analysis was performed to assess the relationship between the four perspectives. All correlation coefficient were positive, except between customer and technical and between technical and destination information perspectives. Marketing was the most significant contributor to the total score at 0.907 ( $p < 0.01$ ) followed by the customer category at 0.765 ( $p < 0.01$ ). Moreover, a positive and high correlation (0.749) was found between the Marketing and the Customer perspective ( $p < 0.01$ ), a realistic result since e-marketing excellence by definition is closely related to customer orientation. The correlation among the other perspectives was low and insignificant.

## Conclusion and Further Research

This study analyses the on line offerings of 25 EU NTO using a framework that captures four e-quality categories. It is found that NTOs have realised that by just including basic information on their websites and waiting for online visitors to arrive is not a viable solution anymore. However, even if the vast majority of them demonstrate “acceptable” levels of online performances significant margins for improvements do exist. In particular, there were observed relatively high degrees of standardisation in the areas of: content of information for the destination and cultural cues used to promote the destination. This implies that the NTOs are failing, up to a certain extent, to create a “unique sales proposition” to promote their destination. In most of the cases, some basic features necessary to promote “trust” for the online users were missing. In addition, basic features enhancing accessibility for *all* online users were almost absent. Lastly, some further areas to work on are: a) interactivity among the users and the portal, b) service integration applications and virtual communities. The results support the hypothesis that the affluence

variable has a significant influence on the online performance in terms of marketing, destination information and customer perspective.

This research is a necessary *first step* in order to make inferences about the current level of online offerings and e-quality provided by the NTO web sites. *Customer perceptions* of e-quality need to be explored as well in order to form a complete picture of online quality. Thus, future research could concentrate on increasing our understanding of: *which of the information and services present here contribute the most* in achieving a high level of overall service quality, as perceived by the end users and b) if the latter perceptions are *culturally sensitive*. A survey could be addressed to online users with the scope to capture which of the identified on line services are rated as most important by prospect tourists when seeking tourism information on line and in what order of importance. The latter would be of particular value to the NTO, since it would reveal eventual gaps between their current offerings and customers preferences of on line value added services. A further interesting direction would be: to examine if these findings can be generalized in *other categories of tourism websites* more profit oriented.

Due to the dynamic nature of web sites the reported results can be considered valid only for a limited period of time. As Feng *et al.*, (2002) comment they provide only a snapshot in time. Thus, it would have been necessary to monitor how their content and consequently also their online service quality evolve through time.

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Contact authors for the complete list of references.

## End Notes

NTO is defined by WTO, (1996)as: "*An autonomous body of public, semi-public or private status, established or recognised by the state as the body with competence at the national level for the promotion and in some cases, marketing of inbound international tourism*" as cited in Law *et al.*, 2004:100

<sup>2</sup> cited in Santos, 2003:236

<sup>3</sup> cited in Santos, 2003:235

<sup>4</sup> cited in Sigala, 2004: 105

<sup>5</sup> cited in Zeithmal *et al.*, 2002: 366

<sup>6</sup> cited in Blum and Fallon, 2002:193

<sup>7</sup> cited in UNCTAD, 2005:159

<sup>8</sup> cited in Doolin *et al.*, 2002:558

<sup>9</sup> cited in Scharl *et al.*, 2004: 258

<sup>10</sup> cited in Skadberg *et al.*, 2005: 148

<sup>11</sup> cited in Hudson and Lang: 2002:156

<sup>12</sup> cited in So and Morison, 2004:101

# Glocalization of bilingual websites of global corporations

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## Abstract

Glocalization, as a portmanteau of globalization and localization, means the co-presence of both universalizing and particularizing tendencies (Robertson, 1997). It highlights the fact that the globalization of a brand is more likely to succeed when the brand is adapted to the locality or culture it is marketed in. Internet as a global communication medium is often used by a global corporation to market its product or service and to promote its image for local communities. Corporate website becomes the major medium to present a corporation's messages to local communities around the world, and to demonstrate its understanding of the social world of the local communities. A well-designed corporate website therefore has to 'be global and speak local'. The term 'speak' here is interpreted as communicating with the local communities in their way of speaking, such as their tone and style. In order to meet the expectations and to follow the linguistic and cultural conventions of diverse communities, the local or the subsidiary websites of a global corporation often adopt rhetorical strategies which may differ from those adopted on its main or master website. The rhetorical strategies including discourse, rhetorical devices and register may even vary among polities speaking the same language, such as within the Greater China region.

## Background and Objective

In recent decades, an overwhelming number of global corporations have expanded their market to Greater China and many of them have established subsidiary websites for readers in the region. However, comparative analyses of bilingual websites targeting diverse local communities in Greater China are very limited. This preliminary study seeks to examine how the top global corporations localize their websites targeting readers in Greater China, and how they demonstrate their concerns and understanding of diverse local communities. The content selection and the ways of presentation may differ between the main and the subsidiary websites which are in different languages, as well as among the subsidiary websites of different polities. Findings from the study demonstrate certain patterns of how the top corporations glocalize themselves on their corporate websites, and provide a useful reference for drafting websites that communicate effectively with diverse local communities, especially those in Greater China. Specific objectives are as below:

1. to examine how global and local elements co-present on corporate websites;
2. to identify inter-linguistic and inter-cultural differences in rhetorical strategies of websites targeting western and Chinese readers, by comparing the bilingual (English and Chinese) versions; and
3. to analyse intra-linguistic and intra-cultural variations of websites in Chinese, through comparing different Chinese versions targeting readers of Mainland China, Hong Kong, and Taiwan.

## Methodology

The study analysed the main and the subsidiary websites of global corporations targeting respectively the English speaking communities and the Chinese speaking communities in Greater China. In order to make the data more representative and to ensure a broad coverage of different business nature, I selected global corporations from various industries or fields including automobile, banking, electronics and electrical appliances, food and catering, information technology, insurance, logistics, and petroleum. As a preliminary study, the top two corporations in each of these industries from the list of Fortune Global 500 in 2006 which have their subsidiaries or branches established in Greater China for more than a decade were chosen as samples. Bilingual websites of 16 global corporations in total formed the corpus for analysis (see Table 1 below). The analysis concerns mainly the rhetorical patterns

including the discourse, rhetorical devices and register adopted in the corporate slogans, corporate history and profile on the websites.

TABLE 1: CORPORAT WEBSITES ANALYZED IN THIS STUDY

Industries / fields	Corporations	
Automobile	Toyota	Ford
Banking	Citigroup	HSBC
Computer & Information technology	Dell	Microsoft
Electronics and Electrical appliances	Siemens	Hitachi
Food & Catering	Nestlé	PepsiCo
Insurance	AXA	ING
Logistics	Maersk	FedEx
Petroleum	Exxon Mobil	Shell

### Co-Presence of ‘Global’ and ‘Local’ Elements

A global corporate website serves as a useful medium to establish the corporation’s global image, and at the same time to show its understanding of local communities. Many global corporations have expanded their business to Greater China and set up their websites for local communities there. This section illustrates the successful examples of some of these global corporations in designing their subsidiary websites for Greater China, and seeks to provide a reference for other global corporations which plan to develop their websites for the Greater China communities.

‘Global’ and ‘local’ elements often co-present on the bilingual websites of multinational corporations operating in Greater China. HSBC is one of the typical examples embracing both ‘global’ and ‘local’ elements on its main website as well as on its subsidiary websites for diverse local communities. Its corporate slogan “the world’s local bank” illustrates its ambition to ‘be global and act local’. Its Hong Kong website states in the corporate profile page in English and Chinese that:

“At the Group’s core around the world are domestic commercial banking and financial services, which fund themselves locally and do business locally.”

“集團在世界各地以商業銀行及金融服務作為核心業務。此兩項業務以本土市場作為資金來源和經營地區，並運用技術提高效率，提供符合當地客戶需要的各種國際產品及服務。”

Similarly, on its Taiwan website, HSBC highlights the importance of ‘local’:

“We never underestimate the importance of local knowledge.”

The corporate website of AXA also demonstrates “interconnections of both global and local institutions and cultural practices” (Holton 2005, p.130). The website for the Mainland community displays a high degree of attachment to and support of local culture. As noted by Roudometof (2005, p.126), “such an attachment and support for local culture are likely to take a variety of different forms depending upon the specifics of different national cultures around the globe”. For instance, AXA relates its contributions to the economic development of China. Its mission stated on the China website is:

“承諾發展，貢獻中國”

(*committing to the development, contributing to China*) (researcher’s translation)

AXA China stresses its attachment to the local society and aims to develop as a “nation-wide insurance company”. On the other hand, AXA is marketed differently for the Hong Kong community. It emphasizes its global leadership in the industry – “a worldwide leader in financial protection”, and writes: “In Hong Kong, we are one of



the top general insurers with over 170 years of experience in Asia.”. The local tendencies are not so apparent on the Hong Kong website than on the China one.

The co-presence of global and local elements is not confined to banking and insurance industries. It is also common across different industries. Siemens on its website for the Taiwan community shows its global and local commitments – “global innovation, local partnership” (創新全球 在地夥伴).

## Inter-Linguistic and Inter-Cultural Differences between English and Chinese

The above mentioned ways such as adopting words of ‘world’, ‘international’, ‘domestic’ and ‘local’, and listing the facts of the ‘global’ and ‘local’ achievement of the corporation are explicit means to glocalize a corporate website. There are other means which can be considered as implicit for achieving the goal of glocalization. A corporate website may display how ‘local’ the global corporation is through adopting the way of ‘speaking’ of the local communities on its subsidiary website. This section compares the bilingual (English and Chinese) versions of the main and the subsidiary websites of the same corporations, and focuses on rhetorical comparisons between two language versions targeting communities from distinct linguistic and cultural backgrounds.

The English and the Chinese versions of the same corporations may differ in the foci of messages presented. The English version often provides a detailed history of the corporation; while the Chinese one tends to skip the details and adopts a simplified version instead. The latter often explains the corporate logo and the origin of company name. Such examples as Citibank of which its main website in English lists a detailed timeline of the history with a caption “The story of Citigroup: 100 countries. 200 years”. Its Chinese versions for the Hong Kong and the Taiwan communities on the other hand give only a brief introduction to the history but add an explanation of the logo of ‘red umbrella’. Similarly, Hitachi Hong Kong shows how the company name is formed on its Chinese version, but not in its English one:

“HITACHI由兩個漢字拼合而成：「HI」代表「日」，而「TACHI」代表「立地」，象徵人類通往直前，立地前瞻初昇的旭日，計劃更美好的生活與未來。”



*(Hitachi is formed by two Chinese characters: ‘Hi’ represents ‘sun’ and ‘Tachi’ represents ‘standing on the earth’, symbolizing that humans move forward, standing on the earth facing the rising sun, and plan for a better life and future.)*

ING also mentions its logo in the corporate profile on its Taiwan Chinese website:

“ING集團的表現就如其企業標誌 – 獅子般耀眼”

*(The performance of ING is as outstanding as the lion on its corporate logo.)*

While the above explanations or references to the corporate logo or name are popular in the Chinese versions, they are not so common in the English ones.

The second distinctive feature between the English and the Chinese versions can be identified in the presentation of the message from top management. Examples include the corporate websites of AXA and Toyota. There is a webpage of “Message from Top Management” on the main website of Toyota in English. However, webpages of this kind are absent on the websites for the Mainland and the Hong Kong communities. In addition, messages from top management are often presented in more vivid and lively manner in the English than in the Chinese versions. For example, the main website of AXA in English uses direct quotes:

“ ‘We have chosen a demanding business... Our vision of the business is what guides our daily work. It reflects the social and human aspects of Financial Protection, whose value to people has never been greater.’ Henri de Castries – Chairman of the AXA Management Board”

Instead of presenting the corporate mission or vision in the form of direct quotes, the Chinese versions in Greater China adopt a rather descriptive and factual approach. Consider below the examples extracted from respectively the Hong Kong and the Taiwan websites:

AXA為客戶提供經濟保障及管理服務，……了解他們在不同階段的需要。

*(AXA provides financial protection and management services for customers, ...understand their needs at various stages.)*

AXA集團秉持為顧客提供財富保障及管理服務為信念，提供全面性的保險服務，……

*(AXA's mission is to provide financial protection and management services, as well as comprehensive insurance services for customers...)*

The third major difference between English and Chinese lies in the varying degrees of formality. The Chinese version tends to be relatively more formal than the English one. Parallel structure and formal register become some of the common rhetorical characteristics of websites in Chinese. Parallel structure or parallelism refers to a similarity of structure in a pair or series of related words. It is one of the typical rhetorical features adopted in phrasing Chinese slogans (Lee and So, 2007). It reinforces the message presented and gives readers an impression of a high degree of formality in Chinese (Lee et al, 2006). On the other hand, the English version adopts less formal register. Compare the English and Chinese slogans below:

The world's local bank (HSBC)

環球金融 地方智慧

Creating opportunities in global commerce (Maersk)

展望全球 創建商機

Be life confident (AXA)

生活無限 自有把握

Moving forward (Toyota)

車到山前必有路 有路必有豐田車

Each of the above Chinese slogans is presented in parallel structure – a pair of expressions containing the same number of characters.

Apart from slogans, headings in Chinese are often in parallel structure. For instance, ING adopts a strict structure for headings on its website in Chinese but not in English. Some of the Chinese examples include the following which are structured in pairs of four-character expressions:

櫃台服務 最為貼心

*(The most comprehensive front desk service)*

主動出击 了解您心

*(Be proactive and understand what you think)*

## **Intra-Linguistic and Intra-Cultural Variations in Greater China**

One may expect that the rhetorical patterns of corporate websites are similar among the Mainland, Hong Kong and Taiwan since the main readership of these websites is Chinese speakers. In fact, the content, foci and register differ across polities in the Greater China region. Since Chinese communities in these polities have diverse expectations and varied cultural and linguistic norms, corporate websites need to adopt rhetorical strategies that are considered appropriate for the local communities. A comparative analysis of websites across different polities in Greater China can help illustrate how global corporations localize themselves, i.e. how they make themselves look local.

In terms of the availability of language versions of websites, there exist assumptions that a global corporation provides only a Chinese version for the polities in Greater China, and that bilingual versions are not common there since an English version is already available on the main website of the corporation. However, my investigation reveals that not all sampled global corporations offer a Chinese version for the local communities in Greater China. Some of the corporations offer only an English version, for the Hong Kong community in particular, such as Ford. In addition, bilingual versions in both English and Chinese are common in Hong Kong but not so

common in other two polities (see Table 2). Microsoft is an example of this kind.

The above findings reveal the corporations' positioning and their response to the different expectations of diverse communities within the Greater China region. English is a common medium of business in Hong Kong whereas Chinese is still the major language used in other two polities, Mainland China in particular. Certain global corporations may attempt to enhance their local relevance by providing only a language version which is widely accepted by the local communities. In fact, for those corporations which offer only monolingual versions for their subsidiary websites, many of them are in Chinese for the Mainland and the Taiwanese readers, but not for the Hong Kong group. Examples include Ford, Toyota, etc.

Table 2. Language versions provided by the sampled corporate websites

Corporations *	Language versions of websites					
	Mainland China		Hong Kong		Taiwan	
	<i>English</i>	<i>Chinese</i>	<i>English</i>	<i>Chinese</i>	<i>English</i>	<i>Chinese</i>
AXA	✓	✓	✓	✓	✗	✓
Citigroup	✓	✓	✓	✓	✓	✓
Dell	✓	✓	✓	✓	✓	✓
Exxon Mobil	✗	✓	✗	✗	✗	✗
FedEx	✓	✓	✓	✓	✓	✓
Ford	✗	✓	✓	✗	✗	✓
Hitachi	✓	✓	✓	✓	✗	✓
HSBC	✓	✓	✓	✓	✓	✓
ING	✗	✓	✓	✓	✗	✓
Maersk	✓	✓	✓	✗	✓	✓
Microsoft	✗	✓	✓	✓	✗	✓
Nestlé	✓	✓	✗	✓	✗	✓
PepsiCo	✗	✓	✗	✗	✗	✗
Shell	✓	✓	✓	✓	✗	✓
Siemens	✓	✓	✓	✗	✓	✓
Toyota	✗	✓	✓	✗	✗	✓

\* Corporations are listed according to alphabetical order of the corporate names.

In order to fulfil diverse expectations of different communities, global corporations tend to vary the content and adopt different foci on their websites. One distinctive feature among the three polities is an emphasis on awards for the Mainland and the Taiwan websites but not for the Hong Kong one. For instance, Citibank Taiwan lists its awards in a rather elaborate approach but Citibank Hong Kong does not choose awards as the main content for its website.

“花旗銀行在台灣卓越的表現，連續多年獲得Finance

Asia雜誌『最佳外國商業銀行』的肯定。2006年，花旗銀行更連續十二年榮獲天下雜誌評選為『銀行業最佳聲望標竿企業』！”

*(The outstanding performance of Citibank Taiwan has been recognized by Finance Asia as the Best Foreign Commercial Bank in Taiwan. Citibank has also been recognized by Common Wealth Magazine as “The most respected bank” for 12 years.)*

Citibank Taiwan lists its awards in detail on its website. Similarly, HSBC China and Taiwan emphasize HSBC's achievement by listing her awards on their websites. While corporations like Citibank and HSBC have been well-established in Hong Kong but are relatively new in the Mainland and Taiwan, more emphases on the achievement, especially the concrete one as represented by awards, become essential for the latter two polities.

The third distinctive feature among the three polities is the relevance to the local government. Websites for the Mainlanders often highlight the corporations' relations with the local government and display the support gained from it. For instance, Ford China shows the support from the former President of PRC in its corporate profile:

“福特汽车当时的董事长亨利·福特二世于1978年得到了邓小平先生的见，……”

*(Henry Ford, the Chairman of Ford, had a meeting with Mr. Dang Xiao-ping in 1978...)*

Microsoft China demonstrates its mission to collaborate with the local government by stating that:

“协助政府发展中国软件产业

积极参与政府和企业进行信息化建设”

*(It assists the government in developing the software industry in China.*

*It actively participates in the government's and the corporations' development of information technology.)*

Siemens China also shows its contribution to the local economy in both its Chinese and English versions. Its websites write:

“西门子是中国经济不可分割的一部分，也是积极帮助中国完成主要基础设施建设和实现工业现代化忠实而可靠的合作伙伴。”

“Siemens is an integral part of the China economy and a reliable, committed and trustworthy partner of China actively contributing to major infrastructure developments and industrial modernization.”

The above characteristic of a particular relevance to the local Chinese government is not common in other two polities. It is rather culturally specific in the Mainland in which collaboration with the Chinese government and gaining its support are essential for the success of doing business in China.

Another intra-cultural dissimilarity is the varied emphases on corporate citizenship. Corporate citizenship is interpreted differently across the three polities. Concrete actions on achieving social responsibility are highlighted on the Taiwan websites, as illustrated by example of Citibank Taiwan:

“本著取之於社會，用之於社會的精神，長期贊助喜憨兒基金會、公共電視種籽教育基金、亞卓市，...

... 以扮演良好的企業公民為己任，希望為台灣建立一個更美好的未來。”

“Since 1995, Citigroup has been actively involved in both education and community development in Taiwan, sponsoring many programs such as the Elementary School Financial Education, Dollars and Sense - a financial education program for teenagers, ... These programs have been well received by the public and demonstrate Citigroup's long-term commitment to the community in which it lives and runs its businesses.”

However, corporate citizenship is not the major concern in Mainland China. As a result, it is only briefly mentioned on the websites for the Mainlanders.

The fifth distinctive feature is the varying degrees of formality in register among the three polities. Numbers are often presented in a full form, i.e. Chinese characters, on the Mainland website, but are in an Arabic presentation for other two polities. Compare below the different presentations of numbers on the websites of respectively Mainland China, Hong Kong and Taiwan:

“花旗以全球领先的金融服务经验在一百多个国家约为二亿客户提供金融服务。”

*(Citibank is a global leader of financial services, providing services for two hundred million customers in more than one hundred countries.)*

“客戶約達200,000,000人，業務遍佈全球100多個國家。”

*(Our customers reach 200,000,000. Our service covers more than 100 countries.)*

“目前共有3200名員工及11家分行，……”

*(Currently there are 3200 staff and 11 branches, ...)*

Websites for the Mainland Chinese and the Taiwanese communities adopt relatively more formal register as compared to the Hong Kong websites. A use of pronoun, such as ‘we’ or ‘us’ for addressing the corporation, is regarded as less formal than using the corporate name. For the title or caption of introducing the corporation, the websites for the Hong Kong community tend to use “關於我們” (About us) while those for the other two polities use the corporate name, such as “關於花旗” (About Citibank).

Another point relating to the address form of the corporation is the language code presenting it. There is a tendency for the Mainland websites to use the Chinese code. On the other hand, websites for the Hong Kong and the Taiwanese communities often switch the codes, firstly use Chinese and then switch to the English names of the corporations. AXA is one of the examples. Only the Chinese corporate name “金盛” but no English name “AXA” is used on its Mainland website. However, the corporate name is firstly presented in the Chinese code, “安盛” and “瑞泰” respectively for the Hong Kong and the Taiwan websites; and then switch to its English name “AXA”. The code-switch phenomenon is rather common in Taiwan. To take Ford Taiwan as an example, its website firstly uses “關於福特” as the caption for the corporate profile. In the context of the profile, it switches to use “FORD”. When introducing the corporate history, “Ford 歷史” becomes the caption. On the other hand, the code for the corporate name is relatively consistent in the Mainland. “福特” is used throughout the whole website.

The last linguistic feature which merits discussion is the deployment of rhetorical devices. Websites for the Mainland were found to adopt more parallel structures than those for the other two polities. For instance:

卓越银行服务

*(Outstanding banking service)*

备受全球信赖

*(Globally trusted)*

The above examples are some of the captions or headings on the website of Citibank China, in parallel structures of six-character expressions. Similarly, AXA China adopts a parallel structure for its values:

专业 创新 务实 团结 诚信

*(professionalism, innovation, pragmatism, integrity, trust)*

While many parallel structures were identified on the Mainland websites, the construction of expressions is not so strict in other two polities. A strict structure of expressions is a manifestation of a high degree of formality in Chinese, as a means to show respect for readers. This finding is in line with that relative to the address form for the corporations discussed above. The register of the Mainland websites is more formal than that of other two polities.

## Conclusion

A corporate website can be considered as a mirror of a corporation for projecting its corporate image to its stakeholders. It also helps promote corporate culture and illustrates its concerns for local communities. In order to achieve a common goal of multinational corporations for projecting global image and practicing locally, certain rhetorical rules and patterns need to be observed in designing websites for diverse communities.

This paper has attempted to generalize some inter-linguistic and inter-cultural patterns between the English and the Chinese versions, as well as some intra-linguistic and intra-cultural variations of the Chinese communities in Greater China. It succeeds in raising awareness of these variations in glocalizing a corporate website, and in providing a useful reference for effective communication through websites targeting diverse communities in Greater China. Findings were obtained from observations on bilingual websites of some top global corporations. They are preliminary and may not be universally applicable. The rhetorical strategies in fact are rather corporate culturally specific, highly dependent on the unique corporate culture and positioning. Nevertheless, the study offers a prelude for future investigations which may involve more corporate websites from diverse industries, so as to verify if the glocalized patterns identified on the sampled websites and if inter-linguistic and inter-cultural differences between English and Chinese, as well as intra-linguistic and intra-cultural variations in Greater China apply to other global corporate websites.

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# Analyzing Quality Function Deployment Based on Voice of Customer

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## Abstract

Analyzing Quality Function Deployment (QFD) based on voice of customer aims to provide an advanced machine planning methodology based on QFD principles, for identifying and minimizing the risks of project failures due to failure in complying with the voice of the customers. This study focuses on the development of general QFD for machine specification selection so that it later can be used for any kind of machine evaluation prior to purchasing the machines. A set of questionnaires was used as an instrument and was distributed to 223 respondents. NN models were generated and statistical methods were used to explain the relationship between attributes used in this study. The findings from the experiments conducted exhibit that the significant correlations of QFD with customer voices help to explain the relationship between attributes used in the study. The study also indicates that NN forecasting model has been established with 12.30 percent misclassification error in determining the customer voices based on QFD. This indicates that the approach has the potential in explaining the relationship between QFD and the customers, as well as predicting the type of customer if QFD information is provided. Hence, the study reveals the type of machine and type of operation that are favourable to customer prior to acquiring the machines for their industrial usage. **Keywords:** Quality Function Deployment (QFD), Voice of Customer, Neural Network, Machine Planning

## Introduction

QFD is one of the techniques that aim to fulfil the customers' satisfaction at the very beginning, namely the product design phase. It enables the companies to become proactive to quality problems rather than taking a reactive position by acting on customer complaints. QFD technique is used to plan and design new or improved products and services. According to Wikipedia (2006), Quality function deployment of QFD is a flexible and comprehensive group decision making technique used in product or service development, brand marketing, and product management. QFD can strongly help an organization focuses on the critical characteristics of a new or existing product or service from the separate viewpoints of the customer market segments, company, or technology development needs. The results of the technique yield transparent and visible graphs and matrices that can be reused for future product/service development.

This study presents alternative ways to identify the relationship QFD and customer voices. It also aims to build QFD forecasting model with respect to different types of customers. The combination of effort in QFD and the utilizing of neural network as a tool of IT in manufacturing and product development will torch the light towards the creation of the QFD forecasting model. Some statistical techniques may be utilized to support the findings in this study.

## Related Works

QFD takes the voice of the customer from the beginning of product development and deploys it throughout the firm. Through QFD, the voice of the customer aligns the company's resources to focus on maximizing customer satisfaction. Customer satisfaction is influenced by product development outcomes which, in turn, are influenced by the technical and organizational dimensions. Basically, QFD is aimed to fulfil the customer's expectation of the product or service. San Myint (2003) describes a framework of an intelligent quality function deployment (IQFD) for discrete assembly environment of QFD as well as the project's profile. They used Taguchi experimental design for manufacturing process optimization using historical data and a neural network process model (Wimalin &

James, 2005). QFD with applied statistics techniques are employed to facilitate the translation of prioritized set of customer requirements into a set of system level requirements during conceptual design (Yu & Fu, 2004).

QFD is a proven tool for process and product development, which translates the voice of customer (VoC) into engineering characteristics (EC), and prioritizes the ECs based on the customer's requirements. Conventional QFD evaluates these targets for crisp weights of the customer attributes (CA), identified from the VoCs. Fuzzy logic approach to prioritize engineering characteristics in QFD (FL-QFD) addresses the issue of defining non-crisp customer attributes in the QFD. It is an innovative method of determining optimum rating of engineering characteristics (EC) by simulating the QFD matrix for randomized customer attributes (CA) in the fuzzier range (Rajam & Selladurai, 2004). Vivianne & Hefin (2000) reviews methods and techniques to assist QFD by integrating fuzzy logic with it since fuzzy logic exhibits some useful features for exploitation in QFD

Engineering systems have become increasingly complex to design and build while the demand for quality and effective development at lower cost and shorter time continues. The study employs neural networks based approach in QFD process to prescribe a new methodology to generate a conceptual design baseline. A generalized neural networks oriented conceptual design process is introduced and a hybrid intelligent system combining neural networks and expert systems for conceptual design. Statistical regression methods adopted in the past is computationally inexpensive but with poor accuracy (Yu & Fu, 2004).

Zhang *et al.* (1996) have proposed a machine learning approach to QFD, in which a neural network automatically evaluates the data by learning from examples. The suggestion is to incorporate the engineering solutions of the product (the in-house and the competitor's product), within the neural network to find weighting that represents the customer's satisfaction. The techniques such as fuzzy logic, artificial neural networks, and the Taguchi method can be combined with QFD.

Neural Network (NN) is an important technology of Artificial Intelligence, which have been widely used, in recent years, for manufacturing process monitoring using output pattern recognition (Guh and Tannock, 1999). Neural networks are found to be a good alternative to traditional analytical techniques, for the modelling of complex manufacturing process. This is because of the number of process variables involved, and the non-linear nature of problems. One major application with neural network is forecasting since they can provide a valid alternative to such conventional approaches as time series and regressions. Compared to the traditional statistical methods, neural network are apparently bare of priori assumptions supposedly underlying the models, more capable of addressing problems in the nonlinear domain where the dependent and independent variables are not realized with linear relationship, and rather more general and flexible to approximate any desired accuracy (Zhang *et al.*, 1998).

They have also been used, less frequently, for process modelling (Heider *et al.*, 2002; Jimenez-Marquez *et al.*, 2003), the approach which has been adopted in this study. A number of successful implementations of neural networks process modelling have been reported in Table 1.



TABLE 1: THE APPLICATION OF NEURAL NETWORKS IN PROCESS MODELLING IS SUMMARIZED

Author (Year)	Process / Production	Training Data	Architecture / learning algorithm
Wimalin & James (2005)	Production of hollow wide cord fan blades for aircraft engines (Rolls Royce)	EX	MLP
Yu & Fu (2004)	Ship design principle	AC	BP
Rajam & Selladurai (2004)	Flexible manufacturing process (FMS)	EX & SIM	BP
Jimenez-Marquez <i>et al</i> (2003)	Cheese manufacturing	AC	MLP/QN
Heider <i>et al</i> (2002)	Thermoplastic tow placement process	SIM	MLP/BP
Benardos & Vosniakos (2002)	CNC face milling	EX	MLP/LM
Hsieh & Tong (2001)	IC manufacturing	EX	MLP/BP
Cook <i>et al</i> (2000)	Particleboard manufacturing	AC	AP
Nascimento <i>et al</i> (2000)	Chemical process	AC & SIM	MLP/BP
Raj <i>et al</i> (2000)	Metal forming and machining	SIM	MLP/LM
Edwards <i>et al</i> (1999)	Paper making industry	AC	MLP
Ko <i>et al</i> (1999)	Metal forming process	EX & SIM	MLP/BP
Yarlagadda & Chiang (1999)	Pressure die casting	AC & SIM	MLP/LM

**Notes:** AC = actual process data, EX = experimental data, SIM = simulated data, MLP = Multilayer Perceptron, BP = Back propagation algorithm, QN = Quasi-Newton Optimization algorithm, LM = Levenberg-Marquardt algorithm, AP = Adaptive gradient rule

## Methodology

The main research design in this study is a survey type that would be used to build QFD modelling and carrying out the analysis. In order to meet the objective of this study, a QFD methodology described by Clausing & Pugh, 1991 is adopted (see Fig. 1).

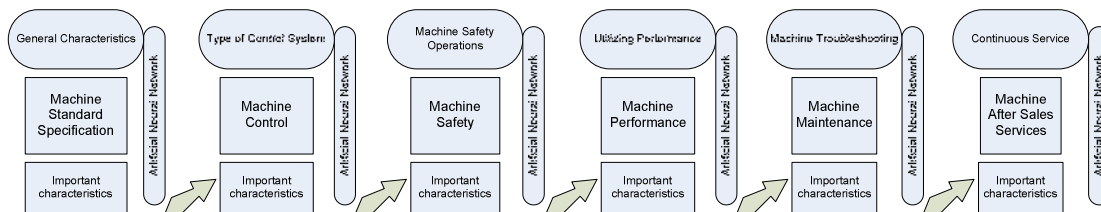


FIG. 1: A PROPOSED ARCHITECTURE FOR ANALYZING QFD FOR CUSTOMER VOICE

For survey purposes, an instrument used is a questionnaire that contains two main sections, a customer profile and possible customer requirements. For customer profile, there are three parameters used namely, name of company or institution, type of customer and type of work piece material used. For customer requirements, there are six (6) sections according to machine standard specification, machine control, machine safety, machine performance, machine maintenance and machine after sales services. The important subject to focus is the target selected to model of QFD for industry which is type of customers. These include professional, management level, maintenance and an operator. A questionnaire was constructed based on the study by Abd Rahman & Mohd Shariff (2003) regarding the application of QFD method for pultrusion machine design planning. It has also been adopted from Khodabocus (2003). Khodabocus study indicates that the most important for QFD questionnaire design for the service is the subject matter under investigation and the statistical analysis employed in the study. This questionnaire is also based on the success factors of QFD projects by Herzwurm *et al.* (1997).

Neural network and statistical tools was employed to carry out the analysis. The approach for building forecasting model is adopted from Integrated QFD model methodology (see Fig.2) which was introduced by San Myint (2003). The NN technique is used to overcome QFD weakness in subjective judgments of relationship values with the help of human expert.

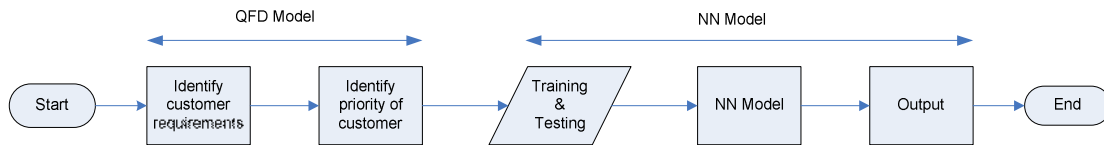


FIG. 2: STEP TO CARRY OUT FOR BUILDING FORECASTING MODEL

## Results

The survey was conducted to investigate and obtain information concerning Quality Function Deployment for general machine planning. The information obtained as a result of data mining activities could serve as guideline for future attempts to build forecasting model of QFD. The goal of the survey was to collect data from four different target type's voice of customers, professional, management, maintenance and operator. They are from engineering and technical background with industrial experience, concerning their views of the resources needed for successful machine planning process in the different areas addressed within the core organizational system, in alignment with its strategy and with particular reference to the experiences in their respective organization.

A total of 300 questionnaires were distributed to various customers, and 223 questionnaires were returned (74.3%). The distribution of customers with respect to their group type is illustrated in Fig.3. Based on Fig.3, the highest percentage for type's voice of customer contributed by operator (45%).

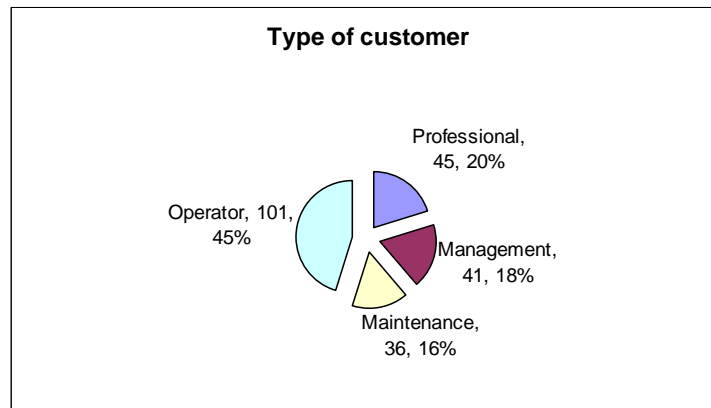


FIG. 3: PIE CHART OF TYPE OF CUSTOMERS

Professional group comes from those who are really involved in teaching how to operate the machine, either in terms of theory or practice. This group is selected from KUKUM, POLIMAS (Mechanical Engineering Department) and ILP, Jitra and 20% from overall sample. It is about 45 persons from three selected institution above. Management is for those who are really involved as a decision maker, such as the Dean and Deputy Dean for a faculty, Managing Director, Senior Executive, Engineer and Assistant Engineer. This group usually has more experience in handling the heavy machine, and also involved in selecting or forecasting the need for a machine at their institution. About 41 person or 18% are willingly to involve as a respondent for this study.

Maintenance group are globally expert from small to big matter in operating machine. They also ready to settle and troubleshoot a problem happen while machine was operated. For this study, around 36 people (16%) from 100% work as the industrial technician almost 10 years. The operator comes from POLIMAS student, the student who has already worked before pursuing their study. They are in final semester and have a good technical knowledge to joint this survey. They gave the exact answer for all questions. 101 operators (45.3%) were selected from 3 different classes (DKM 5B, DTP 6A, DTP 6B).

#### Types of Work Piece and Voice of Customers

Further analysis was conducted to explore the relationship between *types of work piece* with respect to voice of customers (see Table 2). Based on Table 3, all significant correlations at the 0.01 level (1-tailed) are highlighted. The significant attributes include *wood* ( $p = 0.00$ ,  $r = 0.776$ ), *plastic* ( $p = 0.00$ ,  $r = -0.266$ ) and *composite* ( $p = 0.00$ ,  $r = 0.402$ ) out of six type of work piece used. Out of these, *wood* has the strongest (0.776) relationship with voice of customers. This shows that customers prefer *wood* type to other work piece of material. This may be due to the fact that wood is cheaper in price, and easily available. Furthermore, the *wood* specimen can be bought in various sizes and types. The other three types of work piece that do not have significant correlations are *metal*, *mixed*, and *product assembly*.

TABLE 2: TYPE OF PIECE MATERIAL USED/PROCESSED

Type of Work Piece Material Used	Correlation Coefficient (N = 223)	Type Of Customer
<b>Wood</b>	<b>.000</b>	<b>.776**</b>
<b>Plastic</b>	<b>.000</b>	<b>-.266**</b>
Metal	.449	.009
<b>Composite</b>	<b>.000</b>	<b>.402**</b>
Mixed	.183	.061
Product	.000	-.304

\*\* Correlation is significant at the 0.01 level (1-tailed).

\* Correlation is significant at the 0.05 level (1-tailed).

#### Possible Customer Requirements

This section describes machine specification requirement specified by the customers. Results based on Spearman's rho correlation for each machine specification categories are discussed in accordance to the section written in the questionnaire.

#### Machine Standard Specification

For *machine brand*, several are investigated such as from *US made*, *German*, *Europe*, *Japan* and *Taiwan*. The significant correlation coefficient between type of customer and *US machine manufacturer* is  $p = 0.00$  and ( $r = -0.324$ ), *German made*  $p = 0.004$ , ( $r = 0.179$ ), *Japan made*  $p = 0.001$ , ( $r = -0.216$ ) and *Taiwan made*  $p = 0.00$ , ( $r = 0.578$ ). All the correlations stated above are significant at 0.01 levels (1-tailed). The result shows that Taiwan made (0.578) has the strongest relationship among machine brand name or manufacturer.

Among *low duty*, *medium duty* and *heavy duty* items, only *operation type* of *heavy duty operation type* achieved a significant correlation  $r = .208$ , ( $p = 0.001$ ). The result indicates that customers prefer *heavy duty operating type* of machine. This type of machine normally is more robust, and can be used to perform multiple tasks such as sanding, sawing, cutting, pivoting, threading, dowelling and drilling process.

For machine standard specification, *electrical*, *hydraulic* and *manual* machine drive type have significant correlation at  $p = 0.007$ , ( $r = -0.163$ ),  $p = 0.00$ , ( $r = 0.332$ ) and  $p = 0.00$ , ( $r = .229$ ). The hydraulic drive type at  $p = 0.00$ , ( $r = 0.332$ ) is the most significant relationship among this drive type. Only pneumatic drive type does not have a significant level out of four drive type categories. According to the *power in kilo Watt* for machine standard

specification, all types of power consumption had been selected by all type of customer as significant value. *Low power* is defined as *below 1 kilo Watt*; *medium* is *1-5 kW* and *high power* is *above 5 kW*. *Low*, *Medium* and *High* powers have significant correlation in both 0.01 levels and 0.05 levels. *Low power* and *medium power* have significant correlation at  $p = 0.042$ , ( $r = 0.116$ ) and  $p = 0.050$ , ( $r = 0.110$ ), and *high power* has correlation that is significant at  $p = 0.00$ , ( $r = 0.353$ ). *High machine power* is the most significant at  $p = 0.00$ , ( $r = 0.353$ ) rather than low and medium power.

The *table and clamp configuration* usually designed in two types, *horizontal/vertical (xy) axis* and *flexible (xyz) axis*. From the analysis, only *flexible axis clamp configuration* has a significant correlation at  $p = 0.00$ , ( $r = 0.343$ ). The *clamp types* have 3 different clamping, *pneumatic*, *electrical* and *hydraulic*. For this study, all clamp type have a correlation coefficient at  $p = 0.00$ , ( $r = 0.289$ ) for pneumatic,  $p = 0.00$ , ( $r = 0.245$ ) for electrical clamp and  $p = 0.00$ , ( $r = 0.308$ ) for hydraulic clamp. The *hydraulic clamp type* is the strongest (0.308) relationship similar to *hydraulic drive type*.

In general, the *pressure (Nm)* for machine standard specification is divided into three main types, *low pressure*, *medium pressure* and *High pressure*. The *high pressure machine* has the strongest (0.362) relationship with customers' voice compared to other type of machine pressure. The findings of the survey also indicate that customers preferred machine with *Low torque spindle speed* ( $r=0.318$ ,  $p=0.00$ ) to medium and high torque spindle speed. In addition, they also preferred *low load capacity* ( $r=0.13$ ,  $p=0.034$ ), and positioning accuracy ( $r = 0.520$ ,  $p=0.00$ ).

*Dimension* machine standard specification decision is the important categories to locate whether the machine is in the product or process layout. In other words, it should suit the size of the area allocated by the shop floor of machine. From this study, the findings indicate that it dimension of the machine that has *more than 1000 mm<sup>3</sup>* has the strongest significant correlation at  $r = 0.414$  and  $p = 0.000$ . The findings also reveal that the significant *weight* of the machine is more than 2000 kg ( $r=0.414$ ,  $p=0.00$ ).

#### Machine Control

A *machine control* criterion was generated based on the control system for the machine as proposed by Abdul Rahman & Mohd Shariff (2003). With reference to three choices of control system, only *manual control system* has significant correlation at ( $p = 0.000$ ,  $r = 0.332$ ) rather than fully and semi-automated. The machine with *visible control located within hand reach* has correlation coefficient at ( $p = 0.000$ ,  $r = -0.315$ ) at the 0.01 significant level (1-tailed). *LCD display interface* has correlation coefficient at ( $p = 0.031$ ,  $r = -0.125$ ), that is significant. For the *user storage for programs and data* and its correlation coefficient is ( $p = 0.011$ ,  $r = 0.154$ ). For machine control option, it concludes that only four out of fourteen criteria achieved the significant value for correlation coefficient (see Table 4).

TABLE 4: MACHINE CONTROL

	Correlation Coefficient (N =223)	Type Of Customers
<b>Manual</b>	<b>.000</b>	<b>.332**</b>
<b>Visible control located within hand reach</b>	<b>0.000</b>	<b>-.315**</b>
<b>LCD display interface</b>	<b>0.031</b>	<b>-.125*</b>
<b>User storage for programs and data</b>	<b>0.011</b>	<b>.154*</b>

Based on the correlation results, *Manual* is the strongest type of control system for machine specification. This could be due to the reason that the process involved in manufacturing process with wood work piece selected before comes from manual machine control. In addition, all types of customers either technical or non-technical background inevitably would be able to operate this manual control machine.

#### Machine Safety

*Machine safety* is the third important segment for general machine specification. Only four criteria out of ten have four significant correlations at 0.05 levels (1-tailed) as shown in Table 5. *Foot Brake Switch* has the strongest

(0.235) relationship with type of customer. This criteria is preferable to other machine safety type since it is the most commonly used for wood material. It seems reasonable that this type of machine safety achieves significant correlation due to the facts that most material used is wood as indicated earlier.

TABLE 5: MACHINE SAFETY

	Correlation Coefficient (N =223)	Type Of Customer
Earth and insulation to prevent electric shock	0.007	-.164**
Emergency stop button	0.003	-.187**
Foot brake switch	0.000	.235**
Exhaust fan for cutter	0.007	.165**

#### Machine Performance

Machine performance have thirteen important elements that consist of *Sensors for Warning, Alarm Signal for Machine Error, Simple Mould Replacement, LED Display to Show Current Operation, High Production Speed, Can Accommodate Different Types of Product, Utilize Small Amount of Resin, Rigid and High Damping, Minimum Noise and Vibration, Zero Resin Spillage, Able to Whist and Continuous Operations, Reasonable Power Consumption and Low Operational Cost*. Among these elements, four of them have significant correlations with customer's voice, and their correlations coefficients and respective significant values are exhibited in Table 6.

TABLE 6: MACHINE PERFORMANCE

	Correlation Coefficient (N =223)	Type Of Customer
Simple mould replacement	0.013	.149*
Utilize small amount of resin	0.000	.289**
Rigid and high damping	0.001	.201**
Zero resin spillage	0.000	.242**

#### Machine Maintenance

Machine Maintenance contains several precaution steps in preserving lifetime of a machine. In this questionnaire, machine maintenance is measured by several items such as *Easy Lubrication Points, Easy Replacement Parts, Simple Part Replacement, Simple Assembly and Disassembly, Self and Periodic Diagnose and Calibration, Coolant System and Lighting, Quick Mould Change and Set-up and Easy Trouble Shoot*. Out of these items, *Easy Lubrication Points* ( $p = 0.011$ ,  $r = -0.154$ ), *Simple Part Replacement* ( $p = 0.024$ ,  $r = -0.133$ ), *Simple Assembly and Disassembly* ( $p = 0.032$ ,  $r = -0.125$ ) *Easy Trouble Shoot* ( $p = 0.030$ ,  $r = -0.126$ ) have significant correlation with customers voices (see Table 7). However, the strongest negative correlation is shown by *Easy Lubrication Points*.

TABLE 7: MACHINE MAINTENANCE

	Correlation Coefficient (N =223)	Type of Customer
Easy lubrication points	.011	-.154*
Simple part replacement	.024	-.133*
Simple assembly and disassembly	.032	-.125*
Easy trouble shoot	.030	-.126*

### Machine after Sales Services

For machine after sales services, there are 7 items, including *Speed of Supervisory/Technical Person*, *Speed of Spare Part Delivery*, *Reasonable Spare Part Price*, *Continuous Technical Consultancy*, *Near Service Center*, *Availability of Spare Parts*, and *Alternative Offer*. Among these 7 items, *Availability of Spare Parts* shows significant correlation with voice of customer ( $p = 0.027$ ,  $r = -0.129$ ). The results indicate that when customers show an interest in buying a specific machine, one of the most important criteria that they would consider is after sales services. This is to ensure that the machine they bought can be maintained, serviced or replaced the parts whenever it is necessary. Therefore, the *Availability of Spare Parts* becomes important item in machine after sales services section.

### QFD Neural Network Model

The analysis using Neural Network (NN) is performed in two ways. First, each individual entry of the questionnaire would be considered as an attribute for each pattern in NN dataset. The second method is to get the average value for each section in the questionnaire as an entity for NN attributes.

### Individual Entry

In order to determine the most suitable number of hidden units, the dataset was trained with various hidden units ranging from 2 to 20. The results illustrated in Fig. 8(a) indicate that hidden unit 2 and 11 obtained highest test and least training accuracy for both training and testing. A set of networks with hidden unit 2 and 11 were further trained to determine which hidden is more appropriate to be used in the next experiment. The results depicted in Fig. 8(b) show that a network with 2 hidden units obtained higher average classification accuracy than a network with 11 hidden units (53.36% versus 43.88%).

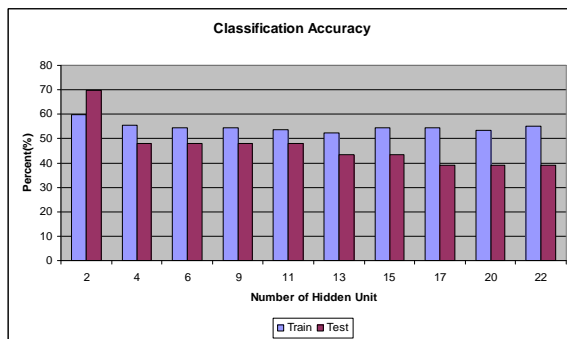


FIG. 8(A): CLASSIFICATION ACCURACIES FOR DIFFERENT NUMBER OF HIDDEN UNITS

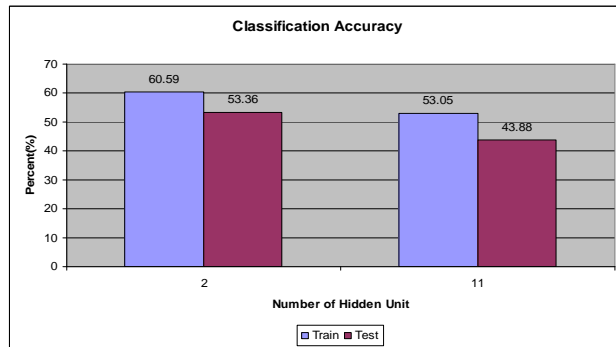


FIG.8(B): AVERAGE CLASSIFICATION ACCURACIES FOR NETWORK TRAINED WITH HIDDEN UNIT 2 AND 11

Experiments have been conducted to determine the suitable number of epoch prior to determining the backpropagation training parameters. For experimental purposes, the learning rate is 0.1 and the momentum rate was set to 0.3. Based on the results exhibited in Fig. 9(a), epochs 600, and 700 obtained the highest test results with 96.25% and 86.59% classification accuracy. These two number of epochs were further investigated by varying weight seeds in order to determine the most suitable number of epoch for the problem at hand. The results displayed in Fig. 9(b) show that a set of network trained up to 600 epoch achieved the highest average test result with 87.696% accuracy or 12.304% misclassification error.

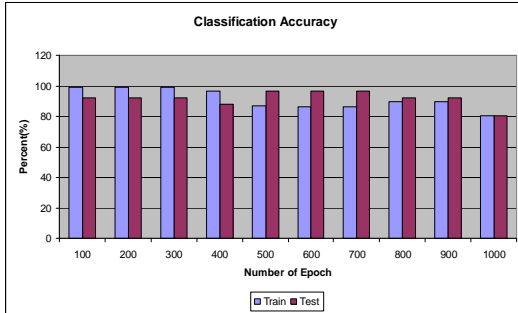


FIG. 9(A): CLASSIFICATION ACCURACIES FOR DIFFERENT NUMBER OF EPOCH

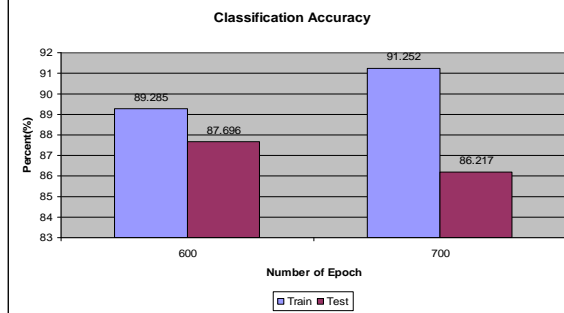


FIG. 9(B): AVERAGE CLASSIFICATION ACCURACIES FOR NETWORK TRAINED UP TO 600 AND 700 EPOCHS

Similar experiments were conducted to determine the learning rate and the momentum rate for Backpropagation learning algorithm. The experimental results show that learning rate 0.1 obtained 40.01% classification accuracy whilst momentum rate of 0.3 achieved 44.78%. Once again the number of epoch was investigated based on the selected training parameters of Backpropagation. The Neural network architecture and training parameters for classifying QFD machine planning datasets are summarized in Table 8 and Table 9.

For the average value (Table 9), the best learning rate is 0.2 while 0.2 for the best momentum rate. Sigmoid activation function has been chosen as it produced the highest test percentage. For the best epoch, 100 is selected as it represents the highest test percentage that is 87.621%. Based on results displayed in Table 8, the best learning rate is 0.1 while 0.3 for the best momentum rate. Sigmoid activation function has been chosen as it produces the highest test percentage. For the best epoch, epoch of 600 has been selected as it represents the highest test percentage that is 87.696%.

The summary of the NN parameters to classify the QFD for machine planning datasets individual entry is listed as below:

TABLE 8: NN PARAMETERS

Parameter	Value
Architecture	Multilayer Perceptron
Learning Algorithm	Backpropagation
Input Node	97
Hidden Node	2
Output Node	4
Learning Rate	0.1
Momentum Rate	0.3
Activation Function	Sigmoid
Number of Epoch	600

#### Average Value

Similar experiments have been conducted by averaging values of items for Type of Workpiece, Machine Standard Specification, Machine Control, Machine Safety, Machine Performance, Machine Maintenance and Machine after Sales Service. For brevity, the results are summarized in Table 9.

TABLE 9: NN MODEL FOR AVERAGE VALUE

Parameter	Value
Architecture	Multilayer Perceptron
Learning Algorithm	Backpropagation
Input Node	97
Hidden Node	4
Output Node	4
Learning Rate	0.2
Momentum Rate	0.2
Activation Function	Sigmoid
Number of Epoch	100

Hundreds of experiments have been conducted to establish a forecasting NN model in this study. For both models, the architecture of NN model can be expressed as 97-2/4-4 or 97 input nodes, 2 or 4 hidden nodes and 4 output nodes. Both models used sigmoid activation function, backpropagation learning algorithm with slightly different learning and momentum rates. To this end, the performances of both models are presented in Table 10. Based on the results, the datasets with individual value achieves higher percentage accuracy (87.696%) or lowest misclassification accuracy (12.304%). Therefore, NN model summarized in Table 10 is chosen to represent the QFD model based on voice of customer with architecture of 97-2-4.

TABLE 10: NN MISCLASSIFICATION ERROR

Multi-Layer Perceptron (MLP) (Individual Value)	Multi-Layer Perceptron (MLP) (Average Value)
12.304%	12.379%

## Conclusion

There are few reasons why we need to build QFD forecasting model and identification of relationship between type of customer and QFD:

- QFD forecasting model is to help the manufacturer to find the best machine specifications.
- QFD forecasting model gives the customer to give a response on a product/service with no limit in computerized form.
- Help the designer to concentrate much more on identifying customer satisfaction towards the design specification of the product. The data gathering from customers will be easier to understand and analyze.

The findings presented in this paper may benefit all purpose of measurement related to customer satisfaction and needs. The future application may be applied into new product development, product liability, ISO9000 series, process assurance, services, part suppliers, material and processing equipment manufacturers, reliability and technology deployment. In summary, the findings from the experiments conducted indicate that the significant correlations with customer voices are summarized in Table 11.



TABLE 11: CORRELATION SUMMARY

Section	Significance item	Significant values	Spearman's rho Correlation
Type of workpiece material used	Wood	$p = 0.000$	$r = 0.776$
Machine Standard Specification	Heavy Duty Operation Type	$P = 0.001$	$r = 0.208$
Machine Control	Manual Control System	$P = 0.000$	$r = 0.332$
Machine Safety	Foot Brake Switch	$P = 0.000$	$r = 0.235$
Machine Performance	Utilize Small Amount Of Resin	$P = 0.000$	$r = 0.289$
Machine Maintenance	Easy Lubrication Point	$P = 0.011$	$r = -0.154$
Machine After Sales Service	Availability of Spare Parts	$P = 0.027$	$r = -0.129$

These correlations help to explain the relationship between attributes used in the study. To complete the study, NN forecasting model has been established with 12.304% misclassification accuracy in determining the customer voices based on QFD. The study indicates that the approach has some potential in providing some information regarding the relationship between QFD and the customers, as well as predicting the type of customer if QFD information is provided. Hence, the study reveals the type of machine and type of operation that are favourable to customer prior to acquiring the machines for their industrial usage.

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# Evolution of Network Governance: Control & Coordination in a Network Context

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## Abstract

This paper builds upon the work on comparative governance systems (Todeva, 2005), and on the development of business network theory (Todeva, 2006, 2007). Business networks are dynamic agglomerations of interconnected firms, where there is an overlap between contractual relationships, inter-firm resource flows, and joint and collaborative activities. For our analysis we suggest that network governance is a system / mechanism for allocation of resources, control and coordination of economic activities at network level. On these grounds this paper attempts to address the questions of the governance of interconnected and interdependent firms using collaborative relationships. We compare the institutional arrangements for the governance of the Japanese *Keiretsu* and *Sogo-Shosha* business networks. The main conclusions from this analysis relate to the efficiencies generated by an institutional and relational environment that supports sharing of risks and information, and the alignment of interests via optimisation of benefits across the network.

## Introduction

Most of the discussions on corporate governance have been dominated by the scholarship research that focuses attention on the Anglo-American corporate system based on publicly traded assets, distributed ownership, separation of ownership from control at corporate level, and the distribution of rents among investors and other residual claimants. The economic and strategic management literature that engages with these issues has argued for the supremacy of the Anglo-American model of corporate governance over the 'welfare capitalism' (Germany, Japan). The theorising has built upon an efficiency argument that lead to a believe that financing and control of corporate activities is best undertaken within the institutional environment associated with the stock market, and that the wealth creation for shareholders and stakeholders is maximised under the conditions of 'perfect' markets and competitive relations. The fundamental market imperfection is treated as an illness of the system that can be remedied with various regulatory efforts by the state.

The discussion under this leading stream in corporate governance theory has been dominated by concerns with the effectiveness of the boards of directors that represent shareholders' interests and exercise a monitoring and control function against the opportunistic behaviour of managers. The future development of the shareholder system has been sought mainly through alignment of the interests between managers and shareholders and through improvement of the information asymmetry between them. The present crisis of the system is attributed mainly to weak boards and lack of independency of the outside directors in order to exercise their governing role (Gupta, 2002). The remedy of the system is sought to be enhanced by more active regulatory intervention on behalf of government and regulators, by stock market self-regulation, and by positive action of the corporations themselves to enhance transparency and to re-build the trust with their stakeholders.

This discussion ignores the fact that the modern corporation in its present form is a business network of *interconnected* and *interdependent* units, *embedded* in different business systems scattered throughout the world. The multinational enterprise (MNE) that controls assets in multiple markets is tied in contractual relationships with multiple host-governments and local suppliers, customers and institutions beyond the reach of its home governance structure. The adversarial and competitive relationships in one market are not replicated in another, where different context of the competitive environment applies. Hence, the corporate governance mechanisms put in place to control strategic management decisions in the home environment may be no longer binding the strategic choices of remote units in host countries.

The interdependence between strategic business units and alliance partners is fundamentally underpinned by technological linkages, value-added chains, resource dependencies, and numerous other ties that induce strategic

choices that are more aligned to the conditions in these interdependent environments, rather than to efficiency considerations. The strategic choices and strategic decisions (and their implementation), that are ultimately responsible for the value-creation and wealth creation by multinational enterprises (MNEs), are framed by resource and operational interdependencies, and by their embeddedness in the institutional and the relational environment surrounding each autonomous business unit.

This paper attempts to go beyond the efficiency argument in relation to different corporate governance systems. We do not want to argue for supremacy of one mechanism over another. We take a holistic approach to the corporate governance mechanism, as a set of institutional arrangements (mechanisms, tools and practices) that have evolved to facilitate the allocation of resources for corporate activities. We base our analysis on the definition of corporate governance as a system / mechanism for allocation of capital and corporate resources, for co-ordination and control of economic activities at firm level that facilitates: strategic direction, accountability, transparency, wealth creation (Todeva, 2005). We also distinguish that modern MNEs represent complex business networks, and their governance can no longer refer to them in singularity. Network governance builds upon everything we know about corporate governance, but recognises that any governance mechanism applicable to a modern MNE is conditioned by multiple institutional and relational environments. Its effectiveness depends heavily on the structure of the corporation and on the actor's attributes, or these resources and capabilities that are employed in the value-creation process, including their development and growth through learning and knowledge sharing.

Our in-depth analysis of the governance systems and practices in two cases – the Japanese *keiretsu* networks and *sogo-shosha* networks - aims to demonstrate the challenges that corporate governance theory is facing. The governance mechanisms employed in these cases promote the argument that collaborative inter-firm relationships are effective tools for information sharing, for risk and resource sharing, for learning and development of intra-corporate capabilities, and for effective management under the conditions of uncertainty and rapid change.

## **Determinants of Network Governance**

The efficiency arguments that derive from the neo-classical economic theory commence with the assumption that shareholders are these entrepreneurs that invest their capital in efficient manner, and managers are another type of entrepreneurs, that take risk and make strategic decisions by which they achieve the ultimate corporate objectives for enhanced performance and profitability. The evidence however, of the source of efficiency in this scenario is very inconclusive. In addition to managers and shareholders, there are numerous other stakeholders that have direct impact on the value creation process and the subsequent corporate performance. These are employees (implementing the strategic decisions), middle managers (coordinating operations and activities in efficient manner), suppliers and clients (directly affecting the value creation and the value-realisation processes).

Wealth creation for shareholders and stakeholders is also a derivative of the overall environmental conditions that the corporation is facing on a global scale. Performance is affected not only by the strategic decisions and the mechanisms of financing and control, i.e. a particular corporate governance system, but also by the market conditions and location advantages in international business operations of the MNCs. The performance of each business unit is dependent on the local input and output markets. The overall corporate performance depends on the cumulative effects of both – the global market trends and the local market conditions.

Hence, both firm performance and wealth creation are hugely dependent on the intra-firm and inter-firm structures and relationships that facilitate decision-making and decision implementation, and the overall coordination of activities. They are simultaneously a function of governance, strategic decision making, environmental context, and internal resources and capabilities (Fig. 1). Corporate performance is also directly affected by environmental factors such as institutional and relational embeddedness.

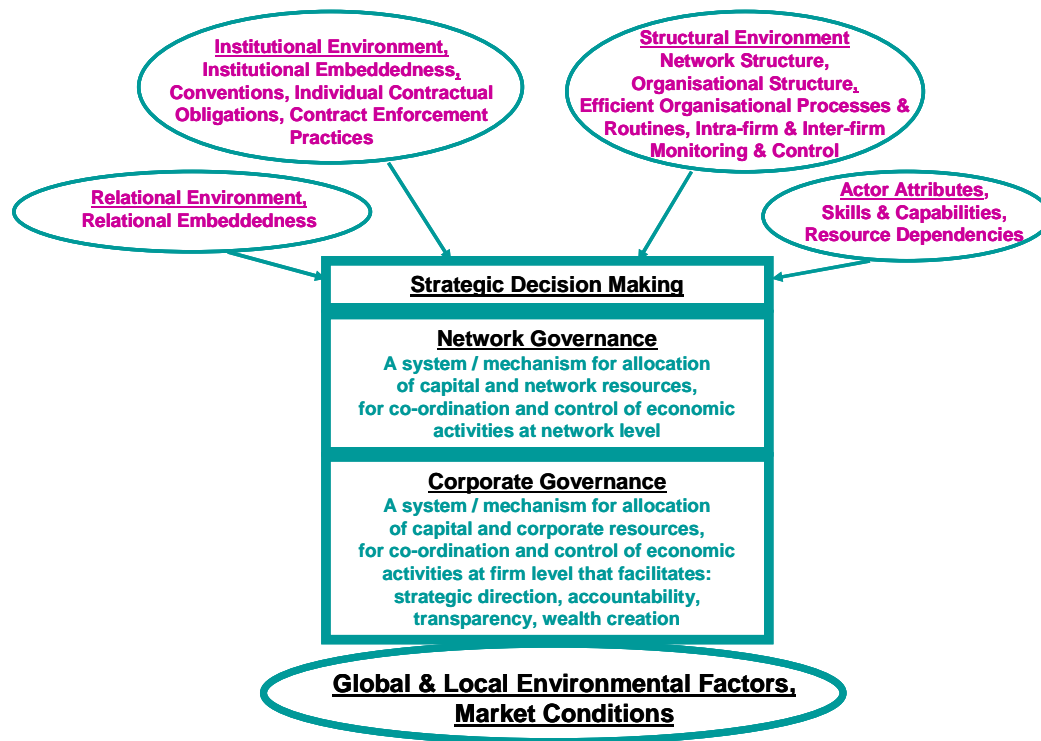


FIG. 1: FACTORS AFFECTING THE NETWORK GOVERNANCE SYSTEM: A CONCEPTUAL FRAMEWORK

Another critical question omitted from the discussion on corporate governance is the scale of operations of the MNEs. The very fact that some large multinational firms have annual turnover exceeding the budget expenditure of developed national economies suggests that the scale of co-ordination and control within the corporation requires extremely high level of administrative efforts. As a network of activities, the MNE has to apply a multitude of internal control mechanisms, including using financial targets, performance based targets, budget allocation, and other planning tools. The mesh of intra-organisational and inter-organisational relationships requires network governance aiming at relationship management as much as at resource management.

The model in Fig. 1 describes these fundamental factors that have a direct impact on the network governance and strategic decision making. *Network governance* is defined in the context of our definition of corporate governance - *as a system / mechanisms for allocation and control of capital and network resources and their employment in economic activities at corporate network level*. This system evolves in a rich institutional context of the business system in the host country, or country of origin of the parent company, combined with the institutional arrangements for each business unit. The institutional embeddedness is complemented by relational and structural embeddedness of the strategic decision making, where resource flows and the resource dependencies throughout the network structure are coordinated using administrative and non-market tools. This puts the MNE at a focal point in the mesh of multi-lateral stakeholder relations spread across the world. The effectiveness of these control and coordination efforts is therefore determined by the entire set of relational and institutional conditions, as well as by the local market conditions and business environments for each business unit where its activities are located.

In order to understand better this process, by which the leading corporate actors manoeuvre across multiple relational environments while governing resources, we will examine some definitions of the firm that throw light on

the nature of the corporate activity. Then we will look at the internal environment of the MNEs, its structure, competence base and resource dependencies. Ultimately, strategic decisions are framed both by the internal and the external environment, including institutional and relational context.

In Williamson's view of the firm (1975, 1988, 1991), it is the organizational structure that economises on transaction costs, rather than the governance structure. The governance structure has evolved merely as a substitute to compensate for the inefficiencies that emerge from the separation between the ownership and control.

Different theories refer to different definitions of the firm. Whitley (1993) defines firms as centres of economic power that combine *allocative decision making* with *authoritative coordination* of economic activities and as such they add value to human and material resources through collective organisation of work. Firms are seen as dominant units of strategic decision making and planned coordination that combine *differentiated skills, capabilities and knowledge*, and embody a *collective organisation* which transforms human and material resources into productive services. Intra-firm networks represent even more complex structure of layers and modules of differentiation that require coordination.

Mark Casson (1998) gives another definition of the firm – as an institution that specialises in coordination of business functions using a single locus of responsibility as a legal entity, and a structure designed to harmonise the decision making efforts of a group of people. Business networks on the contrary represent a system of multiple focal areas of responsibilities where the power and influence of the headquarters are challenged by localised institutional arrangements. There are many descriptions of complex inter- and intra-organisational agglomerations and many classifications of organisational structures that attempt to synthesise this knowledge (see Todeva, 2006). The most important aspects of these classifications are that there is an evolution of organisational forms from more simple to more complex systems, where the relationships between the constituent parts represent different configurations – from modular and nested structures, to dispersed formations utilising both strong and weak links to interact between each other. Each type of structure accommodates different forms of power and different monitoring and control mechanisms. Structures are responsible for the effective contract enforcement within each organisation and between organisations within the network.

The M-form or multi-divisional form of organising that is associated with multinational corporations was invented in the context of the General Motors corporation in the US to encompass: central control and ownership; vertical integration of the production; formal internal coordination through vertical and horizontal linkages; corporate head office function and specialized staff concentrated in departments and sub-units. The M-form of structure represents an evolution and adaptation of organisational hierarchy under the conditions of complexity and uncertainty of operations. The M-form of structure enables the internationalisation of the firm and the emergence of the trans-national corporate network with centralised governance and modular type of coordination of activities.

The M-form is challenged mainly by the hybrid or network type of organisation, based on intra- and inter-organisational relationships partnerships and strategic alliances that generate a complex system of interdependent business activities. The main principles in hybrid network organisations and heterarchies described by Hedlund (1986) are the following:

- co-ordination is through *lateral referrals* and lateral decision process and integrating mechanisms;
- key skills are *dispersed* through the network;
- communication and co-ordination is based on *shared values and normative integration*;
- co-ordination and control is based on *dynamic strategy-structure adjustments* in response to changes in performance and changes in the environment; and
- balance is sought between *horizontal and vertical integration* using simultaneously output based and behaviour based control.

While the economic theories of the firm look at the firm as a black box, as a unit processing inputs into outputs, the behavioural theory of the firm (BTF) looks at what happens inside the firm, how the throughput takes place as economic activity, and how decisions are made regarding production, scheduling, and inventory. In its essence BTF can be described also as a network theory of the firm, where decisions are interpreted as a sequential process which includes both rational and non-rational aspects, relationships and resource dependencies.

All these new theoretical work on organisations indicates that the modern corporation is no longer characterised by pre-specified and stable relationships, instrumentality of goals, additivity of parts, uni-directionality of command,

universality of communication flow, and synergy in activities. The network type of organisation resembles dynamic relationships, continuously re-negotiated goals, dispersed control and multi-directional flow of communications and resources.

The board of directors of such business network can not bring value added to the corporation, unless it takes direct responsibilities over strategic decision making and implementation. Its monitoring and control function may not enhance corporate performance directly, or add value. Sanctioning managers for opportunistic behaviour is not a value adding activity by itself, but a final resort when crisis is imminent. The true value-adding activities derive from the co-ordinated actions of managers, workers, investors, suppliers and customers among other stakeholders. The empirical research by Pettigrew and McNulty (1995) also shows that the power of outside directors to exercise a positive effect on the corporation is affected by a multitude of factors such as: personal capabilities and legitimacy; the need to maintain a positive attitude in this collaborative settings; political will and interpersonal skills in building Board coalitions; the need to subscribe to norms and expectations that derive from the role of outside director; the learning time required to grasp the complexity of the corporation; the interpersonal dynamics that emerge as an outcome of the selection of board members. The effectiveness of the Board as a monitoring and control device (or institution) has been questioned with this research.

Another critical factor that frames strategic decision making and implementation at corporate level is the institutional environment. Although almost all market economies have attempted to establish stock market institutions and governance relations of the Anglo-American type, it is clear that there are significant differences both at the level of institutional requirements, incentives and constraints, and at the level of coordination and control practices. These variations derive from the evolution of a large number of relationships that bond economic actors in a network system, and that provide framework and context to all resource-allocation decisions. The evolution of these relationships establishes a framework of enactment of ownership rights, control functions, and their coordination across the entire relational system. Fligstein and Freeland (1995) describe this relational system as tensions between: 1) the control relationship between management and workers, 2) relationship between management and shareholders; 3) division of labour and the subsequent division of power and responsibilities within the corporation or intra-corporate intra-management relationships, 4) relationship with investors and capital markets, 5) relationships with suppliers, 6) relationships with competitors, 7) relationships with the state, with governments and other public institutions.

If we look at the corporate governance as a mechanism for allocation of resources in the economy and for creating value-added, then we need to consider all relations between economic agents that are critical in determining productivity and efficiency. The relations between shareholders and managers (ownership and control) no doubt are fundamental to financing corporate growth. Relationships with shareholders and investment fund managers are also important as they need to have trust in the working of capital markets and the market for corporate control in order to make their funds available. Managers and workers and all other actors involved intra-management and intra-corporate relations need to have consent over the operations and the strategic directions of the firm in order to expropriate the invested capital in the most efficient way. Relations with suppliers are critical to achieve superior quality and to increase competitive advantage. Relations with government are critical for the legitimacy of the corporate activities and therefore affecting relations with all other stakeholders. Even relations with competitors are important for determining industry standards and as a form of self-regulation, avoiding costly and deadly collisions in the market place, and co-ordination of the direction of technology, product and process innovation.

Managing each of these relationships employs parallel political processes of negotiations and influence. Independent political processes take place simultaneously inside the corporation (affecting decision making and decision implementation), inside the Boardroom (affecting the function of the independent directors and the entire Board as an institution), and inside investment funds (affecting investors' attitudes and the certainty of capital supply). Clearly political processes affect not only the allocation of capital to productive assets, but also the efficient expropriation of this capital for wealth creation.

These political processes take place in a specific institutional environment that produces stable behavioural patterns and expectations that reduce monitoring and control costs. Among the elements of the institutional environment that shape behaviour and strategic choices are: *contracts, rules, procedures, practices, roles, positions, norms, expectations, constraints* and *incentives*, or the normative framework that governs behaviour and

interactions. These concepts represent different mechanisms whereby a particular normative element exercises pressure on actors, and as such, it frames their motives for action, their choices of partners, and their patterns of interactions with these partners.

Although each of the concepts describing the normative framework invites multiple definitions and interpretations, there is a fundamental understanding that *contracts* usually specify incentives and constraints in the form of responsibilities, liabilities and rights for each actor. Contracts are explicit agreements that are formulated in texts and legal documents. *Rules* and *procedures* are also explicit statements governing practice as they indicate required behaviour. They are employed in hierarchical structures, but can be incorporated in any relational settings which are governed by authority, or by contracts and agreements. Contracts, rules, and procedures represent the formal side of the institutional framework, including expected behaviour, where monitoring and control of this behaviour are possible.

The interactions between network actors start with some agreements and repeat over time for the duration of the agreement. Repetitive agreements lead to the emergence of conventions that are observed as business *practices*. Some agreements are sealed by formal contracts, while others are acknowledged as informal and implicit commitments that translate into action. Practices represent accepted or legitimate behaviour motivated by the implicit commitments that each actor undertake. Practices are established in the context of a set of constraints and incentives and implicit or negotiated rules and procedures, and they generate mutual expectations.

The diffusion of certain practices and interactions in a network is uneven process, where actors play different *roles*. Roles are simultaneously assigned from one actor to another, and/or voluntarily adopted by each actor. Roles in business networks are ascribed to individual actors by the headquarters and by the set of network relationships in which individual actors are embedded. Negotiations of roles between actors represent informal agreements between them. Role performance and role enactment are the internalisation of these agreements.

Interaction and transaction patterns over time crystallise at differentiation of *positions*, where different actors occupy different positions according to their involvement in the transaction path, or the value chain of activities. Roles and positions induce status for individual actors, which represent another institutional mechanism that governs behaviour and generate expectations.

Although positions are specific actor's attributes and network characteristics, a position is changing by the activities of the actors. Both roles and positions are communicated across the network and give signals to the other network members regarding the potential for a relationship. Positions and roles are accepted by other interacting parties and hence are elements of the normative framework that governs all interactions and behaviour.

*Norms* are cultural artefacts that emerge on the basis of shared values, beliefs, and expectations within cohesive groups of actors. Norms are elements of the corporate culture which are known to impose constraints on actors that have internalised specific values.

Constraints can be interpreted both in terms of physical or technical boundaries, and in terms of institutional prescriptions. The awareness and acceptance of these boundaries and limitations suggests to actors particular choices and decisions, or a particular course of action. While constraints regulate behaviour and activities of network members, incentives generate new motives for action. *Incentives* are classified as internal and external to the network.

## **The Japanese *Keiretsu* and *Sogo-Shosha* Corporate Networks**

The aim further in this paper is to compare two Japanese cases of governance of corporate networks – the *Keiretsu* governance and the *Sogo-sosha* governance with the purpose to identify specific institutions and mechanisms within the welfare capitalism that facilitate economic growth and wealth creation.

### **Japanese Zaibatsu /Kkeiretsu**

The history of the big business groups in Japan *keiretsu* starts with their pre-war establishment as family-controlled business networks called *zaibatsu*, or giant trading conglomerates that ran most of pre-World War II Japanese industry. The historical Japanese family business *zaibatsu* resembled a closed intra-family corporation, where family



investors were not able to take back their own investments, and some family businesses remained undivided for more than 300 years (Numazaki, 2000).

As a form of business organisation, *zaibatsu* was controlled by a family council *Shacho-kai*, and the change of the number of partners took place only through family adoption, by marriage, or by birth and death. The inheritance law in Japan, is perhaps one of the most significant factors historically that led to the consolidation of the family power in Japan and Korea, compared with its relative fragmentation in other countries in the region.

The *zaibatsu* institution combined the wealth of rich merchant families, the organizing capabilities of warriors, and the expertise of university graduates in order to create large-scale family controlled conglomerates. *Zaibatsu* represented also a corporate network and was an organisational form, that emerged in response to market failures at the time of Japan's early industrialization after the Meiji Restoration in 1868 (Hirschmeier and Yui, 1981, Imai and Itami, 1984, Lynn and Rao, 1995). The market failure at that time is described as the inability of capital markets to allocate efficiently resources to entrepreneurs because of the lack of an infrastructure to mobilize savings and to facilitate risk assessment for investment in new business ventures, especially, in industries such as mining, steel and shipbuilding (Lynn and Rao, 1995). Jacoby (2000) also puts forward the arguments that Japan, like Germany, France and other European countries experienced the pressures of late industrialisation catch-up, and the state played an active role to mobilise national resources in order to level up with already industrialised Britain. The relational governance system allowed the Japanese government to protect infant industries and to allow them to grow. Although with the development of Tokyo stock market an alternative mechanism of financing investment and growth was established, the old tradition prevail until the most recent consolidation across the financial sector in Japan.

The new enterprise system in the 20<sup>th</sup> century comprised of narrowly focused and inter-linked factories, effective at transferring new technologies between the Western economies and the Japanese economy (Imai, 1992), and possessing 'permeable boundaries' that enabled them to gain economies of scope (Fruin, 1992). Part of the system were the *zaibatsu* in-house 'organ banks', insurance and trust companies, that enabled the *zaibatsu* to overcome the weakness of the Japanese stock exchanges, and to mobilize and channel financial resources to entrepreneurial ventures (Lockwood 1954). The retained profits were allocated to new ventures through internal finance and budgeting systems, which facilitated endogenous growth.

On the one hand, the *zaibatsu* controlled constituent units through stock held by the holding company, through centralized purchasing and sales functions, and through despatching directors to manage subsidiary units. The holding company exerted authority over the constituent units to reconcile incongruent goals and aspirations. On the other hand, the *zaibatsu* were market-like organizations to the extent that constituent units behaved independently and competed for resources, and some of them acted as entrepreneurial organizers of economic activity (Gerlach, 1992a, Lynn and Rao, 1995).

In the post-War period, serious attempts to dismantle the Japanese holding companies were made by General MacArthur and the occupation forces in 1946. Subsequently, encouraged by government industrial policies, the reunification of formerly connected businesses through cross-shareholding and mutual business dealings under the name of *keiretsu* took place. Many of the *zaibatsu* practices, traditions, and network formations were resurrected under the new governance form.

- Institution-centred 2-tier governance system
- Multi-level boundaries of corporate units with interlocking ties
- Resource & capabilities-based division of labour
- Managing through co-ordinating interdependence

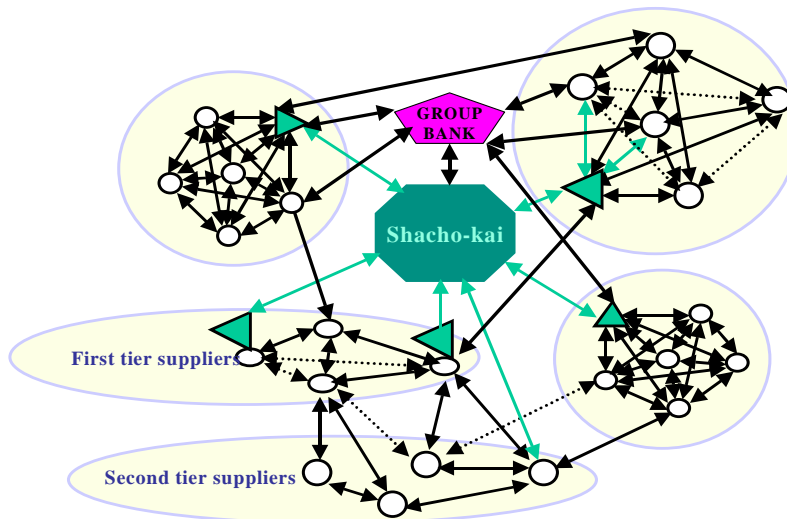


FIG. 2: JAPANESE *KEIRETSU* BUSINESS NETWORKS

The present *Keiretsu* networks comprise of close, long-term business relationships established by large corporations with selected groups of smaller firms, financial and trading institutions. They represent a web of overlapping financial, commercial, and governance relationships, initiated from a central core to pull-in large segments of the Japanese economy (Gerlach, 1992a, 1992b). Present Japanese inter-corporate *keiretsu* relationships are considered in terms of three different structural conditions to facilitate interactions: corporate groups, with financial centrality, and industrial interdependency through value chain activities. These corporate groups are not conglomerates as the holding companies are illegal under Japan's post-war commercial law. The companies are independent and publicly traded. However, they are linked through cross-shareholding investment and the exchange of personnel, through shared debt and equity, and mutual strategic plans. The strategic leadership resides within the presidents' club *Shacho-kai*, where implicit rules and shared understandings in unstated "gentlemen's agreements" lead to co-ordination and general co-operation for mutual benefit (Futatsugi, 1986, Kester, 1991, Gerlach 1992b, Shimotani, 1995, Tezuka, 1997).

*Shacho-kai* as an institution represents the interests of the inner circle of the *keiretsu* as a clique of firms whose reciprocal commitments stem from long association and strong collective identity (Lincoln, *et.al.*, 1996). This association of the presidents holds monthly meetings to discuss group strategy. It supports group solidarity, mediates intra-group activities, and settles intra-group disagreements. *Keiretsu* members can thus develop plans based on activities that other *keiretsu* members are pursuing. Although it appears that *Shacho-kai* facilitates insider trading and may be called ineffective allocation of resources, it does provide an efficient platform for managing intra and inter-corporate relationships, which is a major contributor to wealth creation within the corporate group.

Numerous firms lacking *shacho-kai* seats are also tied to the group through their financial and commercial ties, and through various forms of monitoring and governance practices. For example, middle managers of *keiretsu* firms meet monthly to discuss operations and to co-ordinate corporate activities. This is another effective

mechanism for intra-group knowledge management that facilitates learning and innovation within the group, as well as sharing skills, capabilities, best practices on a wider scale.

Other direct linkages within the *keiretsu* are represented by the stable corporate cross-shareholdings, by dispatch of managers to insider director positions, and by director interlocking as control relations that are superimposed on the network of business dealings (Lincoln *et.al.*, 1996). All these mechanisms lead to alignment of interests among managers within the group and strengthening of the governance framework. In addition, these co-operative relations bring intrinsic value to the corporate network as they smoothen the internal negotiations between agents, and member firms. These relationships also facilitate co-ordination for innovation, development, and growth.

Regarding the cross-shareholding within *keiretsu* networks, share ownership is a symbol of commitment and mutual obligation, rather than motivated by expectations of dividends and returns on investment (Tezuka, 1997). A typical *keiretsu* core company will have 20% to 40% of its stock owned by other companies within the *keiretsu*. Long-term shareholding agreements with other corporations create a situation whereby 60% to 80% of the *keiretsu* stock is never traded (Industry Week, 1992). As the stock market is not the main source of financing for the corporate group, this limited trading of shares of large Japanese multinational groups is not necessarily a detriment, but could be interpreted as a spare and underutilised mechanism that can be employed in cases of financial difficulties.

In addition to these direct forms of relational governance, there are a number of other indirect ties that bond the commercial and investment activities within the *keiretsu*, such as: (1) the selection of *keiretsu* trading partners, (2) the amount of borrowing from group banks, (3) the extent of shareholding by group banks and corporations, (4) the selection of board members from the management of big leading firms (Lincoln, *et.al.*, 1996). These represent specific governance mechanisms that enhance international operations, generating both internal and external synergies.

Overall financial and commercial dependencies exist both ways: on the group banks for borrowed capital, and on the group manufacturers and trading firms as buyers and sellers of products and services. However, the 'relational-insider' governance system appears to be better equipped to manage interdependencies, as it has established institutions, mechanisms and platforms for negotiations, information sharing and enhanced intra-corporate learning.

There are numerous classifications of Japanese *keiretsu*, emphasizing on specific aspects of the network formation – vertical, horizontal, supplier-based, bank-centred. Overall there is an overlap between different categories, and most features are observed in each of the *keiretsu*. A supplier *keiretsu* is a vertical group of companies, centred along a major manufacturer, such as Sony, Honda, and Matsushita, which run multi-tier supplier networks. As an example of this form of business organisation Toyota has more than 60 percent of its parts and subsystems supplied by external contractors – tied in long-term contract relations, and Canon is outsourcing nearly 90 percent of the value added components in its copiers to related companies (Industry Week, 1992). The vertical *keiretsu* represents formation that is highly vertically integrated along the value chain. It is held together by a complex mix of inter-linked people, financial resources, information flow, parts and product exchanges, and joint technology development agreements. Toyota has established a first-tier suppliers' group, the *Kyokukoukai* (176 companies); Nissan has its *Takarakai* (104 companies). Members of the vertical *keiretsu* have had little choice but to accept this combination of co-operation and competition. Vertical *keiretsu* is a way to create competitive teams of inter-linked suppliers, engaged in product and process development (Tezuka, 1997, Kim and Limpaphayom, 1998). This governance form delivers both cost efficiencies (within the supply network) and enhanced productivity from co-ordination of business activities, technologies and practices.

Ownership is only a part of this linkage: most lead firms have minority shares in their suppliers. The lead firm encourages the second or third supplier to match the first supplier's cost and quality, often passing along important technical and process information on the first supplier's operations – a clear example of sharing competences and capabilities between competitors, which creates added value to the group.

The lead firm tries to avoid monopoly power in its network, thus stimulating all suppliers to be more efficient and price competitive. Suppliers in the same *keiretsu* group co-operate in projects, and yet compete with each other and with outside suppliers to excel in quality, delivery, reliability, and cost performance (Tezuka, 1997).

This dynamic is an evidence of the positive effect of managed expectations that creates collaboration among competitors, and can be attributed clearly to the 'relational-insider' governance system.

The bank-centred *keiretsu* are larger than the supplier-only *keiretsu* and include those headed by the four largest pre-war industrial groups or *zaibatsu* (Mitsui, Mitsubishi, Sumitomo, and Fuyo) and the two major bank-centred groups, Dai-Ichi Kangyo Group and Sanwa Group. They are also called Mutual Insurance Systems (Tezuka, 1997). Their member companies come from a variety of industries, and they seek to integrate not only vertically, but also horizontally. Although there is a deep restructuring of these *keiretsu* groups triggered by the consolidation of the financial sector in Japan and the most recent merger of their group-banks, the literature has described sufficient details of their governance system at the pre-consolidation stage.

Financial or horizontal *keiretsu* represent a two-tier corporate governance system, where corporations are linked together through an extensive network of corporate cross-shareholdings, and corporate members have close ties to a main bank. The *keiretsu* bank not only provides member firms with debt financing, but also owns a substantial amount of each firm's equity (Kim and Limpaphayom, 1998).

In normal situations, usually the first stage of group governance intervention is in place, and corporate shareholders provide mutual monitoring through the linkages and institutions described above. When firms are performing well, *keiretsu* financial institutions do not restrain leverage levels, and *keiretsu* formations encourage cross-investment and collaboration among corporate members. Both corporate owners and managers take responsibilities for the higher leverage and for the expansion of trade credits and account receivables as a common source of short-term financing (Prowse, 1990, Kim and Limpaphayom, 1998). At this stage there is no significant relationship between ownership structure and financial leverage as banks approve and handle most transactions (Kim and Limpaphayom, 1998).

In situation of crises and reduced profitability the *keiretsu* network reacts with a second-stage governance intervention. The bank assumes control to reduce debt, and acts as an ultimate disciplinarian (Hoshi, *et.al.*, 1990). *Keiretsu* banks can reduce financial leverage levels of their member firms in several ways: (1) allowing interest concessions, (2) providing equity infusions, and/or (3) writing off outstanding loans. Financial institutions act as both debt- and equity holders, and allow their member firms to carry more debt (Kim and Limpaphayom, 1998). The recent mergers of *keiretsu* banks are expected to have a positive impact towards increased financial discipline and reduced debt. This can reduce the banks' bail-out powers, but it will not negate the other financial mechanisms that have been used in the past to assist group members in crisis situations.

*Shacho-kai* membership ties, as well as trade, debt, and equity ties are stable relations that increase the possibilities for assistance when a partner firm encounters difficulties. Member companies usually maintain or even increase their equity in the troubled firm. Directors are transferred from the main bank and major trading partners to the firm's board to assist in strategic and operational decisions. Network suppliers and customers adjust their contracts to favour the target firm and transfer technical personnel to its operating divisions. Network members may in addition mandate exclusive purchases from the target firm's product line until the crisis has passed (Lincoln, *et.al.*, 1996). Enhanced financial discipline as a result of the banking consolidation is expected to raise the criteria for assistance, but it does not change fundamentally the governance system, and may have a limited impact on these practices of cash-flow assistance.

*Keiretsu* equalizes the fortunes of their members, smoothing inequality in financial returns across participating firms. Members are not able to maximise their benefits, i.e. extraction of profits and rents, but instead have been obliged to optimise output measures. *Keiretsu* networks are seen as clusters of large firms charging each other "efficient" prices (i.e., prices in line with their respective opportunity costs) while collectively extracting other market benefits through a collective action for maximizing the joint welfare of all member firms (Lincoln, *et.al.*, 1996).

*Keiretsu* members face lower risk than independent companies in Japan, because the whole *keiretsu* group shares individual risks. *Keiretsu* companies obtain lower interest rates from both *keiretsu* banks and from other financial institutions, and tend to have higher debt ratios than either independent Japanese companies, or their U.S. counterparts (Tezuka, 1997).

*Keiretsu* groups also claim to be an effective organisational system of minimising transaction costs, and reaping efficiency gains by economizing on information and control through regularized communication and

exchange (Williamson 1985). They avert the threat of over-organization by keeping their contractual arrangements implicit and their modes of monitoring and intervention informal and flexible (Lincoln, *et.al.*, 1996). *Keiretsu* membership can be interpreted as a 'hedge against future failure' (Aoki 1988:280). The advantages of *keiretsu* governance system are: their flexibility, adaptability, facilitated information and knowledge exchange, access to a range of alternative sources of financial assistance, and collaborative attitude to problem solving. These are an asset to the Japanese *keiretsu* groups not only in their home market, but also in their international operations. By integrating the political process within the system, *keiretsu* governance offers a valuable mechanism in building relationships with host governments in international business ventures, and other partner firms in multinational alliances, or with their foreign subsidiaries.

#### Japanese Trading Networks - Sogo Shosha

Japanese trading companies *Sogo Shosha* emerged since the 17<sup>th</sup> century and have further evolved from providing services as middlemen to their clients and *keiretsu* members to diversifying in different business areas with higher risk. In building diversified business portfolios *shosha* have settled as hubs in large business networks, controlling complex flows of resources. At various times *shosha* have acted as commission agents, importing and exporting on behalf of clients; as dealers, trading in their own right; as middlemen in transactions between members of a *keiretsu* network; as financiers, lending money to smaller *keiretsu* members; as facilitators and intermediaries in negotiations with foreign partners; and more recently as investment-trust managers, venture capitalists, and business consultants (The Economist, 1995). This description suggests that *shosha* represent the ultimate entrepreneurs, transforming every business opportunity into a profitable venture, relying both on own financial resources and raising capital from the stock market.

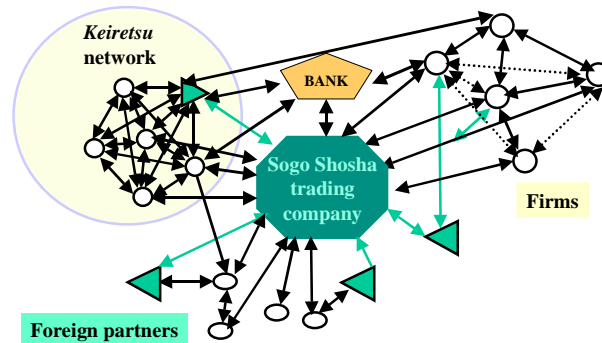


FIG. 3: JAPANESE *SOGO SHOSHA* BUSINESS NETWORKS

- Intermediary-centred governance system utilising mixed ownership & connectivity role
- Blurred ownership and control boundaries
- Asset-based division of labour
- Managing through controlled autonomy & controlled interdependence

Many *shosha* are relying on their expertise as oil traders, and are currently repositioning themselves from being traders to operators in infrastructure industries, such as electricity generation, telecommunications, television broadcasting, and even satellite communications. Their current metamorphosis means shedding their past 'low-margin' role as agents and petty financiers towards businesses with high profit margins. They often form alliances with foreign companies in preference to alternative *keiretsu* partners. Their networks of partners are much more multinational than traditional *keiretsu*.

As hubs in their own business networks *shosha* have always held large shareholdings in other companies. Some of their investments represent shares in *keiretsu* firms (The Economist, 1995), some holdings are in their own independent subsidiaries (the *shosha* have generally preferred to run their own subsidiaries as non-core activities). Now *shosha* exhibit the new role of Venture Merchants. Each of the leading *shosha* has between 10 and 20

subsidiaries that are eligible to be listed on the Tokyo stock market. Share trading appears to be an attractive business for *shosha*, and a powerful mechanism for the growth of their business network.

The main governance mechanisms of the *shosha* holding networks appear to be: flexibility in financing both through own capital and using financial instruments available at the stock market; close hub-and-spoke co-ordination of related as well as unrelated business operations; 'employing' trust relations through family linkages or other informal associations between managers of individual businesses; actively using stock market financial instruments not only for enhancing their return on capital (ROC), but also for reinvestment of this capital in productive assets and business operations, and the endogenous growth of their business portfolio.

## Discussion of Cases and Conclusions

Both cases of *Keiretsu* and *Sogo Shosha* resemble much more a holding formation, and offer two independent alternatives to the multidivisional form (M-form) of corporation with public limited liabilities and financed through trading on stock markets. Both cases demonstrate that the same socio-economic and institutional environment in Japan has nurtured two distinctive forms of governance, each of which offers different forms of bundling of ownership and control functions. Under the *Keiretsu* governance system there are two institutions engaged in monitoring and control, and both exercise ownership rights, and actively participate in strategic decision making and resource allocation. The *Keiretsu* Bank and the Presidents' Association *Shacho-kai* are the main stock-holders that assume responsibilities and liabilities. Within the *Keiretsu* system they manage collectively the complex and multi-level network of corporate assets, utilising resource and capabilities based on division of labour, interlocking resource ties, optimisation strategies, and co-ordination of interdependencies.

The literature on *Sogo Shosha* does not give many details on the institutional arrangements of their governance system. However, from the scarce descriptions of their operations we may induce that their governance system is centred in the trading firm, which utilises a mixed ownership and connectivity function, controlling and directing the trading operations of its subordinate assets. The trading firms itself have neither full ownership, nor full control of the independent firms under their sphere of influence. However, *Shosha* clearly generates value added by facilitating trading and operability of these firms. Its network incorporates asset-based division of labour which allows the centre trading firm to coordinate multi-level operations. *Shosha's* relationships with its subordinate firms exhibit a mixed form of controlled autonomy and interdependence.

Clearly both cases demonstrate governance systems that generate economic efficiencies beyond the specialisation between owners and managers and the effective control over the managerial function. Re-bundling of ownership and control within the relational-insider system facilitates good reinvestment of capital into economic growth and creates a number of institutions that facilitate smooth negotiation of contract commitments and outcomes. The lack of transparency, attributed to this system may be associated with limited accountability, but it is also associated with effective intra-corporate information sharing, learning and innovation.

Regarding their international operations, their governance flexibility and adaptability are a strong advantage compared with the MNC that originate from the Anglo-American stock-market system. The MNCs subject to the strict regulatory environment of the stock-market capitalism have evolved as a multidivisional form (M-form) of incorporation of subsidiaries, where full ownership and control is the most desirable relationship from the perspective of the 'parent' company. The network formation diminishes the costs of hierarchical control and coordination, and creates a more fluid structure of interlinked assets. On this basis it can be claimed that the governance costs of networks are lower compared with the M-form of corporation. Flexibility in financing investment and growth strategies is another advantage of network governance. Network formations also allow for more adaptable approach to managing relationships with subsidiaries, which will be a particular advantage in international operations.

Among the evidence of convergence between the 'stock-market governing system' and the 'relational-insider system' are the changes that are taking place in Japan. These are: the large and liquid market for corporate equities, the governance reforms in the 90's permitting a number of stock-market practices established in the US capital markets (such as equity swaps and stock purchases by corporations), and banks engaged in liquidating

shareholdings (Jacoby, 2000). However, these changes are reported to be slow and superficial, as they do not lead to a radical transformation of the corporate governance system. Jacoby (2000) also reaches the conclusion that there are limits to convergence, and that a path which is locally efficient is not necessarily globally efficient.

There are mechanisms which act as complementarities and substitutes in different historical and institutional settings. For example the very high innovation rates in Japan are a result of big-company funding and corporate spin-offs, rather than venture capital like in the US (Jacoby, 2000).

If we consider that venture capital is one of the attributes of the stock-market capitalism then it is very difficult to explain that it has high profile in the US economy and its profile in the UK has diminished. This is evidence of divergence within rather than convergence across governance systems. Arguments about the superiority of one of the governance systems discussed above are difficult to sustain due to fundamental differences in the pace of economic growth. At the same time comparative research can identify specific governance mechanisms within each system that enhance efficient allocation of resources and effective control over the management of these resources.

Both *Keiretsu* and *Sogo-Shosha* resemble business networks coordinated from a centre that is not constrained by the division between major shareholders and executive managers. *Shacho-kai* is an institution developed to handle corporate responsibilities and strategic decision making. *Shosha* is a firm that is controlling both repetitive and market transactions, and is engaged directly and indirectly in operations management. Both cases exhibit a form of re-integration of the ownership and control function. How does this apply to MNCs and global business networks?

The MNCs have to handle and control multiple transactions in remote locations adopting a variety of co-ordination mechanisms – most of which have been invented for the purpose of effective administration and management of economic activities in organizations and institutions. The complexity of MNC operations requires a complex set of tools used by individual and collective agents – all engaged in a complex allocation of resources for operational and strategic purposes. In this context the discussion of the decision making power of the individual members of the Board of Directors, or the accountability of insider agents to outsider shareholders and stakeholders merely reaches the paradox that there are no boundaries to managerial opportunism, and enhanced control that assumes tentative opportunism, generates merely more sophisticated evasive manoeuvres from executives entrusted to handle operational risks.

Collaborative governance demonstrates an alternative way for re-alignment of interests of all economic actors, and shortens the cycle for reinvestment of capital into productivity and growth, compared with the portfolio investment mechanism within the stock-market governance system. It facilitates information sharing, learning and innovation that ultimately brings comparative advantage to an MNC,

Ownership rights do not produce automatically enhanced accountability or ethical behaviour. Both of these outcomes require institutional support from a social canvas that evolves historically and in a particular legal and socio-economic context. Governance mechanisms taken out of this context may not work and may not be applicable to other systems. In addition to that, systemic changes are always costly to implement, and require radical approach.

This comparative analysis of the governance mechanisms that have evolved under the ‘relational-insider’ governance system illuminates some of the advantages of an economic system that have facilitated rapid growth and rapid internationalisation particularly after the Second World War. The criticisms of the welfare governance have been usually raised from a narrow perspective.

Further research into the governance mechanisms behind *Sogo-shosha* is essential in order to explain the success of this form of business growth. The growing popularity of holding companies in the rapidly developing economies is evidence of the importance of this corporate form for growth and wealth creation. Most of the governance mechanisms discussed in the paper are subject to evolution, particularly under the influence of the on-going consolidation of the financial sector in Japan, and the changes in the regulatory environment. The existing research on *Keiretsu* governance will need updating in the context of the recent merger wave across *Keiretsu* group banks. Comparative and longitudinal analysis is expected to enlighten the debate not only on systemic changes in Japan, but also on global convergence, and the conceptual framework in this paper is an effort to present a systematic view on the factors that affect corporate governance outcomes.

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# A Cross Country Study of Open Source Software (OSS), National Culture and Piracy

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## Abstract

**The purpose of this article is to examine if there exist relationships between international practices of open source software (OSS), piracy and national culture. A number of existing data bases are integrated for empirically test. The article shows that Hofstede's national cultural dimensions have varying influences on international practice of OSS across cultures in high-income level countries. The findings of this research are useful for both business and R&D functions of open source software companies and commercial software vendors. Future research on the subject is discussed.**

## Introduction

In recent years, open source software (OSS) has gained an increasing attention in industry and academia. OSS systems allow people to work together by making the source code open to everyone and Linux<sup>1</sup> operating system is the best known example (Economist, 2004). Furthermore, OSS products can be downloaded, distributed and shared freely (Krishnamurthy, 2003) among OSS community members. These features do not characterize traditional proprietary software. Opposite to OSS, traditional software licenses prohibit open access and free knowledge sharing (Barton and Nissanka, 2001). OSS products are often developed by volunteers and often cost nothing to use (Economist, 2006). Regardless of OSS often being free, OSS has been developed into a huge business sector and about one third of servers in American firms run on Linux, for example (Lacy, 2006). OSS can bring significant savings to the corporate world and to society as well, IBM can save around \$900 million per year by spending \$100 million per year on Linux development (Tapscott and Williams, 2007).

Activeness of OSS community members towards on-line surveys is important as the development of OSS products is dependent very much on the activity of OSS users and developers. OSS developers may have less incentives and resources to advertise their products than proprietary software counterparts because the former do not get direct profit from the use of OSS products (Comino and Manenti, 2005). Therefore word-of-mouth is a crucial marketing practice for OSS (Krishnamurthy, 2003). For example, Linux users often proactively promote Linux to their personal networks. Mustonen (2003), however, argues that the OSS programmers do not adequately pay attention to whether the software is used outside the OSS community. Most importantly, according to Comino and Manenti (2005) the competition between commercial software and OSS happens only among the consumers who know about the existence of OSS.

As OSS distribution, development and marketing is dependent on the activity of users and developers themselves, often across national boundaries, it is important to look at the factors that could influence the international activity of OSS. This information could be used as a proxy to evaluate potential adoption rates across different countries and market potential for OSS in different national markets. Thus it is important to study the behavior of OSS community members towards international surveys concerning OSS. This can provide marketing professionals valuable information concerning the OSS markets in both practical and theoretical terms.

The purpose of this article is to study the impact of national cultural characteristics on activity of open source software (OSS) community members in on-line surveys concerning themselves. We intend to answer three research questions: (1) What economic and cultural variables would influence the activity of OSS member? (2) Does piracy affect the activity of OSS community members? and (3) What national culture characteristics would provide a breeding ground for OSS community members? The data used in this research is obtained from a number of publicized databases representing the activity of OSS community members in separate on-line surveys. We intend to

integrate these databases to provide a broader platform to achieve the purpose of this study. The data consists high-income level countries (GNI per capita higher than USD \$10066 in 2004).

In the rest of this article we first discuss OSS and the relationships of culture and intellectual property (IP) including piracy. Then we develop hypotheses concerning relationships between national culture, economic development, piracy, information and communication technology (ICT) infrastructure and education level on activity of OSS. This is followed by methodology, results, discussion, and conclusions. We conclude this article by discussing its limitations and suggesting future research.

## **OSS, Piracy, and National Culture**

OSS refers to software whose source code is available to everyone (Krishnamurthy, 2003) compared with commercial software companies that guard their software source code in order to be able to sell their products (Economist, 2004). In OSS there is no risk of being locked-in to a single vendor (Bruggink, 2003; Economist, 2003; Murphy, 2004) and OSS can provide flexibility and more choices (Brandl, 2004; Krishnamurthy, 2003). However, despite of its flexibility and availability, OSS comes with a license as well and it is copyrighted (Krishnamurthy, 2003).

The licensing terms of software defines what the user can and cannot do with the software. A good source for OSS license requirements is the Open Source Initiative (OSI). OSI (2007) gives general requirements and definition for OSS licenses and they list OSI approved OSS licenses on their web site. Some OSS licenses (such as GPL<sup>2</sup>) do not give the right to use the source code inside a proprietary software, whereas some licenses, such as BSD, allow the use of the source code even in proprietary software products (Krishnamurthy, 2003; West, 2003). OSS users can make improvements, fixes and modifications if they wish to do so. The interaction between users and developers makes the OSS a community movement rather than an organization (Krishnamurthy, 2003).

OSS movement is driven by the technical and economical merits of OSS, whereas Free Software Foundation (or FSF) base their arguments on moral and ethical principles (Hicks et al., 2005). However, the ideological motivations do not adequately explain the large population of developers in the OSS (Mustonen, 2003). Details of OSS community and products are discussed in the following sections while developing the hypotheses concerning international activity of OSS community members.

National culture, in addition to economic variables, affects national attitude towards innovativeness (Herbig and Dunphy, 1998; Lee, 1990), intellectual property (Marron and Steel, 2000; Shore et al., 2001; Yang, 2005) and adoption of technology (Slowickowski and Jarrat (1997). Although OSS is essentially related to IP issue national culture's influence on OSS has rarely been studied.

In this article national culture's impact on activity of OSS community members is examined by using Hofstede's (1984) national cultural dimensions. It is noticed that Hofstede's culture theory has been criticized in number of research articles (e.g., Fang, 2003, 2006; Gallivan and Srite, 2005; McSweeney, B. 2002). But as Fang (2006) also stated, Hofstede's dimensions are useful for testing hypothesis in cross-country comparison. It is based on this understanding that this article sets out to map several important OSS communities and their product characteristics based on Hofstede's cultural dimensions. We focus on Hofstede's four cultural dimensions: Individualism-Collectivism (IDV), Masculinity-Femininity (MAS), Uncertainty avoidance (UAI) and Power Distance (PDI). The fifth dimension (long-term vs. short-term orientation) is excluded given its limitations (Fang, 2003).

Fang (2006) proposed a dialectical approach to understanding national culture. In his view national cultures embrace paradoxical values. Opposite cultural orientations coexist within national cultures depending on situation, context and time. This approach will also be useful in understanding the influence of culture in the context of OSS as well, for example, by explaining the seemingly paradoxical behaviors related to OSS community members and activities – in one situation a person is a user and in another situation the same person can be a developer.

Another issue related to culture is the influence of culture on piracy. In the software industry piracy is a common problem influencing the businesses of software companies all over the world. Business Software Alliance (BSA, 2004) reports piracy rates as high as 92% in China and Vietnam, and lowest 22% in USA. Researchers have

studied the relationship between piracy and culture and a number of economic variables (Depken and Simmons, 2004; Husted, 2000; Marron and Steel, 2000; Shin et al., 2004; Shore et al., 2001). Earlier studies have also found that the individualism-collectivism dimension affects piracy rates, although the impacts of other cultural dimensions have received only varying support. Piracy per se is not an issue in OSS (Krishnamurthy, 2003), but it may have an effect on OSS because pirated software are also low cost or freely available and as such competitors for OSS. In addition piracy rate and OSS popularity may be tied together through people's attitudes towards IP.

## Hypotheses

In some countries it seems impossible to purchase legit proprietary software as Ghosh (2003) demonstrated with the effective costs of a popular commercial operating system and office suite. Thus, unfortunately, another option for sometimes costly commercial software is pirated commercial software. Illegal copying of software is often referred as software piracy (Tang and Farn, 2005). Piracy includes unauthorized copying of software, using one license to install software on several computers and purchasing illegal copies of software (Prasad and Mahajan, 2003). Piracy rates and income level have relationship (higher income level countries have lower piracy, see Husted, 2000; Marron and Steel, 2000; Shin et al., 2004). Husted (2000) writes that software is vulnerable to illegal copying because it can happen with very low costs. According to BSA (2004) some countries have piracy rates more than 90% and world average was as high as 36%. Piracy itself is not an issue in OSS (Krishnamurthy, 2003), although it may have an impact on its popularity as pirated software are also popular and cheap, albeit illegal, alternatives. This relationship is likely to associate OSS with piracy, thus:

1. International activeness of OSS community members is affected by the piracy rate in the country. OSS is cheap (Economist, 2003). OSS represents a low cost and/or free alternative to commercial software.

From the point of view of cost, national economic development should be accounted in this study as well, even though this study is limited to high-income countries. Would the relative popularity of OSS be higher in lower income countries than in higher income countries? For users in lower income countries it seems more relevant to embrace OSS products, such as Linux, as OSS products are mostly free-of-charge (e.g. downloadable from the Internet). However, due to piracy OSS may not be seen as attractive as commercial software from the costs point of view either: by pirating commercial software one can get a real bargain with the same price as an OSS product, which will likely lower the overall interest towards OSS.

2. International activeness of OSS community members is affected by the income level (GNI per capita) of the country.

However, the effect of economic development of the country is not limited only to the effect through the piracy and software costs. Because OSS is most often distributed over the Internet and the development is done in Internet communities, thus the country's Internet or more generally the ICT infrastructure should be developed enough to support the distribution of large software packages such as Linux operating systems. Moreover OSS support is often provided by Internet communities, which may further indicate the influence of adoption of Internet on OSS activities. Naturally the more country has Internet users more chances there are that they have stumbled upon OSS. The activity of OSS community members could depend on the Internet infrastructure or more general communication network infrastructure, because a) to show their activity OSS members must get on-line to take part in the on-line surveys used in this research, and b) to acquire Linux or take part in OSS development an Internet connection is likely to be necessary.

To access Internet there are three common mediums: broadband, modem (fixed land lines) and mobile phone networks. OSS developers may require frequent and fast Internet access, thus, in the focal research the number of broadband subscribers is also accounted. Broadband can be up to 50 times faster than modem (or dial-up) connection and it is always on (Savage and Waldman, 2005). Modem or mobile phone connections might be enough for casual Internet surfing and e.g. filling in the surveys used in this research. Broadband access is not a requirement for Linux users as, for example, some Linux distributions, such as Ubuntu<sup>3</sup> also offer free shipments of CDs, that you can order from their website. In addition some Linux distributions are also sold in shops.

Related to the Internet adoption and on-line activity of OSS community members, the number of computers in a country could be important variable. There is a practical reasoning behind this: one needs a computer to use and install Linux – of one hundred computers only at most one hundred can be Linux computers. Most importantly the user must have the right to install software to the computer he or she wants to have Linux installed on. Thus the higher the adoption rate of PCs is in the country the higher chances are that more users have the right to install software on them (e.g. more home users). This is more so concerning the OSS developers – they are very likely to require administration rights to the computer they develop software.

In this article, the effect of overall ICT infrastructure on the international activity of OSS community members is tested on four indicators, namely, broadband subscription per 1000 people, fixed and mobile phone lines per 1000 people, Internet users per 1000 people, and PCs per 1000 people. World Bank uses three last ones as ICT indicator in the Millennium Development Goals (MDG). In this research they are included separately because of their potential varying effect on OSS activities (e.g. developer may require broadband access whereas a modem connection may be sufficient for a user). Based on the above discussion the hypotheses concerning the relationship between ICT infrastructure and the activity of OSS community members are as follows:

3. International activeness of OSS members is affected by the broadband subscription rate (per 1000 people) in the country (provides high-speed Internet access).
4. International activeness of OSS members is affected by the telecommunication infrastructure (fixed and mobile phone lines per 1000 people) in the country (provides low-speed Internet access).
5. International activeness of OSS members is affected by the Internet users rate (per 1000 people) in the country.
6. International activeness of OSS members is affected by the availability of computers (per 1000 people) in the country.

Some findings about OSS suggest that education level may have some effect on the popularity of Linux, e.g. OSS is often targeted to sophisticated users (Krishnamurthy, 2003; Lerner and Tirole, 2002) and in the last decade it has been popular in the market for high-end/professional users (Comino and Manenti, 2005).

OSS is typically developed by communities in the Internet (Hars and Ou, 2002). According to Krishnamurthy (2003) OSS is supported by a growing OSS community and it is a global movement. In non-English speaking countries, due to language barriers, OSS could be more popular among educated people (or lead users could be highly educated). For instance in a study concerning OSS developers by David et al. (2003) 95.02% of the respondents stated being fluent enough in English and 36.72% of them had master's or doctor's degree. In Ghosh et al. (2002) 85.71% of the respondents (likewise OSS developers) stated being able to speak English and 37.66% of them had master's or doctor's degree. If OSS users are mainly high end and educated users, then the activity level of OSS community members may relate to the education level in the country. Moreover, if pirated software are competitors for OSS, then higher education would, also through decreased piracy, increase the market interest towards OSS (Marron and Steel [2000] noticed that piracy rate is lower in countries where education level is higher).

7. International activeness of OSS community members is affected by the education level in the country.

OSS concerns both developers' and users' individual initiatives and freedoms. But paradoxically, OSS is also about achieving the collective good by sharing individually created knowledge with the entire OSS community. For instance, OSS can be customized as the source code is available (Bruggink, 2003; Economist, 2003) and OSS provides more choices to users and it is more flexible (Brandl, 2004; Krishnamurthy, 2003). OSS products can be downloaded, distributed and shared freely (Krishnamurthy, 2003). As opposite to OSS, traditional software licenses are often restricting (Barton and Nissanka, 2001). Herbig and Dunphy (1998) argued that collectivistic cultures value freedom less than individualistic cultures. Thus, when comparing OSS and traditional software, users in individualistic cultures could prefer the freedoms OSS provides. However according to Marron and Steel (2000) individual ownership of intellectual property is valued in individualistic cultures, which is an opposite what OSS stands for – OSS is community owned. West (2003) stated that OSS developers give up their rights to profit from their R&D work. According to Jacobs et al. (2001) sharing is perceived as more Asian, whereas IP protection, e.g.

copyrights and patents, are viewed as Western. Thus, they continue, new ideas and technologies belong to the public and cultural esteem may be stronger incentives for creativity than material success.

Of the above two examples the first one (freedom) is inclined with individualism, but the latter one (public ownership) is very much against it. In individualistic countries, users would like the freedoms OSS provide, but why would one from an individualistic culture develop something to be given away? This seems to support Fang's (2006) hypothesis that people can choose contradicting values and behaviors in different situations. It seems possible that while using OSS a person identifies himself with the individualistic values OSS stands for and when developing software he or she is more inclined with the collectivistic characteristics. Even efforts to develop OSS could mean energies of individualism

Krogh et al. (2003) argued that OSS development has characteristics of collective action. Majority of the respondents in study by Lakhani and Wolf (2003) had strong sense of group identity. Additionally, two of the main motivational factors among Linux developers, according to Hertel et al. (2003), are "a more general identification as Linux users" and "a more specific identification factor as a Linux developer" among others. Hars and Ou (2002) identified intrinsic motivation, altruism, identification with the community, direct compensation and expected future returns as important factors. However, they write, professional developers (i.e. salaried and contract programmers) were less motivated by altruism and community identification than student and hobby programmers (two different situation – at work and a hobby). Hofstede (1997) argued that individualism-collectivism dimension relates to the degree by which individuals are integrated into groups. Clearly, based on earlier findings, for OSS developers groups seems to have some importance. It is important to note that OSS developers are also users, thus in one situation they could be motivated by collectivistic characteristics where as in another situation (as users) they might be driven by the individualistic characteristic. Although Krishnamurthy (2002) found out that many OSS projects have only one developer.

How about other frequently shared software? Shore et al. (2001), Husted (2000), Shin et al. (2004), Marron and Steel (2000), and Depken and Simmons (2004) found out that piracy rate gets lower in more individualistic cultures. Piracy is sharing other's intellectual property for free and illegally, whereas OSS is sharing one's own and others' IP legally freely. Moreover, pirated software and OSS are competitors. As piracy and collectivism has relationship, and higher level of piracy might decrease popularity of OSS, thus individualism-collectivism and piracy together may influence the activity of OSS actors as well.

8. International activeness of OSS community members is affected by individualism-collectivism dimension of the culture.

OSS seems to be influenced by both masculine and feminine cultural characteristics. In masculine cultures material success and progress are important values (Hofstede, 1997). OSS developers, as discussed earlier, surrender their rights to profit from the software. They arguably do this in order to increase the speed of diffusion and the speed of development, which paradoxically has both masculine characteristics (progress) and feminine characteristics (giving for free can be seen as the opposite of material success). Giving for free and free distribution of software suggest care for others and for society at large. In addition openness and sharing of software source code guarantees continuity. According to Hofstede (1997) caring for others and preservation are dominant values in feminine cultures. However, as pirated software were considered to be a cheap competitor for OSS and Shore et al. (2001) found relationship between masculinity and piracy (the higher the masculinity the lower the piracy), thus, when both piracy rate and masculinity get lower we could expect higher OSS activity. Also Husted (2000) found same sign in his study.

9. International activeness of OSS community members is affected by masculinity-femininity dimension of a culture.

As pointed out earlier, OSS is developed in communities, support is provided by communities etc. and even the companies are part of the communities that has the power. The strength of the community is indicative from Dahlander and Magnusson's (2005) argument that the software code is controlled by the community, where companies co-exist, and the community has the knowledge to create software. Moreover, users can make modification and fixes in OSS, if they wish to do so (Krishnamurthy, 2003). If everyone can take the software source code and make changes etc., then it is likely to lower the inequality between the actors in the OSS community – especially between users and developers. Power distance cultural dimension means the unequal

distribution of power between the members in organizations or institutions and how they accept it (Hofstede, 1997). What makes OSS and power distance interesting is that actors in OSS have possibility to proactively shape and modify the technologies (Jesiek, 2003). It is quite opposite in closed source software, as Jesiek (2003) states that limited groups and users possess only a little negotiation power. In addition, OSS provides more choice and several kinds of freedoms as came up earlier. Thus high power distance cultures may somewhat easier accept restricting commercial software licenses, whereas low power distance cultures could expect to have more control of the software one uses. Interestingly, in higher power distance cultures people are more willing to choose to “steal” software as the findings by Depken and Simmons (2004) suggest, which should be taken into account as well. Likewise Shore et al. (2001) found positive relationship between power distance and piracy.

10. International activeness of OSS community members is affected by culture’s power distance index.

Human society has created technologies among other things to decrease anxiety (uncertainties). In uncertainty accepting cultures people are more tolerant to different and innovative behavior and ideas. (Hofstede, 1997) Low uncertainty avoidance cultures are more willing to take risks associated with new methods and procedures, thus, for example, in low uncertainty avoidance cultures people could be more willing to try new information technology before it is proven elsewhere (Shore and Venkatachalam, 1996). There is a greater technological uncertainty when the technology changes fast or it is new (Moriarty and Kosnik, 1989), and both developers and buyers are not familiar with the newest technologies (Meldrum and Millman, 1991). Development process of OSS, its distribution and support systems are quite different/innovative from commercial software and it is a rather new phenomena. Barton and Nissanka (2001) and Suzor et al. (2004) have expressed that licensing may have some uncertainties in OSS (e.g. termination of OSS license), which might be seen unfavorably in some cultures. As earlier stated piracy may also affect OSS popularity. According to Shore et al. (2001) piracy increases when culture’s uncertainty avoidance increases. By pirating software users can test software with very low costs (decreasing uncertainty), which puts pirated software in competing position with OSS as both are cheap to try.

11. International activeness of OSS community members is affected by the uncertainty avoidance dimension of a culture.

The above discussions show that many of the values that OSS represents simultaneously reflect both poles of each of Hofstede’s cultural dimensions. The entire OSS movement is therefore permeated with dialectical properties. On the one hand this can mean that Hofstede’s cultural dimensions may not be appropriate for analyzing OSS as it shows complicated relations between OSS characteristics and culture. On the other hand, if culture is perceived in dialectical terms with paradoxical values and behaviors coexisting in the same culture depends on the situation, context and time (Fang, 2006), the relationships between OSS and culture can be better explained.

## **Methodology**

In this research international activeness of OSS community members was tested among OSS developers and Linux Counter users. The data is obtained from a number of publicized databases representing piracy rates, ICT and economic variables, and the activity of OSS community members in separate on-line surveys, namely, BSA (2004), World Bank (2007, 2006), OSS developers study by Ghosh et al. (2002) and David et al. (2003), and Linux Counter Project (2007). Cultural indices of each countries in this study are from Hofstede (1997) and [www.geert-hofstede.com](http://www.geert-hofstede.com) (2007). Countries/cultures included in the analysis are listed in Table 1.

TABLE 1: COUNTRIES AND CULTURES INCLUDED IN THE RESEARCH. \*ESTIMATES AND \*\*REGIONAL ESTIMATES FOR ARAB WORLD FROM WWW.GEERT-HOFSTEDE.COM

Australia	France	Italy	Netherlands	Spain
Austria	Germany	Japan	Norway	Sweden
Belgium	Greece	Korea	New Zealand	Switzerland
Canada	Hong Kong	Kuwait**	Portugal	United Arabs Emirates**
Denmark	Ireland	Luxembourg*	Saudi Arabia**	United Kingdom
Finland	Israel	Malta*	Singapore	USA

BSA (2004) reports estimated piracy as the percentage of pirated software of the software installations in each country. In the focal research piracy was taken as a comparative measurement. According to Husted (2000) there is no indication that BSA would report higher piracy rates in certain areas than in others. BSA data is commonly accepted measurement for software piracy in the industry and a number of researchers (e.g. Husted, 2000; Marron and Steel, 2000; Shin et al. 2004) have employed BSA data in studying software piracy issues.

World Bank's (2006) Information and Communication for Development report concerning ICT global trends and policies is used to obtain information concerning the ICT infrastructure of each country. The report offers data from 144 countries and it is from year 2004. ICT report authors express that they have taken considerable measures to standardize the data and the data they have collected is from the sources thought to be most authoritative. World Bank ICT study includes data about Internet users per 1000 people, number of PCs per 1000 people, broadband subscribers per 1000 people, fixed telephone lines and mobile phone subscribers per 1000 people and GNI per capita. ICT report was used as the primary source for these variables, in case of missing values World Bank's Internet database (2007) were queried. Tertiary education enrollment rate was obtained from World Bank's Internet database (2007).

Ghosh et al.'s (2002) study data had 2784 respondents (OSS developers) from year 2002 and David et al.'s (2003) study had 1588 respondents (year 2003). Both of these studies had respondents from more than 60 countries. In the analysis term 'Floss' is used to refer to OSS developers data (from Ghosh et al., 2002 and David et al. 2003). Ghosh et al. (2002) mainly covers European respondents. Ghosh et al. (2002) suspect that there is a possible bias towards more motivated developers in their study. In addition some nationalities may be over-represented while others under-represented (especially Asian countries). Their survey announcement was translated to several languages (five European languages in addition to English) and the survey was posted on various developer websites (14 sites). David et al. (2003) tried to reach more respondents outside Europe. This study was also, according to researchers, probably skewed towards more motivated OSS developers. Their survey announcement was submitted to nearly 50 websites and mailing lists and translated to English, Dutch, German, Italian, Russian, Spanish, Portuguese and Chinese. In both of the studies majority of respondents were from Europe. Countries that didn't have respondents to the surveys are taken not to have active OSS developers, thus they are counted in the analysis as zero (i.e. not as missing values). In the analysis these two sets of developers data are combined into one variable.

Linux Counter is a website where Linux users can, voluntarily, register their Linux systems. Linux Counter Project (2007) started from 1993 (the organization was started in 1999) onwards and as of 12.02.2007 had 138003 Linux users counted from almost 200 countries. Linux Counter Project's (2007) main website is in English, but their international<sup>4</sup> Website is also translated to 14 alternative languages (13 European languages). Linux counter data most likely suffers from self-selection bias and is likely to include the most pro-Linux enthusiasts. To increase

reliability of the data Linux Counter cleans it from 'dead' Linux users based on their deletion policy, e.g. accounts that have not been accessed within two years and reminder has been send at least three months ago. Linux counter data is referred as 'Counter' in the analysis.

The raw data (absolute number of Linux users/developers) from Counter and Floss data were unusable as such. In the analysis proportions of OSS developers and Linux users to the number of Internet users in each country were used. This is considered appropriate because both OSS and surveys used for data collection are highly dependent on the Internet. By using the number of Internet users as the denominator we get comparable values across countries. Proportion to the total population is not appropriate because of e.g. the dependency of OSS on the Internet. For instance, in Tuomi's (2004) study concerning Linux Kernel developers, Luxembourg had the highest (populated weighted) growth rate of Linux Kernel developers which is due to small population of the country as the author pointed out.

The acknowledged skewness of either Floss or Counter data does not create problems to the focal study because users' and developers' activity in the international OSS community in each country/culture is under investigation. In fact, possible self-selecting is useful, because we can find out in what kind of national cultures internationally active OSS developers/users can be located. A person who fills in the survey 100 times is more active than a person who fills the survey only one time. Analysis is conducted in a sample that includes high-income countries. These countries were selected because they presents various cultural and political backgrounds, but still the economical variation is limited by the GNI per capita constraint.

## Results

The population in this study includes high-income level countries (in 2004). However only countries/cultures that had individualism, power distance, uncertainty avoidance and masculinity-femininity dimensions of Hofstede's cultural index data available are included. In addition to Hofstede (1997) also [www.geert-hofstede.com](http://www.geert-hofstede.com) website was consulted for cultural dimensions data, which resulted additional estimates for a few countries. In the analysis 30 countries had all the necessary variables. Data covers 72.5% of the respondents in OSS developers studies and 62.6% of Linux Counter users.

First, descriptive statistics were counted. Data was analyzed by using correlations and linear regression models. In the tables abbreviation are used for some of the variables: IDV stands for individualism-collectivism dimension, MAS for masculinity-femininity, PDI for power distance and UAI for uncertainty avoidance. Table 2 has the means and standard deviations of each variable. Tertiary enrollment rate had three missing values (Canada, Germany and Singapore). Missing values for tertiary enrollment rate were replaced with values from 2002 data for Canada, and with the mean in the analysis for Germany and Singapore. Replaced values were compared with other educational data (such as literacy rate and primary education) to make sure they would have minimal effect in the analysis. Piracy rate was missing from Luxembourg and for the analysis it was replaced with the regional average value (Western Europe, 36%) provided in the BSA piracy study.



TABLE 2: MEANS AND STANDARD DEVIATIONS OF THE VARIABLES (N = 30)

<i>Variable</i>	<i>Mean</i>	<i>SD</i>
<i>Floss/net users</i>	1.106e-5	9.609e-6
<i>Counter/net users</i>	3.053e-4	2.219e-4
<i>Piracy rate (N = 29)</i>	0.3786	0.1166
<i>GNI per capita</i>	28948	11470
<i>Broadband subscribers/1000 people</i>	105.34	64.80
<i>Fixed and mobile/1000 people</i>	1389.63	266.06
<i>Internet users/1000 people</i>	430.47	143.31
<i>PCs/1000 people</i>	425.70	200.40
<i>Tertiary education enrollment rate (N = 28)</i>	57.32	21.32
<i>Individualism (IDV)</i>	59.23	21.3
<i>Masculinity (MAS)</i>	49.57	20.67
<i>Power distance (PDI)</i>	46.63	20.2
<i>Uncertainty avoidance (UAI)</i>	63.1	25.48

In Table 4 (in Appendix A) there are the correlations between independent and dependent variables. Correlation matrix shows some significant correlations between a number of variables. OSS developers had significant correlations with piracy rate, GNI per capita, fixed and mobile phone lines, and individualism index. Linux Counter data had significant correlations with GNI per capita, fixed and mobile phone lines, tertiary education enrollment rate, individualism, and power distance indices. There was also a strong correlation between OSS developers and Linux Counter users.

Linear regression models are solved with both data sets separately. In both cases backward selection model is used to choose the best factors for the linear regression model. In the backward selection probability of F less than or equal to 0.05 was used to keep the variable. In Table 3 the model summaries are represented for both OSS developers and Linux Counter users. In Table 3 variables that are excluded from the models are omitted and the hypotheses the variable refers to is marked in the brackets e.g. H1 refers to hypothesis 1.

TABLE 3: LINEAR REGRESSION MODEL SUMMARIES FOR OSS DEVELOPERS AND LINUX COUNTER USERS. BACKWARD ELIMINATION PROBABILITY OF F LESS THAN OR EQUAL TO 0.05. \*\*\* P < 0.001, \*\* P < 0.01, \* P < 0.05

	<i>OSS Developers</i>			<i>Linux Counter</i>		
	<i>Estimate</i>	<i>t-value</i>	<i>VIF</i>	<i>Estimate</i>	<i>t-value</i>	<i>VIF</i>
<i>Intercept</i>	3.695e-5	3.550**		8.785e-4	5.273***	
<i>Piracy rate (H1)</i>	-4.081e-5	-2.925**	1.898			
<i>GNI per capita (H2)</i>	4.664e-10	3.729**	1.528	8.218e-9	2.965**	1.465
<i>Broadband (H3)</i>	5.967e-8	2.449*	1.185			
<i>Internet users (H5)</i>	-5.649e-8	-4.286***	2.648	-7.227e-7	-3.316**	1.413
<i>MAS (H9)</i>	-1.197e-7	-2.077*	1.054	-5.426e-6	-4.212***	1.027
<i>PDI (H10)</i>				-4.955e-6	-3.280**	1.350
<i>R<sup>2</sup></i>	0.65			0.6496		
<i>Adjusted R<sup>2</sup></i>	0.577			0.5936		
<i>F-Statistics</i>	8.913			11.59		
<i>df</i>	5			4		
<i>Model p-value</i>	6.836e-5			1.846e-5		

As can be seen from Table 3 some of the factors have significant effect on the OSS developers' and Linux Counter users' international activity. In both cases GNI per capita showed significant influence. Technological development in the form of broadband adoption seems to have positive effect in OSS developers' international activity. Interestingly number of Internet users seems to have a negative effect on OSS developers' and Linux Counter users' international activity. Only masculinity and power distance indices of cultural dimensions showed influence in the models. In both cases international activeness of OSS community members is affected by the culture's level of masculinity. Masculinity dimension had a negative sign, which indicate higher level of femininity increases international OSS activities. Power distance index had influence only among Linux Counter users data. Linux Counter users seem to be more active in lower power distance cultures. Model for OSS developers explains 57.7% of variation and for the Linux Counter users the model explains 59.4% of the variation. P-values for each model are less than 0.001.

## Discussions

In this article, attempt was made to study international activeness of OSS community members across cultures, which was measured by their activity to take part in on-line surveys concerning themselves, i.e. an active member of OSS community responded to the on-line survey. A set of existing databases was integrated and utilized and it was skewed as noted. Reasons for skewness could include different language skills of OSS community members, actual differences in OSS activity or some other reasons. Differences in language skills could be a potential reason, because Linux Counter project is available in English and mainly in other European languages. Likewise data

collection for OSS developers was announced in English and in several European languages, although some other languages were used as well. The analysis included only high-income level countries, thus the regression models may not be accurate for low-income level countries.

Activity of OSS developers and Linux Counter users to take part on the on-line surveys correlated with a number of variables. Regression models revealed that piracy rate, income level, broadband adoption rate, Internet adoption rate, and two cultural dimensions, namely, masculinity-femininity and power distance have influence in OSS community across counties/cultures. Hypothesis 1 (piracy rate), 3 (broadband users per 1000 people) and 10 (power distance dimension) received support at least in one of the two the models. Hypotheses 2 (GNI per capita), 5 (Internet users per 1000 people) and 9 (masculinity-femininity dimension) are supported in both of the models.

The influence of piracy rate indicates that in countries where piracy rate is higher there is less OSS developers. This should not come as surprise, OSS developers create IP whereas piracy destroys the value of IP. It is natural that software developers value IP and thus do not engage in piracy as easily as other users. In addition to open source software OSS developers may also develop proprietary software, thus they have natural interest in IP issues. Interestingly, though, piracy seems to have effect only in OSS developer data, not in OSS community in general.

Although income level of the countries was used as limiting factor, it still showed influence among both OSS developers and Linux Counter users. GNI per capita was used as a measurement for income level of a country. GNI per capita had positive effect depicting that in higher income countries there are more active OSS community members. This probably indicates that the costs of the software is not an important characteristic of OSS (i.e. in high income countries there would be less demand for free, as zero costs, software, if the costs were important factor), or perhaps in higher income level countries people have more time to fiddle around with challenging OSS projects on their free time.

The effect of ICT infrastructure on the international activity of OSS community members was measured with four variables. Two of these variables, namely, PC adoption, fixed lines and mobile phone subscription rates did not indicate influence in neither of the models. Internet adoption rate had a negative effect in both of the models. One possibility for this might be the chronological diffusion of Internet technologies, for example, countries with higher Internet adoption rate may have started the adoption earlier, but not until recent years OSS has become mature competitor for proprietary software, thus countries that have adopted Internet later has an easier path to adopt OSS as they have not been locked-in to proprietary systems. So, in countries that has adoption process later, users have had the possibility to choose between OSS and proprietary software whereas earlier adopters (e.g. decade ago) may not have had this choice, which could reflect in the activity of OSS community members as the 'inverse' effect of Internet adoption indicates. In contrast, broadband adoption had a positive impact in the model for the OSS developers. For OSS developers broadband access is important or even necessary to share and follow the software projects. Moreover broadband access is somewhat newer than the Internet as a whole and perhaps the adoption of broadband connections has occurred more simultaneously across countries included in this research. OSS community members' activity to register themselves to Linux Counter was not influenced by broadband adoption as indicated by the model for Linux Counter users.

Education level was considered to be one factor that affects the international activity of OSS community members. The effect of education level was measured with the tertiary education enrollment rate. According to the analysis education level did not show influence on the international activeness of OSS community members in neither of the models.

Culture's impacts on international activeness of OSS community members was studied by utilizing Hofstede's cultural dimensions. Some of the cultural dimensions had influence in both models. Individualism and uncertainty avoidance dimensions showed no influence in neither of the models. Masculinity and power distance, however, showed influence.

Negative influence of masculinity indicates that more active OSS community members can be located in more feminine cultures. OSS developers give the fruit of their work for free, the distribution of the products is free, and OSS guarantees continuity, which suggests some feminine values, even though OSS is also embedded with some masculine values.

Power distance showed influence in the model for Linux Counter users. There can be various reasons for it, for instance the differences could be due to difference of the nature of surveys (Counter project is a continuous survey), but, most importantly, we have to also keep in mind that Linux Counter respondents includes both Linux users and developers, whereas Floss data was only about developers. As discussed earlier OSS seems to lower the power distance between developers and users due to the nature of the software and the rights granted for the users. Besides in OSS users have possibility achieve far greater power than in proprietary software.

Differences between OSS developers and Linux Counter requires more attention. The differences may indicate that the values related to the same OSS phenomena influence differently in different adopter groups or persons' behavior in different situations reflecting different cultural values. Different influences of the power distance dimension in the two groups seem to support Fang's (2006) idea of cultural behavior being paradoxical and dependent on time, situation and context. As an example, in the model for OSS developers power distance is absent. This may be because software developers can develop software by themselves, i.e. if they need a calculator they can program one that fits their needs. Users on the contrary, can either buy a ready calculator software that may or may not fit their needs or they can use open source calculator. In the first case they can suggest ideas to the original developer, however only the developer can make the changes (this was pointed out e.g. by Krishnamurthy [2003]). In the latter case, however, they can make changes by themselves or ask any developer to make necessary changes, thus it significantly decreases the power distance between developers and users because the original developer cannot keep the strings too tight. In OSS if the original developer is not willing to make changes, then the user can always take the source code and go – with proprietary software the users can only hope the developer listens. In lower power distance countries more users may require this option, so there exists the negative influence of the power distance index in the model for Linux Counter users.

## **Conclusion**

We need to acknowledge that the competition between commercial software and OSS happens only within the informed computer users (Comino and Manenti, 2005). Thus OSS users in one country might be more than in another country because of the greater number of informed computer users - not only because of the economical or development level of the country etc. This is why knowledge about the activity of existing OSS users and developers is important in overall assessment of OSS adoption and market potential. If a user takes active measures participating in on-line survey then, perhaps, he or she also promote OSS usage among their acquaintances. In this research international activeness of OSS community members was tested among OSS developers and Linux Counter users. The latter one may also include users in addition to developers. GNI per capita, Internet adoption rate and masculinity-femininity dimension showed influence in both OSS developers and Linux Counter users regression models. Piracy rate, broadband adoption rate and power distance dimension influenced at least in one of the two the models.

Commonly attached characteristic to OSS community and the development process is their collective nature. Regardless of the collective characteristics, OSS developers' nor Linux Counter users' activity did not depend on the individualism-collectivism dimension of the culture. Likewise, earlier findings by Krishnamurthy (2002) also indicate that many OSS developer work alone. However, culture has impacts on the OSS community in terms of masculinity-femininity and power distance dimensions. Lower level of masculinity seemed to increase OSS activity among OSS community members. More important is the finding that culture showed different influences among Linux Counter users and OSS developers. Among developers only masculinity dimension had an effect, but among Linux Counter users power distance was influential factor as well. Thus marketers and software developers should take culture's potential impacts into account when conducting business across cultures whether it is development or promotion of OSS products. Proprietary software vendors could also take advice and consider the effect masculinity and power distance dimensions have in the commercial software markets when they are competing with OSS. The contradicting influences of cultural dimension on the same phenomena (OSS), but in different role of the person as user and developer, is an important finding that lends support to Fang's (2006) conceptualization of culture which embraces paradoxical values and behaviors.

Interestingly, the effect of Internet adoption rate (as users per 1000 people) in the country had a negative effect in the models. This could be because of the lock-in to proprietary systems some countries are experiencing due to their earlier Internet adoption and lack of competition at the time. OSS has brought competition only in the recent years, thus countries that have adopted Internet later have had the ability to try OSS before potential lock-in to proprietary systems. This needs further investigations to draw conclusions. In opposite, broadband subscription rate had positive influence in the international activeness of OSS developers and it seems rather natural as OSS development is highly dependent on Internet and a fast Internet access may be a requirement for OSS developers to keep up with the latest developments. Piracy showed influence only among the OSS developers, which is natural effect as OSS developers create IP whereas piracy destroys the value of IP.

Our study has a number of weaknesses. The empirical data on which the study is based comes from an integration of a number of existing databases. The data represents only a fraction of the OSS community members. It may represent the cohort of early OSS adopters and the most passionate OSS advocates, thereby as making the data suffer from biases.

Hofstede's (1997) cultural dimensions indices which are developed in the 1960s and 1970s maybe outdated. In addition Hofstede's cultural indices may not be fine grained to measure complicated phenomenas such as OSS. Moreover, Hofstede's theory is based on bipolarizing cultures giving little room to understanding culture in dialectical terms. However, due to the availability and its usability in testing hypothesis Hofstede's dimensions are considered relevant in this study. To assess actual cultural values of OSS developers and non-OSS developers, and OSS users and non-users primary data collection and measurement for their cultural values should be used. This would prevail the softer values behind the affection towards software freedoms. However, the results of this study provide strong indication and leads the way for understanding OSS activities across cultures.

In this research several background variables were included, but as visible from explanation power of the regression models the differences in activeness of OSS community members across cultures include also some other variables than those in this study. Future research is needed to identify such potential variables as foreign language skills (more fine grained analysis of education level), political orientation, or attitudes towards technology in general etc. However the scope and range of variables in this study are limited because the respondents are only from the population who can access the Internet and current research is limited to high-income countries. Future research should be conducted to cover the activity of OSS community members from lower income countries. More important, this article suggested that culture may have a paradoxical influence on OSS. Future research needs to address in more detailed the dialectical properties of OSS movement and their implications for industry and academia.

## Appendix

APPENDIX A - TABLE 4: CORRELATIONS BETWEEN THE INDEPENDENT AND DEPENDENT VARIABLES. \*\*\* P < 0.001, \*\* P < 0.01, \* P < 0.05

	<i>Floss</i>	<i>Counter</i>	<i>Piracy</i>	<i>GNI</i>	<i>Broadband</i>	<i>Fixed &amp; Mobile</i>	<i>Internet users</i>	<i>PCs</i>	<i>Tertiary Education</i>	<i>IDV</i>	<i>MAS</i>	<i>PDI</i>
<i>Counter/net</i>	0.787***											
<i>Piracy rate</i>	-0.427*	-0.340										
<i>GNI per capita</i>	0.557**	0.437*	-0.560**									
<i>Broadband</i>	0.224	0.107	-0.324	0.297								
<i>Fixed &amp; Mobile</i>	0.443*	0.369*	-0.234	0.555**	0.314							
<i>Internet users</i>	0.030	0.004	-0.608***	0.482**	0.662***	0.327						
<i>PCs/1000 persons</i>	0.253	0.177	-0.594***	0.696***	0.594***	0.397*	0.760***					
<i>Tertiary Education</i>	0.239	0.375*	-0.334	0.101	0.379*	0.123	0.410*	0.347				
<i>Individualism</i>	0.459*	0.397*	-0.617***	0.493**	0.037	0.210	0.268	0.455*	0.289			
<i>Masculinity</i>	-0.261	-0.484**	0.040	-0.0567	-0.219	-0.187	-0.161	-0.114	-0.320	-0.008		
<i>Power distance</i>	-0.432*	-0.490**	0.671***	-0.462*	-0.220	-0.463*	-0.409*	-0.544**	-0.400*	-0.602***	0.067	
<i>Uncertainty avoidance</i>	-0.005	-0.024	0.336	-0.387*	-0.237	-0.215	-0.543**	-0.633***	-0.119	-0.264	0.196	0.299

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## End Notes

- <sup>1</sup> In this paper Linux, or some insist using the 'proper' term GNU/Linux, is taken as one representative of OSS, even though there are many other open source software. In addition 'Linux' is used to address the combination of various GNU and other open source packages that form the operating system running on the Linux kernel.
- <sup>2</sup> One common open source software license, see <http://www.gnu.org>
- <sup>3</sup> <http://www.ubuntu.com>, last accessed 11.01.2007
- <sup>4</sup> International Linux Counter at <http://i18n.counter.li.org/>, last accessed 12.02.2007

# Challenges of Technology Protection for Chinese Private Enterprises

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## Abstract

Chinese private enterprises have created substantial wealth in recent years. During expedited globalization, Chinese private enterprises encounter a few of challenges in the regions of technology protection and management. Currently, due to lack of consciousness to protect technologies, the technology protection and management systems have not been established well until now in many private enterprises. As a result, a few of them are inadequate to deal with suits they involved which probably incurred losses as well. Therefore, technology protection is being critical for their survival and development. It is also of great significance for local governments to provide policy supervision at right time to help private enterprises to conquer these difficulties.

## Introduction

Since the implementation of the market-oriented reform and open policy in China, Chinese private enterprises have been playing an active role in the social economy. In these years, the GDP contributed by the private economy increases continuously, and the advantages of private enterprises emerge gradually as well. Although more and more private enterprises devote themselves to technology innovation, their core competence still far lags behind that of large state-owned enterprises in China and their counterparties in developed countries. Presently, the enterprises with their independent technologies only account for 0.03% among all the enterprises. [1] Simultaneously, private enterprises are faced with many other challenges, such as the deficient technology protection and management systems, the imperfect legislation and enforcement, the insufficient supports and assistance provides by the government and associates, and so on. Therefore, in order to promote competitive abilities of private enterprises and to increase their market share, both the private enterprises and Chinese government should take positive policies to conquer these difficulties, to facilitate the innovation and to protect technologies.

## The Challenges of Technology Protection for Private Enterprises

### The Weak Awareness and Consciousness of Intellectual Property Right (IPR) Protection

Many private enterprises in China pay little attention to IPR protection, which is showed in the following folds. Firstly, enterprises' awareness and consciousness of IPR protection is especially weak. Quite a few of them appreciate the importance of the increase of tangible asset; however, they ignore protection for IPR including patents, copyrights, technological secrets, and so on. As a result, an amount of technologies are lost. It is reveal that the enterprises have made no study on the roles of IPRs in economic activities, thus not understanding how to use the patent system to improve technical innovation mechanism, product quality and high-tech contents for developing and protecting market. Secondly, the consciousness of maintaining the validity and effectiveness of their patents is not strong enough. Some enterprises have only concern about the amount of the patents filed and granted, but think little of patent validity, patent quality and actual value of their patents. Patent validity means a patent is maintained effectively before its term expired. It reflects the technological innovation abilities and competitive abilities of enterprises and a nation. The patent holder is only willing to pay maintenance fee to keep the validity of patents which have market value. Therefore, the number of valid patents represents the technological level more factually than the number of patents granted. Chinese Patent Law stipulates that the duration of patent rights for inventions is twenty years, and the duration of patent rights for utility models and design is ten years. However, the validity period of many patents is less than maximum period prescribed by law. According to the data investigated and



statistically analyzed by Patent Office of the People's Republic of China, the patents granted by Chinese authority with valid periods less than seven years account for 66.3% among all the Chinese patents, and the patents with valid periods more than 10 years only account for 17.5%. Nevertheless, the two corresponding proportion mentioned above are respectively 41.9% and 29% in foreign countries. [2] Thirdly, the utilization of IPR is simplified. Most of private enterprises limit to use their IPR in production by themselves, but few of them make profits through cooperation, license, technology transfer, and other ways, which are usually adopted by multinational corporations.

#### **The Insufficient Experiences in Dealing with Suits Related to Technology Protection**

IPRs are powerful weapons for many private enterprises. In Chinese domestic trial experiences, more and more cases involving technology protection happen annually. On the one hand, private enterprises have recognized gradually that it is critical to protect their IPRs. It can be seen that many enterprises will bring an accusation actively against infringement. On the other hand, some private enterprises do not respect IPRs owned by others well enough; consequently, they are probably accused as defendants due to their infringements. Currently, there are two obvious characters in the cases involving IPR disputes as follows. Firstly, the number of cases is creasing in the recent years, and the majority of the cases are related to technologies. For example, there are 400 cases registered in the Intermediate People Court of Hangzhou in 2006, and 370 cases have been ended. Among them, 212 cases are about patent issues. The amount of these cases has reached the culmination in the trial history in this court. Similar situation has also occurred in the Intermediate People Court of Nanjing, Shanghai, and Beijing. [3] Secondly, current cases are more complex and more difficult than the cases happened in several years ago. The scope of disputes has been extended from the traditionary areas, such as patents and copyrights, to some advanced areas, including plant variety rights, rights of discovery, and so on.

In the cases involving the IPR issues, private enterprises are usually faced with the following troubles. Firstly, it seems that many private enterprises are reluctant to solving disputes and protect IPRs through judicatory proceedings. In China, both the judicial proceedings and administrative enforcement constitute the whole system of remedy for infringed IPRs. Above all, intellectual property rights are important civil rights. In civil infringement cases, the people's court is empowered to order the infringer to bear civil responsibility for the cessation of the infringement. Moreover, if the infringement of intellectual property rights is so serious that it has disrupted the economic order and constitutes a crime, the infringer's criminal responsibility is investigated and dealt with according to law. Both of them are the practical and effective judicial protection method. In addition to judicial practices, Chinese intellectual property rights administrative departments exercise their legally stipulated powers and functions to safeguard law and order within the field of intellectual property, encourage fair competition, mediate disputes, settle cases involving violations of intellectual property rights, and protect the interests of the broad masses of the people by maintaining a good social and economic environment. In China the administrative procedures for solving disputes concerning intellectual property rights are simple and convenient. Cases can be quickly filed for official examination and possible prosecution, investigation follows promptly, and efficiency in handling the case is high. This is advantageous to the owners of the rights. [4] In comparison, judicial proceedings is the final means of claiming remedies, is more powerful than the latter. Whereas, if enterprises choose to enter into judicial proceeding, they will be confronted with several risks of too cumbersome and time-consuming courses, difficulties in bearing the burden of proof, and high legal cost. Just due to the factors mentioned above, many enterprises, especially medium and small enterprises, are more willing to take actions by administrative proceeding. It should be noted that administrative authorities can only provide conciliation and mediation services for remedies, instead of making judgments. As a result, most of the IPR holders cannot obtain a satisfying economic compensation. Secondly, in many cases, the plaintiffs sue for a large amount of money, which leads to a big gap between their claims and the judgment made by courts. Some private enterprises know little of litigation rules, so that their claims are unreasonable. Moreover, sometimes they cannot provide evidence of their loss caused by the sued infringement convectively. Hence, their claims cannot be supported by courts. Thirdly, some private enterprises' capabilities of dealing with suits are quite weak. At present, a few of international corporations have established their strategic systems to protect their IPRs. Especially, some of them engage some searchers to find out whether their IPRs are being infringed in various markets in China. In contrast, Chinese private enterprises have not paid enough attention to IPRs. Not only do they conduct infringements, but also they prepare little for coping with the boring suits in which they are possible defendants. According to the statistics provided by the Intermediate People Court of

Nanjing, the failure rate of such suits in which the domestic enterprises are defendants reaches 83% amazingly. [5] One of the important reasons resulting in failure of suits is such a passive defense reaction.

#### **The Absence of Reasonable Management System of IPRs and Excellent Professionals**

An intellectual property (IP) management system defines the principles that IPRs are designed to serve and how patent matters and other IP matters are handled within the enterprise. It includes the management of the creation, ownership, protection, and commercial exploitation of IP. The purpose of IP policy is to support the business operations of an enterprise. Neglecting IPRs may turn into a threat to development in an internationally expanding business. However, the reasonable management system of IPRs is rarely established in numerous Chinese private enterprises. In many large-sized enterprises in developed countries, there are hundreds of professionals who are well versed in management and protection of IPRs. They are dedicated in studying the laws, ideology, economic status, and custom of different countries. [6] Based on such a powerful and efficient system, their technologies are often implemented in an optimal way. In comparison, the management in Chinese private enterprises still needs further improvement. A complete and effective mechanism for management and protection of IPRs hasn't been formed within many private enterprises. Majority of them choose the familiar management method, which lacks special persons in charge of affairs related to IPRs. Even though some private enterprises engage managers for IPR protection, a quite few of these managers only provide part-time services. Such an unprofessional and logy management system cannot ensure the necessary consultation.

Additionally, the IP professionals with abundant legal knowledge, experience and technological background are extremely rare in China. The persons who are trained well for IPR services are less than 1,000 annually. [7] Additionally, many experts flow to foreign-invested enterprises and lawyer's offices. It is of great importance and urgency for private enterprises to recruit such excellent professionals.

## **Proposals for Improving Protection and Management System for Technologies**

### **Accelerating the Construction of Protection and Management System for Technologies**

It is necessary for private enterprises to strengthen their awareness and consciousness of IPR when they enter into the competitive market. Enterprises should guard against potential infringements to maintain their hard-own market share. Enterprises shall vigilantly refrain from infringing other's rights as well; otherwise, they will suffer from great loss due to atonement and punishment caused by their prudential rough torts. Therefore, enterprises shall try their best to develop an effective system of technology management. Such a system will be helpful to improve the competitive abilities of enterprises, to maintain the economic value of technologies, to enforce IPRs and to monitor torts. Additionally, enterprises shall be always striving to promote their mechanisms for coping with suits. Besides using of arbitration and mediation, the current legislation and enforcement in the area of IPR in China encourage enterprises to fully protect their technologies by judicial means. The criminal, civil and administrative liabilities can deter and combat the infringement effectively. Simultaneously, some proceedings in litigation, such as preliminary injunction, evidence preservation, and attachment of property prior to entry into judgment, can protect the rights of technology holders in time, which will guarantee the legal remedy. In particular, the Supreme People's Court and the Supreme People's Procuratorate have jointly issued the Interpretation of Several Issues Relating to Specific Application of Law to the Treatment of Criminal Cases of Intellectual Property Infringement No. 2 which came into force on the same day. This Interpretation aims to further strengthen the protection of intellectual property rights in China. [8] With regarding to the importance of judicial proceeding, private enterprises shall prepare constructively for trial and can contribute positively toward their defense. Such a prudent attitude to suits is necessary. Enterprises should gather necessary evidence to substantiate their claims. The disputes related to technologies and IPRs are generally esoteric, so that it is also essential to consult a lawyer or legal center and research the specific laws. Finally, enterprises shall recruit professionals who are specialized in searching, viewing, and analyzing of IPR data collections worldwide, in managing and protecting technologies, and enacting particular strategies for technology protection. The excellent human sources can be obtained through introducing and training staffs, or cultivating special talents by cooperating with other enterprises.

### **Enhancing the Function of Agencies and Associations to Assist Private Enterprises for Technology Protection**

Agencies of IPR provide a series of professional services and handle technologies -related affairs, such as preparing patent application, analyzing actions and preparing responses to actions, providing status reports related to IPRs for clients as needed, and taking necessary actions to keep IP holders in good standing in China and around the world. Agencies shall be approved by the State Intellectual Property Office of the People's Republic of China, and their work shall comply with the laws and regulations. Associations for IPRs protection are nongovernmental organizations, which are dedicated to promoting a better understanding of the creation and utilization of Intellectual Property. They are made up of individuals, businesses, institutions, and organizations involved with the development, promotion, protection, and utilization of Intellectual Property. In the recent years, the IPR Protection Association of China, the Patent Protection Association of China, the Trademark Protection Association of China, and many other associations have been constructed. These associations function as coordinators to harmonize the benefits between enterprises and the government, and function as supervisors to maintain the fair competition in markets. It can be seen that agencies and associations play an important role for private enterprises to protect their technologies. However, a short development history of agencies and associations in China leads to the absence of authoritative status and strong cohesion. Moreover, many private enterprises have no confidence in services provided by agencies and associations, so that it is difficult for the latter to perform their inherent function. In contrast, some agencies and associations with abundant experiences in developed countries perform an important function in the related area. For enterprises, they give advices on management and dealing with special cases, make investigation in the actual markets, and mediate disputes. For the central and local governments, they report the remand of industries, propose the industry standard, and assist legislation and enforcement. These experiences shall be learned from by agencies, associations, and private enterprises in China.

#### **Reinforcing Guidance and Improving Assistance Provided by the Governments**

Firstly, the central government and local governments should set up a proper administrative system. Above all, the governments shall strengthen the enforcement to protect the rights of technology holders. It is also practical to develop information systems to report acts of violation of the laws and regulations. Based on the information they obtain, the governments have an obligation to publish it for private enterprises' reference. At the same time, the governments shall help enterprises avoid the risks in the international technological trade and investment, give directions in commercial issues, and carry out professional training to improve the abilities of staffs in private enterprises.

Secondly, the governments shall develop an open and expedite information channel for giving better access to government services. Most of IP information comes from the governments and their departments. Compared with enterprises and individuals, the governments act as an electronic clearing house for information on other sources of assistance, including private sector experts, educational and training institutions, and investors and companies interested in partnering. Therefore, the accurate classification, careful edition, and prompt reports of IP information are all critical for enterprises, which can provide private enterprises convenience and save their valuable time.

Thirdly, the markets of agencies and associations should run under the laws and supervision provided by Chinese authorities. Above all, the professional qualification of agencies shall be evaluated termly. Moreover, the governments shall guide agencies and associations to do some academic research for the purposes of providing high quality services. Additionally, when making policies, the governments shall promote communication with agencies and associations, and consider the opinions from them, which reflect the problems in practices. Finally, the governments shall encourage agencies and associations to discuss difficult and disputable issues with private enterprises, and to make suggestions for them. Such actions will increase confidence of enterprises in services offered by agencies and associations.

Finally, government can assist private enterprises human resources development by sponsoring exchanges of business, scientific and technical information, and by strengthening and supporting the role played by teachers, trainers and private sector consultants and management consultants in the area of IP management. Moreover, the educational propaganda of IPR protection shall be carried out by the governments, enterprises, organizations, and all the social forces. These instructive actions will be significant to build a good environment of respecting IPRs and protecting technologies.

## Conclusion

The challenges in the regime of technology protection posed by technical development for Chinese private enterprises are obvious. Although private enterprises have made some efforts to conquer the challenges, the abilities of technology protection still lag far behind the requirements of the new knowledge-economy era. Therefore, Chinese private enterprises should pay more attention to the establishment and perfection of their management and protection systems for technologies. They should utilize all available resources to improve the level of technology protection. Moreover, the central and local governments, agencies, and association also have obligations to provide necessary services for private enterprises to cope with difficulties composedly.

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# Impact of Code of Ethics on Behavioral Intention of Indulging in Software Piracy

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## Abstract

A code of ethics is a formal document that states an organization's primary values and the ethical rules it expects its employees to follow. Researchers have found that a well-written ethical code could serve to convey the organization's commitment to ethical conduct (Molander (1987). The study explores the influence of formal codes on individual's behavioral intention of indulging into unethical activity of software piracy in the work place. For this purpose data has been collected by structured questionnaire from 379 respondents working in different IT companies located in South India, West India and North India. To find out the influence of codes of ethics on intention to act for software piracy, correlation was computed on perceived ethicality and intention to act for piracy. Along the direct relationship of formal codes with the intentions to act for piracy we have also studied the interactive effect of formal code with attitude to predict the intention as an outcome.

## Introduction

Organizations can guide members' ethical behavior by developing formal codes of ethical conduct. A code of ethics is a formal document that states an organization's primary values and the ethical rules it expects its employees to follow.

Research is inconclusive regarding effectiveness of the formal codes in changing attitudes or behavior. It suggests that codes of ethics must be consistent with the organizational culture and must be enforced in order to be effective (Trevino, 1986). In a 1979 survey of Fortune 1000 corporations three fourths of the companies had codes how ever only one half of the companies distributed the codes beyond the level of officers are "key employees" (White and Montgomery, 1980). Weaver and Ferrell, (1977) found that codes of ethics were more likely to affect beliefs about what is right, than behavior and that enforcement of corporate policy was necessary to change ethical behavior. Hegarty and Sims (1979), in a laboratory experiment found that an organizational ethics policy significantly reduced unethical decision. On the other hand many researchers have found that code of ethics don't any impact on person's ethical/ unethical behavior. Cressey and Moore (1983) analyzed the conduct codes of 119 corporations; they concluded that codes did not relieve organizational pressure to be unethical. Cleek, and Leoward (1998), conducted a survey of 150 business students and concluded that code of ethics is not influential in determining a persona ethical decision making behavior.

## Software Piracy

We consider it wrong to steal chocolate from a shop, however it seems to be quite different when we consider stealing information from a floppy disk (Wong, 1995). Software piracy has become a major problem for the software industry and for business, it has been estimated that software piracy results in between 2 to 10 illegal copies made for every legitimate copy sold (Conner and Rumelt, 1991).

Software piracy is defined as the unauthorized copying of an organization's internally developed software or the illegal duplication of commercially available software in order to avoid fees (Straub and Collins, 1990). It is

the illegal act of copying software for many reasons, other than back up, without explicit permission from and compensation to the copyright holder (Gopal and Sander, 1998). Piracy is claimed to be a major problem for the microcomputer software industry. Industry sources estimate the losses from piracy of commercial software at over \$1 billion per year and many fear that rapidly increasing losses will threaten the financial viability of the whole software industry (Bequai, 1987).

The pervasiveness of software piracy throughout the world is having a profound effect on the software publishing industry and the development of digital intellectual properties and technologies especially in developing countries where the piracy rates are extremely high (Gopal and Sanders, 1998).

Software piracy, the illegal copying of computer software, has received increased attention as a form of unethical behavior in recent years and has become a widespread problem universally, in government and business environments (Sims, Cheng and Teegen, 1996). The 1980s witnessed a virtual explosion in the use of microcomputer for business, education and personal / home functions. This spread of hardware has been accompanied by a proliferation of software, much of which "pirated" is i.e., unlawfully reproduced.

## **Intention**

Intention refers to the subjective probability of one's engagement in any behavior (Fishbein and Ajzen 1975). Stronger the behavioral intention, the more likely the execution.

Accordingly to Fishbein and Ajzen (1975) intention to act is determined by the individual's attitude and perceived social pressure from significant others. Glass and Wood (1996), in their study showed that variations in resource gained through the software exchange influence an individual's intentions to provide his or her legal copy of software to another for purpose of illegal copying.

## **Attitude**

Attitude toward the behavior refers to the degree to which the person has a favorable or unfavorable evaluation of the behavior in question (Ajzen 1989). Early theorists tended to use the term affect to denote an attitude's valence, i.e., overall degree to favorability (Thurstone's, 1931). To avoid confusion (Ajzen and Fishbein, 1980) proposed to use the term "attitude" to refer to the evaluation an object, concept, or behavior along a dimension of favor or disfavor, good or bad, like or dislike.

Many researchers (Schultz and Oskamp, 1996) in their studies have found that attitude leads to behavioral intentions. Prislina and Ouellette (1996) found that highly embedded attitudes towards preservation of the environment were more strongly related to an aggregate measure of behavior intentions than were low embedded attitudes. In an IT ethical context, if individuals view stealing software as wrong, they are unlikely to intend to steal it.

## **Methodology**

Since the focus of the study was using information technology, it was assumed that the level of familiarity with IT was likely to influence the responses. To address this issue an attempt was made to choose a sample that was homogeneous in terms of familiarity with IT, the study was conducted on the software professionals working in 16 software organizations based in North, South and West regions of India. These organizations varied in terms of ownership and respondents from Indian multinational and government organizations were included in the study.

### **Participants**

This study was conducted on professionals working software organizations. Altogether 379 executives from 16 organizations constituted the sample for this study. The data was collected via questionnaires that were administered in the organizations. The employees were assured of confidentiality and were informed that the information would

be used for academic and research purpose solely. Age and gender wise distribution of the sample is given in Table 1.

TABLE 1: AGE-GROUP AND GENDER WISE PROFILE OF THE RESPONDENTS

Age-Group	Gender		Total
	Male	Female	
20-25	98	54	152
25-30	164	37	201
30-35	17	4	21
40-45	2		2
45 -50	3		3
Total	284	95	379

It can be seen that the sample had mainly young professionals in the age group of 25 –30 years. It needs to be mentioned here that the age of the respondents is reflective of the actual age profile of the software professionals. However, the actual population probably has a larger share of female professional as compared to this sample.

Further, an attempt was made to collect data from, the different parts of the country to make the finding more universally representative. 131, 142 and 106 respondents were from Western, Southern and Northern parts of India. Respondents' belonged to different types of organizations 160 were from Indian Private Organizations 189 were form Multinationals and 30 were from Government Organizations.

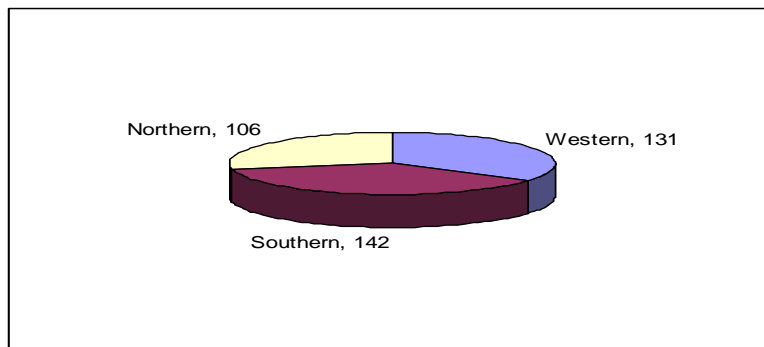


FIG. 1: REGION WISE DETAILS OF THE SAMPLE

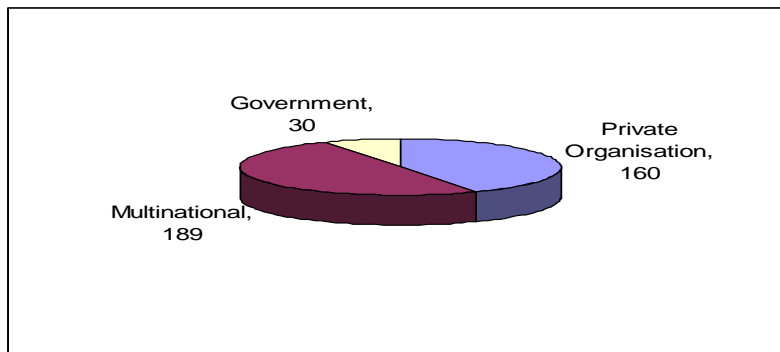


FIG. 2: ORGANIZATION WISE DETAILS OF THE SAMPLE

## Instruments Used

### Piracy Situations – Attitude and Intention

Based on (Shore, Solorzane, Burn and Hussan, 2001) two situations of software piracy were adopted. Both the situations are related to corporate piracy (piracy for organization). The attitude and behavioral intention for each situation was measured by using 3- items each. Attitude was assessed in terms of perceived ethicality and intention through likelihood of indulging in the activity. The rating was done on five point likert scale with responses ranging 1= Always to 5= Never. Reliability (cronobach's alpha) of attitude and intention for both the situations are reported in Table 2.

### Code of Ethics

The five items of code of ethics was adopted from Pierce and Henry (1996). One items where on ordinal scale, (*Does your company have a formal code of conduct*) where yes and no type. Rest four items were placed on a five point Likert Scale with responses ranging from strongly agrees =5 to strongly disagree =1. Reliability alpha of four items are reported in Table 2.

TABLE 2: SCALE CHARACTERSTICS OF THE VARIABLES INCLUDED IN THE STUDY

SCALE	Mean	St. Deviation	Alpha	No. of items
<b>Piracy</b>				
<b>Situation 1</b>				
Attitude	3.2	1.16	.93	3
Intention	3.3	1.08	.88	3
<b>Situation 2</b>				
Attitude	3.5	1.09	.92	3
Intention	3.4	1.05	.88	3
<b>Code of Ethics</b>	3.21	.615	.58	4



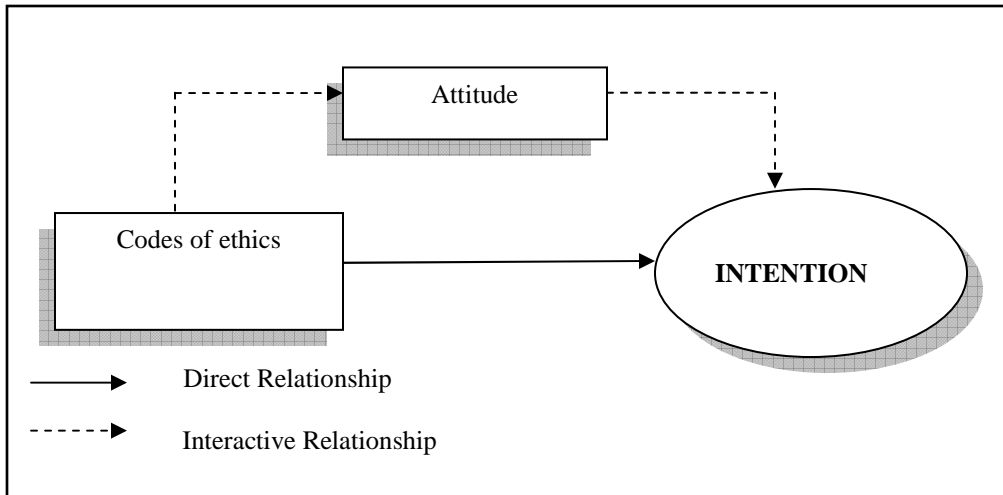


FIG. 3: RESEARCH MODEL

It was hypothesized that code of ethics would affect the perceived ethicality (attitude) and intention of individual decision-making regarding software piracy. Code of ethics can serve three major purposes in organization. These include demonstrating a concern for ethics by the organization, transmitting ethical values of the organization to its members and impacting the ethical behavior of these members (Wotruba, Chonko and Loe, 2001).

## Results

Presence of formal code was assessed through a yes/no response format. When we asked respondents whether they are aware of formal code of conduct in their company 320 respondent out of 379 said that they were, whereas 55 respondents said they were not. ( $\chi^2$  which is significant at  $P < .01$ ). Thus, it seems that most companies had a formal code of conduct.

Next to find out the influence of codes of ethics on intention to act for software piracy, correlation was computed between codes and intention to act for software piracy. Table 3 shows the results of correlation analysis.

TABLE 3: CORRELATION BETWEEN CODES OF ETHICS AND BEHAVIORAL INTENTION.

	Piracy Intention	
	Situation 1	Situation 2
Codes of Ethics	.103*	.147**
	(365)	(365)

Note: figures in parenthesis represent  $N$  (sample size). \* =  $P < .05$  \*\* =  $P < .01$ .

It can be seen from Table 1 that code of ethics has a significant correlation with intention to act for software piracy for both the situations.

### Interaction Effect of Code of Ethics and Attitude

So far we have discussed the direct relationship of code of ethics with the intentions to act for piracy. In this section we discuss the interactive effect of code of ethics with attitude to predict the intention as an outcome. To test the independent effects of code of ethics and attitude were included as the first 2 predictor and the interaction between the two was added as the third one. Only in case where the interaction term was significant further relationship was explored. It has been seen that out of two software piracy situations; in one situation code interacts with attitude to predict behavioral intention providing partial support for interaction hypotheses. Table 4 and 5 shows the results of this interaction.

TABLE 4: BETA COEFFICIENTS FOR TWO WAY INTERACTION OF CODE OF ETHICS TO PREDICT INTENTION

	SITUATION 1	SITUATION 2
(CODE) X (ATTITUDE)		-1.997* (.047)

Note: N= 379, figures in parentheses indicate the significance level, \*=p<.05

To see the direction of the results mean are identified. Significant interaction was further analyzed graphically. It needs to be mentioned here that the graphical representation shows the direction of the interaction effect. For the graphical purpose data are grouped into qualitative categories (low and high). Table 5 lists the mean scores on codes of ethics for different combination low and high of attitude. The same data is shown graphically in figure 4.

TABLE 5: MEAN SCORES: INTENTION AS A FUNCTION OF INTERACTION BETWEEN CODES AND ATTITUDE (SITUATION 2 OF PIRACY)

	Low Codes	High Codes
Low Attitude	3.36	3.64
High Attitude	3.97	3.87

Result of the interaction between Codes and Attitude to predict the mean values of Intention are depicted in Table 5. It can be seen that Intention to indulge in piracy is high when codes are low and attitude towards piracy is high. Figure 4 depict that Intention to act increases with increase in Codes.

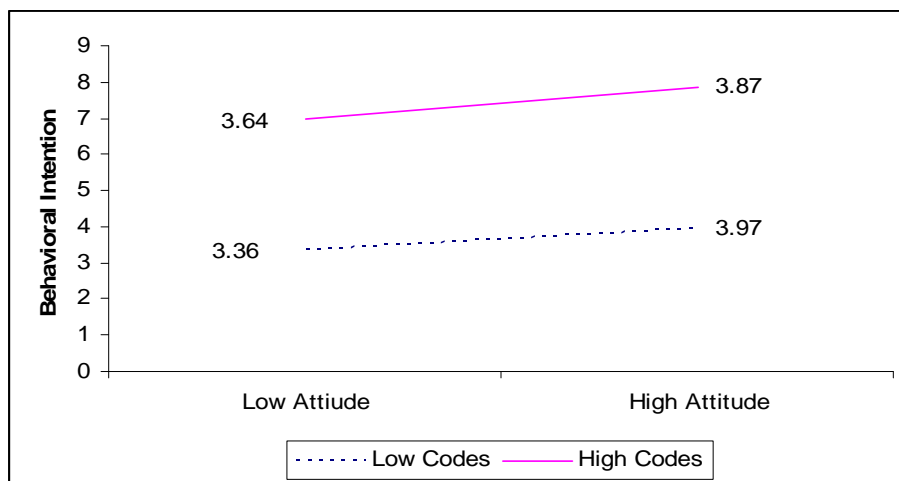


FIG.4: MEAN SCORES: INTENTION AS A FUNCTION OF INTERACTION BETWEEN CODES AND ATTITUDE (SITUATION 2 OF PIRACY)

## Conclusion

In the present study we have taken ethical issues of software piracy and tried to assess the impact of code of ethics on unethical/ethical decision making regarding the issue, at the same time we are also tried to assess the interactive effect of codes with attitude to predict the intention as an outcome.

At the first level, there is a significant correlation between the codes of ethics and intention to act for software piracy. Hence it proves our hypothesis, that the stronger the code of ethics lower will be the intention to indulge in software piracy. Along the direct relationship of formal codes with the behavioral intention to act for piracy in the present study we have also studied the interactive effect of formal codes with attitude to predict the intention as an outcome. Thus our second hypothesis receives only partial support as, the interactive relationship were significant only for the second situation of software piracy.

Many researchers have found that a company code of ethical conduct has several benefits to the organization. It helps maintain and promote public trust, promotes "...greater managerial professionalism, protects against improper employee conduct, defines ethical behaviors in light of new laws or social standards, and ensures the maintenance of high ethical, standards in the face of changing corporate culture and structure" Pelfrey and Peacock (1991). In such cases organizations need to have a well-defined policy of personal computing behavior, which should be clearly communicated to its employees. If the organization doesn't have strong codes and policies, it will give opportunity to its employees to engage in unethical activity of software piracy.

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# Integrating Digital Forensics into the Workplace

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## Abstract

More crimes than ever before are leaving a trail of digital evidence behind. However, if an organization is not prepared to recognize, preserve, collect, and analyze this evidence, the criminals may never be caught. Now, more than ever, organizations need to take a proactive approach and start integrating digital forensics processing into their standard operating procedures. However, by the time investigators arrive at the scene of the digital crime, the evidence often has been wiped clean. This paper examines the issues and difficulties faced by organizations trying to incorporate digital forensics into the work environment. The author also proposes a new methodology for collecting and preserving potential evidence before an incident even occurs.

## Introduction

Although it is easy to believe that most of the computer attacks originate from outside one's network and organization, the truth is often just the opposite. While an exact number is not known, computer crimes performed by insiders accounts for 50–85% or more of all computer crime (Whitman & Mattord, 2007). While the actual malicious attacks by insiders appear to be fewer in number, there have been numerous cases of pirated software, child pornography, mishandling of classified data, computer viruses, Trojan horses, and copyright infringement (Little, 2005; Svan, 2006; Wait, 2006; Weckerlein, 2006). Crimes and attacks are being committed on both sides of the network, by insiders and outsiders, and they all have to be properly addressed, since all represent real threats to the operations, stability, and security of the computing environment.

Whether collecting physical evidence, such as fingerprints or DNA, or digital evidence, an investigator must follow certain laws and procedures. Digital forensics is the application of methodical investigatory techniques to solve criminal cases involving computer systems (Casey, 2004). Digital forensics deals with the preservation, identification, extraction, documentation, interpretation, and presentation of data collected from a computer system. Digital evidence is hard to destroy but easy to damage. If not collected and preserved properly, the evidence, digital or otherwise, often cannot be used in a legal proceeding (Casey, 2004; U.S. Department of Energy, 2000; Vacca, 2005; Whitman & Mattord, 2007).

The National Institute of Standards and Technology has recommended that all organizations start incorporating digital-forensics processing into their incident-handling procedures (as cited in Kent, Chevalier, Grance, & Dang, 2006). In addition to the precautionary measures that sure procedures provide in the event that legal actions are necessary, forensic tools and techniques can be used for data recovery and troubleshooting. The major premise of Kent et al.'s report, however, was that "organizations should ensure that their [information technology] IT professionals are prepared to participate in forensic activities" (p. ES-2). They stressed that incident handlers and first responders should receive forensics training and education so they know what they should and should not do when responding to a potential incident. They need to be prepared to cooperate with law enforcement and to make sure that they do not hinder the investigation or damage the evidence.

Digital evidence collection, preservation, and analysis are complex and time-consuming tasks. Forensic training is demanding and costly. The U.S. military faces even more challenges and problems with their global operations, shifting assignments, frequent rotations, and a constant barrage of cyberattacks from virtually every country on the planet.

## **The Growing Problem**

The threat to the military's computer infrastructure is growing daily. In the 1980s and 1990s, most of the threats seemed to come from teenaged hackers who saw breaking into computers as a rite of passage (McCormick, 1996) and gaining access to the Pentagon as the Holy Grail (Christensen, 1999). Often, however, intermixed with these teenagers were terrorists, both foreign and domestic, with other agendas. Although the numbers are hard to come by for security reasons, according to a report in *Newsweek* (Vistica, 2000), the Pentagon computer systems were attacked over 250,000 times a year. At least 500 of those are considered to be serious attempts aimed at classified computer systems (Vistica, 2000). As the result of a major international taskforce, the leader of a Romanian computer hacking team was just charged with breaking into more than 150 U.S. government computer systems. It is believed that the main reason the group kept attacking U.S. government computers systems is that they are considered to be "some of the securest machines in the world" (Associated Press, 2006).

In addition, computer hacking has become state sponsored, with many countries establishing information warfare teams to penetrate other countries' computer networks. Dr. Byeon Jae-Jeong of South Korea's Defense Ministry's Agency for Defense Development (as cited in "N. Korea's Hackers Rival CIA," 2005) indicated that his analysis of the 500- to 600-member North Korean hacker unit revealed that they had abilities comparable to those of the Central Intelligence Agency and could take over the U.S. Pacific Command and Control Center as well as the power grid for much of the United States. These North Korean hackers may be responsible for a 450% jump in attacks on computers in South Korea in 2003 (Magnuson, 2006). Although not widely discussed, it is well known that China, while enjoying status as a "most favored nation" trading partner, has been hacking into military computer systems for years (Thornburgh, 2005).

Whereas at first it seemed as if the hackers simply wanted to steal secrets or shut down the systems, it now appears they have more devious purposes. The computers are hijacked and used by the hackers for identity theft, spying, theft of information, distributed denial of service attacks, and as zombie servers (Magnuson, 2006).

## **Incorporating Digital Forensics in the U.S. Forces Korea**

The U.S. Forces Korea currently has only two fully qualified computer forensic specialists supporting over 26,000 computers. Thus, it is often impossible to respond properly to all the potential incidents that would require digital-forensic processing in a timely and efficient manner. To assist the forensic specialists, a small team of 10–20 IT specialists spread throughout the country can be called upon to perform some typical, first-responder data collection tasks.

Under the current system, local first responders are contacted by the Regional Computer Emergency Response Team (RCERT) when they have detected an anomaly on the network that needs to be investigated. The RCERT typically specifies the target System of Interest by its Internet Protocol address. The first responder must determine the machine's physical location and then, schedule permitting, travel to the System of Interest, which can be located anywhere on the Korean peninsula, and run a program to collect the system logs. Depending on their other duties, the time of day, and other factors, the time elapsed from receipt of the call until the logs are collected can be up to 48 hours. Once the logs are collected, they are e-mailed back to the RCERT for analysis to determine what additional actions, if any, need to be taken next. If the incident is deemed severe, and the system is to be seized, the responder is contacted, and the process is repeated. This time, however, upon arriving at the site, the computer is shut down, seized, and turned over to the forensic specialists. This entire process, from first call until seizure, can span a week or more (R. Henderson, personal communication, October 15, 2006).

During that time, no additional controls are being enforced on who is using the computer system. During the process of normal daily operations, thousands of files are being created, destroyed, overwritten, and modified. Potential evidence is lost or damaged, and since no chain of custody has been initiated, much, if not all, of the evidence collected from the system will be useless in a legal proceeding (Casey, 2004; Vacca, 2005).

If and when the computer is seized, the user is often left without a computer system, and all of the user's documents and e-mails have been taken along with the system. In some cases, the computer is not seized, but the

hard drive is wiped and the operating system reloaded to ensure that all traces of malicious code or classified data are erased. This procedure has the side effect of removing all of the user's data as well (A. Johnson, personal communication, November 1, 2006).

These "slash and burn" techniques are being used for several reasons: None of the incident responders have any formal forensic training, there is a heavy workload, and wiping and reloading the system typically is the fastest way to close out the incident (R. Henderson, personal communication, October 15, 2006; A. Johnson, personal communication, November 1, 2006). However, in the process, almost all of the digital evidence is lost, making it almost impossible to perform any true forensic analysis or even a simple root-cause analysis to find the initial vector of the problem, in order to prevent a recurrence (Whitman & Mattord, 2007).

## **Preparing the Troops**

A potential solution to this problem would be to identify more IT specialists who perform first-responder duties and to provide them with training on the proper collection of digital evidence. If enough first responders could be trained, the workload should be decreased, and the evidence should be preserved properly, allowing for a more detailed analysis, while restoring the user's system to an operating state. An additional benefit to preserving the digital evidence would be to include a copy of all the user's files and e-mails, which then could be returned to the user, provided those files were not directly involved with the incident.

Each unit in the military has at least one information management officer (IMO) who is the equivalent of the system administrator in the corporate environment. The IMOs are typically the first people called when users are experiencing problems with their computers. When IMOs arrive at the site, their primary goal is to correct the problem and get the system back online as soon as possible. However, if they detect any potential signs of suspicious computer activity, they have to secure the computer until they receive further guidance from an information assurance manager or the RCERT. A conflict can occur because a mission-critical system often needs to be brought back online as soon as possible, but that process typically destroys any digital evidence on the system.

Although the IMOs receive some required online computer security training, the bulk of their computer security training is done during a 2-week training class offered three or four times a year, schedule permitting. As most IMOs are only in Korea for a 1-year tour of duty, they may not receive any training for up to 4 months, depending on when they arrived. Moreover, this course focuses only on the general legal aspects of computer investigations and does not address evidence-preservation issues and techniques (P. Riopel, personal communication, August 17, 2006).

According to the Federal Bureau of Investigation, the amount of digital evidence processed from Fiscal Year 200 to Fiscal Year 2005 has increased 3,060% to a staggering 1,426 terabytes of data. During the same time, the number of forensic examiners only increased by 182%, to a total of 264 (Talley, 2006). Shreeve (2005) also indicated that the field is growing at an exponential rate, and that police and government agencies are not prepared to handle the increase. In fact, a large percentage of cases dealing with digital evidence are being outsourced to private organizations, due in part to the lack of properly trained law enforcement professionals and increasing demand for digital-evidence processing.

To address the growing interest in digital forensics, many colleges and universities are implementing digital-forensics programs (Gottschalk, Liu, Dathan, Fitzgerald, & Stein, 2005), but many of these are multiyear programs and go far beyond the scope of what would be needed by IMOs to collect digital evidence. Unlike what is seen on TV shows such as "CSI," most crime-scene technicians only collect the evidence and do not analyze it—that is the job of the forensic specialist (Horswell, 2004; Roane & Morrison, 2005; Saferstein, 2004). The IMOs would play a similar role; they would be responsible for the proper collection of digital evidence. This would require only what Armstrong and Russo (2004) referred to as a Level 1 education, typically required by new recruits and police officers on the beat.

## **A Proposal: The Digital Forensic Precrime Evidence Collection Unit**

In the 2002 Steven Spielberg, film, “Minority Report,” loosely based on a Philip K. Dick short story, Tom Cruise stars as a “precrime” officer, who, with the use of psychics, can predict when a crime is going to happen. Using sophisticated computer technology and a team of specialists, his precrime task force is able to get to the scene just before the crime is committed, save the victim, and arrest the soon-to-be perpetrator.

No matter what precautions we take, some attacks are going to break through our defenses. Due to the nature of the attacks—zero-day exploits, the time to find solutions, time to implement fixes, and so on—it may be days if not weeks before the malware or an incident is actually detected on a system. In a recent attack by the polymorphic Storm Worm, the worm had created over 42,000 variants of itself during 12 days in order to evade detection, and it worked. The worm was able to evade 27 different antivirus programs; only 4 were able to detect it (Larkin, 2007). The Sony digital rights management software, XCP, installed a rootkit to prevent its discovery and opened up a backdoor on the system; the worm might have gone undetected for up to 4 months before being discovered. It went undetected by all the standard antivirus, malware, spyware, and other security packages. Via an analysis of domain name system requests, the worm infected more than an estimated 500,000 computer systems world-wide, including military and government PCs (Norton, 2005). It was only detected by the author of a rootkit detector program who inadvertently had installed the rootkit on the system on which he was developing the software (Russovich, 2005).

So, not only can these malware packages be residing undetected on systems for days, weeks, or even months, evading all of the sensors, but they also can be causing performance degradation and system crashes. Russovich (2005) indicated that the Sony rootkit was so poorly written and used such unsafe procedures calls that it would cause the system to crash, resulting in the dreaded “Blue Screen of Death.” Even if the malware does not cause the system to crash, it can slow down the system. If multiple malware applications from competing organizations are loaded, the system can slow to a crawl, becoming unusable.

### **The New Three Rs: Reboot, Reinstall, and Reload**

When faced with unknown problems, users and technicians alike often apply the same methodology: Reboot, reinstall, and reload. First, they try rebooting the system. It seems to have become common knowledge that rebooting the computer system will fix most problems. Even the helpdesk personnel seem to believe this (Seebach, 2006). Unfortunately, from a forensic point of view, rebooting destroys any evidence residing in RAM. If the reboot does not solve the problem—and with a malware infestation, it typically does not—the user may try to reinstall a specific application that is causing problems or the last application installed. This usually does not help either. If the malware was installed with an application, the malware will stay even if the primary application is removed. With the reinstall or uninstall having failed to make a difference, the next step is the one that does the most damage from the forensic point of view.

Given the time pressure to get a system back online, the limited troubleshooting skills of most first-level technicians, and the ease of reloading a standard system image, it is becoming more prevalent to reload the entire system from an image server, such as a Symantec Ghost or Acronis True Image Server. With the user’s data residing on the a local file server, the disk can be wiped, and the operating system and applications can be reloaded from a standard configuration disk image over the network, from a DVD, from a USB hard drive, or from a hidden partition on the system itself. Depending on the size of the image and speed of the channel, the system can be reloaded, rebooted, and operational in less than 20 minutes.

However, if an update of the scanning software signature database reveals a malware infection or some other incident involving this specific system, chances are that most, if not all, of the evidence has been eradicated via the reloading of the image. Although it may be possible to use some forensic tools to try and reclaim fragments from the unallocated clusters on the hard drive, it would be difficult to associate those fragments with the event.

### **Implementing a Digital Forensic Precrime Evidence Collection Unit**

Having experienced too many of those “after-the-fact” moments, the author wished that there was some way to turn back the clock and collect the evidence before the system was reloaded. Thus, a new methodology is being developed to do just that: The “evidence” is collected before the system is reloaded. Of course, this evidence collection is just a precautionary measure, but in several incidents this technique already has yielded positive results.



As noted earlier, one of the primary cornerstones of digital forensic evidence collection is data duplication. However, using even high-speed forensic duplicators, large hard drives can take hours to duplicate and verify, a process that most users would not be willing to tolerate simply as a precautionary measure. Thus, this research has taken a different approach. Before a system is reloaded, the hard drive is replaced with a clean, wiped drive of similar specifications. The old drive is placed in a read-only USB container, and a chain-of-custody form is started. The new drive is loaded with the image, and the old drive is secured. This process only takes a few more minutes than a simple reload but provides numerous advantages:

- The process is simple and should be able to be performed by entry-level technicians with minimal training.
- Old drives can be scanned with additional tools unavailable on the original host system.
- Old drives can be subjected to tests that would take too long on the original host system.
- As new signatures are released, the old drives can be rescanned.
- Old drives are still available for data retrieval, in case the users had stored documents locally.
- Old drives should still be forensically sound and unmodified since they were collected.
- The old drive is the original evidence, not a copy. The chain of custody has preserved its integrity.
- The process provides a larger window of time in order to conduct the investigation
- After a set time frame, perhaps 90 days, drives not involved in ongoing cases could be wiped and reused.

Despite some additional costs associated with this methodology, such costs would be reasonable. They would vary, of course, with the size and type of hard drives in the organizations, the retention time frame, and how often the systems were reloaded. Yet, even 100 hard drives of 160GB would only cost approximately \$6,000 in addition to the other forensic tools and software already acquired.

This is a new methodology, and developers are still consulting with legal counsel. So far, it is believed to be legally sound, provided certain precautions are taken. This process has to become part of the standard operating procedure and has to be applied to all systems. It needs to be fairly automated and consistently performed. Once the old drives are acquired, they should all be treated the same, unless the additional scans or tests indicate otherwise. They must always be in a read-only container, and the chain of custody should be maintained. In these cases, the old drives could still be used in legal proceedings and treated the same as archival backup tapes and files, such as in the cases *Medtronic v. Michelson* (2003), *Zubulake v. UBS Warburg LLC* (2003), and *Alexander v. Federal Bureau of Investigation* (2000).

This methodology also should address the concerns stated by the National Institute of Standards and Technology (as cited in Kent et al., 2006). Kent et al. indicated that step-by-step procedures should be developed for routine tasks: “Guidelines and procedures should support the admissibility of evidence into legal proceedings, including information on gathering and handling evidence properly, preserving the integrity of tools and equipment, maintaining the chain of custody, and storing evidence appropriately” (p. ES-2).

Although employees have a Fourth Amendment right to a reasonable expectation of privacy in the workplace, that right is not absolute. Cases such as *O'Connor v. Ortega* (1987), *United States v. Simons* (1998), and *United States v. Monroe* (2000) have sided with the employer and the government. For the most part, if a technician discovers an illegal activity during the normal course of events, investigation is acceptable and admissible. However, it is important to make sure that technicians do not just start “poking around” in these hard drives looking for evidence, which would clearly violate the employee’s expectation of privacy. Before implementing any potential evidence collection methodology, organizations should review it with legal counsel.

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# The Cognitive Basis of Systems Integration: the Eclipse of “Core” and the Emergence of Redundancy

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## Abstract

Over the last few years, research has developed a new theoretical framework called systems integration. To date, systems integration has been developed from different perspectives, such as theoretical, historical and managerial. However, not many contributions have dealt with the cognitive aspects of systems integrator. The aim of this article is to shed light on the cognitive aspects of systems integration. In particular, it shows that a systems integrator should retain and dominate, in-house, many knowledge bases and competences as well as a whole range of contexts. In order to do this, firstly, the article defines the key elements of the cognitive nature of systems integration and provides an epistemological reflection on both the personal and social nature of the knowledge involved in successful systems integration. Finally, it attempts to show that strategic control over the technological and commercial evolution of the value chain requires full control of the processes of systems integration.

## Introduction

The objective of this work is to offer some considerations on how the control of systems integration can really be maintained and also on how innovating it is towards more conveniently retained paths. In opposition to the predominant ideology of “core” (by now the common sense of management, especially in Europe), the basic idea is of redundancy, of knowledge basis, therefore of agents as profiles of adequate professional bearers of such knowledge, but also of contexts, “*organizational containers*”, predisposed to allow agents and their knowledge basis to be integrated in order to construct the fundamental business axis of systems integration. This fundamental axis resides in the capability of vision-construction to change and its marching direction (a change that is used as a “club” competitive strategy).

Inherent evolution and change in the integration system itself, a dynamic activity by its very nature and role, of a systems integrator, are always ready to decline in the mere assembling of parts whose technological course is suggested by others. Nowadays, although systems integration has received much attention from scholars from different perspectives, such as the theoretical one within the context of evolutionary economics (Prencipe, Davies, & Hobday, 2003), the historical one by showing the changing role of individual firms specializing in systems integration (Pavitt, 2003) or the managerial one by showing how systems integration relates to competitive advantage (Prencipe, 2003) the cognitive nature of systems integration has not been focused on enough by scholars. Therefore, the aim of this article is to shed light on the cognitive nature of systems integration.

In order to do this, section 2 provides a simple definition and the historical origin of systems integration. It identifies the main factors that characterised its initial development and explains what systems integration is today. Section 3<sup>1</sup> gives a definition of the traditional model of individual knowledge, which lies at the basis of the paradigm “efficiency without intelligence”, which is still mainly common sense. In sections 4 and 5, an attempt is made to outline an interpretation of different types of human knowledge, from whose nature other foundations descend from which to choose a “redundancy of intelligence” paradigm as opposed to an “efficiency” one, without forgetting the economic reasons for efficiency, by putting them back in the right place, which is always behind cognitive reasoning. In section 6, we try to focus again on the concept of systems integration which has been too often reduced to a mere problem of design in recent years. In section 7 we try to justify, on the basis of the principle of systems integration control, the superiority of the reasons for the “redundancy of intelligence” in those firms that

want to remain or become systems integrators. Finally, in section 8 we present our conclusions and summarize our main findings.

## **Systems Integration: an Emerging Approach within Industrial Organization**

According to Hobday et al (2003) systems integrators are those firms that leave part of their production to specialized suppliers but keep their own design and integration capabilities. In other words, the role of a systems integrator can be divided into two main aspects (Prencipe, Davies, & Hobday, 2003). On the one hand, it subcontracts part of its production to specialised suppliers: those companies supplying systems rather than just products, for example, aircraft engine manufacturers that outsource production of parts of their aircraft engine. These aircraft engine components are multifaceted and involve complex technology that needs to be produced by specialists (Prencipe, 2000). This side of systems integration is similar to a (reduced) outsourcing process in which a systems integrator manages a division of labour among a network of specialised suppliers through the value chain.

On the other hand, a systems integrator should have the capabilities and knowledge to integrate and control these systems and to develop design ability. These activities are produced in-house and so this aspect of the organization is similar to an integration process through the value chain. This is the main task of a systems integrator because it allows a systems integrator to control all the value chain. As pointed out by Brusoni et al (2001), the division of labour among firms does not mean a division of knowledge. Indeed, in the case of systems integration, knowledge is maintained and controlled by the systems integrator. Otherwise, a systems integrator would be an assembler of multi-technologies and multi-products. In other words, there is a “big” distinction between an assembler and a systems integrator. The former is able to put together different components and systems of a product, while the latter maintains the capabilities and knowledge to control all the knowledge process through the value chain and in order to introduce new product architectures.

Following the concept of architectural knowledge (Henderson & Clark, 1990), systems integration is the ability to know how to integrate and link together into a coherent whole the new technologies and components as they are produced. To do this, a systems integrator needs to know and control the steps of its value chain (Paoli, 2003). A systems integrator can be seen as a kind of industrial organization with two faces (Hobday, Davies, & Prencipe, 2005): vertical integration and outsourcing. Indeed, as Hobday et al (2005 p.1111) pointed out: “systems integration capability is not merely the counterpart to outsourcing, but the capability needed to manage outsourcing as well as “joint sourcing” and “insourcing” to enable the systems integrator firm to gain the advantages of both outsourcing and vertical integration through different phases of the product life cycle”.

Systems integration was developed for the first time by the American Military Industry, following the Second World War. Mainly, the cold war induced the production of new and sophisticated weapons that needed considerable collaboration among many firms and different subjects. Moreover, new technologies started to cross dissimilar disciplines. Both of these aspects pushed for a new kind of organization that used multidisciplinary groups of researchers and engineers to work together on systems integration. Through it, new skills and knowledge were developed in producing multi-technology and multi-component systems (Sapolsky, 2003).

Over time, engineers, physicists, and chemists joined together diverse tasks to integrate different technologies into one product. They discovered that complex products needed different competences and know-how at the same time, so they formulated a new organization based on a systems engineering-integration approach. This kind of organization was able to manage the complexity of new productions by building teams of engineers, that were composed of scholars from different firms and disciplines, while the previous organization was based on a strict division of labour inside firms and among firms as well (Johnson, 1997).

However, the breakthrough of systems integration took place when the new engineering practices were transferred from the mainly military sector to the civilian one, such as the aerospace industry where some firms were involved in both military and civilian sectors. At that stage systems integration changed from a mere engineering task to a business organization tool and various non-military industries started to adapt their organizations according to the division of labour and knowledge of systems integration, such as Texas Instruments and IBM (Sapolsky, 2003). Indeed, as Prencipe et al (2003) pointed out, systems integration has become a business activity; therefore, it

needs of managerial skills to direct those involved in the systems integration and to increase its internal capabilities of integrating and developing systems. Nowadays, systems integration has become part of the organization strategies within the world's leading corporations, such as General Electric, Dell, Ford, IBM, HP, Siemens, Nokia, Rolls-Royce and Boeing (Hobday, Prencipe, & Davies, 2003).

Indeed, broadly speaking (Kash & Rycraft, 2000), when products or systems depend, above all, on the production of different technologies and knowledge, for example, to manufacture an aircraft or a space station, firms need various different technologies and capabilities from diverse disciplines. These kinds of products are the combination of systems and each system usually requires different technologies and knowledge to be produced that can only be managed by a systems integrator. The nature of systems integration and the structure of a systems integrator greatly depend on the nature of the knowledge involved to manage the technological evolution of the system.

## **The Traditional Concept of Individual Knowledge**

The concept of knowledge - of man and within man - has long been the stable center of monumental reflections in various fields. In economy and above all in management studies, its "statute" - or in other words its contents - has never been made overly clear. Even today neoclassical economics, management and, lastly, common sense are based on a conception of individual knowledge which is essentially what was devised in the twentieth century by the epistemology of neo-positivism and logic empiricism; knowledge is made up of information, information has the same nature as knowledge, even if it is found at different hierarchical levels of the cognitive system. Therefore, a coherent togetherness of information (parts of a jigsaw, bits, etc...) forms knowledge.

In other words, it is enough to put the pieces of a mosaic (information) together and knowledge appears as a result of the sum of the pieces. All this is based on the assumption that good common sense would essentially translate to:

- reality is outside of us and is accessible, that is to say, it informs us of its sense (by observations or experiments);
- formal (language) systems, that we use to represent theories, describe reality and do so in a way that the first ones to express it do not have syntactical problems (they can be logical or complete, it is enough to be particularly accurate in elaborating them);
- there are no ambiguities in attributing meaning to theories (also when they are still hypotheses), to observations and to the languages used to describe them; therefore, there are no problems attributing common and shared meanings to theories when they become universal truths;
- from a methodological point of view, it is necessary and sufficient to follow the Aristotelian/Cartesian principles of the distribution of economy solving, or rather, it breaks up the problem, starts to resolve the smallest and easiest problems, when it may seem that it has resolved everything (or a substantial part) it reconstructs, given that to reconstruct is only the analogous opposite to deconstruct (there are no differences in the quality of the process).

In the course of the twentieth century, this explanatory paradigm, that is still the basis of good common sense prevalent also in management, was annihilated by dynamic epistemology. Bachelard (1938; 1953; 1996) has made us understand the inconsistency of the fourth point. Rebuilding is a construction of diverse meanings and it cannot be compared at all to breaking it down. Thanks to this breaking down process we will never know what we lose from the 'whole' object of decomposition, given that we break things down when we still do not know anything, while thanks to the re-adding process, re-integration itself will give the observer/re-integrator completely new motives to attribute previously unknown meanings to the whole inconceivable before (it is in any case the systematic principle that the 'whole' is more than the sum of its parts).

Duhem (1914) and Quine (1969) dissolved the third point, indicating the impossibility of giving the theory a single heading. Gödel (1931)<sup>2</sup> stripped down the second showing how formal systems are complete and how they are contradictory, or are not contradictory, but then must be incomplete. Maturana and Varela have fundamentally dismissed the first by the concepts of autopoietic system and structural coupling. Therefore, we find ourselves

forced again to reconstruct a different meaning to individual knowledge laces, a sense exceptionally rich in implications.

## Assigning Meanings and the Concept to an Autopoietic System

An important part of modern neurophysiological studies point out that individuals are *autopoietic systems* (Maturana & Varela, 1980; 1987; Varela, Maturana, & Uribe, 1974), that is, brains and bodies that can only operate thermodynamic exchanges with each other and with the environment. Brains are connected by filters that select the stimuli that the central nervous system interprets without the possibility to access reality (i.e. the environment or the world) or the other autopoietic systems (i.e. other individuals). According to this view (also labelled *structural coupling*) individuals can only exchange thermodynamic expressions like: vibrations in the air (a phenomenon perceived in a very narrow global spectrum of audible frequencies), light in different wavelengths (and also in this case a phenomenon perceived in a very narrow global spectrum of visible wavelengths), chemical particles which make up smells, pressures on the skin (i.e. pressures on our tactile receptive system under the skin).

In other words, individuals can only exchange thermodynamic impulses, supports for “languages”, and supports that we can consider hand in glove with the language<sup>3</sup> only by oversimplification. In any case pure languages (sequences of symbols ruled syntactically) are only significant, linguistic expressions, such as words, images, sounds, behaviours, in other words *information*<sup>4</sup>. Information cannot give sense, it needs sense. Knowledge is your personal system of meanings. Knowledge is the matrix that allows you: to recognize a sequence of symbols as interrelated to each other and not symbols at random, to form one or more significant transporting piece of information, to apply sense to the significant that transports information (a process depending on your capability to interpret, i.e. on all that you already know).

These significances may become Vivaldi’s Four Seasons or a troublesome noise, the strange look of an anonymous face or the beautiful smile of your son, the sumptuous bouquet of a good wine or the stench of rotten fish, according to the ‘sense’ that it is given by the single individual. It is the individual’s knowledge that gives them some meaning, and only specific meanings. Individuals produce sense even if they do not want to (they think, they know, they learn even if they do not want to); they survive because they produce sense continuously, which is not necessarily the right sense, of course. An *autopoietic system* can never know if it is right or not, because the sense created about any phenomenon it interfaces is always a hypothesis of the world and it remains forever a hypothesis, whether it is stronger or whether it is weaker. This system is continuous and greatly independent from will because it continuously serves the behaviour of men, their continuous intervention on the world. In fact, individuals always behave, even when they decide not to (even in this case we cannot thoroughly investigate the theme).

Individuals cannot share meanings because they can only “speak about them”, they can emit significance. As a consequence of this regime of exchange, *autopoietic systems* cannot measure their semantic distance or proximity and cannot communicate and share any meaning but only information (i.e. linguistic expressions) that does not carry any objective meaning *per se*. In fact, a meaning makes sense for an emitting system and sense for each of the million other systems that receive the meaning. “Red” has a meaning for the emitting individual, and millions of meanings for the millions of potential or actual receivers; thus, it can neither have “one” meaning nor a “shared” meaning. *Autopoietic systems* making up an organization, therefore, cannot share any rule or any other organisational routine or “memory”; they cannot share any actual *vision* of the *system* (product or process), because they do not share meanings. Furthermore, they cannot exchange meanings (not even about “the syntax of the rules” to share in order to form an “organization”), and they cannot exchange meanings about the distance or the proximity of their processes of convergence (if there were one) because they only produce languages, syntax and meanings in a strange spiral cycle in which the more they are aware of the uselessness of the effort to communicate something to someone, the stronger is the effort to communicate<sup>5</sup>.

We cannot thoroughly investigate the consequences on organization, but this phenomenon allows us to introduce the idea that individuals in social systems (fewer and fewer systems of men, more and more systems of contexts) do not form organizations but systems of relationships among *micro-meso-macro-contexts* (physical, socio-technical, cultural and so on). The illusion of sharing is often created in organizations by the effort to conform

to what each individual believes to be dictated by the need to co-ordinate behaviour. They are, nonetheless, *convergent* because they are originated by the same context (constructed by each participant for himself, in parallel, but together in the same context). At the most you have convergence, not sharing, and you have convergence of languages (words, behaviours and so on). It is the same process with which operational slang emerges, for example, or the dialects that are almost transformed into *common spirits*, the languages of *veterans*, the languages of *war stories* (Cohen et al., 1996). The concept of organisation implodes into its action.

The social system (ex-organization) becomes a hierarchical system of continuous "formatting" patterns of action and not a separate entity, which applies such patterns (Argyris & Schon, 1978). In this framework, the system that should be integrated is not out of you, somewhere in an objective reality. It is *in* your mind. Each individual who takes part in the systems integration process has a different system in mind and, most of all, has a different vision of its conceptual and technological dynamics. It is important not to mistake the actual sharing of significances with the convergence of linguistic behaviour. Many times, the last seems to put even some senses or values in common, but it is a pure linguistic illusion. Language convergence does not mean that you share meanings, and in particular that you share significances about a process like systems integration (and its dynamics).

The system you have produced (product or process) is not the product of *shared* meanings and it is not in an actual *common* vision. It lies in its specific design: a more or less sophisticated linguistic product. Like every other linguistic product, the design is a complicated product-artefact. Systems integration is a process and, above all, if you want to use it as a competitive weapon, it is dynamic, like the conceptual and technological evolution of the system. Therefore, it is a complex process.

## **Knowledge as a Process of Processes Involving Systems of Systems Based on Memory**

Reflection on individual knowledge needs complexity. Let us attempt to follow a logical, coherent line of thought, especially in trying to compensate for and overcome the considerable difficulties and the traps set by the limitations of any language.

A person's knowledge is a dynamic and complex system, composed of at least four other large systems:

1. the deep system of meanings which is continuously produced and tied to the self-reference of the psyche<sup>6</sup>;
2. the system of memory creation-processing-activation processes (use and production of significances);
3. the system of memory processing-activation-creation products<sup>7</sup> (from significances to linguistic expressions/perceptions and vice versa);
4. the system of relationships among 1-2-3.

When the concept of system is given the meaning of a complex unit, because it is intrinsically dynamic, relational (the system emerges from these, and is not seen as the static equivalent of its parts or of its structure) and organized (again, held together by processes), then one has a *unitas multiplex* (Angyal, 1941). Here, the foremost and fundamental complexity is created by conjugating, in a dynamic relational perspective, the idea of unity with that of diversity, multiplicity and irreducibility of its characteristic unitary "system" properties to its component parts, individuality combined with decomposability (or "quasi" decomposability). The latter, however, is obtained at the price of decomposing and transfiguring the system itself, despite the fact that such a system cannot be reduced to its component parts because the whole is more than the "sum" of its parts (Atlan, 1972; Simon, 1962; von Forester, 1962) and, conversely, the parts cannot be reduced to the system because the whole is actually less than the "sum" of its parts (Morin, 1983).

In order to grasp the nature of the complexity we are dealing with, it is indispensable to appeal to what has been termed the concept of emergence<sup>8</sup>: a phenomenon linked to the process of transforming the parts into a whole which, by this very process, forms and transforms (transforms and forms) (Le Moigne, 1990, p. 48), maintains and organizes complementary tendencies, creates diversity, forges links between and organizes antagonisms, organizes antagonism within complementarity (Lupasco, 1962, p. 332), controls organizational entropy, allows variety to spread out and repetitive order to be re-established and transformed into organizational reliability, i.e. it is the very survival capacity (Atlan, 1974) of the knowledge-system itself.

In other words, knowledge is the continuous emerging sense of things, meaning that has intrinsic value, independently of how or through what means it is created and stored. Sense is the cornerstone allowing construction of our interpretations of the reality which surrounds us, without which it would be impossible to plan and evaluate our continuous interventions in the world. But how can we be without memory?

“I don’t know – I don’t remember,” are equivalent as far as the execution of any action in this interpreted world is concerned. We certainly have many forms of memory, but today the impression that memory-knowledge is all above “sense-meaning” (emotional as well, obviously<sup>9</sup>) is clearer than ever. Memories are not files; it is a permanent action of reconstructing meanings. Bringing a memory to mind is therefore an act of “constructing” sense, with certain aspects which are completely invented, true “stopgaps” of memory activation, and not an act of mere “reproduction”. Construction of this largely depends on the meanings (or on the meaningful role) which we would now (and not then) like this memory to have. But while memories based on active contents of an explicit type depend mostly on the state of activation of the memory (it’s easier to forget), the long-term knowledge-abilities which are activated by procedural memories are almost never forgotten; on the contrary, even after a long period of non-utilization, when the activity is resumed, the ability is restored – barring some initial difficulty which is rapidly overcome – practically at the same level at which the ability was “left off.” This is true in the motor sense – simply think of riding a bicycle – as well as in the interpretive sense; just thinks of one’s ability to solve polynomials or equations, or of diplomatic mediation.

Procedural knowledge-memories (and declarative long-term memories) seem to be more important to us, and have pre-eminence over others (always from the viewpoint of survival of the autopoietic system); precisely because they make us “proactive” with respect to the environment itself, to such an extent that we sometimes believe we “control” it. Knowledge-memories either have a “sense” or they do not survive long, or are actually never even formed. If you accept all this reasoning, what are the consequences for companies that aim to control and drive the technological dynamics of their multi-tech systems’ (products/processes), or, in other words, in this regime of the nature of knowledge, how is it possible to maintain the control of systems integration?

## Systems Integration

The systems integration process is a meta-super-cognitive-negotiative-dynamic process among individuals distributed in several firms’ contexts that are composed of specific physical attributes, but also of the knowledge of the agents themselves, their linguistic interactions, their organizational rules, incentives, power distribution, beliefs, myths, cultures and so on (the constituents of the “formatting” power “in” and “of” these contexts).

Agents can construct at the same time the systems integration process of a multi-technological artefact (process or product) and as a consequence its global evolutionary path. The dynamics of the artefact-product/process-system, in fact, arises from the joined and superimposed technological trajectories of the *whole* and its *parts*. Moreover, it is the result of multidisciplinary convergence-divergence and integration-disintegration, both at the technological and scientific level. This phenomenon constitutes a further level of evolution, endowed with the remarkable *generative capacity* of: a) autonomous scientific and technological trajectories-opportunities, b) continuous reconfiguration of the dependence and influence of relationships between scientific and technological fields. Regarding the latter, it is worth highlighting that it greatly affects to a great extent the dependence and influence that relationships have among system, subsystems and parts.

In this light, the evolution of the product/process-system (and, therefore, the activity of systems integration) can be identified as a continuous destruction-reconstruction of hierarchical and functional orders which over time affect the ways of the conceptual and ideal decomposition<sup>10</sup> of the product-system itself. In this framework, systems integration is a macro-process of conceptualisation, by which several problems regarding the design of the product or the engineering of its manufacturing may emerge, but the relationship between the dynamic of the conceptualisation and the following problems of design is the same as what you can observe between knowledge and the linguistic artefacts called information. Thus, systems integration can never be reduced to a problem of design, even if it may be expressed only by design, just like knowledge that can never be reduced to information-language, even if it may only be expressed by language.



In this framework, we introduce the key distinction between the capacity of designing and producing the product-system, which is at the most *complicated*<sup>11</sup> (a product/process design completed in every aspect is only a *complicated* linguistic artefact), and the effort to master systems integration and its evolutionary dynamics which is the *complex strategic problem*<sup>12</sup>. In effect, understanding which step is best to take along the invented trajectories of parts, the trajectories of the system, the trajectories of the relationships between parts and system, the trajectories of systems integration, is actually a complex construction. At this point it may be useful to establish, with a certain degree of automatism, a corresponding classification of agents' constructions. More specifically, one finds two contrasting orders of complication/complexity for the composition of observed systems (Le Moigne, 1990, p. 27):

TABLE 1: TWO DIFFERENT ORDERS OF CONSTRUCTING (COMPLICATION/COMPLEXITY)

<i>System/Phenomenon</i>	<i>Representation</i>	<i>System/Phenomenon</i>	<i>Representation</i>
<i>Decomposable</i>	<i>Complicated</i>	<i>Indecomposable</i>	<i>Complex</i>
<i>By Disjunction</i>	<i>Application/decomposition</i>	<i>By Conjunction</i>	<i>Combination/composition</i>
<i>Decomposed</i>	<i>Simple</i>	<i>Indecomposed</i>	<i>Implex</i>

The complicated construction-model obtains by the simple view of the "fragmented" (reduced) phenomenon disjunction-decomposition. The complex construction-model obtains an implex vision (non-decomposable) of a non decomposed phenomenon by composition-combination. The former may be decomposed and the job divided (to photocopy a great number of pages, for example), the latter cannot be decomposed and it is much better if you do it by yourself (to write a paper, for example).

Any process of modelization, however much it makes use of sophisticated forms of codification and language, is an eminently and irreducibly "personal" process through which different alternative readings-interpretations of phenomena can be *created*. This means that there are no complex phenomena, but complex constructions of phenomena that have been *observed*, i.e. *created*, (*dans notre tête*). We can outline the creation process (and complexity creation) as the flow of becoming what relinquishes the idea of *analysis* of something perceptible in order to assume the idea of intentional constructive *conception* (deliberately systemic), which is in turn composed of instrumental representations of phenomena *created* and understood as complex and, therefore, indecomposable except at the risk of mutilations. Such a process consists of the transition (Le Moigne, 1990, pp. 27-28,) from the figure of the analyst to that of the conceptualizer-constructor, from the decomposable object to the conceivable project, from decomposition into simple passive elements to composition of implex actions.

Firms, as social systems composed by autopoietic systems, can deal with the problem of mastering the systems integration process (and its dynamics) only by *creating complexity* in the *constructions*<sup>13</sup> that they build and that in some ways affect the path (or, more precisely, the paths) of the product-system's change. *Constructions* are the result of hard, more or less chaotic/ruled negotiations, among agents in an organization legitimated to speak about the technological trajectories that the systems (and therefore the systems integration) potentially could assume.

For these reasons, the task of system companies is to keep redundant knowledge bases in house. It is worth underlining, however, that the judgment on the importance of the knowledge basis relies heavily on the complexity that the *system company* has been able to create in the past. But it is for greater convenience that we are using (and we shall use later on) the label "system company". In effect, we always refer to the continuous negotiation among "visions" of individuals (autopoietic systems) in the organizations of those firms, and the continuous dynamics of their knowledge basis. There are not "firm" knowledge bases; there are only knowledge bases possessed by men. The path we are referring to is the path of each of their knowledge bases and the path of the equilibrium points to which negotiations among these visions in the organizations converged over time.

This path, which is *ex-ante* uncertain and *non-definable*, is the *process* of the evolution of the artefact envisaged by the system company and selected in the marketplace. Even if the historical path of the organization and the effectiveness-efficiency achieved by the organizational mechanisms are of great importance, the latter has to be distinguished by the technical-scientific 'quality' of the individuals belonging to the organization. The knowledge basis possessed by individuals, the history of these and their organizations, find the roots to create complexity. In other words, the knowledge bases should be considered as *generators* of the complexity required to create the

evolutionary path (or paths) of the systems of systems. To create complexity means to generate a greater number of different potential *states of the world*, that is to say, technological alternatives for parts, subsystems, and the whole architecture of the system, and their relationships, for the future "n" time units, during which you imagine the evolution of the system itself.

An important part of knowledge basis consists of expertise, that is theoretical elaboration and hands-on knowledge which is heavily dependent on the *generative contexts* it refers to<sup>14</sup>. Moreover, in this framework, the distinction between knowledge related to the nature of the nature (scientific knowledge usually deriving from fundamental or long-term research) and ways of manipulating it (technologies commonly growing out of applied research and industrial development) tends to blur and, as a consequence, gives rise to unitary and global knowledge which is no longer decomposable. This process ends up being both effect and cause of the emergence of a new concept of integrated and transdisciplinary knowledge, that merges from methodologies and sociology of classic sciences, but it is triggered by applications with which the emergence of scientific-technological disciplines (*science-tech*) are associated<sup>15</sup>.

To be able to command its integration and, therefore, its evolution, it is necessary to: possess the knowledge basis regarding the subsystems, possess the knowledge basis regarding the architecture of the system which represents a separate part of the system itself, command knowledge bases regarding the interfaces among different technologies which the system's architecture anticipates.

But what does possessing the knowledge basis to be able to generate effective competence and specific 'know-how'<sup>16</sup> mean for a business? According to the definitions we have given in this paper it means that in a business-organisation there are men with profound knowledge at least in the single and fundamental scientific-technological disciplines for the forming of a knowledge basis (of the subsystems, architecture and of interfaces). Moreover, the organisation places at its disposal the contexts (laboratories, product processes, organisational machine rules, work methodologies, incentives, languages, schools, economic resources, power and dynamic distributions, paradigms, myths, beliefs, stories, etc.) necessary to be able to express such knowledge (we go from individual to multidisciplinary<sup>17</sup> task forces, an interdisciplinary<sup>18</sup> team, a stable trans-disciplinary<sup>19</sup> group).

In any case, knowledge to support the capacity of systems integration emerges from the application of all knowledge in all effective contexts (not only in R&D, but also in the production of the components and of the system, in the planning, etc.) on the basis of the re-composition that we can imagine, given the system's breakdown which is carried out in order to reconstruct. All these are activities that can clearly be described as the fruit of interactions among agents, physical systems and other people *in a specific context* (Greeno & Moore, 1993, p. 49; Vera & Simon, 1993, pp. 46-47), namely that pertaining to the specific agent. If the latter is a social system or an organization<sup>20</sup>, then the overall picture also includes the fact of its "being" history and the developmental path of its routines, of its decision-making mechanisms and the roles of the different interest or power groups and ideologies (taken as the ideal direction to which visions of the future should point) present in the organization itself<sup>21</sup>.

Thus, if you do not keep a sufficient number and variety of redundancy contexts in the firm, you drastically diminish your capability of systems integration (you are moving towards roles of assembling, not systems integration). But such capacity diminishes whenever you gain knowledge. It diminishes without anyone being aware of it. It is the metaphor of the blind man who does not know what he does not see. So, whoever loses contexts loses knowledge connected to them, and becomes less and less capable of constructing complexities in his interpretations of the integration system and, therefore, of the evolutionary dynamics of the system, but knows less than what he thinks he may know or know nothing at all. Awareness appears individually when someone who we have always beaten (perhaps at chess) finally beats us. It happens from a social point of view (perhaps playing football) when the team that has never won before finally beats us.

However how many defeats will make it necessary to become aware that it was not fate or anything else. Also, in a special way, in the case of businesses, how many signals will be wasted before someone realises that defeats are the effects of a loss of competitive ability due to a lack of knowledge, due to the loss of context, perhaps in homage to the ways of outsourcing, of making core choices, of creating a lean or flat organization. They are certainly themes that cannot be underestimated but also bases for choices with strategic consequences that cannot be underestimated either.

## The Relevant Strategic Problem: Maintaining Control of Systems Integration

Not only does knowledge tend to be represented even more in unique (transcending the classic base-applied dichotomy) and transdisciplinary (transcending the classic boundaries between disciplines) ways, but it is even more important if the *linguistic outcomes* of cognitive activities (not only R&D, but also design, production marketing and so on) are more or less appropriable in economic terms, the cognitive *processes* that may lead to processes of production of knowledge (in its articulations, bases, competences, expertise) are *always* appropriable because they are *agent-specific* and therefore firm-specific. In fact, competencies and historical paths of learning are specific to each autopoietic system forming the social group called "organization". They are linked to the evolution of organization and to the system company's specific organizational setting in terms of number, variety, redundancy of (cognitive) contexts and their constituents. The latter, in their turn, can be considered as generators of *robust* views of the world or, rather, of richer constructions of possible options in its evolution. The more the processes have completely been internalized over time, the deeper those possible options are rooted.

Bearing these things in mind, we can apply this summarizing scheme to a systems integration 'cognitive' strategy that we can put forward as an exemplary case:

- Given a product/process-system or its family;
- Its systems integration evolutionary dynamics, conceived as an ability to introduce innovations (to be measured not only in quantitative terms, incremental or radical, but also in qualitative terms, modular, interface, architectural, systemic) and, therefore, as a capacity to compete through and by means of innovation, can be described with complex models<sup>22</sup>. These models are *specific* to those particular individuals and through organizational specifications of those particular groups in specific organizational contexts in which those particular individuals are working;
- The degree of complexity of those constructions is a function of processes of relevant knowledge which are absolutely tacit in nature. Moreover, complexity depends on specific situations: (1) of the *two way (circular)* relationships among scientific (and its state, namely descriptive, predictable, etc.), technological, applied, and integrated knowledge (Reismann, 1992, p. 110), and (2) of elaboration of experience (all contained in contexts);
- In any case, regarding the system companies' abandoning support to cognitive processes and context activities (R&D for example, but also manufacturing of components and subsystems) and shifting towards a general assembling organization means losing the capacity of modelling the possible evolution of the systems integration. Put differently, this leads to the often irreversible loss of the ability to create complexity in modelling the evolutionary path of the system and, as a result, to the loss of strategic control of the evolution of its integration. The actual risk is that you could lose the role of systems integrator<sup>23</sup>, becoming a simple assembler without you realizing it<sup>24</sup>.

Naturally, other considerations, predominantly economic or strategic, may, in any case, lead to the adoption of different or alternative solutions concerning structure, level and nature of vertical integration and/or of the various possible internalizations. But from the point of view of experience-expertise and of the knowledge necessary for strategic dominion over evolution of the artefact-systems integration, it may prove to be extremely dangerous to entertain the illusion that the cognitive results (of R&D for example) can systematically be purchased-transferred (which would mean disregarding the fact that the underlying processes cannot be bought-transferred), just as it would be equally risky to believe that the division of innovative labour and of labour in general, together with the sale or transfer of innovative activity and manufacturing techniques (above all if accompanied by abandonment of research and design efforts) need not be systematically considered as *the surrender of cognitive processes, a transfer of generative contexts*<sup>25</sup>, *jeopardizing world-creating ability*. Failure to realize this peril would inevitably result in diminished capacity for the "imagination-creation" of alternative paths of opportunity. The costs and strategic implications of such transfers (or more generally, of non-possession, even if seen in a networking context) should always be evaluated in and by the decentralizing decision-making processes in such a way as to mitigate the weight of "economicistic" evaluations and, thereby, extenuate the idea that networking to the point of virtualizing systems integration is also systematically virtuous (Paoli & Prencipe, 1999).

The ability to retain institutional continuity depends primarily on learning from experience, in cumulated expertise and capacity to integrate of diverse knowledge bases<sup>26</sup>. Such ingredients make it possible to engage in strategic elaboration in order to overcome the distinction between content-process and context of strategic elaboration itself (Dodgson, 1989, pp. 1-10). This is because learning about the context defines the content of innovative strategic behaviour, while implementation of the latter, with the ensuing learning, redefines, or rather, re-creates a new context, thereby blurring the demarcation between the definition of the content of technological strategy and its implementation<sup>27</sup>. Without experience there can be no learning (non decomposable and therefore non-sharable unitary processes), and without learning there is a failure or, at the very least, a decrease in the capacity-ability to continually re-create the spectrum of exploitable opportunities along the path that is continually being re-created. Such a spectrum must possess the breadth required by current competition conditions, or required by the strategic position the firm has assigned itself in a more or less illusory fashion. This means that it could, in fact, be pointless for a firm to specifically adopt a strategic position of being offensive, defensive, leader or follower, broad or narrow front (Harris, Mowery, & Pavitt, 1990, p. 24), because this will, to a large extent, depend on the nature and level of integrated-accumulated knowledge bases and competences (Dodgson, 1989, p. 4) (held in common, not sharable in a network) which, taken together in specific but adequate contexts (in-house), endow a firm with greater - or lesser - capacity to maintain the control and direction of systems integration, to create technological and market opportunities for subsequent exploitation, as compared to its competitors, and enable the firm to be more - or less, as the case may be - dynamic, broader or narrower in its spectrum (different technologies, different scientific fields, integration of technologies and spectrum, etc.).

## Conclusion

We have argued that in complex products and systems and other high-technology goods, systems integrators control the dynamic trend of technological trajectories of multi-component and multi-technology goods. Moreover, the role of a systems integrator is to manage the control of trajectories of systems integration itself. Therefore, a systems integrator differs from an assembler, because the latter is not able to control the dynamics behind systems integration throughout the entire value stream.

In addition, we proposed that at the base of systems integration capabilities there is an emerging view of knowledge as redundancy of intelligence. This concept underlines the role and importance of *structural coupling* in understanding the role of systems integrator and organizational context as containers that allow agents to produce their knowledge. In other words, systems integration is the capability of constructing visions of technological trajectories within a value stream of critical components, parts and subsystems.

The concept of redundancy of intelligence is based on a vision of knowledge that is different from the traditional one. Basically, as we imagined, the latter considers knowledge and information to be similar and it does not take into account the importance of context in developing the knowledge of each agent, while the former perceives individuals as bearers of knowledge and organizational contexts as the “place” where agents develop their knowledge.

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## End Notes

- <sup>1</sup> All these considerations are more developed in Part I of Paoli (2006).
- <sup>2</sup> See Nagel and Newman (1992, p.93).
- <sup>3</sup> In this chapter we do not have the opportunity to develop this problematic level of the relationship between supports and languages.
- <sup>4</sup> In this framework, knowledge does not have the same nature as information. The first is pure sense and it cannot be shared, the second is language, syntax, information carried by meanings without any objective sense, vehicles that transport symbols (in any form) to which the emitting subject has applied a meaning, and to which each of the receivers will apply his subjective meaning (too many senses = no sense).
- <sup>5</sup> We converge on Weick's idea according to which organizations do not exist, but there is only the effort to organize.
- <sup>6</sup> The sense of things with "us" at the centre (from the moment in which we are conscious we are naturally at the centre of our respective universes) (Gregory, 1991, Arduini, 1998).
- <sup>7</sup> In our opinion even behaviour is a linguistic product.
- <sup>8</sup> Emergence is a quality, a property, a product (of the organization in a system), globality (since it cannot be dissociated from the systemic unit), an event (it arises discontinuously once the system has been formed), a novelty (in respect of the parts), irreducibility (cannot be decomposed without the risk of its own decomposition which, as in system decomposition, is also transformation into something else), indeducibility (cannot be deduced from the quality-functions of the parts) and finally implexity. (Morin, 1983, p. 139-143, Le Moigne, 1990, p. 48, Churchland & Sejnowski, 1992, p. 13).
- <sup>9</sup> Who knows why we've removed emotion from the processes of knowledge production, as if a scientist, an engineer or a technician learned without emotions. It has become certain on the other hand that the most effective learning takes place when emotions are involved. Do you remember how easy it was to "do well" in the subject taught by a friendly, enthusiastic professor?

10 Decomposition is conceived here as *modelling*: «Action d'élaboration et de construction intentionnelle, par composition de symboles (to which we add also non-symbolic schemes), de modèles susceptibles de rendre intelligible un phénomène perçu complexe, et d'amplifier le raisonnement de l'acteur projetant une intervention délibérée au sein du phénomène; raisonnement visant notamment à anticiper le conséquences de ces projets d'action possibles» that in the system dynamics is *modeling* of a complexity for which it is true the distinction: «Pour comprendre (donner du sens à) un système compliqué on peut le simplifier - pour découvrir son intelligibilité (explication). Pour comprendre un système complexe on détruit a priori son intelligibilité» (Le Moigne, 1990).

11 And, therefore, conceived, designed and defined.

12 And, therefore, non-definable, uncertain and undefined.

13 In this chapter the notions of Program and Representation (only indirectly considered) do not have the common meanings of cognitivism; here they always mean “*construction*”.

14 The notion of context is extremely important in this paper. A famous definition can clarify its nature: «...context as collective locus for all the events that indicate to the organism-agent the set of options within which the latter must do further choice. » (Bateson, 1976). The nature of the context is somehow generative of the learning. Losing or abandoning a context entails losing its cognitive generative capacity.

15 *Transfer sciences* are disciplines where the knowledge on the nature of the nature and on the ways of manipulating it is blended indivisibly.

16 Without knowledge basis you cannot aspire to the systems integration, competences are not sufficient, and vice versa.

17 We have the multidisciplinary attitude when we are called to work, according to our own knowledge basis in a specific area of a task with a spirit that we could define as ‘advising’, in fact everyone is responsible on their behalf while there is normally a ‘command centre’ that integrates everyone’s work and responsibility.

18 We have the interdisciplinary attitude even if bringing our own specific knowledge, everyone’s work is however to occupy yourself with the entire task, including the integration that is anticipated in this operative order as a collective operation undergone by all the participants. Everyone is responsible for the task. This set up generally allows disciplinary fusions.

19 The transdisciplinary attitude not only uses permanent work structures, but it also nourishes disciplinary fusions to give life to knowledge bearers which are not reduced to discipline anymore. For example, in a multidisciplinary order a problem of fluid-dynamics can be faced by statistics, physics, chemicals, mathematics, etc. In a transdisciplinary order that has a history of interdisciplinarity before and transdisciplinarity after, the work group will be constituted only by fluid-dynamics.

20 It is important to note that even as far as scientific knowledge is concerned the idea of the disembodied scientist or the organization is oversimplified.

21 «...knowledge is about meaning. It is context specific and relational. », (Nonaka & Takeuchi, 1995, p. 58).

22 The lower the complexity of the representations, the more the loss of competitive capacity through innovation.

23 A systems integrator is whoever decides which evolutionary trajectory the system takes.

24 With regard to this phenomenon it seems very representative the dynamics of the evolution of technology and in parallel of the roles among assemblers (almost all ex-systems integrators) and componentists in the automotive sector.

25 The abandonment of an excessively “mentalistic” approach to competence has led to an absolute enhancement of the context as a co-generator of context. The so-called *activity theory* (and the *multiple intelligence theory*) defines activities as syntheses of mental and behavioral processes, but it does not reduce them to mere mental or behavioral phenomena. They are analysis units within which the agents’ competence can be assessed in socially organized contexts. The object of the analysis is the interaction process of the agents themselves with the reference environment. The analysis unit is therefore practical action which incorporates (it activates, one might say) the environment-context (which, therefore, is defined, in this work, as *generative*). There is no learning without context. That is to say, there cannot be a learning dissociated from the context in which the practical action-activity will produce it (Vigotsky, 1978,

Leontieff, 1981, pp. 37-71, Gardner, 1983). « In order to explain the march of the blind [and naturally explain his learning], then the road, the stick and man are required; road, stick and man and so forth, recursively » (Bateson, 1976, p. 470).

In this regard, it can be likened to the concept of *formative contexts*: each business routine refers to a formative context from which it receives meaning and which makes it “natural” or “plausible” (Lanzara, 1993, p. 38).

On this issue, see also Unger (1987) and Ciborra and Lanzara (1988).

26

«Whatever the source of technological breakthrough, it is company wide-ranging R&D expertise that are more likely to recognize (to create) the significance and potential of both incremental and radical technological developments, Broad R&D competences and skills are a method of dealing with discontinuities turbulence; a way of technology watching and keeping options open.» (Dodgson, 1989, pp. 4-5).

27

Implementation of strategic technology is therefore an integral part of its definition.

# Subjectivity and Cognition: An Explorative Review on an Inherent Problem of Knowledge Management

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## Abstract

Knowledge has become the most important production factor in the companies, since value creation is considered being the key element for sustainable advantage. Knowledge results from cognitive processes which are influenced by stereotyping, awareness, motivation and the external environment. These factors create a multitude of different perceptions, interpretations and understandings between individuals in general and between individuals of different cultures in particular. The present paper discusses the impact of subjectivity in knowledge management by analysing the influencing factors on knowledge creation. Different mind sets and mental models increase the probability of misunderstanding and also the effectiveness of knowledge management. Apart from knowledge creation, the transmission of knowledge is damaged when communication is codified and standardized. Finally, knowledge management is far from being management of objective truth. The paper highlights theoretically on management slacks in knowledge management and, in doing so, indicating areas of inefficiency in knowledge management.

## Introduction

In 2005, UNESCO stated that diversity is in danger. Instead of maintaining cultural differences, globalisation tends to homogenize cultures and promotes the disappearance of regional knowledge and languages. Especially threatened are small and geographically localised cultural identity groups or cultures without enough global presence. Often, these groups possess local or indigenous knowledge that has evolved over generations and persists in people's minds thus becoming the general knowledge of the society. As cultures become extinct, knowledge disappears and as a consequence so does the variety of culturally different mind sets.

The run for innovation through technological progress and research reinforces the supremacy of technological and scientific knowledge and weakens traditional elements of knowledge. If this kind of knowledge (spiritual, emotional, etc.) and along with it local languages as transmitters of knowledge are lost, then the idea of cultural diversity will be seriously undermined. UNESCO identifies a “great divide” between technological and scientific knowledge on the one hand and traditional, indigenous knowledge on the other, and it puts an emphasis on the fact that the loss of knowledge and language always entails a loss of cultural identity and vice versa.

Advances in information and communication technologies such as computer-supported cooperative work systems, groupware, internet and intranet prove that technologically the management of knowledge is no longer a critical issue. The ongoing challenge concerns the content of knowledge itself. Diversity among cultures creates a multitude of different perceptions, interpretations and reflections, which affect individual cognition. This may end up making mutual understanding and communication more difficult and consequently knowledge management as well. In order to overcome such obstacles, which have evolved especially as a result of globalization, the knowledge society has developed communication standards which are used worldwide. As a result, some knowledge becomes codified and common sense while other types of knowledge remain invisible and could eventually disappear. What we now see is an upcoming global-local dialectic arising from the tension between local knowledge production and its use in the global environment. The impact for knowledge management is twofold; on the one hand, we may lose knowledge which is crucial for sustainable management. The saying “think global, act local” neglects the fact that local thinking may become an important skill and a competitive advantage for companies due to a better understanding of local particularities. The American company Monsanto serves as an example of how insufficient knowledge and adaptation to European culture hindered their entrance into the European transgenic food market. On the other hand, communication suffers when people lose their native language and express themselves in a foreign one. Technically speaking, the transmission of codified “hard” content into a foreign language may work, but it



becomes difficult when we transmit “weak” emotions and feelings. UNESCO is very much aware of this problem and defends multilingualism as a way of maintaining the diversity of languages and of knowledge.

The disappearance of local knowledge and local languages affects the continuity of local cultures because it eliminates part of their cultural heritage. From the point of view of foreign companies a reduction in knowledge and language diversity reduces transaction costs but increases the risk of misunderstanding and not connecting to the local market.

This study aims to discuss the factors which influence understanding and transform objective information or signals into subjective knowledge. The first assumption is that knowledge results from a process which is influenced by three relevant factors: the contextual environment, individual cognition and communication. Due to its role as a subjectivity filter, individual cognition denies the creation of objective knowledge. In this sense, knowledge management is an attempt to deal with a disparate bundle of mental models, trying to codify and transmit subjective knowledge. The second assumption is that knowledge diversity negatively affects the effectiveness of knowledge management because it involves different understandings and interpretations.

After a brief overview of research developments in knowledge management, chapter 3 goes on to look at stereotype thinking, awareness and rationality as relevant factors which affect the internal process of cognition (the inner dimension). Chapter 4 focuses on the external environment, which influences knowledge creation through the existence of institutions and values. In knowledge management, knowledge sharing is a complementary component to the creation of knowledge. Chapter 5 then comments on communication and its importance for the quality of knowledge. The theoretical analysis finishes off with some reflections concerning findings that are relevant to knowledge management. The final chapter focuses on the American multinational company Monsanto as a practical example which highlights certain aspects that were dealt with previously in the theoretical discussion.

Methodologically speaking, this paper is based on a review of the literature in the field of behavioural economics and where it overlaps with economics and psychology. The term “diversity” is used in its broadest sense as an expression for being different and refers to different mind maps due to individual cognitive processes and the influences of the environment. This research aims to stimulate and contribute to the debate around knowledge management and wishes to open the way for further research.

## **Traditional Concepts of Knowledge Management**

Since the advent of globalization and the necessity of companies to boost value creation, knowledge has proved to be the major source of sustainable competitive advantage. An overview of the research on knowledge shows that most studies emphasize the organisational dimension, focusing on the creation, administration and dissemination of knowledge. Different theoretical currents are concerned with the organisational perspective and these can be classified into three groups: a) organizational learning theory, b) resource based theory of the firm, and c) knowledge creation theory. All these approaches have in common that they place special emphasis on the importance of managing knowledge. The primary objective of knowledge management has been first of all, to increase the effectiveness of human capital through knowledge sharing and knowledge synergies and secondly, to improve organisational flexibility towards change and innovation. Polanyi as well as Nonaka and Takeuchi strongly emphasize the distinction between tacit (weak) and explicit (hard) knowledge. Explicit knowledge can easily be codified and transmitted through formal and systematic processes which are provided by different IT-tools. This knowledge is technical and represents a quasi-public good, which means that users of this knowledge can hardly be excluded. Therefore, for companies the problem is finding ways to get the maximum benefit out of published knowledge. Legal restraints such as patents and intellectual property rights are attempts to internalize profits ensuing from explicit knowledge. In contrast, tacit knowledge is personal and has a cognitive component that intervenes in perception and learning. This knowledge belongs to specific contexts and, therefore, to specific communities or identity groups. A proper understanding of tacit knowledge requires contextual expertise.

Given the increasing importance of the knowledge resource, concepts and models have been developed, which try to measure and balance organisational competencies. A frequently cited example of successful KM is the Swedish company Skandia. Already in 1993, Leif Edvinsson divided the company's intellectual capital into three

segments: organisational capital, customer capital and human capital and identified its value in relation to five key areas of success: Finance, customers, process, innovation and human resources. Similar to the Skandia Navigator, the Balanced Scorecard follows the same idea of analysing corporate vision, strategy and performance from the different perspectives of finance, customer relations, internal processes and learning and growth. Critical success factors are defined for each specific area and are used as a basis for constructing performance indicators. Considering the impact of group dynamics on knowledge flows, communities of practice place emphasis on the creation of focus groups for problem solving. The concept of a community of practice refers to the process of social learning that occurs when people who share a common interest in a certain matter or problem collaborate over an extended period of time to share ideas, find solutions, and build innovations. A more holistic model of KM has been developed by CIDEM, the Centre of Corporate Innovation and Development in Catalonia, Spain. The model relates different components of organisation, culture and strategic vision, people, technology and processes with KM. Within the academic field, Riverola developed a model which demonstrates how corporate learning and problem solving work together. Finally, Zahra and George studied how knowledge and learning potentials help companies to maintain their strategic flexibility.

All these concepts have one thing in common. They all focus on the effectiveness of KM at the organisational level but without taking into account individual knowledge creation within different contexts. While research on cross-cultural management reflects visible, action based individual performance related to different cultural environments, research on knowledge does not raise questions concerning diversity. Nevertheless, if knowledge is regarded as a crucial asset, knowledge management must also take into account different contexts and their influence on the way individuals produce, exchange and modify their knowledge.

## **Diversity in Cognitive Processing**

In the Literature, knowledge is defined as the result of a process which combines ideas, rules, procedures and information. The outcome of this process is based on reasoning and understanding and therefore made by the mind, whereby the process itself reflects information through experience, learning or introspection. Mind made mental models involve “a homomorphic mapping from one domain to another, resulting in an "imperfect" representation of the thing being modelled.” If we acknowledge that imperfectness is an inherent element of mental modelling, then cognitive processes are not only highly subjective but also incomplete reflectors of reality. This means that every effort to manage organisational knowledge takes place under the restrictions of subjectivity and incompleteness. This becomes particularly important when team performance is required. The fact that cognitive processes are carried out independently by each individual based on their experience, expectations, etc. means that team performance will suffer when there is no overlap between different mental models. The opposite also holds true. Team performance is optimal when there is a complete overlap of mental models. In such a situation, communication and coordination within the group becomes easier due to fewer misunderstandings and misinterpretations. But as Banks & Millward point out, a high match of individual mental models within a team leads to inefficient duplication of knowledge and to a reduction of communication. Instead of increasing team performance through knowledge synergies, team output is hindered by knowledge parallels. Hansen studied the effectiveness of knowledge sharing among the different business units of a company and considered connectivity at the knowledge creation level, which means different but connected, and at the infrastructure level, which requires formalized linkages among the business units as crucial conditions. Both can be supported by task-specific knowledge networks. Banks & Millward put forward arguments along the same lines and state that team performance achieves better results when mental models are different but connected in such a way that knowledge is able to flow between the team members. As an essential prerequisite for understanding, the connected team members should partially share their mental models. This means that each member has their own individual knowledge zone except for a part which overlaps with the knowledge zones of the other partners in the team. This overlapping area assures communication and understanding.

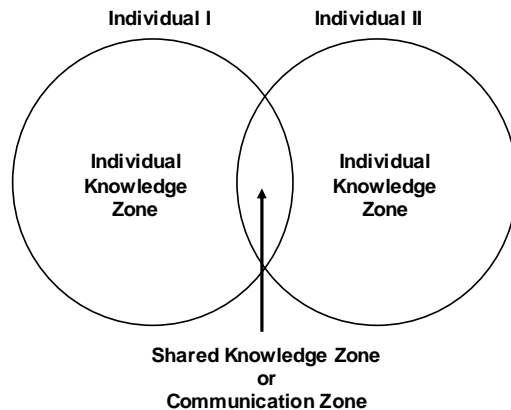


FIG. 1: KNOWLEDGE SHARING BETWEEN DIFFERENT INDIVIDUAL MINDSETS

## Knowledge Management and Knowledge Creation

Reducing complexity, mental processes are structured in semantic networks on different levels. Spiridonov makes the distinction between two different “worlds” which affect individual thinking and problem solving. The premium world is the complex intellectual potential of an individual which enables a person to reflect on problems. Existing knowledge is supported by memory content and involves associations, functional meanings of objects, images, etc. Knowledge is structured through combinations of factors (high order variables) that carry information about stable or regular relationships and determine the features of problem solving. According to Spiridonov the second world of cognition is the conceived world, which repackages complex and diverse content into comfortable units that are clearly structured and easy to work with. The conceived world aims at reducing mental complexity by ignoring ambiguous, contradictory or incomprehensible constructions. Learning processes are channelled through hierarchical mental structures and all recalled knowledge units (from memory) have to pass through these knowledge channels. With cognitive structures such as these, inflexibility concerning the unknown becomes the rule. Ignorance of knowledge elements which are not connected with the existing mental structure supports mental stability on the one hand, but also encourages stereotype thinking.

### Stereotype Thinking

In his book *The Sensory Order*, Hayek outlined the strong interdependence between cognition and environment and explained its limiting influence on intellectual endeavour. The merit of this work is that it draws a connection between mental structures and the external framework of culture and institutions and in doing so it is a precursor of the economic theory of institutions, which explains rational decision making and human behaviour in the light of the surrounding environment. Following Hayek, we come to the conclusion that within the symbiotic relationship between mind and culture, culture is an influential factor for stereotyping. This conclusion is in line with the existence of mental structures as discussed above and what Bruner has termed the phenomenon of readiness of categories. A different view to that of Hayek is put forward by Donald, whose standpoint is that the form of the individual mind constrains the type of culture that any given species will produce. Culture, institutions and environment may have an influence on thinking but do not condition human cognition. Our ability to disconnect thinking from the environment differentiates human beings from animals. Donald argues that animals access their

memory, or perhaps better, recall their instinct, in certain situations that occur in their environment. Animals react when they are confronted with something whereas human beings are able to voluntarily access their memory independently of the environment. An example which illustrates this difference is that of an animal moving through a forest, where its behaviour is determined by the external environment. In contrast, humans can move through the forest, thinking about something totally unrelated to the environment. The discussion shows that cognitive processes and the creation of knowledge are influenced by the environment, but that our thinking is not completely determined by it. Environments create mental stereotypes, but these stereotypes can be recalled in any situation. The mental inflexibility created by stereotype thinking can be somehow compensated through flexible access to memory (auto cuing). This discussion leads to the conclusion that a conversation between two individuals with different mental structures may end up in misunderstanding because of different ways of thinking and different knowledge bases. In order to improve the communication, a third person with sufficient capacity to mediate between these two individuals needs to intervene. If stereotype thinking is based on culture, this third person must be someone with cultural experience from both environments and the ability to mediate between both. Due to auto cuing, the mediator is able to access at least one part of his/her memory that is not related to the present environment.

#### **Awareness**

Cognitive processes, even if influenced by the surrounding culture, are a highly subjective matter. In his theoretical study, Bonanno analyses the role of information and belief for mental awareness and extends the discussion about cognition to non rational components. Bonanno defines information as objective signals from the environment which forms the basis for knowledge production. Taking a simple example from literature, Bonanno shows that the awareness and interpretation of signals may vary entirely from one individual to another and that the creation of knowledge may therefore differ, even if both individuals share the same information (signals). In Conan Doyle's novel *Silver Blaze* a horse was stolen from the stable and footprints were discovered on the ground. Sherlock Holmes remarked that it was very strange that the dog did not bark at night. His counterpart replied that the dog did nothing at night-time and Holmes insisted that this was very strange. This example gives us an idea of how far the same signal - the dog that did not bark - is subject to very different evaluations, interpretations and therefore awareness. Karp describes this subjective awareness as consciousness, which he defines as the individual's ability to perceive the relationship between oneself and one's environment. Even if cognitive processes are based on rational logic or reasoning and even if signals are objective, the resulting knowledge may be very different. Hence, reality has two different outlooks, on the one hand the objective exterior dimension which is made up of signals and information, and on the other hand the subjective interior dimension, which is the outcome of cognition and reasoning. The conclusion here is that reality transmitted from one individual to another is automatically manipulated by the individual's inner reality. In order to obtain true facts we need to identify the interior dimension of reality.

But knowledge is not only about rationality, logic and reasoning but also about beliefs. This irrational component has its origin in information as well, "but (beliefs) are not fully justifiable on the basis of it." Additional components are intuition, guessing or something else that cannot be explained by rationality and these components are often rooted in cultural tradition and rituals. Meindl, Stubbart and Porac stress the importance of rational and irrational components in knowledge building processes and therefore in judgement and decision-making.

#### **Motivation**

In liberal economics the principle of rationality refers to behaviour that is oriented towards individual benefits. From the point of view of methodological individualism, rationalism results from a subjective perspective of the environment which takes into account the individual's preference structure. Following the paradigm of rational choice theory, knowledge creation depends on the individual cost of information gathering and the expected benefit from the use of information. This approach does not analyse cognitive structures but connects knowledge about the environment with decision-making and therefore with behaviour.

Under the premise of rationalism, it is not convenient for the individual to maximise information gathering. Although necessary for decision making, the cost-benefit rule suggests that we should search for information until the marginal cost reaches the marginal benefit from information gathering. Converting information into knowledge creates additional costs because of the time taken up by the cognitive process. As regards the cost side, routine and experience are factors that reduce costs due to the learning effects from earlier processes. Rational information

behaviour theory reaches the conclusion that the individual is already satisfied with their limited view of the whole picture, which in turn implies that ignorance of surrounding information is an important skill for rational behaviour.

In psychology, this behaviour had already been investigated by Tversky, who explained in his “elimination-by-aspect” approach that individuals quite schematically follow a subjectively defined standard of preferences and desires, and squib all alternatives which do not match in a concrete situation. As early as five decades ago, Thibaut/Kelley, Simon as well as Cyert/March presented arguments along the same lines saying that individuals seek out rank happiness, which means that satisfaction is not an absolute value, but relative. They found that individuals feel good or bad when they compare themselves with others. In addition to that, Selten focussed on the capacity of individuals to adjust their expectations once they recognise that their original expectations cannot be achieved. The conclusion is that rationality in the cognitive process is based on the individual's perception of expectations and consequences and that it is therefore future oriented.

## **Knowledge Management and Values**

Values build the normative structure which orientates people in decision making situations. In this sense, values have an impact on cognitive category building as mentioned by Hayek and in doing so they also influence learning processes. From this perspective, learning is an instituted process of interpretation and evaluation, which applies existing and creates new cognitive frames. Within the wide range of values, some values can be rationally explained through reasoning while others are rationally inexplicable and create beliefs and myths. Rational, logic based values like humanity and irrational, emotional values like Christianity converge into the orientation system for individual activity. Generally accepted and shared values in society increase the transparency of behaviour because there is a clear distinction between normatively correct and incorrect behaviour.

Bush defines values based on rationality, reasoning and consciousness as instrumental values. These are established in order to solve problems and to contribute to the progress of society. One example is a country's constitution, which represents the society's commitment towards humanity, the community, etc. and which is a normative compass that enables the society to distinguish between tolerated and penalized behaviour. In contrast, societies also generate values unconsciously, which evolve over time. These values are transmitted from generation to generation and their justification is based on tradition, rituals, beliefs, etc. According to Bush, these are ceremonial values, which are characterized by conservatism and prudence towards change.

The relationship between instrumental and ceremonial values is contradictory if ceremonial values obstruct progress founded on scientific and technological reasoning but it can also be complementary in cases where scientific research manages to explain the formerly unexplained and, in doing so, turns ceremonial values into instrumental ones. Similarly, the relationship between these two types of values is complementary when the outcome of scientific or technological progress becomes tradition and is converted into common sense. It is evident that the maintenance and renewal of values are two driving forces and that society advances due to the creation of new applicable knowledge. A society's conservatism towards change is a manifestation of the predominance of ceremonial values. Progress on the other hand is a result of the cognitive potential to convert information and signals into knowledge. According to North, progress always entails a loss of traditional and therefore of ceremonial values. The logical conclusion is that the management of people always entails the management of competitive or complementary value systems. This is particularly important for multinational companies in high value societies such as Islamic or Christian societies or under high value regimes such as Marxism or National Socialism.

In economic theory, institutional economists like North regard generally accepted values as normative institutions which are established formally (instrumental values) or informally (ceremonial values). From the point of view of institutional economics, institutions direct behaviour by means of social commitments and increase the predictiveness of individual activity by setting up routines and reducing uncertainty. According to Rutherford “an institution is a regularity of behaviour or a rule that is generally accepted by members of a social group, that specifies behaviour in a specific situation, and that is either self-policed or policed by an external authority.” The efficiency of institutions can be measured by how far they reduce the cost of social life through rule setting. Normative institutions, either formal (instrumental values) or informal (ceremonial values), need to be cognitively

implemented in order to become a parameter for individual behaviour. Rituals and belief, informal constraints, embodied in interpersonal ties, play an important role in people's relations, especially in societies with a weak formal setting of institutions or a strong influence of tradition.

## **Knowledge Management and Communication**

The Austrian writer and journalist Karl Kraus fought all his life against the simplification and misuse of language. Born in 1874, he devoted his efforts to elucidating the interconnection between language and thinking. According to Kraus, rather than a mere tool for transmitting pre-prepared opinions, language is a medium of thinking and critical reflection. Language verbally embodies what is thought and makes cognitive processes explicit. Kraus was convinced that people speak the way they think. The deterioration of linguistic capacity is a consequence of the simplification of thinking. This means, in a positive sense, that elaborate language proficiency helps one to express oneself in such a way that complex content can be transmitted without losing information.

This capacity is especially important in knowledge sharing processes, where diverse mindsets are required to exchange expertise and where complex cognitive patterns need to be verbalized. In such a situation the quality of knowledge management largely depends on the quality of communication. Codified communication in international business, for example the worldwide use of the English language as a vehicle for the exchange of information and data, runs the risk that communication is imperfect and of low quality in the case of non-native speakers. A foreign language that is learnt through schematic techniques will not enable a foreigner to understand all the sentimental and emotional patterns conveyed by the language and which have evolved over thousands of years, influenced by history and culture. In situations where the correct use of language is important, tools are applied in order to ensure the quality of information transfer. International comparative studies for example, which are based on empirical data research often use the back translation technique to make sure that the wording of questions has the same meaning in different languages. If this were not the case, data from different countries could hardly be compared and information would be lost along the way.

But communication is not only a matter of verbal expression, but also of visual images. Gesture is a form of visual behaviour which supports verbal messages and, in doing so, adds importance to them. The dialectic relationship between verbal and visual representation is processed in the mind and forms people's understanding. In the arts, visuality through images is of particular importance for transmitting messages without using words. The Canadian artist Geneviève Cadieux in his object "Hear With Your Eyes" vividly describes the impossibility of verbal communication in certain emotional states. For proper understanding to take place, observation and interpretation of gestures are crucial in order to compensate for the lack of verbal communication. Reading facial expressions, exaggerated expressions or ritualizing small things may often become a necessary skill in intercultural communication. The artist Gary Hill from California focuses on the phenomenon of understanding. In his work "Remarks on colour", his young daughter Anastasia reads Ludwig Wittgenstein aloud without understanding the contents of what she is reading. The girl tries to pronounce the philosopher's complex words correctly and to use the right intonation in reciting the phrases. Nevertheless, she does not always succeed and the text's meaning gets lost. Gary Hill's work highlights the difficulties of understanding and making sure that one is being understood.

The issue of understanding is also raised by Martin Gannon, whose book "Understanding Global Cultures" presents a metaphorical analysis of 17 countries from all the continents. In contrast to other cultural studies such as those of Hofstede, his interest is not centred on items and scales which measure cultural differences. His approach is based on observation, cultural particularities and metaphors that are linked with a country's image. Instead of empirical objectivism, what he delivers is a subjective view on culture. For Gannon there are several culture-creating factors such as religion, language, geographical proximity, the educational system, socialization, the form of government, history, social class structures and the rate of technological change, but he considers the use of a common language as probably the key integrating factor. Sharing a common language helps people to feel comfortable, define in-groups and out-groups and communicate both thoughts and emotions. The opera as a metaphor for explaining Italian culture points to the importance of language and voice in Italian social life. The subtle use of word endings and inflections in the Japanese language distinguish insider from outsider status and a

person's relative status in society. The Belgium conflict between the French and Flemish languages relates directly to the controlled and balanced behaviour that Belgians manifest in everyday life. According to Gannon, these are only three examples of what is probably a long list of examples which could demonstrate the importance of language as a culture-forming mechanism. Coming back to Karl Kraus, his assumption about the link between speaking and thinking is very interesting when we consider that some words in certain cultures do not exist in other cultures. The word "privacy" has no appropriate translation in Italian. Similarly, it is difficult to find a correct translation for "cosiness" in the Spanish language. According to Kraus, this shows the relatively minor importance that a culture gives to certain aspects of living.

## **Consequences for Knowledge Management**

By way of summing up the above discussion, the management of knowledge involves highly subjective factors in knowledge production as well as in knowledge transfer. These factors belong to processes, which are either internal, within the individual's mind when processing information or external, when communicating knowledge to others. It is evident therefore that knowledge management is much more than simple data mining. In fact, it is a complex task of managing people's knowledge related individuality. The obstacle is that knowledge is created through internal processes which are not transparent to others. As a consequence, what is probably the most important part of knowledge management, knowledge content, eludes management. The challenge for knowledge managers is to deal with parameters that are not controlled by the management.

As we mentioned previously, the parameters are divided into two dimensions whereby one segment refers to the cognitive dimension and the other to the communication dimension. With regard to the cognitive impact on knowledge, three parameters bear an influence on the inner dimension of knowledge creation.

- Categorization and auto cuing are both aspects that describe one's ability to select information in such a way that situations become less complex. The ability to ignore (categorization) and abstract from reality (auto cuing) are tools of complexity reduction through simplified selective perception. This means that any knowledge that is created, shared, administered and stored in a company passes through an internal cognitive filter, which prepares the information in such a way that makes it appropriate for the individual's use. Managing knowledge on a global scale means dealing with knowledge which has been processed by a variety of different filters influenced by the cultural environment and which is incomplete compared with reality. According to Senge, people's behaviour is always in tune with their mental models. If mental models promote complexity reduction through ignorance and there is no overlap of mental models in a team, then we can expect mutual ignorance regarding other people's knowledge, experience and perception. Finally, this would depreciate the value of knowledge management and would affect behaviour and team performance. Knowledge management in culturally diverse groups has to take into account diverse mind maps and has to find ways of harmonizing them in order to achieve a mental overlap and to create commonly shared knowledge zones.
- The reflection about oneself within a specific context creates awareness and consciousness regarding the things that happen around us. As mentioned in the Sherlock Holmes example above, the interpretation of a particular situation can be completely different depending on each individual's awareness of it. Awareness and consciousness play a crucial role in the priority setting of knowledge. The same knowledge content may have a different impact on different people and consequently a different impact on working with knowledge.
- The motivational factor drives individual behaviour and influences the individual's participation in knowledge management. Following the rationality approach, the cost-benefit relationship is decisive for carrying out activities. Sharing knowledge is considered positive if the individual receives a benefit, which is considered higher than the cost of participation. Factors that influence motivation in knowledge management are specialization, experience, responsibility, image and prestige. Specialisation and experience are very sensitive factors as they determine the uniqueness of knowledge. Possessing unique knowledge in the company improves the individual's negotiating power when this knowledge is of

importance for the organisation. In this sense, the price of knowledge, reflected in the person's salary, is higher than the salary of employees without any specialisation. In such situations there is probably no incentive for employees to share their specialised knowledge with others because this would depreciate their value for the company. Concerning image and prestige, the personal benchmark with colleagues at the workplace is an important driver for increasing or lowering an individual's effort or involvement in knowledge management.

- The communication dimension is strongly influenced by language, which is comprised of factors such as native like proficiency, gesture and the ability to express oneself. A low degree of native like proficiency and ability to express oneself together with a rich mixture of different cultural gestures makes knowledge sharing difficult and reduces the information load that is transferred in each message. Additionally, transmission, understanding and interpretation are also determined in cases where certain verbal expressions do not exist in some languages for certain situations. The communication aspect is absolutely crucial when a company wants to improve its organisational knowledge.

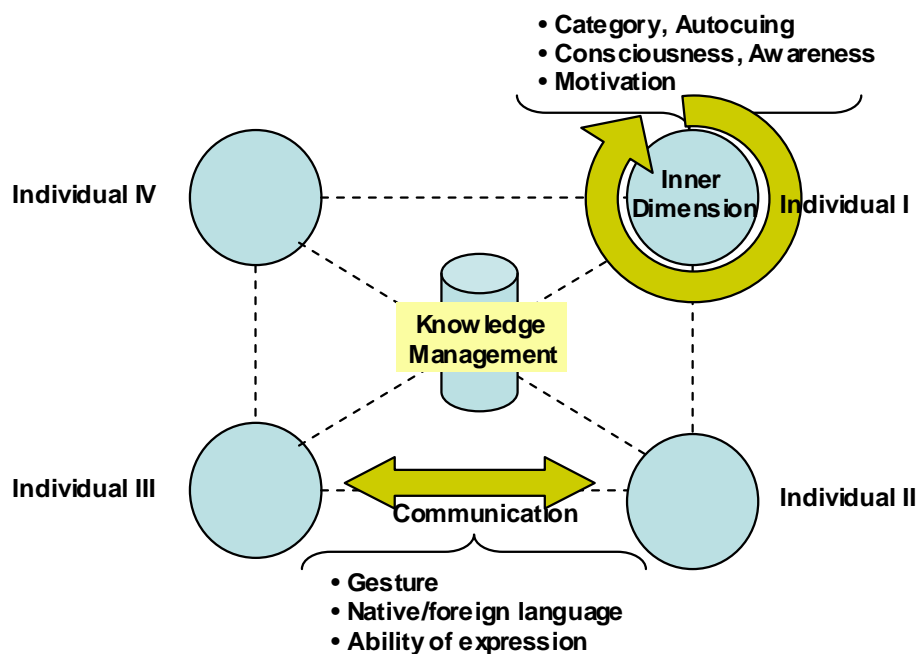


FIG. 2: COGNITION AND COMMUNICATION BARRIERS IN KNOWLEDGE MANAGEMENT

The conclusion is that knowledge management is far away from being the management of true reality. Instead of objective information, what is being managed is reality that is manipulated through individual perception. Even if one attempts to come as close as possible to objective reality, it is often impossible for foreigners to perceive and understand all the details from regionally restricted knowledge zones. If the environment has an impact on cognitive processes, then people who have grown up in different environments are more likely to use different forms and levels of complexity reduction. Mind making based on category thinking, awareness and motivation differs in different cultures. What's more, language always plays a crucial role in transmitting knowledge when individuals



with different native languages communicate. In such situations knowledge content runs the risk of being lost during the transmission process. This is especially the case when tacit knowledge needs to be codified in a foreign language, where one's ability of expression is limited.

Monsanto is an example of a company that decided to enter into the European market based on an erroneous knowledge base. Confiding in their American experience, Monsanto underestimated the backlash against their products from European consumers. Misperceptions, misinterpretation, misunderstanding and bad communication were mistakes that were made by the company's management.

## **Monsanto: The Failure of the Free Market Argument**

Monsanto is an American multinational agricultural biotechnology company that was founded in 1901 by John Francis Queeny, a veteran of the pharmaceutical industry. Already in 1919, the company started its expansion towards Europe by establishing an alliance with a chemical plant in Wales. Since 1971, Monsanto has produced and successfully commercialised its star product "Roundup", a herbicide glyphosate. In 1982, tests were started on genetically modified plant cells with the aim of developing genetically modified grains and crops that were resistant to "Roundup". The overall idea was to offer a herbicide/plant package which would increase crop productivity. Today, Monsanto has over 16,000 employees worldwide and an annual revenue of US\$7,344 billion reported for 2006. The company is by far the biggest producer of transgenic seeds, with a market share of 70% – 100% in some markets.

In May 1996, Monsanto received authorization from the European Community to export transgenic soybeans to the European market. The product was treated as a commodity, which means that the European Community did not classify the product as dangerous for people's health. Nevertheless, some months later, protests from ecologists and non-governmental organisations (NGO's) against the import of transgenic food raised awareness among consumers and led to a massive boycott of products containing genetically modified soybeans. The company's image as well as its economic results came under pressure and at the end of 1997, the general manager of Monsanto in Europe, Carlos Joly, apologized for the big mistakes that were made during the introduction of transgenic products in Europe. According to Joly, the company had underestimated the cultural differences between the United States and Europe concerning technology and in particular biotechnology. This came as a surprise, given the company's long standing tradition in doing business in Europe.

The motto "think global, act local" probably sums up the company's expansion approach very well, but it also reveals its arrogance in neglecting local thinking. Furthermore, Monsanto is an example of how rational arguments are bound to fail in emotional debates.

### **The Inner Dimension**

Even if this approach refers to individual thinking, it can be easily applied to corporate policy if we consider that each policy is developed by human brains and that there is always somebody who takes the decision based on available information.

Mental categorization and awareness: Monsanto grew within the American cultural context. Even though it is a multinational company, Monsanto relied on the American market and American legislation when it came to considering whether a product was economically and legally approved. The company has a strong belief in instrumental values which are related to American society and closely linked with openness towards innovation, belief in technology and an orientation towards the future. In contrast, Europe has always been known for a certain degree of scepticism towards new technology and demonstrated cautiousness and prudence towards technology innovation. Especially in the case of transgenic food, the discussion was led emotionally with a nostalgic touch concerning the role of farmers as food producers and protectors of nature. In contrast to the American belief in technology, the European belief in historical experience and confidence makes it more likely for Europeans to reject change. Monsanto ignored these differences and applied the American way of thinking to Europe. This reduced the complexity of business but also revealed awareness building based on insufficient data. The ability to pursue one's own business model without taking into account regional particularities is an example of auto cuing, a human phenomenon which allows the individual to disconnect his thinking from the surrounding reality.

Motivation: Monsanto's strategy has always focussed on markets and competition. The company positioned and benchmarked itself as a privately operating company. As an advocate of free markets, Monsanto's moral approach was based on utilitarianism and libertarianism. Monsanto postulated the importance of freedom of choice and argued that consumers are able to decide whether they want the product or not. Nevertheless, European consumers got the impression that they did not have any freedom of choice because of a lack of transparency and because they had not been consulted about the introduction of these products in Europe.

#### **Communication**

The communication policy of Monsanto was poor compared to the effort it had made in the United States. Relying solely on information and experience from the American market, European citizens were not invited to give their opinion nor was there an information campaign about biotechnology. This sharply contrasted with the information campaigns in the United States where a variety of initiatives such as open door events in the laboratories, education and information videos about biotechnology and articles in journals were undertaken in order to convince the American public. From the European point of view, ignorance and lack of communication were interpreted as an insult against European interests. Finally, Monsanto was accused of spreading North-American economic and technological imperialism. The company had also underestimated the impact of verbal expressions such as “genetic revolution” on the European public. Many people interpreted these types of expressions as an attack on nature.

#### **Conclusion**

Based on a review of the literature, this study has looked into the relationships between subjectivity, knowledge and knowledge management. The initial premise was that with globalisation, cultural diversity has become increasingly more important and that different understandings and interpretations of the same thing evolve. As the study shows, this is due to individual, highly subjective factors that come into play, transforming objective information into subjective knowledge. Knowledge management in general and organisational learning in particular entail the management of diverse cognitive processes. But since cognition is an internal process that occurs in the inner dimension of human behaviour, organisational knowledge management has no direct access. What may happen is that with globalisation there is an increased risk of failure in the management of knowledge. Taking the American company Monsanto as an example, one can see that decision making based on misguided assumptions, interpretations and understanding of important interest groups may damage a company's image.

This explorative study should be seen as a preliminary research effort which opens up the field to further in-depth empirical analysis. Scales can be developed in order to measure quantitative information about cognitive categorizing, awareness, motivation and communication from culturally diverse samples. Such research helps us to clarify the risk of misunderstandings in global knowledge management and therefore to relativise the effectiveness of knowledge management under global conditions.

#### **References**

Contact author for the list of references.

# Identification of Core Technologies on the Basis of ANP-Based Technology Network

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## Abstract

Numerous studies have attempted to examine technological structure and linkage as a network. Network analysis has been mainly employed with various centrality measures to identify core technologies in a technology network. None of the existing centrality measures, however, can successfully capture indirect relationships in a network. To address this limitation, this study proposes a novel approach based on the analytic network process (ANP) to identification of core technologies in a technology network. Since the ANP is capable of measuring the relative importance that captures all the indirect interactions in a network, the derived “limit centrality” indicates importance of technologies in terms of impacts on other technologies, taking into account all the indirect influences. Using patent citation data as proxy for interactions between technologies, a case study on telecommunication technologies is presented to illustrate the proposed approach.

## Introduction

Due to the intractable complexity and volatility of modern technologies, it is of increasing importance to examine technological structure, and grasp technological trends and advances. Identifying and assessing technological advances critical to the company’s competitive position is now recognized as a crucial activity for achieving and maintaining competitive positions in a rapidly evolving environment [10]. Since technology systems are characterized by strong interdependence [1], there have often been attempts to examine technological structure and linkage as a form of network [36][40][42].

What is at the core of measuring technological interdependence or linkage is patents. Patents have been the representative proxy for technology [37]. A number of studies have been conducted to identify current technology structure and make a projection of technological future trends by using patent analysis [1][2][3][7][13][17]. Several measures have been employed for measuring technological linkage with patents, such as co-classification [6][16], co-word [9], and keyword vector similarity [42]. Among those, citation analysis has been the most popular one in spite of controversial discussions about its validity. The underlying assumption is that there exist technological linkages or flows between the two patents if a patent cites another patent.

Network analysis has often been used in conjunction with patent citation analysis with the aim of grasping the overall relationship and structure in a network. What is at the center of interest is to identify important or core technologies in a technology network [36]. As a quantitative measure of importance in a network, centrality measures can be deployed in network analysis. Among various measures, degree centrality has been implicitly deployed as an indicator of importance of technologies in the previous studies [38]. However, it does not take into account indirect relationships despite the fact that indirect citations as well as direct citations play a crucial role in characterizing technology networks [40]. None of the existing centrality measures can successfully capture indirect relationships and produce meaningful results for identifying core technologies in a patent citation-based technology network.

To address these limitations, this study proposes a novel approach based on the analytic network process (ANP) to identification of core technologies in a technology network. Since the ANP is capable of measuring the relative importance of technologies that captures all the indirect interactions in the technology network, the derived

“limit centrality” can be used as an implicative centrality measure characterizing a network and showing core technologies in the network.

The remainder of this paper is organized as follows. Section 2 deals with the previous studies on patent citation network analysis. The underlying methodology of the proposed approach, the ANP, is briefly introduced in Section 3. The proposed approach is explained and illustrated with a case study in Section 4. The paper ends with conclusions in Section 5.

## Patent Citation Network Analysis

Patents and patent statistics have long been used as technological indicators [15]. Although patents have been the representative proxy for technology as direct output of R&D activities, there has been a ceaseless controversy about the use of patent analysis since patents have advantages and disadvantages like any other technological indicator [1]. The pros and cons of patent analysis are not explained here in detail, but can be found in the literature by Archibugi and Pianta [1], Ernst [11], Griliches [15].

The most common method for early patent analysis was to simply count patents and to compare how many patents had been assigned to each entity, e.g. nations, firms, and technological fields [40]. The basic idea is the more patents belong to different entities, the more important the entity is. Due to the highly skewed distribution of patent values, however, judgments on importance based on simple patent counts could be biased to a large extent in many cases [21]. It is also incapable of measuring importance that mirrors influences or linkages among entities.

Thus, what has become the center of interest in patent analysis is citation information. Patent citation analysis is based on the examination of citation links among different patents [30]. The use of citation information in patent analysis boosts studies from various streams. One of the main research topics is to measure the values of patents based on the number of citations of patents in subsequent patents. It is validated by a number of evidences that more frequently cited patents have higher technological and economic value [5][31][37]. In this context, many studies have employed the number of citations as an indicator of patent quality [11][22][26][33]. Firm's value can also be measured based on the values of patents belonging to the firm [18]. Another subject of studies with patent citation information is to identify similarities between technologies. The similarity information can be used for identifying technology overlaps with collaborative firms [29], and proposing a new classification system by clustering patents [25]. The use of patent citation information in this study is in line with the other research stream, analyzing technological knowledge flows or technological linkages based on patent citation relationships. The underlying assumption is that there exists a linkage or a flow between the two patents if a patent cites another patent. However, patent citation analysis alone cannot grasp the overall relationship and structure among all the patents because it merely captures individual links between two particular patents [42].

To address this limitation, network analysis has often been used in conjunction with patent citation analysis to measure technological knowledge flows between entities and identify important or core entities. In general, the interactive relationships among actors can be portrayed as a network composed of actors (nodes) and interactions (edges) [14]. The structure of relations among actors and the location of actors in the network provide rich information on diverse aspects of an individual actor, a group of actors, and an overall network [27]. Thus, network analysis has attracted considerable interests from the social and behavioral science community in recent decades, and has also been applied and proved fruitful in a wide range of disciplines [41]. A patent citation-based network is one of the areas where network analysis is effectively employed with the aim of measuring technological knowledge flows among actors. An actor can be an individual patent or patents are assigned to a corresponding entity such as a nation or a technology class as an actor. Then, the citation relationships among patents represent interactions among actors. A number of studies have employed the patent citation network analysis at various levels, such as national level [23], industry level [20], firm level [19], and technology class level [36].

To characterize either holistic network characteristics or individual actor's positions in a network, various centrality measures can be calculated. Three common measures of centrality are degree centrality, closeness centrality, and betweenness centrality [12]. Among those, degree centrality has been implicitly deployed as an indicator of importance of technologies in the previous studies [38]. Degree centrality can be defined as the number

of ties incident upon a node. However, none of these centrality measures take into account indirect relationships [4]. Whereas in traditional network theory indirect links are in general of less value than direct links, this does not hold true in the case of patent citations [40]. Therefore, it is required to develop a new centrality measure that can capture indirect relationships in a network.

## ANP

The ANP is a generalization of the AHP [35]. The AHP, also developed by Saaty [34], is one of the most widely used multiple criteria decision making (MCDM) methods. The AHP decomposes a problem into several levels that make up a hierarchy in which each decision element is supposed to be independent. The ANP extends the AHP to problems with dependence and feedback. It allows for more complex interrelationships among decision elements by replacing a hierarchy in the AHP with a network [28]. Therefore, in recent years, there has been an increase in the use of the ANP in a variety of problems [24].

The process of the ANP is comprised of four major steps [8][28][35].

(1) Network model construction: The problem is decomposed into a network where nodes correspond to clusters. The elements in a cluster may influence some or all the elements of any other cluster. These relationships are represented by arcs with directions. Also, the relationships among elements in the same cluster can exist and be represented by a looped arc.

(2) Pairwise comparisons and priority vectors: Elements of each cluster are compared pairwise with respect to their impacts on an element in the cluster. In addition, pairwise comparisons are made for interdependency among elements outside clusters. When cluster weights are required to weight the supermatrix at the next stage, clusters are also compared pairwise with respect to their impacts on each cluster. The way of conducting pairwise comparison and obtaining priority vectors is the same as in the AHP.

(3) Supermatrix formation and transformation: The local priority vectors are entered into the appropriate columns of a supermatrix, which is a partitioned matrix where each segment represents a relationship between two clusters. The supermatrix of a system of N clusters is denoted as the following:

$$\mathbf{W} = \begin{matrix} & \begin{matrix} C_1 & \cdots & C_k & \cdots & C_N \\ e_{11} \cdots e_{1n_1} & \cdots & e_{k1} \cdots e_{kn_k} & \cdots & e_{N1} \cdots e_{Nn_N} \end{matrix} \\ \begin{matrix} C_1 \\ \vdots \\ C_k \\ \vdots \\ C_N \end{matrix} & \begin{pmatrix} \begin{matrix} e_{11} \\ \vdots \\ e_{1n_1} \\ \vdots \\ e_{k1} \\ \vdots \\ e_{kn_k} \\ \vdots \\ e_{N1} \\ \vdots \\ e_{Nn_N} \end{matrix} & \begin{matrix} \mathbf{W}_{11} & \cdots & \mathbf{W}_{1k} & \cdots & \mathbf{W}_{1N} \\ \vdots & & \vdots & \ddots & \vdots \\ \mathbf{W}_{k1} & \cdots & \mathbf{W}_{kk} & \cdots & \mathbf{W}_{kN} \\ \vdots & & \vdots & \ddots & \vdots \\ \mathbf{W}_{N1} & \cdots & \mathbf{W}_{Nk} & \cdots & \mathbf{W}_{NN} \end{matrix} \end{pmatrix} \end{matrix}$$

where  $C_k$  is the  $k$ th cluster ( $k= 1, 2, \dots, N$ ) which has  $n_k$  elements denoted as  $e_{k1}, e_{k2}, \dots, e_{kn_k}$ . A matrix segment,  $\mathbf{W}_{ij}$ , represents a relationship between the  $i$ th cluster and the  $j$ th cluster. Each column of  $\mathbf{W}_{ij}$  is a local priority vector

obtained from the corresponding pairwise comparison, representing the importance of the elements in the  $i$ th cluster on an element in the  $j$ th cluster. When there is no relationship between clusters, the corresponding matrix segment is a zero matrix.

Then, the supermatrix is transformed into the weighted supermatrix each of whose columns sums to one. A recommended approach to obtaining the weighted supermatrix is to determine a cluster priority vector for each cluster, which indicates relative importance of influences of other clusters on each cluster. This can be done by conducting pairwise comparisons among clusters with respect to the column cluster.

Finally, the weighted supermatrix is transformed into the limit supermatrix by raising itself to powers. The reason for multiplying the weighted supermatrix is because we wish to capture the transmission of influence along all possible paths of the supermatrix. The entries of the weighted supermatrix represent only the direct influence of any element on any other element, but an element can influence a second element indirectly through its influence on a third element that has the direct influence on the second element. Such one-step indirect influences are captured by squaring the weighted supermatrix, and two-step indirect influences are obtained from the cubic power of the matrix, and so on. Raising the weighted supermatrix to the power  $2k+1$ , where  $k$  is an arbitrarily large number, allow convergence of the matrix, which means the row values converge to the same value for each column of the matrix. The resulting matrix is called the limit supermatrix, which yields limit priorities capturing all the indirect influences of each element on every other element. For more details on supermatrix characteristics and theory, see the text by Saaty [35].

(4) Final priorities: When the supermatrix covers the whole network, the final priorities of elements are found in the corresponding columns in the limit supermatrix. If a supermatrix only includes components interrelated, additional calculation should be made.

## **ANP-Based Technology Network**

### **Overview of Proposed Approach**

The ANP underlies the novel approach to identification of core technologies in a technology network. The ANP and network analysis has the keyword, 'network', in common, but they are markedly different in ultimate objectives and nodes that make up a network. The ANP is a MCDM methodology aimed at setting priorities of alternatives or selecting the best alternative. A network model in the ANP is composed of decision elements such as goal, criteria, and alternatives. On the other hand, the purpose of network analysis is to grasp the overall structure of a network consisting of a variety of types of actors by visualization and quantification. When a network is constructed to only visualize the overall relationships among actors, the ANP has nothing to do with network analysis. If measuring importance of actors or identifying core actors is intended in network analysis, however, the ANP can also be employed for the same purpose by viewing actors as alternatives. Then, the centralities or importance of actors are equivalent to the priorities of alternatives.

The overall process of the proposed approach is as follows. Firstly, the scope and level of a technology network is determined and patent data on selected technologies are collected. Then, a citation frequency matrix is obtained based on the citation relationships among technologies. Finally, the ANP is applied to obtain importance of technologies, which is named "limit centrality" that captures all the direct and indirect influence among technologies. In this section, the proposed approach is explained with a case study on telecommunication technologies.

### **Technology Selection and Patent Data Collection**

Since, on any measure, the information and communication technology (ICT) industry has been at the forefront of industrial globalization [32], analyzing the ICT network is expected to provide valuable implications. However, the scope of ICTs is so wide that we narrow down the scope of the network to telecommunication technologies.

Patent data were collected from the United States Patent and Trademark Office (USPTO) database. The USPTO has classified granted patents into corresponding technology classes defined by the USPC (United States Patent Classification). Each subject matter division in the USPC includes a major component called a class and a minor component called a subclass [39]. A class generally delineates one technology from another and consists of subclasses that delineate processes, structural features, and functional features of the subject matter encompassed

within the scope of a class. There also exists a hierarchy among subclasses in a class. Every subclass has an indent level as a shorthand notation for illustrating dependency, represented as a series of zero or more dots. A subclass having an indent level of zero is called a mainline subclass which is set in capital letters and bold font in a class schedule. Subclasses having one or more dots are the child of a mainline subclass. In this study, a mainline subclass is treated as a building block of the technology network. Since the child subclasses inherit all the properties of their parent subclass, it does not make sense to treat all the subclasses at the same level.

A series of discussions with telecommunication technology experts led to selection of classes in the USPC as telecommunication technologies. For the convenience of illustration of the proposed approach, only four classes, as shown in TABLE 1, were selected, they are not exhaustive though. The titles of mainline subclasses are attached in Appendix A.

TABLE 1: TELECOMMUNICATION TECHNOLOGY CLASSES

Class	Title	Number of mainline subclasses
370	Multiplex communications	7
375	Pulse or digital communications	14
379	Telephonic communications	20
455	Telecommunications	12

Documents of all the granted patents assigned to the four classes were collected from the USPTO database and stored in a database. Since the number of patents is so huge that we cannot collect all of them in manual, the own-developed JAVA-based web document parsing and mining program was used for automatically downloading patent documents.

**Citation Frequency Matrix**

The next step is to construct a citation frequency matrix which represents citation relationships among mainline subclasses. It indicates technological knowledge flows or influences among mainline subclasses. The basic form of a citation frequency matrix is shown in TABLE 2 where  $f_{NiMj}$  denotes the number of patents in  $i$ th mainline subclass of class N that patents in mainline  $j$ th subclass of class M cite. As a citation has a direction from a citing patent to a cited patent, the matrix is asymmetric.

TABLE 2: FORM OF CITATION FREQUENCY MATRIX

		Class M (Citing)					...
		...	1	2	...	m	
...	...	...	...	...	...	...	...
Class N (Cited)	1	...	$f_{N1M1}$	$f_{N1M2}$	...	$f_{N1Mm}$	...
	2	...	$f_{N2M1}$	$f_{N2M2}$	...	$f_{N2Mm}$	...
	...	...	...	...	...	...	...
	n	...	$f_{NmM1}$	$f_{NmM2}$	...	$f_{NmMm}$	...
...	...	...	...	...	...	...	...

To examine the current structure of the telecommunication technology network, citations made by patents only granted from 2000 to 2004 were considered. The number of citations for each cell was calculated by manipulating the database storing the collected patent documents. Since the number of mainline subclasses of the four classes is 53, the resulting citation frequency matrix is a 53×53 matrix, but not shown here due to the space limit. Only the citation frequency matrix at the class level is shown in TABLE 3.

TABLE 3: CITATION FREQUENCY MATRIX AT THE CLASS LEVEL

Cited class \ Citing class	455	379	375	370
455	15487	166	6804	744
379	1392	368	132	190
375	6469	29	19587	1380
370	1815	58	3151	1827

## ANP

### Network Model Construction

Basically, a network model in ANP is constructed based on expert judgments to model an abstract decision problem. The network in the proposed approach is made on the basis of citation relationships represented in the citation frequency matrix, as is in the case of network analysis. A cluster in the ANP network corresponds to a class, and elements in a cluster are equivalent to mainline subclasses in a class. In the ANP context, then, the resulting network model only includes alternative clusters, contrary to the general network model in the ANP comprised of a goal cluster, criteria clusters, and alternative clusters. Thus, the importance of alternatives is only evaluated with respect to impacts or influences on other alternatives, not with respect to criteria or a goal, which is the same as the idea of centrality measures in network analysis.

An arrow indicates a citation relationship between classes or mainline subclasses. For example, an arrow which leaves class A and enters into class B is added to a network if some of the patents in class A cite some of the patents in class B. What this also means is class B has some influences on class A; thus, subclasses of class B should be pair-wisely compared with respect to impacts on each subclass of class A.

FIG. 2 shows the telecommunication technology network for ANP including the four classes. Every class has influences on each other, and includes a feedback loop that represents citation relationships among mainline subclasses in the class itself. Though the network can be elaborated more by describing citation relationships at the mainline class level, it is not represented due to its complexity.

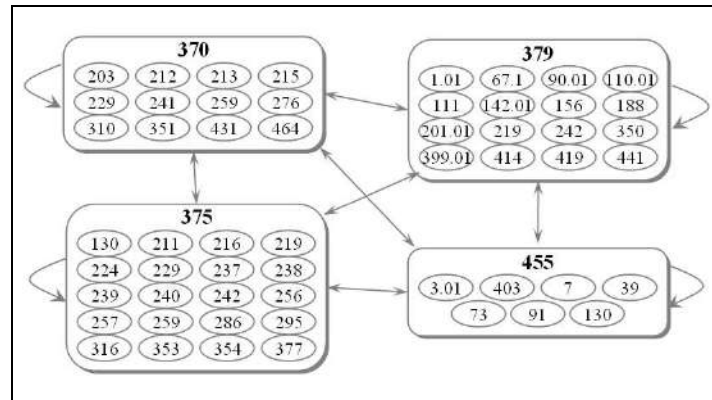


FIG 2: TELECOMMUNICATION TECHNOLOGY NETWORK FOR ANP

### Pair wise Comparisons and Priority Vectors

The next step deals with obtaining priority vectors. Firstly, cluster weights are determined through comparisons at the cluster level. The basic form of measurement in the ANP is a pairwise comparison with a scale of 1–9 since subject judgments have to be made on qualitative aspects. When the measurements derive from judgments based on experience and understanding, they are obtainable only from relative comparisons, not in an absolute way [Saaty, 1996].

However, pairwise comparisons do not have to be done in the proposed approach since the importance of elements can be directly measured from the citation frequency matrix. For example, TABLE 3 shows that the number of citations made by patents of class 379 is 58 for the patents of class 370, 29 for the patents of class 375. This can be interpreted that class 370 is twice ( $=58/29$ ) more important than class 375 in terms of impacts on class 379. Then, the number 2 is inserted to position (370, 375) and reciprocal value, 0.5, is assigned to position (375, 370). In this way, the pairwise comparison matrix with respect to class 379 among the four classes can be obtained as shown in TABLE 4. Then, the priority vector for class 379 is derived from the eigenvector method. This priority vector is naturally the same as the vector of the number of citations that the four classes received divided by total



number of citations made by the patents of class 379. This is because the pairwise comparison matrix is a completely consistent matrix.

TABLE 4: PAIRWISE COMPARISON MATRIX WITH RESPECT TO CLASS 379 AND RESULTING PRIORITY VECTOR

<379>	455	379	375	370	Priority vector	Normalization
455	1	0.45	5.72	2.86	0.2673	=166/621
379	2.22	1	12.69	6.34	0.5926	=368/621
375	0.17	0.08	1	0.50	0.0467	=29/621
370	0.35	0.16	2	1	0.0934	=58/621

Therefore, the priority vectors for every pairwise comparison can be directly obtained from the citation frequency matrix. TABLE 5 shows the cluster weights derived, which will be used to obtain the weighted supermatrix.

TABLE 5: CLUSTER WEIGHTS

	455	379	375	370
455	0.6155	0.2673	0.2293	0.1797
379	0.0553	0.5926	0.0044	0.0459
375	0.2571	0.0467	0.6601	0.3333
370	0.0721	0.0934	0.1062	0.4412

Secondly, local priority vectors for mainline subclasses are obtained. In ANP, basically, pairwise comparisons are made among elements of a cluster an arrow enters with respect to each element of a cluster from which an arrow leaves. For a feedback loop, elements in a cluster are pair-wisely compared with respect to each element in the cluster itself. For each pairwise comparison supposed to be made, local priority vectors can be directly derived without pairwise comparisons as mentioned above. For example, the importance of mainline subclasses of class 370 on each mainline subclass of class 450 is obtained by transformation of the citation frequency matrix, as shown in TABLE 6. What is important here is normalization of columns has to be done for each cluster. The resulting set of priority vectors, a priority matrix, will be imported to the supermatrix.

TABLE 6: CITATION FREQUENCY MATRIX AND ITS TRANSFORMATION INTO PRIORITY MATRIX

(A) CITATION FREQUENCY MATRIX									(B) PRIORITY MATRIX									
		455									455							
		455/3.01	455/403	455/7	455/39	455/73	455/91	455/130			455/3.01	455/403	455/7	455/39	455/73	455/91	455/130	
370	370/203	0	38	0	16	12	36	63	370	370/203	0	0.054	0	0.116	0.075	0.225	0.108	
	370/212	0	2	0	3	0	0	3		370/212	0	0.003	0	0.022	0	0	0	0.005
	370/213	0	0	0	0	0	0	0		370/213	0	0	0	0	0	0	0	0
	370/215	0	0	0	0	2	1	6		370/215	0	0	0	0	0.013	0.006	0.01	
	370/229	0	22	0	0	0	0	1		370/229	0	0.031	0	0	0	0	0	0.002
	370/241	0	9	0	4	3	2	9		370/241	0	0.013	0	0.029	0.019	0.013	0.015	
	370/259	0	10	1	0	2	3	4		370/259	0	0.014	0.017	0	0.013	0.019	0.007	
	370/276	1	34	5	14	32	9	72		370/276	0.059	0.049	0.083	0.101	0.2	0.056	0.124	
	370/310	3	350	41	21	52	43	152		370/310	0.176	0.501	0.683	0.152	0.325	0.269	0.262	
	370/351	6	104	2	10	4	1	6		370/351	0.353	0.149	0.033	0.072	0.025	0.006	0.01	
	370/431	2	40	2	3	3	8	35		370/431	0.118	0.057	0.033	0.022	0.019	0.05	0.06	
	370/464	5	90	9	67	50	57	230		370/464	0.294	0.129	0.15	0.486	0.313	0.356	0.396	

### Supermatrix Formation and Transformation

The supermatrix is constructed with local priority vectors obtained from the previous step. TABLE 7 shows the form of the supermatrix for the telecommunication technology network, which is a 53x53 matrix composed of 16(=4x4) blocks. A block corresponds to a set of priority vectors, a priority matrix. The priority matrix in TABLE 6 is equivalent to  $W_{4l}$  in the supermatrix. The whole supermatrix is not represented due to the space limit.

TABLE 7: FORM OF SUPERMATRIX FOR TELECOMMUNICATION TECHNOLOGY NETWORK

	455	379	375	370
455	$W_{11}$	$W_{12}$	$W_{13}$	$W_{14}$
379	$W_{21}$	$W_{22}$	$W_{23}$	$W_{24}$
375	$W_{31}$	$W_{32}$	$W_{33}$	$W_{34}$
370	$W_{41}$	$W_{42}$	$W_{43}$	$W_{44}$

The supermatrix then needs to be transformed into the weighted supermatrix. Each matrix segment of the supermatrix is multiplied by the corresponding cluster weights shown in TABLE 5. For example, all the elements of  $W_{11}$  are multiplied by the weight of class 455 for class 455 itself, 0.6155,  $W_{41}$  is multiplied by 0.0721, and so on. However, the resulting matrix is not column stochastic because there are several matrix segments that have columns all of whose entries are zero. When this is the case, the weighted column of the supermatrix must be renormalized [Saaty, 1996]. The renormalized matrix, which is now column stochastic, is what is called the weighted supermatrix. A part of the weighted supermatrix is shown in TABLE 8.

TABLE 8: WEIGHTED SUPERMATRIX (EXCLUDING CLASS 379 AND 375)

		455							379	375	370												
		3.01	403	7	39	73	91	130	.	.	203	212	213	215	229	241	259	276	310	351	431	464	
455	3.01	0.0000	0.0003	0.0000	0.0032	0.0003	0.0014	0.0007	.	.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0056	0.0000	0.0035	
	403	0.0849	0.4270	0.2075	0.0570	0.1000	0.0197	0.0055	.	.	0.0547	0.0257	0.0180	0.0628	0.0000	0.0000	0.1647	0.0051	0.0742	0.0842	0.0650	0.0243	
	7	0.0000	0.0228	0.1153	0.0142	0.0176	0.0066	0.0053	.	.	0.0026	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0027	0.0000	0.0000	0.0165	
	39	0.1273	0.0455	0.0715	0.1740	0.0345	0.0521	0.0295	.	.	0.0651	0.0513	0.0539	0.0000	0.0000	0.0000	0.0449	0.0253	0.0492	0.0730	0.0535	0.0373	
	73	0.2335	0.0956	0.1521	0.0538	0.1333	0.0938	0.0628	.	.	0.0208	0.0000	0.0000	0.0628	0.0000	0.0000	0.0449	0.0051	0.0000	0.0056	0.0115	0.0043	
	91	0.0849	0.0046	0.0461	0.0585	0.0715	0.3256	0.0619	.	.	0.0104	0.0000	0.0359	0.0000	0.0000	0.0000	0.0000	0.0013	0.0000	0.0000	0.0000	0.0017	
	130	0.0849	0.0195	0.0231	0.2547	0.2582	0.1163	0.4499	.	.	0.0260	0.1027	0.0719	0.0628	0.0000	0.1797	0.0150	0.1517	0.0536	0.0112	0.0497	0.0920	
	379	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
	375	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
370	203	0.0000	0.0039	0.0000	0.0084	0.0054	0.0162	0.0078	.	.	0.1427	0.0788	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0379	0.0041	0.0751	0.0209	
	212	0.0000	0.0002	0.0000	0.0016	0.0000	0.0000	0.0004	.	.	0.0053	0.0630	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
	213	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	.	.	0.0053	0.0473	0.2146	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0043	
	215	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0005	0.0007	.	.	0.0000	0.0000	0.0119	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0014
	229	0.0000	0.0023	0.0000	0.0000	0.0000	0.0000	0.0001	.	.	0.0000	0.0158	0.0119	0.0000	0.0336	0.0939	0.0000	0.0000	0.0141	0.0358	0.0000	0.0043	
	241	0.0000	0.0009	0.0000	0.0021	0.0014	0.0009	0.0011	.	.	0.0106	0.0315	0.0000	0.0000	0.0336	0.0469	0.0945	0.0000	0.0076	0.0225	0.0000	0.0058	
	259	0.0000	0.0010	0.0012	0.0000	0.0009	0.0014	0.0005	.	.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0945	0.0000	0.0011	0.0010	0.0000	0.0007	
	276	0.0042	0.0035	0.0060	0.0073	0.0144	0.0041	0.0089	.	.	0.0159	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1704	0.0022	0.0082	0.0000	0.0029	
	310	0.0127	0.0361	0.0493	0.0110	0.0234	0.0194	0.0189	.	.	0.1295	0.0945	0.0715	0.4110	0.1008	0.0000	0.1891	0.1947	0.1257	0.0235	0.2253	0.1024	
	351	0.0255	0.0107	0.0024	0.0052	0.0018	0.0005	0.0007	.	.	0.0026	0.0000	0.0119	0.0000	0.0672	0.1314	0.0000	0.0000	0.0347	0.1535	0.0657	0.0591	
	431	0.0085	0.0041	0.0024	0.0016	0.0014	0.0036	0.0043	.	.	0.0185	0.0158	0.0238	0.0514	0.0336	0.0282	0.0000	0.0000	0.0119	0.0328	0.0188	0.0137	
464	0.0212	0.0093	0.0108	0.0350	0.0225	0.0257	0.0286	.	.	0.1110	0.0945	0.0954	0.0000	0.2689	0.1408	0.2836	0.0974	0.2060	0.1597	0.0563	0.2256		

Finally, the limit supermatrix was derived by raising the weighted supermatrix to powers, as shown in Appendix E. In this case, convergence is reached at  $W^{41}$ . TABLE 9 shows a part of the limit supermatrix.

TABLE 9: LIMIT SUPERMATRIX (EXCLUDING CLASS 379 AND 375)

		455							379	375	370											
		3.01	403	7	39	73	91	130	.	.	203	212	213	215	229	241	259	276	310	351	431	464
455	3.01	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	.	.	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
	403	0.0591	0.0591	0.0591	0.0591	0.0591	0.0591	0.0591	.	.	0.0591	0.0591	0.0591	0.0591	0.0591	0.0591	0.0591	0.0591	0.0591	0.0591	0.0591	0.0591
	7	0.0082	0.0082	0.0082	0.0082	0.0082	0.0082	0.0082	.	.	0.0082	0.0082	0.0082	0.0082	0.0082	0.0082	0.0082	0.0082	0.0082	0.0082	0.0082	0.0082
	39	0.0393	0.0393	0.0393	0.0393	0.0393	0.0393	0.0393	.	.	0.0393	0.0393	0.0393	0.0393	0.0393	0.0393	0.0393	0.0393	0.0393	0.0393	0.0393	0.0393
	73	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450	.	.	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450
	91	0.0463	0.0463	0.0463	0.0463	0.0463	0.0463	0.0463	.	.	0.0463	0.0463	0.0463	0.0463	0.0463	0.0463	0.0463	0.0463	0.0463	0.0463	0.0463	0.0463
	130	0.1640	0.1640	0.1640	0.1640	0.1640	0.1640	0.1640	.	.	0.1640	0.1640	0.1640	0.1640	0.1640	0.1640	0.1640	0.1640	0.1640	0.1640	0.1640	0.1640
379	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
375	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
370	203	0.0158	0.0158	0.0158	0.0158	0.0158	0.0158	0.0158	.	.	0.0158	0.0158	0.0158	0.0158	0.0158	0.0158	0.0158	0.0158	0.0158	0.0158	0.0158	0.0158
	212	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	.	.	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
	213	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	.	.	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011
	215	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	.	.	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
	229	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	.	.	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
	241	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	.	.	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023
	259	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	.	.	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
	276	0.0074	0.0074	0.0074	0.0074	0.0074	0.0074	0.0074	.	.	0.0074	0.0074	0.0074	0.0074	0.0074	0.0074	0.0074	0.0074	0.0074	0.0074	0.0074	0.0074
	310	0.0365	0.0365	0.0365	0.0365	0.0365	0.0365	0.0365	.	.	0.0365	0.0365	0.0365	0.0365	0.0365	0.0365	0.0365	0.0365	0.0365	0.0365	0.0365	0.0365
	351	0.0101	0.0101	0.0101	0.0101	0.0101	0.0101	0.0101	.	.	0.0101	0.0101	0.0101	0.0101	0.0101	0.0101	0.0101	0.0101	0.0101	0.0101	0.0101	0.0101
	431	0.0064	0.0064	0.0064	0.0064	0.0064	0.0064	0.0064	.	.	0.0064	0.0064	0.0064	0.0064	0.0064	0.0064	0.0064	0.0064	0.0064	0.0064	0.0064	0.0064
	464	0.0513	0.0513	0.0513	0.0513	0.0513	0.0513	0.0513	.	.	0.0513	0.0513	0.0513	0.0513	0.0513	0.0513	0.0513	0.0513	0.0513	0.0513	0.0513	0.0513

**Limit Centrality**

As the supermatrix covers the whole network, the columns in the limit supermatrix (TABLE 9) represent final priorities, namely, limit centrality. That is why it is called limit centrality. Due to the nature of limit priorities in ANP, the limit centralities of all the elements sum to one. The limit centrality indicates importance of technologies in terms of impacts on other technologies, taking into account all the direct and indirect influences. TABLE 10 shows the limit centrality of 53 mainline subclasses. The limit centrality of a class is the sum of mainline subclasses belonging to the class.

TABLE 10: LIMIT CENTRALITY OF 53 MAINLINE SUBCLASSES

Class 455	Limit centrality	Class 379	Limit centrality	Class 375	Limit centrality	Class 370	Limit centrality
455/3.01	0.000670	379/1.01	0.000892	375/130	0.047675	370/203	0.015783
455/403	0.059142	379/67.1	0.013203	375/211	0.000492	370/212	0.000351
455/7	0.008231	379/90.01	0.034076	375/216	0.003655	370/213	0.001105
455/39	0.039348	379/110.01	0.000686	375/219	0.010537	370/215	0.000421
455/73	0.045033	379/111	0.009484	375/224	0.003602	370/229	0.001710
455/91	0.046345	379/142.01	0.001169	375/229	0.013847	370/241	0.002271
455/130	0.164017	379/156	0.001585	375/237	0.000321	370/259	0.000782
		379/188	0.004292	375/238	0.001695	370/276	0.007402
		379/201.01	0.005496	375/239	0.002604	370/310	0.036503
		379/350	0.005229	375/240	0.007805	370/351	0.010078
		379/399.01	0.003691	375/242	0.004499	370/431	0.006361
		379/414	0.000000	375/256	0.000159	370/464	0.051279
		379/419	0.008376	375/257	0.000792		
		379/441	0.001678	375/259	0.049151		
				375/286	0.004466		
				375/295	0.041154		
				375/316	0.150020		
				375/353	0.000352		
				375/354	0.068507		
				375/377	0.001981		
	0.362786		0.089857		0.413314		0.134046

At the mainline subclass level, the one with the highest limit centrality is 455/130 (receiver or analog

modulated signal frequency converter), and the next is 375/316 (receivers). It is obvious that these technologies have significant impacts on other technologies, and therefore they are considered as the core technologies of the telecommunication technology network. On the other hand, the limit centrality of 379/414 (transmission line conditioning) is zero since the patents of 379/414 have never been cited by all the patents of the four classes. The class whose limit centrality is the highest is 375 (Pulse or digital communications), followed by 455, 370, and 379.

## Conclusions

The proposed approach measures the limit centralities of technologies with the aim of identification of core technologies in the technology network. A case study on the telecommunication technology network was presented to illustrate the proposed approach. After constructing the citation frequency matrix based on patent data collected from the USPTO, the ANP network model was constructed and local priority vectors were obtained. Forming and transforming the supermatrix led to converged priorities, limit centralities.

The main contribution of this study is to apply the MCDM methodology, ANP, to a technology network. Since ANP captures the relative importance that mirrors all the direct and indirect interactions, the limit centrality measures importance of technologies in terms of impacts on other technologies in the technology network, taking into account indirect impacts or relationships, which is very difficult or tedious with the conventional centrality measures. The applicability of limit centrality is not limited to a technology network. For any type of social networks, the limit centrality can be used as an implicative centrality measure characterizing a network and showing core actors in the network.

Nevertheless, this research is still subject to some limitations. The drawback of the proposed approach is it cannot be used for undirectional networks where an edge has no direction and only represents the existence of a relationship between two nodes since relationships in a network of ANP must have directions depending on the influence between elements or clusters. The problem with the case study presented is the four patent classes selected are by no means exhaustive; they cannot cover the whole range of telecommunication technologies. More patent classes need to be included in the network. These limitations could serve as fruitful avenues for future research. Applications of the proposed approach to a variety of networks can be a worthwhile area for future research as well. A dynamic analysis on the telecommunication network is also expected to provide useful information on the change of the network structure and technological trends.

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Contact the author for a complete list of references

## APPENDIX

### APPENDIX A. TITLES OF CLASSES AND MAINLINE SUBCLASSES

<b>455</b>	<b>Telecommunications</b>
1	INTERFERENCE SIGNAL TRANSMISSION (E.G., JAMMING)
2.01	AUDIENCE SURVEY OR PROGRAM DISTRIBUTION USE ACCOUNTING
3.01	WIRELESS DISTRIBUTION SYSTEM
400	HAVING SINGLE-CHANNEL TELEPHONE CARRIER
403	RADIOTELEPHONE SYSTEM
7	CARRIER WAVE REPEATER OR RELAY SYSTEM (I.E., RETRANSMISSION OF SAME INFORMATION)
26.1	USE OR ACCESS BLOCKING (E.G., LOCKING SWITCH)
39	TRANSMITTER AND RECEIVER AT SEPARATE STATIONS
73	TRANSMITTER AND RECEIVER AT SAME STATION (E.G., TRANSCEIVER)
91	TRANSMITTER
130	RECEIVER OR ANALOG MODULATED SIGNAL FREQUENCY CONVERTER
899	MISCELLANEOUS
<b>379</b>	<b>Telephonic communications</b>
1.01	DIAGNOSTIC TESTING, MALFUNCTION INDICATION, OR ELECTRICAL CONDITION MEASUREMENT
36	FREE CALLING FROM PAYSTATION
37	EMERGENCY OR ALARM COMMUNICATIONS (E.G., WATCHMAN'S CIRCUIT)
52	INCLUDING AID FOR HANDICAPPED USER (E.G., VISUAL, TACTILE, HEARING AID COUPLING)
55.1	HAVING NEAR FIELD LINK (E.G., CAPACITIVE, INDUCTIVE)
56.1	HAVING LIGHT WAVE OR ULTRASONIC LINK FOR SPEECH OR PAGING SIGNAL
67.1	AUDIO MESSAGE STORAGE, RETRIEVAL, OR SYNTHESIS
90.01	TELEPHONE LINE OR SYSTEM COMBINED WITH DIVERSE ELECTRICAL SYSTEM OR SIGNALLING
110.01	COMPOSITE SUBSTATION OR TERMINAL (E.G., HAVING CALCULATOR, RADIO)
111	WITH USAGE MEASUREMENT (E.G., CALL OR TRAFFIC REGISTER)
142.01	RECEPTION OF CALLING INFORMATION AT SUBSTATION IN WIRELINE COMMUNICATIONS SYSTEM
143	WITH CHECK OPERATED CONTROL (E.G., PAYSTATION)
156	MULTI-LINE OR KEY SUBSTATION SYSTEM WITH SELECTIVE SWITCHING AND CENTRAL SWITCHING OFFICE CONNECTION
167.01	PRIVATE (E.G., HOUSE OR INTERCOM) OR SINGLE LINE SYSTEM
177	POLYSTATION LINE SYSTEM (I.E., PARTY LINE)
188	CALL OR TERMINAL ACCESS ALARM OR CONTROL
201.01	SPECIAL SERVICES
219	PLURAL EXCHANGE NETWORK OR INTERCONNECTION

242	CENTRALIZED SWITCHING SYSTEM
333	CONCENTRATOR OR TRUNK SELECTOR
338	REPEATER (E.G., VOICE FREQUENCY)
406.01	ECHO CANCELLATION OR SUPPRESSION
350	SUPERVISORY OR CONTROL LINE SIGNALING
387.01	SUBSTATION OR TERMINAL CIRCUITRY
398	LINE EQUALIZATION OR IMPEDANCE MATCHING
399.01	SUBSCRIBER LINE OR TRANSMISSION LINE INTERFACE
414	TRANSMISSION LINE CONDITIONING
418	CALL SIGNAL GENERATING (E.G., RINGING OR TONE GENERATOR)
419	TERMINAL
441	TERMINAL ACCESSORY OR AUXILIARY EQUIPMENT
457	MISCELLANEOUS
<b>375</b>	<b>Pulse or digital communications</b>
130	SPREAD SPECTRUM
211	REPEATERS
216	APPARATUS CONVERTIBLE TO ANALOG
218	EARTH OR WATER MEDIUM
219	TRANSCEIVERS
224	TESTING
229	EQUALIZERS
237	PULSE NUMBER MODULATION
238	PULSE WITH MODULATION
239	PULSE POSITION, FREQUENCY, OR SPACING MODULATION
240	BANDWIDTH REDUCTION OR EXPANSION
242	PULSE CODE MODULATION
256	PULSE TRANSMISSION VIA RADIATED BASEBAND
257	CABLE SYSTEMS AND COMPONENTS
259	SYSTEMS USING ALTERNATING OR PULSATING CURRENT
286	MULTILEVEL
295	TRANSMITTERS
316	RECEIVERS
353	PULSE AMPLITUDE MODULATION
354	SYNCHRONIZERS
377	MISCELLANEOUS
<b>370</b>	<b>Multiplex communications</b>
200	PHANTOM
201	CROSSTALK SUPPRESSION
202	AMPLITUDE COMPRESSION OR EXPANSION
203	GENERALIZED ORTHOGONAL OR SPECIAL MATHEMATICAL TECHNIQUES
212	PULSE WIDTH (PULSE DURATION) MODULATION
213	PULSE POSITION MODULATION
214	SIMULTANEOUS TELEGRAPHY AND TELEPHONY
215	PHASE MODULATION
216	FAULT RECOVERY
229	DATA FLOW CONGESTION PREVENTION OR CONTROL
241	DIAGNOSTIC TESTING (OTHER THAN SYNCHRONIZATION)
254	NETWORK CONFIGURATION DETERMINATION
259	SPECIAL SERVICES
272	SEXTUPLEX
273	QUADRUPLEX
276	DUPLEX
297	DIPLEX
298	LOW SPEED ASYNCHRONOUS DATA SYSTEM (E.G., TELETYPEWRITER SERVICE)
307	TRASMULTIPLEXERS
308	RESONANT TRANSFER TECHNIQUES
309	RESONANT TRANSFER SUBSTITUTES
310	COMMUNICATION OVER FREE SPACE
351	PATHFINDING OR ROUTING
431	CHANNEL ASSIGNMENT TECHNIQUES
464	COMMUNICATION TECHNIQUES FOR INFORMATION CARRIED IN PLURAL CHANNELS
546	MISCELLANEOUS

# The Emergence of Technology Entrepreneur and Economic Growth

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## Abstracts

Based on Yang and Ng's model, this paper will study the emergence of technology entrepreneur from the perspective of saving transaction cost. Inframarginal analysis (total cost-benefit analysis across corner solutions in addition to marginal analysis of each corner solution) of the model has formalized the Coase-Cheung theory of the firm. It is shown that firm can be used to improve transaction efficiency and to promote the division of labor by excluding the activity with the lowest transaction efficiency from being directly priced and traded. The analysis of the emergence of technology entrepreneur has found the conditions for the existence of technology entrepreneur and its implications for economic growth.

## Introduction

This paper employs Yang and Ng's analysis framework (Yang and Ng, 1993; 1995) to investigate the existence of technology entrepreneur<sup>1</sup> in the line of Coase and Cheung's firm theory. (See also related contributions by Borland and Yang, 1995; Liu and Yang, 2000; Yang, 2001.)

Since firms play a very important role in the growth of modern economies, it is unusual for outsiders to economics to take it for granted that there exists a well-developed theory of the institution of firm (Hart, 1996). However, we fail to deal with the problem of economic organization successfully. The mission of firm in economy is to "find the efficient level and pattern of division of labor in order to reduce scarcity by trading off the productivity gains against transaction costs" (Yang and S. Ng, 1998). Therefore, we are very familiar with the function of the price system in allocating resource,<sup>2</sup> rather than the function of the price system in coordinating specialization and division of labor (Yang, 2001).

Actually, most formal models of "domestic firm" are rudimentary, and some other models with "real world features of corporations" fail to be accepted by the theoretical mainstream due to the lack of precision and rigor (Hart, 1996). Therefore, we cannot obtain enough help from the existing theories of "firm" when we try to explore the emergence of technology entrepreneur. We will turn to a new classical framework.

There are two alternative ways to coordinate production: one is the external market, which is decentralized and achieves resources allocation through the price mechanism; the other is the internal organization of firm, which suppresses the mechanism with central planning and direct control (Coase, 1937). Cheung (1983) interprets Coase's firm theory in the light of contractual arrangements.<sup>3</sup> Cheung argues that "we do not exactly know what the firm is—nor is it vital to know. The word 'firm' is simply a shorthand description of a way to organize activities under contractual arrangements that differ from those of ordinary product markets." He claims that "The growth of a firm may then be viewed as the replacement of a product market by a factor market, resulting in a saving in transaction costs."

Yang and Ng (1995) and Yang (2000) refine Coase theory of firm. In Yang and Ng's model and Yang's model, one intermediate good is needed in the production of final goods. The intermediate good can be produced inside a firm, or it can be purchased from the market outside. Yang and Ng interpret Cheung's argument of the replacement of product market with labor market as a necessary condition for the existence of firm.

The rest of the paper is organized as follows: In section 2, the model with one intermediate good is introduced and two types of the production of the final goods are assumed. In section 3, all the possible market structures are analyzed and their corner equilibrium solutions are derived. In section 4, the emergence of technology entrepreneur is presented and we provide a brief conclusion in section 5.

## The Model

Let us consider an economy with  $M_1$  *ex ante* identical consumer-producers. There are one consumer good  $y$  and one intermediate good  $x$  (we can interpret  $x$  as technology). The amount self-provided of the consumer good and intermediate good are  $y$  and  $x$  respectively. The amount of the two goods sold to the market are  $y^s$  and  $x^s$  respectively. The amount of the two goods purchased from the market are  $y^d$  and  $x^d$  respectively.

An individual's production function for the final good is

$$y + y^s = \left[ (x + t_x x^d) l_y \right]^a, \quad 0.5 < a < 1 \quad 4$$

where  $t_x$  is the transaction efficiency coefficient of the intermediate good market.  $1 - t_x$  is transaction cost coefficient,<sup>5</sup> which "disappears" in transaction.  $t_x x^d$  is the net amount an individual receives from the purchase of this intermediate good.  $x + t_x x^d$  is the total amount of the intermediate good employed in the production of the final good  $y$ .  $l_y$  is the labor share in producing the final good and  $y + y^s$  is the output of this final good. A person's labor share in producing a good is defined as his level of specialization in producing this good.

A production function is said to display economies of specialization if the total factor productivity of a good increases with a person's level of specialization in producing the good (Yang, 2001). The total factor used to produce the final good  $y$  is  $(x^d)^{0.5} (r l_y)^{0.5}$  and the total factor productivity is  $y^s / \left( (x^d)^{0.5} (r l_y)^{0.5} \right) = (x^d r l_y)^{a-0.5}$  which increases with  $l_y$  if  $a > 0.5$ . The parameter  $a$  is the indicator of the degree of economies of specialization in producing the final good.

The production function of the intermediate good is

$$x + x^s = (l_x)^b, \quad b > 1$$

where  $x + x^s$  is the output of the intermediate good and  $l_x$  is a person's level of specialization in producing the intermediate good. If  $b > 1$ , the production function displays economies of specialization. Similarly, the parameter  $b$  represents the degree of economies of specialization in producing the intermediate good.

We assume that each individual is endowed with one unit of labor, so we have

$$l_x + l_y = 1, \quad 0 \leq l_i \leq 1, \quad i = x, y$$

The utility function of each individual is given by

$$U = y + k y^d$$

where the amount self-provided of the final good is  $y$ .  $y^d$  is the amount purchased from the final good market and  $k$  is the transaction efficiency coefficient of the final good market.

Finally, personal budget constraint for each individual is

$$P_x x^d + P_y y^d = P_x x^s + P_y y^s$$

where  $P_y$  is the price of the final good and  $P_x$  is the price of the intermediate good.

Free entry for all individuals into any sectors and a very large  $M_1$  are assumed. Free entry implies every individual can choose to become a technology producer or become a worker, who transforms the technology into the final good.



## Market Structure and Corner Equilibrium

### Technology Producer's Possible Choices

Each individual makes a decision about which goods to produce and on his demand for and supply of any traded good to maximize his utility. A given structure of production and trade activities for any individual is defined as a configuration. There are  $2^6 = 64$  combinations of zero and non-zero values of  $x, x^s, x^d, y, y^s, y^d$  and therefore 64 possible configurations. The combination of the configurations of the  $M_1$  individuals in the economy is defined as a market structure. A feasible market structure is composed of a set of choices of configurations by individuals such that the market clearing conditions can be maintained. Each market structure has a corner equilibrium solution. Corner equilibrium is defined as a set of relative numbers of individuals choosing different configurations such that (1) market clearing conditions can be maintained; (2) each individual maximizes his utility at a given prices for a given market structure.

Using Kuhn-Tucker sufficiency theorem, we can rule out interior solutions and many corner solutions from the list of candidates for optimal decision. Yang and Ng (1993) and Wen (1998) used Kuhn-Tucker conditions to establish following lemma (See also Yao, 2002 and Diamantaras and Gilles, 2004 for the results under more general conditions).

**Lemma:** *An individual sells at most one good and does not buy and self-provide the same good. he self-provides the consumer good if he sells it. If  $b > 1$  and  $a \in (0.5, 1)$ , he does not self-provide the intermediate good unless he produces the final good.*

After having considered the Lemma, we can identify four possible structures: autarky, technology transferor, technology specialist and technology entrepreneur. Structure of autarky and structure of technology transferor are non-firm mode of production, as shown in Fig. 1 and Fig. 2. Structure of technology specialist and structure of technology entrepreneur are firm mode of production as shown in Fig. 3 and Fig. 4.

In the structure of autarky,<sup>6</sup> Each individual spends some time to self-provide intermediate good  $x$ , and then he uses his remaining time and  $x$  produced to produce the final good. In the structure of technology transferor, markets for the intermediate good  $x$  and the final good emerge. Some individuals are specialized in producing  $x$  and the others are specialized in producing the final good. In the structure of technology specialist, worker is the owner of a firm and technology producers are employed to produce technology in the firm. And the technology producers hired by firms are called technology specialists. In the structure of technology entrepreneur, technology producer is the owner of a firm and workers are employed to transform the technology into the final good. So this technology producer as the owner of a firm is called technology entrepreneur.

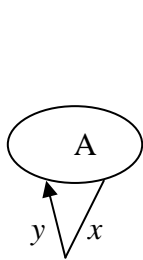


FIG. 1  
AUTARKY

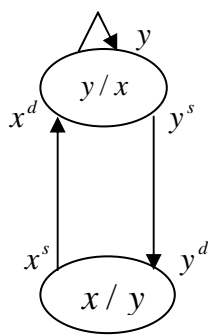


FIG. 2  
TECHNOLOGY  
TRANSFEROR

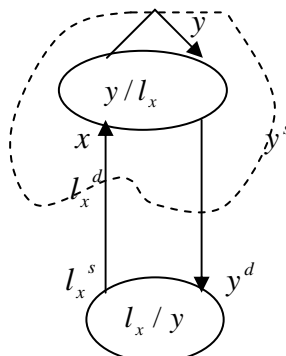


FIG. 3  
TECHNOLOGY  
SPECIALIST

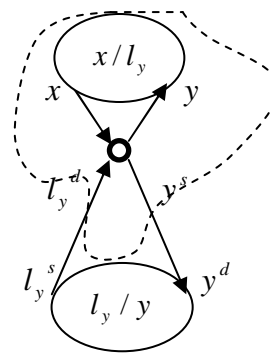


FIG. 4  
TECHNOLOGY  
ENTREPRENEUR

### Technology Producer's Utility from Different Choices

In the structure of technology entrepreneur as shown in Fig. 4, technology producer is the owner, who produces the technology and hires workers from labor market to produce the final good. He claims the residual of the contracts between him and the employees. This is denoted by configuration  $(x/l_y)$ . Let  $(l_y/y)$  denote a configuration, in which an individual sells his labor, becomes a worker, and buys the final good. In Fig. 4, ovals represent configurations, and lines represent the flow of labor and the final good. Dotted circle represents the institution of firm.

In configuration  $(x/l_y)$ , technology entrepreneur's utility can be represented by

$$\begin{aligned} \text{Max } & U_x = Y \\ \text{s. t. } & Y + Y^s = Ny^s \quad (\text{total output of the firm}) \\ & y^s = (x^d r l_y)^a, l_y = 1 \quad (\text{production function of every employee}) \\ & x^d = x^s / N \quad (\text{intermediate good used by every employee}) \\ & x^s = (l_x)^a, l_x = 1 \quad (\text{owner's production function}) \\ & P_y Y^s = w l_y N \quad (\text{budget constraint}) \end{aligned}$$

where  $Y$  is the residual return claimed by the owner,  $Y^s$  is the total amount of the final good sold to the employees.  $N$  is the number of the workers hired.  $y^s$  is the output of the final good produced by each employee,  $l_y$  is employee's level of specialization in producing the final good.  $x^d$  is the intermediate good used by each employee,  $x^s$  is the total amount of the intermediate good produced by the owner.  $w$  is the wage rate.  $r$  is the transaction efficiency coefficient of the labor market for workers.

In configuration  $(l_y/y)$ , employee's utility can be represented by

$$\begin{aligned} \text{Max } & U_y = k y^d \\ \text{s. t. } & P_y y^d = w l_y, l_y = 1 \quad (\text{budget constraint}) \end{aligned}$$

where  $y^d$  is the amount of the final good needed by each employee.  $k$  is the transaction efficiency of the final good market.

In corner equilibrium, the owner's utility should be equal to employees' utility due to the assumption of ex ante identical consumer-producers. Solving the corner equilibrium solution, we can obtain the technology entrepreneur's utility:

$$U_{TE} = a^a (1-a)^{1-a} r^a k^{1-a}$$

We can do the similar analyses to obtain technology producer's utilities from the other three choices. They are summarized in Table 1.

TABLE 1: TECHNOLOGY PRODUCER'S REAL INCOMES FROM DIFFERENT CHOICES

Choices	Technology producer's real incomes	Meaning of the coefficients
Autarky (A)	$U_A = b^{ab} (1+b)^{-a(1+b)}$	
Technology transferor (TT)	$U_{TT} = a^a (1-a)^{1-a} t^a k^a$	$t$ : transaction efficiency of technology market $k$ : transaction efficiency of final good market
Technology specialist (TS)	$U_{TS} = a^a (1-a)^{1-a} (r_{ts}^a)^a k^a$	$r_{ts}$ : transaction efficiency of market for technology specialists
Technology entrepreneur (TE)	$U_{TE} = a^a (1-a)^{1-a} r_w^a k^{1-a}$	$r_w$ : transaction efficiency of market for workers

## The Emergence of Technology Entrepreneur

From above analyses, we can find that standard marginal analysis of interior solution does not work and corner solutions are allowed in our model. Therefore, we need a three-step inframarginal analysis. In the first step a list of candidates for an individual's optimum decision are identified by excluding all inefficient interior and corner solutions. In the second step all the solutions for possible corner structures will be derived. The third step is total cost-benefit analysis. After we have obtained the corner equilibrium solutions for four market structures, we can find the relevant conditions under which technology entrepreneur will emerge.

In all the four corner structures, the fourth structure as shown in Fig. 4 is the structures of technology entrepreneur. If it is the general equilibrium structure, we can say that technology entrepreneur emerges. Now, let us look at the conditions for the emergence of technology entrepreneur.

The reason for the structure of technology entrepreneur to be the general equilibrium structure is that it can generate the highest per capita real income for all the individuals in the economy. We have  $U_{TE} > U_i$ ,  $i = A, TT, TS$ .

If  $U_{TE} > U_A$ , we have  $r_w k^{a-1(1-a)} > a^{-1} (1-a)^{-(1-a)a^{-1}} b(1+b)^{-(1+b)}$ . This inequality shows that the structure of technology entrepreneur can generate more income than the structure of autarky when the transaction efficiency of the labor market for workers and the efficiency of the final good market are high enough. Although there are no transaction costs in the structure of autarky, technology entrepreneur still emerge if the economy of specialization can overweigh the transaction costs incurred in the structure of technology entrepreneur.

If  $U_{TE} > U_{TT}$ , we have  $r_w > tk^{2-a^{-1}}$ . If this inequality is satisfied, the structure of technology entrepreneur can generate more income than the structure of technology transferor. Compared with  $t$ , the transaction efficiency of technology market, if  $r_w$ , the transaction efficiency of market for workers is high enough, this inequality will be satisfied. Between these two market structures, efficient labor market for workers is the sufficient condition for the emergence of technology entrepreneur.

If  $U_{TE} > U_{TS}$ , we have  $r_w > r_{ts}^a k^{2-a^{-1}}$ . This inequality indicates that when the labor market for workers is very efficient, the structure of technology entrepreneur can generate more income than the structure of technology specialist, and technology entrepreneur will emerge. Since the labor market for workers is relatively more efficient, without doubt, the ideal structure must make full use of this more efficient labor market. Naturally, the structure with the workers as the owners of firms is not the ideal structure.  $r_w > r_{ts}^a k^{2-a^{-1}}$  can also be written as

$r_{ts} < r_w^{a-1} k^{a-2(1-2a)}$ . This inequality shows that when the labor market for technology specialists is not efficient, it is better to avoid measuring the efforts made by technology specialists hired by firms. In this case, the structure of technology entrepreneur will be the ideal structure.

## Conclusion

This paper has refined Coase's ideas about transaction costs. Coase claims that the institution of the firm can be used to reduce transaction costs. This claim should be interpreted from the perspective of marginal analysis of growth or shrink of the firm. Compared with the structures of Autarky and the structure of technology transferor, the structure of technology specialist and the structure of technology entrepreneur have more market transactions and entail more transaction costs. The institution of firm will emerge as long as increased economies of division of labor outweigh the increased transaction costs.

The basic conditions for the emergence of technology entrepreneur is that the transaction efficiency of the good market for technology and the transaction efficiency of the labor market for technology specialists are not sufficiently high, so that the ideal structure should avoid the direct pricing and trading of the technology, and avoid using of the low efficient labor market for technology specialists. This condition implies that technology specialist should be the owner of firm. The evolution of economic organization from the structure of autarky to the structure of technology transferor, to the structure of technology specialist and finally to the structure of technology entrepreneur implies that our economy grows discontinuously.

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## End Notes

- <sup>1</sup> Please see Bull I., Thomas H. and Willard G. (1995) for the development and comments on the theoretical framework of entrepreneurship and Glancey K. S. and Mcquaid R. W. (2000) for entrepreneurial economics.
- <sup>2</sup> Yang and Ng (1993) refer to Marshall's neoclassical economics as "economics of resource allocation".
- <sup>3</sup> The main objective of both Coase's paper "The Nature of the Firm" and Cheung's paper "The Contractual Nature of the Firm" is to explain the reason of why the institution of the firm exists.
- <sup>4</sup> If  $a > 1$ , intuitively, the owner will hire all the individuals in the economy. This is not realistic.
- <sup>5</sup> We do not explicitly model the source of the transaction costs. Here, iceberg type transaction costs are assumed. Yang and Ng (1995) point out that the exogeneity of transaction costs allow us to capture in a simple way the main ideas which seem to have emerged from the transaction cost literature, namely that transaction costs exist and that they may differ across goods and factors and across institutional structures for production and exchange. The transaction cost includes four types of costs: the brokerage cost of finding a correct price; the cost of defining the obligations of parties in a contract; the risk of scheduling and related input costs; and the taxes paid on exchange transaction in a market (Rugman, 1980). Transaction efficiency depends on transaction technology, institution arrangements, urbanization of a country and etc.
- <sup>6</sup> A criticism by Auerbach (1988) focuses on the disjointed way in which Coase and his followers see firms and markets, in particular the presupposition of the existence of markets and failure to see the role of firms in the making of markets. Therefore, it is necessary to begin with the studies of market structures from autarky.

# Usage of Time of an Entrepreneur

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## Abstract

Does the actual usage of time of an entrepreneur coincide with the wishes (theoretical) usage of time? What is the length of a workday? The workday was divided into eight elements and 44 statements: Planning and managing company operations (4 statements); Development of customer- and market-oriented functions (5); Development of human resources (5); Development of financial administration (9); Personal Development (6); Performing different roles (4), Operating with people (6) and Operating in different places and/or with equipment (5). Is there any difference based on age, gender, education or parenthood? How much time is spent doing house work, taking care of children, studying, and sleeping? The 656 owner-entrepreneurs examined are dissatisfied with their usage of time – most of their time was spent by “Performing different roles” instead of “Planning and managing company operations”. The results show significant differences based on gender and education. The respondents work 11 hours a day and want more time for housework and leisure.

## Introduction

Values, skills and usage of time are important factors of wellbeing of entrepreneurs. Values demand prioritization of one's actions, which show in usage of time. It is important for the quality of life of entrepreneurs to feel to be in control of their lives. It means that they have sufficient time for the important tasks and a balance between what they want or aim to do and what they actually do. The right usage of time gives the feeling of being in control, satisfaction, motivation and willingness to develop. If entrepreneurs can manage their work time properly and in a way they appreciate, the company will progress and entrepreneurs will also inspire people around them, as well as leading to improved self-confidence and better mental capacity.

Societal success depends on the success of its companies; therefore it is important to study entrepreneurial usage of time. This increases the awareness of the needs and wishes of entrepreneurs and their readiness to be leaders. Balancing usage of time increases the chances of leading a healthy life mentally and physically and the ability to work well. Therefore, it makes sense to research entrepreneurial usage of time. Numerous studies have examined entrepreneurial work content, but fewer have studied actual and theoretical entrepreneurial usage of time. This study aims to chart and analyze the judgments of entrepreneurs regarding their own usage of time – the present and future states.

This paper aims to shed more light on the profile of a Finnish SM entrepreneur and increase the amount of research. The perspective is individual centered, more precisely entrepreneur centered.

## Objects and Questions

There is no consensus concerning the minimum tasks entrepreneurs must do and where to spend time. Even general items concerning many entrepreneurs are difficult to define because of the different demands depending on the branches of activity and environment. In addition, phase of a life cycle and a size of a company (the resources available) place different demands on tasks.

This study focuses on Finnish owner-entrepreneurs, so the survey charted the entrepreneurial tasks based on the “*Demands for the vocational qualification of an entrepreneur*” (Allardt - Asp - Heikkonen - Rautkallio - Vuorinen 1984, 7) Allardt et al state that managing as an entrepreneur one must master certain thematic entities like

planning and managing operations, company and society, entrepreneurship and development as an entrepreneur and financial administration and marketing.

To carry out the study the entrepreneurial thematic entities to manage time have only focused on the eight elements listed below. The contents of the elements (single statements) are shown in Appendix 1.

The examined elements are (44 statements included, see Appendix 1):

1. Planning and managing operations (4)
2. Development of customer- and market-oriented functions (5)
3. Development of human resources (5)
4. Development of financial administration (9)
5. Personal development (6)
6. Usage of time in different roles (interpersonal -, disseminator-, decision-making - and technical roles – 4)
7. Usage of time with different people (other owners of the company, employees, fellow entrepreneurs, customers, people belonging to interest groups, private individuals – 6)
8. Usage of time in different places and with equipment (5)

Both present and future states were examined. Additionally dividing the 24 hours between working, doing housework, taking care of children, studying, and sleeping were studied.

This paper aims to answer the following questions:

1. **How is the workday of an entrepreneur divided between different elements and how one wants it to be divided?** - Differences are based on age, gender, education or parenthood?
2. **How are the 24 hours divided and how one wants them to be divided?**
  - Length of workday?

## Methodology

The study follows the quantitative and descriptive tradition. The data was gathered using a questionnaire sent by e-mail to 3, 253 e-mail addresses. These e-mail addresses of owner-entrepreneurs were provided by two Finnish Company Organizations in two provinces in Finland. 660 owner-entrepreneurs returned the questionnaire of which 656 were accepted, the response rate being 20.2 %. So the sample consists of 656 observations including 163 female and 493 male owner-entrepreneurs. (Entrepreneur Profile See Appendix 2)

The usage of time was examined and analyzed by calculating the means. Explorative Factor analysis was used to test and confirm the statements, and the Mann-Whitney-U test was used for the comparisons. The usage of time (the actual and theoretical) were rated using a four-step scale. Present state: I spend time... *very little* = 1; ...*some* = 2; ... *quite much* = 3; ...*very much* = 4. Theoretical: My usage of time is *OK* = 0. I wish I could spend a *little more* time = +1; ... *moderately more* time = +2; ...*much more* time = +3. There was also a box for comments.

## About the Usage of Time

The contents of the work and tasks of managers and their usage of time have been studied since the 1950s. The study published by Fayol (1925) “*Administration industrielle et generale*” and the study published in the 1930s by Gulick (1937) “*Science, values and public administration*” and perhaps also some of the studies in 1940s resolution /conclusion school could possibly be considered as studies of usage of time. Herbert Simon (1947) found decision-making to be the most critical managerial function. Moreover, Carlson published his first study of usage of time in 1945.

Next are some significant “old” studies from the last millennium, studies of managerial work and usage of time. As a link to the studies of the 1950’s, Carlson’s study “*Executive Behavior*” (1951, reprint 1991) must be mentioned, where the diary method was used for the first time. The study describes the first systematic study ever made of top managers at work. According to Tengblad (2003) it is regarded as a classic. Other studies from the 1950s are Gibb, C. (1954) “*Leadership*” and Guest, R. (1956) “*Of Time and Foreman*”. From the 1960’s significant

researchers include Neustadt (1960), Sloan 1963, Sayles 1964, and Stewart's large study from 1967 and Carlson's follow-up study from 1969. From one of the significant studies from **1970's** the most famous is "*The Nature of Managerial Work*" by Henry Mintzberg written in 1973. His study "*The manager's job: folklore and fact*" in 1975 is also notable. From the **1980's** important studies include Mintzberg (1980), Kotter (1982), Hales (1986), Stewart (1988), and Moss Kanter (1989). From **the 1990's** they include Mintzberg (1991) "*Managerial Work: Forty years later*", Stewart (1991) "*Managing Today and Tomorrow*", and Panko (1992) "*Managerial Communication Patterns*". Also Therese Macan's study focused on usage of time, Routamaa & Hakuli & Ryhänen (1992) examined the tasks of managers. Other studies on usage of time and work include Adam (1995), Stewart (1996), and Kotter, John P. "*What Effective General Managers Really Do*" (1999, first published 1982).

The comparison of studies is not easy while in some studies the (1) Top Managers (CEO), that is the executive managers of multinational companies, (2) Middle Manager, (3) Lower Managers, (4) Division Managers, and (5) Professionals have been differentiated and not in some studies. Additionally, as mentioned earlier, the phase of the life cycle and the size of a company (the resources available) place different demands on tasks, as well as the branch of activity and environment.

How people organize time can be examined in several ways. Firstly, one can ask people about their usage of time, life, interpretations of the past and visions of the future. Secondly, one can study facts made by people and thirdly, one can observe people and their behavior. The data of studies of managerial usage of time usually comprise questionnaires, interviews, notes from usage of time diaries, and observations.

### **Comparison of Seven International Studies of Managerial Usage of Time**

There follows a description of managerial usage of time and tasks based on seven significant studies: **1.** and **2.** Tengblad, Stefan (2002) "*Time and space in managerial work*" and Carlson, Sune (1951) "*Executive Behavior*"; **3.** & **4.** Mintzberg, Henry (1973 and 1980) "*The Nature of Managerial Work*" and Mintzberg, Henry (1975) "*The manager's job: folklore and fact*"; **5.** Farmer, P.L. (1978) "*Managerial Work and the Growth and Development of the Firm*" **6.** Kotter, John P. (1982 and 1999) "*What Effective General Managers Really Do*"; **7.** Stewart, Rosemary (1988) "*Managers and their jobs*".

(**1and 2**) Stefan Tengblad (2002) carried out his study of usage of time in 1998 – 1999 using the scope and methods of the investigation similar to those in "*Executive Behavior*" (1951) by Sune Carlson and tried to identify similarities and differences, quantitative as well as qualitative, between the Carlson study and his own. Tengblad's participants were eight Swedish large-scale company managers and Carlson had nine. The workdays examined by Tengblad were 19.9 days, 246 work hours and 218 functions. Two of Tengblad's participants represented metal engineering (three of Carlson's), one forest industry, one utilities, one retailing, two banking and insurance, and one media production (this industry did not exist in 1951 so was not in Carlson's study).

The most striking difference between the two studies concerning the workplace is the big increase in time spent on traveling. The results also indicate that the work time increased from Carlson's 11 hours 42 minutes to Tengblad's 12 hours 22 minutes, working alone in own office decreased and was 3 hour 49 minutes by the time of Tengblad's study (Table 1).



TABLE 1: THE PLACE AND LENGTH OF MANAGERIAL WORKDAYS

	Carlson: average times			Tengblad: typical times	
	time spent	%	range (%)	time spent	%
Office	4.48	41	18 - 52	3.49	31
Elsewhere within company	1.45	15	5 - 32	2.06	17
Within own company	6.34	56	28 - 70	5.55	47
Working at home	0.57	8	1 - 11	0.31	5
Transportation	0.22	3	9 - 27	2.33	21
On visit outside company	3.46	33	6 - 32	2.03	16
Elsewhere outside company	-	-	2 - 22	1.19	10
Total		<b>11.42</b>			<b>12.22</b>

The contemporary managers (Tengblad’s participants) spent most of their time communicating - 7 hours 20 min in personal communicating and much time was also spent in meetings with more than one person (5 hours 45 min). Contemporary managers most often met shareholders and institutional investors, while Carlson’s participants spent their time meeting people belonging to interest groups (like governmental agencies because in the beginning of the 1950s there were many rules and regulations affecting business) and customers. (Tengblad, 2002, 543 – 565)

In the four research weeks, Tengblad’s participants had 105 meetings, of which 78 were internal (in 42 meetings some of the managers were reporting directly to the CEO). In Carlson’s study, there were 176 meetings, of which 127 were internal and 42 were reporting meetings. The number of meetings decreased. Financial affairs took most time, from roles took most time functioning in the dissemination role. According to Carlson’s study, the work time was very fragmented and frequently disturbed by phone calls and visitors, on average the undisturbed work time was only eight minutes while in Tengblad it was 18 minutes. The fragmentation of *time* seems to change over five decades to fragmentation of *space*. The time for personal development was only 4 minutes in Tengblad’s study. (Tengblad, 2002, 543 – 565)

(3.) The third significant study (Mintzberg 1973, article 1975) examined the nature of managerial work, focusing mainly on the (ten) roles. Three of the manager’s roles come directly from his formal authority and involve basic interpersonal relationships (Mintzberg 1975, 54) (TABLE 2)

TABLE 2: THE MANAGER’S ROLES			
↓	Interpersonal roles	Informational roles	Decision-making roles
<b>Formal authority and status</b>	- figurehead	- monitor	- entrepreneur
	- leader	- disseminator	- disturbance handler
	- liaison	- spokesman	- resource allocator
		- negotiator	

The managers’ ten roles are not easily separable, they form a gestalt, an integrated whole. The framework cannot remain intact if any role is taken from it. Mintzberg’s participants spent 40 % of their contact time in the dissemination role and 12 % in the figurehead role attending many ceremonial events. In the study’s conclusions Mintzberg notices that in order to be better managers, they should find systematic ways to share their privileged information, avoid superficiality by paying serious attention to the issues requiring it, take better control of their own

time by delegating and participate in managerial training. (Mintzberg 1975, 60 – 61) Mintzberg's study has been severely criticized (Carroll & Gillen 1987, 39 – 40) and to some extent it has been considered controversial.

(4.) Mintzberg also conducted 1980 a study of the content of managerial work and (condensed) found six characteristic features:

- Great amount of work and unrelenting pace (constant flow of visitors)
- Great number of tasks characterized by brevity, variety, and discontinuity
- Favoring action (dislike reflective activities)
- Favoring verbal communication
- Acting between their organization and contact networks (48 % of contact time with subordinates, 44 % with external contacts, and 7 % with superiors)
- Overburdened with obligations (often the rights and obligations are mixed): often the manager can not decide about his own usage of time (Mintzberg, 1980, 109 – 111)

(5.) Farmer (1978) aimed to ascertain how the size of the company influenced managerial usage of time. He categorized managers as owner-operators, typical entrepreneurs, etc. and found that the smaller the company the more the activities of an entrepreneur concentrate on production and selling. When the company grows the entrepreneur's visits to the factory decrease but the time spent getting information increases.

Managers of smaller companies concentrate less on formal and more for production activities and are in contact with a number of activities and their activities were more short-term than those of the managers of bigger companies. Managers of smaller companies also participated less in official meetings and their external network was significantly more constricted (Farmer, 1978, 5-10).

(6.) Kotter (1999, first published 1982) found the following characteristics of the workday of 15 successful general managers in nine companies:

- They spend most of their time with others, with many people in addition to their direct subordinates and their bosses, in short, disjointed conversations
- The breadth of topics in their discussions is extremely wide and during conversations, managers rarely seem to make "big" decisions and rarely give orders in a traditional sense
- They ask many questions during conversations and attempt to influence others
- Their discussions usually contain a fair amount of joking and often concern topics unrelated to work, and the issue discussed is relatively unimportant to the business or organization
- They often react to others' initiatives; much of the typical manager's day is unplanned
- Managers work long hours

Successful managers had developed agendas made up of loosely connected goals and plans and also developed a network of cooperative relationships. Kotter points out the importance of conversations that look like a waste of time while he found that such conversations prevent burn out and promote long-term competitive advantage. (Kotter, 1999, 145- 159)

(7.) According to Stewart (1988) work hours varied from 35 to 60 hours per week. The managers spent 43 % on unstructured conversations, 36 % on paperwork, 7 % on committees, 6 % on control, 6 % on telephone calls, and 4 % on other social activities. The internal contacts (foremen, subordinates, colleagues) took much more time than external contacts (customers, suppliers, others). Workdays were fragmented and full of interruptions. Long hours burn off, usage of time was at the mercy of other people, and decisions were often superficial.

To sum up the work of entrepreneurs is quite fragmented, with the time taken to concentrate on a single task being often only a matter of minutes. According to many other studies (Fisher, 1992; Hochschild, 1997; Jacobs & Gerson, 1998; Maume & Bellas, 2001; Kvassov, 2002; Tetard, 2002; Brett & Stroh 2003) managers and entrepreneurs (Federation of Finnish Companies, 2005) work about 50- 60 hours per week, which is 10 – 12 hours per workday. The workload is very demanding and the pace is unrelenting, much time is spent on face-to-face communication, discussion topics are in a wider context and often not work-related and the managers ask many questions. A manager functions in different roles (in interpersonal-, disseminator-, and decision-making roles). Managers spent much time in their own office and work unit. Travel and transportation and meetings take up much time.

## One Finnish Study Comparing the Usage of Time of an Entrepreneur to Other Professions

Next a Finnish survey of usage of time of all professions (male and female), and especially examining the usage of time of entrepreneurs (male and female). (Niemi & Pääkkönen 2001)

According to the survey, male farmers have the longest work hours of all professions, and the shortest is female higher employee. Entrepreneurs work 228 hours per year more than other professions, that is, more than 28 eight-hour workdays per year (Table 3, Niemi & Pääkkönen 2001, p. 21).

TABLE 3: ANNUAL WORK HOURS OF DIFFERENT PROFESSIONS

Annual work hours 1999 – 2000 (hours/year)					
<i>Men</i>	<i>Profession</i>	<i>Women</i>	<i>mean</i>		
2.409	farmer	1.722			
1.965	higher employee	1.442			
1.849	lower employee	1.563			
<u>1.904</u>	worker	<u>1.478</u>			
2.032	<i>mean of other professions</i>		1.551		1.792
2.287	entrepreneurs	1.752	2.020		

The data for Table 4 has been taken from the study "Usage of time of working men 1999 – 2000" and from "Usage of time of working women 1999 – 2000" (Niemi & Pääkkönen 2001, pp. 67 and 69). Figures include all seven days of the week.

TABLE 4: USAGE OF TIME OF DIFFERENT PROFESSIONS

USAGE OF TIME 1999 – 2000 Men (women)						
	<b>Farmer</b>	<b>Higher employee</b>	<b>Lower employee</b>	<b>Worker</b>	<b>Entrepreneur</b>	
<b>*Working</b>	6.43 (4.48)	5.54 (4.23)	5.32 (4.45)	5.43 (4.26)	6.38	(5.10)
<b>Housework</b>	2.03 (5.08)	2.26 (3.40)	2.19 (3.38)	2.25 (3.47)	1.58	(3.17)
<b>Personal needs</b>	9.55 (9.44)	10.04 (10.23)	10.22 (10.27)	10.07 (10.29)	10.15	(10.34)
<b>Studying</b>	0.03 (0.00)	0.07 (0.08)	0.07 (0.05)	0.03 (0.04)	0.10	(0.09)
<b>Leisure</b>	5.02 (4.11)	5.22 (5.22)	5.34 (5.00)	5.33 (5.06)	4.49	(4.43)
<b>Miscellaneous</b>	0.14 (0.09)	0.07 (0.04)	0.06 (0.05)	0.09 (0.08)	0.09	(0.07)
<b>Total</b>	<b>24</b>	<b>24</b>	<b>24</b>	<b>24</b>	<b>24</b>	<b>24</b>

\*Working includes commuting; Housework includes household work, maintenance, taking care of children, shopping, and transactions; Personal needs include sleeping (mean of gender 8 h 20 min), eating, get washed and dressed; Studying includes transportation

**Working:** male farmers work the longest (47 h 1 min during the week/seven days) and second longest male entrepreneurs (46 h 26 min/seven days). Female higher employees work the shortest hours (30 h 41 min/seven days) as mentioned earlier. The biggest difference between genders is found among farmers: males work 1 h 55 min longer than females. (See Housework) The difference between entrepreneurs by gender is 1 h 28 min in favor of men.

**Housework:** Female farmers work the longest hours (35 h 56/seven days). Male entrepreneurs spend the least time on housework (14 h 21 min/seven days). The difference between genders is approximately the same in all professions being about 1 h 20 min in favor of women. Female entrepreneurs spend the least time on housework of women in all professions. Taking care of children took 10 min from male and 11 min from female entrepreneurs.

Personal needs: Female entrepreneurs spend the longest time on personal needs 10 h 34 min (→ they spent 8 h 33 min sleeping), female farmers spent the least time (9 h 44 min). Biggest difference between genders is by worker. Male entrepreneur slept 8 h 7 min and female 8 h 33 min which was the most of all professions.

Studying: Hardly any time was spent studying among all professions. Male entrepreneur spent 1 h 10 min/seven days studying and female farmers spent none.

Leisure: Male lower profile employees have the most leisure time (38 h 58 min/seven days) and female farmers the least (29 h 17 min) and female entrepreneur (33 h 1 min) the second least. The biggest difference between genders is by lower employees (3 h 58 min/seven days). The difference by entrepreneurs is 6 minutes in favor of men. (TABLE 4)

Consultants have developed many systems for time management. Their aim is to spend time more effectively. They often include recommendations to make lists of priorities, restrict the number of contacts, etc. According to Kotter (1982) successful managers did not follow these instructions (see earlier).

It has been said that the people, who work independently and who have power, seem to have the biggest problems mastering usage of time. A tremendous amount of self-discipline is needed to effectively spend time because people easily forget plans and begin to do something nice.

## Study Findings-Present and Future States

The median respondent is male, aged 43, married with 2–3 children, ‘O’-level to college-level education and has worked for 12 years as an entrepreneur. The entrepreneur profile is in Appendix 1.

The usage of time was charted according to “Demands for the vocational qualification of an entrepreneur” and it was presumed that entrepreneurs spend their time *Planning and management operations* (4 statements), *Development of customer- and market-oriented functions* (5 statements), *Development of human resources* (5 statements), and *Development of financial administration* (9 statements). The time spent on *personal development* (6), in *different roles* (4), with *different people* (6), and in *different places/ equipment* (5) was also charted.

The respondents were asked to judge their usage of time (present state) using four grades: I spend my work time 1= almost not at all; 2 = some; 3 = moderately much, and 4 = very much. The future state: my usage of time is OK = 0; I would like to spend a little more time =+1; moderately more =+2; much more =+3.

The scale of the future state has been transferred to the same as present state, that is

<u>future</u> state: I would like to spend time	<u>present</u> state: I spend my work time
much more = + 3 → 1	= almost not at all
moderately more = + 2 → 2	= some
a little more = + 1 → 3	= quite much
my usage of time is OK = 0 → 4	= very much

Tables 5 – 12 in Appendix 3 (pp. 15 - 17) show the means and standard deviation (SD) of the present and future states of all eight elements examined.

Planning and managing operations element

Present state. Differences between statements among the *Planning and management operations* element are very small. Time was spent on all statements *quite much*. *Some* time was spent only on Forecasting functions, mapping out risks. Table 5 shows the order of four statements.

Future state. The answers show that most of the extra time the respondents wanted was for ‘Forecasting functions, mapping out risks’ in *Planning and management operations* element corresponding to the Present state. (Table 5, page 15)

Development of Customer and Market-oriented Functions

Present state. The most time was spent on the *Development of customer- and market-oriented functions* element in the statement ‘Interactive, productive salesmanship and customer service’ and the second most on ‘Customer satisfaction’ function. The least time was spent on ‘Interpreting market research and competitor analyses’.

Future state. The least extra time in the *Development of customer- and market-oriented functions* element was for ‘Interpreting market research and competitor analyses’ so it was considered unimportant or felt to be in order.

Respondents wanted to spend most extra time on 'Customer satisfaction'. In 'Free word' they emphasized the meaning of old networks, even those from college days. Some criticized the whole idea of segmenting customers by their profitability. (Table 6, page 16)

#### Development of Human Resources

Present state. The most time was spent on *Development of human resources* elements' statement 'Attending to the wellbeing of the personnel' and second most on 'Enhancement of team spirit'. The least time was spent on 'Using human resources development discussions in personnel management' and the second least on 'Eliminating resistance to change'.

Future state. Most of the desired possible extra time was for 'Attending to the wellbeing of the personnel' and 'Enhancement of team spirit' so the ample time already spent on those was considered insufficient. The least extra time was for 'Eliminating resistance to change'. Probably the resistance to change was not a problem for respondents. The differences between the present and future state are big. In 'Free word', the relationship between work and rest and good taking care of oneself was considered very important and a prerequisite for taking care of other people. Resistance to change was eliminated by careful listening and reasoning. (Table 7, page 16)

#### Development of Financial Administration

Present state. Most time was spent on *Development of financial administration* element in statement 'Working with profitability, liquidity, financial stability, and productivity matters in company operations'. The least time was spent on 'Working with regulations, company forms, company reorganization, and contract regulations' and second least on 'Defining indicators for surveying the business'.

Future state. Respondents wanted to use most extra time on 'Planning, controlling, and directing the company economy'. The present showed that most of the time was already spent on this so it was considered very important. The least extra time was wanted for 'Using the services of accountants, accounting companies, or such when planning, controlling, and directing the company economy'. In "Free word" 'Using ,the services of accountants, accounting companies, or such when planning, controlling, and directing the company economy' was considered important, if one cannot do something or have no time it is better to buy the service. It was also stated that it is easy to analyze but not easy to fulfill or react to analyses. (Table 8, page 16)

#### Personal development

Present state. In *Personal development* most of the time was spent on 'Maintenance of family-/friendship relationships' and the second most on 'Studying the skills needed in work' (like public appearance, communication skills, information technology skills, foreign languages, knowledge of one's own field, analyzing skills). The least time was spent on 'Taking care of affairs connected to confidential post (outside work life)'

Future state. The respondents wanted most extra time for 'Maintenance of family-/friendship relationships' and secondly to 'Physical hobbies'. Least extra time was wanted for 'Taking care of affairs connecting to confidential post (outside work life)'. (Table 9, pages 17)

#### Usage of time in different roles

Present state. Most of the time spent on *in different roles* went on actually completing the production/services, that is functioning in 'Technical role'. Most respondents were small entrepreneurs so the input of the owner is essential. The least time was spent on 'Dissemination role'.

Future state. Most extra time was wanted for 'Dissemination role' and least for 'Technical role'. (Table 10, page 17)

#### Usage of time with different people

Present state. Most time in the *Usage of time with different people* element was spent on 'Customers' and second most of 'Employees'. The least time was spent on 'the other owners of company (which perhaps do not even exist) and second least on 'Fellow entrepreneurs'.

Future state. Most of the extra time wanted was for 'Customers' and surprisingly the second was for 'Private individuals'. The least extra time was spent on 'Other owners of the company and the second least on 'Employees'. (Table 11, page 17)

*Usage of time in different places/equipment*

**Present state.** When charting the *Usage of time in different places/equipment*, most of the work time occurs in ‘Own office’ and the second most ‘On the telephone’. The least is for ‘Lunch hour’ and the second least ‘Transportation’.

**Future state.** The respondents wanted most extra time firstly for ‘Own office’ and secondly for ‘Handling emails’. The least extra time was wanted for ‘Lunch’ (Table 12, page 17).

Table 13 deals with the data of the means of present and future states, the numeral differences between them, the mean of the means, orders of present and future states of the eight elements for spending time. (TABLE 13)

TABLE 13: ORDER OF FUTURE STATES AND MEANS VS. ORDER OF PRESENT STATES AND MEANS

n = 656

	Order	Future state	Present state	Order	Difference
Planning and managing operations	1.	2.96	2.48	<u>2.</u>	0.48
Customer- and market-oriented fu	2.	3.00	2.33	<u>3.</u>	0.67
Personal development	3.	3.03	2.13	7.	0.90
Financial administration	4.	3.15	2.21	5.	0.94
Human resources	5.	3.23	2.09	8.	1.14
Different roles	6.	3.34	2.52	<u>1.</u>	0.82
Different people	7.	3.39	2.26	4.	1.13
Different places/equipment	8.	3.69	2.19	6.	<b>1.50</b>
Mean of means		<b>3.22</b>	<b>2.28</b>		0.94

According to respondents most of their time should be spent on *Planning and managing operations* but they actually spent second most time on it, – so the actual usage of time and wishes are almost balanced (difference of one place). The same situation is in the *Customer and market-oriented function* and *Financial administration* elements, which also have a difference of one place. The third important function on which time was spent (future state) was the *Personal development* element. According to actual usage it was only in seventh place, a difference of four places. The usage of time does not correspond to the wishes in the *Personal development* element. The fifth important function how to spend time (future state) was the *Human resources* element. According to actual usage it was in eighth place, a difference of three places. The usage of time does not correspond to the wishes in *Human resources* element either. The biggest difference in orders is, however, in the *Different roles* element, five places (future state sixth place, present state first place). The respondents spend a great deal more time than they would wish on the *Different roles* element. The situation is the same in the *Different people* element, a difference of three places and *Different places/equipment* element, a difference of two places. In both elements the respondents spent more time than they would like. (TABLE 13)

To sum up, in (present state) most of time was spent on ‘Customers’ (*Different people* element), ‘In office’ (*Different places* –element) and in ‘Interactive, productive salesmanship and customer service’ (*Customer- and market-oriented functions* element). In future state, respondents would like to use most of their time on ‘Maintenance of family-/friendship relations, the second most ‘Physical hobbies’ and third most on ‘Taking care of affairs connecting to confidential post (in work life)’ all three belonging to the *Personal development* element.

## The Inner Comparison of Data: Influence of Age, Gender, Education and Parenthood

Is the usage of time different (present and future states) based on different groups? It will be analyzed comparing the data with Mann-Whitney-U-test. The focus is on the influence of age, gender, education and parenthood on eight elements of usage of time. Only the statistically significant differences  $p < 0.05$  will be mentioned.

### The Inner Comparison of Data (Age, Gender, Education and Parenthood) - Present state: Age

The respondents were categorized based on age into four groups: Group 1. = 53 years old or older ( $n=53$ ); group 2. = 43 – 52 years ( $n=237$ ); group 3. = 33 – 42 years ( $n=246$ ), and group 4. = 32 years or younger ( $n= 120$ ). The comparison is between the oldest (53) and youngest (120) respondents. The only significant difference ( $p=.007$ ) was ‘Mental hobbies’ (*Personal development*) in favor of the oldest respondents.

### Gender

Female 163 and male 493  $n= 656$ . A significant difference was found in 14 out of 44 statements; 11 statements in favor of women and 3 in favor of men. (Table 14)

TABLE 14: DIFFERENCES IN USAGE OF TIME: INFLUENCE OF GENDER.

Usage of time	no signif.	statistically significant difference $p < 0.05$
<i>Planning and managing company operation</i>	X	
<i>Development of customer- and market-oriented functions</i>		Interactive, productive salesmanship... (f+) * Customer satisfaction (f+)
<i>Development of human resources</i>	X	
<i>Development of financial administration</i>		Pension, accident and unemployment ins... (f+)
<i>Personal development</i>		Studying the skills needed in work (f+) Mental hobbies (f+) Maintenance of family-/friendship relation.. (f+)
<i>Different roles</i>		Dissemination role (f+) Technical role (f+)
<i>Different people</i>		Employees (f+) Customers (m+)
<i>Different places/equipment</i>		Office (f+); Dealing with email (f+); Lunch (m+); Transportation (m+)

\* f+ in favor of women, m+ in favor of men

Only the *Planning and managing operations* and *Human resources* elements had no significant differences influenced by gender Table 14.

### Education

Does education influence the actual usage of time? The respondents were categorized into four groups: group 1. = no degree or vocational; group 2= college-level training or O-level; group 3.= lower academic, and group 4.= higher academic degree. 94 respondents were in group 1, 294 in group 2, group 100 in group 3, and 61 in group 4, with 107 unaccounted for. In a comparison of groups 2 and 4, the only significant difference ( $p=.016$ ) was in favor of group 4 ‘Other owners of the company’ (*Different people* element).

### Parenthood

Does parenthood influence the actual usage of time? 79 of the 605 respondents had no children and 526 had one or more children. No statistically significant differences were found.

### The Inner Comparison of Data (Age, Gender, Education and Parenthood) -Future State:

#### Age

Comparison is between oldest (53) and youngest (120) respondents. No statistically significant differences.

#### Gender

Comparison between 163 female and 493 male respondents showed significant differences in favor of women were found in 10 statements, none in favor of men. Women would like to have extra time significantly more than men in three statements belonging to *Human resources*. Women are more people-oriented so this result was predictable like

the result that women also wanted to spend extra time in five statements belonging to *Different people* element. Women also wanted to be able to use significantly more time on ‘Taking care of affairs connecting to confidential post (outside work life)’ (*Personal development* element) and handling in ‘Interpersonal role’ (*Different roles* element).

#### Education

Comparison between groups 2 and 4 showed that differences in 17 statements were all in favor of respondents having a higher academic degree. See Table 15.

TABLE 15: DIFFERENCES IN USAGE OF TIME: INFLUENCE OF EDUCATION

Usage of time	No Significance	statistically significant difference $p < 0.05$
<i>Planning and managing company operation</i>		Follow transactions, critical evaluation of state Planning, developing production/services Executing plans, using org. and manage. skills Forecasting functions, mapping out risks
<i>Development of customer- and market-oriented functions</i>		Segmenting customers by profitability Customer satisfaction Interpreting market research, competit analyses
<i>Development of human resources</i>		Enhancement of team spirit Eliminating resistance to change Attending to the wellbeing of the personnel
<i>Development of financial administration</i>		Planning, controlling, directing economy Profitability, liquidity, financial stability.... Profit + loss accounts, balance sheets, budgets Interpret annual accounts, reports, and key f... Using accountants, when planning, controlling? Defining indicators for surveying the business Accounting and taxation
<i>Personal development</i>	X	
<i>Different roles</i>	X	
<i>Different people</i>	X	
<i>Different places/equipment</i>	X	

#### Parenthood

605 parents were with children and 79 without. The only significant difference ( $p = .040$ ) was working in ‘Office’ (*Different places/equipment* element) in favor of parents. Dividing 24 hours of day and night on work, making housework, and taking care of children, studying, having free time and sleeping show present and future states as well as the length of workday.

#### Work (including transportation) n= 310.

The work time spent on work was based on workdays (five days). Niemi & Pääkkönen, 2002 study used seven days. The mean time spent on work (present state) is 11 hours, median 10 hours; 130 respondents spent 10 hours and 80 12 hours. The future state part got only 30 answers. Few answers do not provide reliable information.

#### Housework (Including Cooking, Cleaning, Repairs, Maintenance, Gardening, Paying Bills, etc.) n=305.

The mean time spent on housework (present state) is 1.7 and the median 2 hours, but 125 respondents (41 %) spent 2 hours and 116 (39 %) 1 hour. Future state n= 267. 118 (44 %) respondents wanted to spend *moderately more* and 107 (40 %) a *little more* time on housework.

#### Taking Care of Children (Including Transportation) n= 218

Mean time spent taking care of children (present state) is 1.1 and median 1 hour, but 85 (36 %) respondents spent no time taking care of children. Future state n= 218. 85 (39 %) respondents were satisfied with time spent taking



care of children, 70 (32 %) wished to be able to use a *little more*, 47 (22 %) *moderately more* and 16 (7 %) *much more* time for taking care of children.

**Studying (Including Transportation) n = 217**

The mean and median time spent studying is 1 hour. 69 (32%) respondents spent no time, 102 (47 %) 1 hour, 35 (21 %) two hours, 5 (2 %) three hours and 2 even six hours a day. Future state n= 197. 89 (45 %) respondents wished to spend a *little more*, 69 (35 %) were satisfied, 34 (17 %) wished to spend *moderately more* and 5 (3 %) *much more* time studying.

**Leisure, n=300**

Both mean and median for leisure was 3 hours. 76 (25 %) respondents had two hours, 68 (23 %) three, 46 (15 %) four, 45 (15 %) one, 31 (10 %) had five, 12 (4 %) six and 12 (4 %) even seven hours leisure. Future state n= 186. 74 (40 %) wanted *moderately more*, 63 (34 %) *much more* and 43 (23 %) a *little more* free-time. 6 (3 %) of respondents were satisfied with their leisure.

**Sleeping, n= 307**

Mean is 6.9 and median 7 hours for sleeping. 133 (43 %) reported sleeping eight hours, 84 (27 %) seven, 44 (15 %) six, 14 (5 %) nine and 10 (3 %) only one hour. 11 respondents reported not sleeping at all. Without those that did not sleep the mean would be 8.6 hours and median 8 hours.

Future State n=20

So few answers did not provided reliable information.

To sum up, the day and night of the median respondents is as follows: 10 hours for work, 2 housework, 1 taking care of children, 1 studying, 3 leisure and sleep 7 hours.

According to the means the day and night are spent as follows:

Work (incl. transportation)	11.00
Housework (incl. cooking, cleaning, maintenance, gardening, paying bills)	1.42
Taking care of children (incl. transportation)	1.06
Studying (incl. transportation)	1.00
Leisure	3.00
Sleeping	6.52
Total	24.00

Present state. This part of the study attempts to give a picture of an actual workday of an entrepreneur. Converted to weekly work hours (according to means) work hours will be 55 hours (according to medians 50 hours). According to the earlier study of Niemi & Pääkkönen, 2001, entrepreneurs (mean of male and female) worked 5 h 54 min/seven days, converted to 5 days' weekly hours it would be 41 h 18 min. So the entrepreneurs in this study have about a 2 hour 43 min longer workday ( $11 - 8.17 = 2.43$ ) the respondents of this study spent 55 min less time for housework ( $2.37 - 1.42 = 55$  min), 32 min less ( $1.38 - 1.06 = 32$ ) for taking care of children and 3 min less ( $1.03 - 1 = 3$  min) for studying, 1 hour 46 min ( $4.46 - 3 = 1.46$ ) less for leisure, and 1 h 28 min less ( $8.20 - 6.52 = 1.28$ ) for sleeping

Future state. Only a few respondents expressed their wishes concerning the amount of work. Evidently they are content with the amount of time spent working. 118 (44 %) respondents wanted *moderately more* time for housework (n=267) and 107 (40 %) a *little more* time. 74 (40 %) (n= 186) respondents wanted *moderately more* for leisure, 63 (34 %) *much more*, and 43 (23 %) a *little more* leisure. Six entrepreneurs (3 %) were content with the amount of leisure.

**Conclusions**

This paper aimed at shedding more light on the profile of a Finnish SM entrepreneur and increasing the amount of research by emphasizing the themes and elements which become evident as usage of time. This paper aims at answering the following questions:

- 1. How does the workday of an entrepreneur divide between different elements and how does one want it to divide? As a sub question: Are there any differences based on age, gender, education or parenthood?

- 2. How are the 24 hours divided and how one wants them to be divided? As a sub question: What is a length of the workday?

In answer to the first question it can be seen that according to their own opinions the respondents spend most of their time handling and functioning in *different roles* and of the roles the 'technical role' was emphasized. Entrepreneurs must spend plenty of time actually working (for instance in manufacturing or selling). This is because the responding companies are small in size. According to Mintzberg's (1982) research results, the managers in the smaller companies spend their time more on manufacturing. The decision-making role was also emphasized. Particularly in small companies, the entrepreneur is often the only decision maker. The second biggest time consumer was the *Planning and managing operations* element, again due to the small size of the companies. In Tengblad, 2002 most of the time was spent on financial and administrative affairs and the dissemination role.) The least time in this study was spent on *Human resources* and the second least on functioning in the *Personal development* element. Evidently these two are elements where time can be most easily deducted without immediately disturbing the normal functions and operations of a company. Most of the time was spent equally on single statements: 'With customers', 'Office', 'Selling/customer service'.

SM entrepreneurs are closer to their customers than the managers of big companies. But the amount of time working in the office is about the same as in the other studies. Most extra time was wanted for the *Planning and managing operations* element. This understandably is very important for the company and also one that entrepreneur can not delegate. Time is very easily spent on routines, but for planning one must deliberately find time and allocate more than just a few minutes. The second most extra time was wanted for work in the *Development of customer- and market-oriented function*. In a small company the customer cannot be forgotten even for a moment. Entrepreneurs wanted to spend least time on *Different places/equipment*. The difference between the present and future states was greatest in this element. Eating and transportation take time, which was a worry. According to other studies these obligatory breaks are important and entrepreneurs ought to try to relax and enjoy these breaks worrying just uses up energy and creates negativity. The second least extra time respondents wished to have to spend was on *Different people*. According to public discussion managers and entrepreneurs must always have their door open to employees to come, but this study shows that entrepreneurs do not want to spend more time with their employees (future state: the eight last place). The 'Maintenance of family-/friendship relationships', 'Physical hobbies', and 'Taking care of affairs connecting to confidential post (work)' all in the *Personal development* element were emphasized and at the top of the list for extra time. Additionally, 'Mental hobbies' work was emphasized. The most important value (Valjakka, 2005 "Life values and company work"... ) of these very same entrepreneurs was 'The family, its safety and taking care of family members', so it is evident they would like to have more time to spend with the family. Also the 'Physical state' of these respondents (Valjakka, 2006 "Is Modesty attractive?") had the mean of 2.63 which meant *hardly well* (the lowest figures in its category). A good physical state also helps in mental pressures and, on the other hand, Finnish society places a high value on good physical condition.

To answer to the question: 'Are there any differences based on age, gender, education or parenthood concerning usage of time, in both the present and future state?' it can be seen that the influence of age is insignificant, at least compared to that of gender and education. The only statistically significant difference (present state) was in 'Mental hobbies' where the oldest respondents spent more time ( $p=.007$ ).

Gender, on the other hand, had a lot of influence. In the present state women spent more time on three statements belonging to the *Personal development* element. These were 'Studying the skills needed in work', 'Mental hobbies', and 'Maintenance of family-/friendship relationships'. Additionally more of women's time was spent on two of the statements in *Development of customer- and market-oriented functions*: 'Interactive, productive salesmanship and customer service' and 'Customer satisfaction'. Additionally women spent more time on four other statements. Male respondents spent more time than women on 'Customers', 'Lunch', and 'Transportation'. See Table 14 on page 9.

Gender. Future state. In the summary of 44 statements examined, women wanted extra time in ten statements, men in none. What does this say about women? Respond the usage of time of women worse their wishes than men's? Are women slow and ineffective workers compared to men? Or do women have a higher standard concerning their performance? Or do women have lower self-esteem than men?

Parenthood, or actually non-parenthood only influenced work in 'Office'; non-parents wanted to work significantly more in their own office than parents.

The influence of education (present state) can be seen in the statement 'Other owners of the company' belonging to *Different people* –element. The most highly educated spent significantly more time with other owners than those having college-level education. In the future state, education significantly influenced 17 statements in favor of those having a higher academic degree. See Table 15 on page 10. Higher education seems to add to the feeling of inadequate skills especially in financial affairs. The old Finnish proverb (Mikä tietoa lisää, se tuskaa lisää) "What adds knowledge, adds distress" seems to be true with regard to the results of this study concerning education. Or those having higher education have a higher standard concerning their performance.

In answer to the question: 'How are the 24 hours divided and how one want them to be divided?', the division is as follows: work takes 11 hours, housework more than one and a half hours, taking care of children about one hour, studying one hour, leisure three hours and sleeping almost seven hours. The entrepreneurs in this study clearly spend more time working than other professions, excluding male farmers (Niemi & Pääkkönen, 2001). According to several studies concerning usage of time, the length of the workday is 11 hours, so the evidence of this study supports the result of other studies. The respondents were not satisfied with the division of the 24 hours, wanting more time for housework and leisure.

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Contact author for the full list of references

## Appendix

### **The Research Focus: The Elements of Entrepreneurial Usage of Time and the Contents within the Elements**

#### *1. Planning and managing company operations (5)*

Planning and developing production and/or services

Executing the plans, using organizational and management skills

Following-up transactions and critically evaluating the current state of the company

Forecasting functions, mapping out risks

#### *2. Development of customer- and market-oriented functions (5)*

Interactive, productive salesmanship and customer service

Customer satisfaction

Segmenting customers by profitability

Constituting and maintaining networks

Interpreting market research and competitor analyses

#### *3. Development of human resources (5)*

Attending to the wellbeing of the personnel

Enhancement of team spirit

Eliminating resistance to change

- Using human resources development discussions in personnel management
- Devising plans for personnel and implementing them
- 4. *Development of financial administration (9)*
- Working on profitability, liquidity, financial stability, and productivity matters in company operations
- Planning, controlling, and directing the company economy
- Using the services of accountants, accounting companies, or such when planning, controlling, and directing the company economy
- Interpreting annual accounts and other economic reports and key figures
- Using profit and loss accounts, balance sheets, and financial budgets as planning tools
- Defining indicators for surveying the business
- Working on pension, accident, and unemployment insurance
- Accounting and taxation
- Working on regulations, company forms, company reorganization, and contract regulations
- 5. *Personal development*
- Maintenance of family-/friendship relationships
- Studying the skills needed in work (such as public appearance, communication skills, information technology skills, foreign languages, knowledge of one's own industry, analyzing skills)
- Physical hobbies
- Mental hobbies
- Taking care of affairs connecting to confidential post (work)
- Taking care of affairs connecting to confidential post (outside work life)
- 6. *Different roles (4)*
- Technical role, that is, actually working
- Decision-making role
- Interpersonal role
- Dissemination role
- 7. *Different people (6)*
- Customers
- Employees
- People belonging to interest groups
- Private individuals
- Other entrepreneurs
- Other owners of the company
- 8. *Different places/equipment (5)*
- Office
- On the telephone
- Transportation
- Dealing with email
- Lunch hour

ENTREPRENEUR PROFILE			
Variable		N = 656	per cent
Respondents: women	163		24.8
men	493		75.2
Age groups:			
53 or older		53	8
43–52		237	36
33–42		246	38
32 or younger		120	18
Marital status:			
single		37	6
married/cohabiting		581	89
widowed/divorced		35	5

unavailable	3	0.5
Education:		
elementary school	91	14
middle school	264	40
matriculation	204	31
unavailable	97	15
Qualification:		
vocational school	94	14
college level	294	45
lower academic degree	100	15
higher academic degree	61	9
unavailable	107	16
Years as entrepreneur:		
over 25	152	23
16-25	168	26
6-15	115	18
5 or less	138	21
unavailable	83	13

TABLE 5: PLANNING AND MANAGING OPERATIONS (4 STATEMENTS)

Range 1 - 4

Present and future states

n = 656	Present state		Future state	
	alpha = .8912 mean	SD	alpha = .9440 mean	SD
Planning and developing production	2.53	.863	2.93	1.057
Executing the plans, using org. skills	2.51	.842	2.94	1.066
Follow-ups, critically evaluating	2.50	.840	3.08	1.032
Forecasting functions, mapping out risks	2.37	.859	2.88	1.091
<b>Mean of the means</b>	<b>2.48</b>		<b>2.96</b>	

TABLE 6: DEVELOPMENT OF CUSTOMER- AND MARKET-ORIENTED FUNCTIONS  
(5 STATEMENTS)

Range 1 - 4		Present and future states			
n = 656	Present state		Future state		
	mean	SD	mean	SD	
	alpha = .8148		alpha = .9220		
Interactive salesmanship, customer service	2.70	.907	3.02	1.051	
Customer satisfaction affairs	2.55	.874	2.93	1.076	
Segmenting customers by profitability	2.38	.910	3.02	1.045	
Constituting and maintaining networks	2.20	.979	2.96	1.064	
Interpreting market research and comp. anal..	1.84	.829	3.06	1.027	
<b>Mean of the means</b>	<b>2.33</b>		<b>3.00</b>		

TABLE 7: DEVELOPMENT OF HUMAN RESOURCES (5 STATEMENTS)

Range 1 - 4		Present and future states			
n = 656	Present state		Future state		
	mean	SD	mean	SD	
	alpha = .9105		alpha = .9490		
Attending to the wellbeing of the personnel	2.41	1.015	3.16	1.021	
Enhancement of team spirit	2.26	1.006	3.21	1.000	
Devising and implementing plans for person..	2.01	.913	3.26	.965	
Eliminating resistance to change	1.92	.935	3.31	.964	
Using human resources development discuss	1.87	.897	3.23	.977	
<b>Mean of the means</b>	<b>2.09</b>		<b>3.23</b>		

TABLE 8: DEVELOPMENT OF FINANCIAL ADMINISTRATION (9 STATEMENTS)

n = 656	Present state		Future state	
	mean	SD	mean	SD
	alpha = .9314		alpha = .9680	
Working on profitability, liquidity, finance..	2.51	.900	3.07	1.074
Planning, controlling and directing economy	2.49	.858	3.08	1.028
Using services of accountants, controlling	2.29	.939	3.13	1.058
Interpreting annual accounts and other rep..	2.28	1.014	3.27	.990
Using profit and loss accounts, balance she	2.20	.915	3.12	1.046
Defining indicators for surveying the busin..	2.17	.943	3.14	1.022
Working on pensions, accident insurance	2.02	.924	3.21	.990
Accounting and taxation	2.01	1.051	3.16	1.018
Working on regulations, company forms	1.92	.918	3.20	1.023
<b>Mean of the means</b>	<b>2.21</b>		<b>3.15</b>	

TABLE 9: PERSONAL DEVELOPMENT (6 STATEMENTS)

Range 1 - 4

Present and future states

n = 656	Present state		Future state	
	alpha = .7604		alpha = .8870	
	mean	SD	mean	SD
Maintenance of family-/friendship relation..	2.50	.872	2.64	1.174
Studying the skills needed in work	2.22	.889	2.89	1.057
Physical hobbies	2.22	.894	2.66	1.143
Mental hobbies	2.15	.887	3.00	1.049
Taking care... confident. post (work)	1.86	.920	3.47	.852
Taking care confident. post (outside work)	1.84	.929	3.55	.818
<b>Mean of the means</b>	<b>2.13</b>		<b>3.03</b>	

TABLE 10: USAGE OF TIME IN DIFFERENT ROLES (4 STATEMENTS)

Range 1 - 4

Present and future states

n = 656	Present state		Future state	
	alpha = .8919		alpha = .8870	
	mean	SD	mean	SD
Technical role, participating in production	2.69	1.051	3.41	.902
Decision-making role	2.61	.990	3.31	.922
Interpersonal role	2.39	.952	3.33	.900
Dissemination role	2.38	.914	3.30	.898
<b>Mean of the means</b>	<b>2.52</b>		<b>3.34</b>	

TABLE 11: USAGE OF TIME WITH DIFFERENT PEOPLE (6 STATEMENTS)

Range 1 - 4

Present and future states

n = 656	Present state		Future state	
	alpha = .7465		alpha = .8930	
	mean	SD	mean	SD
Customers	2.70	.932	3.18	1.005
Employees	2.35	1.058	3.48	.870
Interest groups	2.18	.863	3.30	.923
Private persons	2.14	.884	3.28	.953
Fellow entrepreneurs	2.11	1.017	3.46	.871
Other owners of the company	2.08	1.176	3.65	.785
<b>Mean of the means</b>	<b>2.26</b>		<b>3.39</b>	

TABLE 12: USAGE OF TIME IN DIFFERENT PLACES/EQUIPMENT (5 STATEMENTS)  
 Range 1 - 4 Present and future states

n = 656	Present state		Future state	
	alpha = .6608		alpha = .8570	
	mean	SD	mean	SD
Office	2.70	.932	3.57	.778
On the telephone	2.57	.917	3.71	.635
Dealing with e-mail	2.28	.877	3.66	.701
Transportation	1.97	.917	3.79	.537
Lunch	1.48	.735	3.72	.628
<b>Mean of the means</b>	<b>2.19</b>		<b>3.69</b>	



# The Development of Thai Entrepreneurs

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## Abstract

Entrepreneurialism in Thailand has been hampered throughout known history by the segregation of the labour market, the lack of governmental and institutional support for local firms and the low level of emphasis placed upon value-adding activities. The result has been that the bulk of entrepreneurial activity has been organised and controlled by people from other countries. This situation has persisted into the modern age and it was not until the inauguration of the systematically pro-business Thai Rak Thai government that significant, Kingdom-wide efforts were made to encourage high quality entrepreneurial activity in the wake of the 1997 financial crisis, which had already flourished in terms of numbers as many industrial, urban jobs were lost. It is not yet clear whether these efforts have been sufficient to embed desirable types of activity thoroughly into the bedrock of the economy.

## Introduction

The renowned Thai historian Chatthip Nartsupha wrote in his seminal work *The Thai Village Economy in the Past*: “The Thai village economy in the past was a subsistence economy. Production for food and for own use persisted and could be reproduced without reliance on the outside world. Bonds within the village were strong. Control of land was mediated by membership of the community. Cooperative exchange labour was used in production. Individual families were self-sufficient. Agriculture and artisan work – that is, rice cultivation and weaving – were combined in the same household ... Production relations were similar to those of the primordial socialist community – a small community in which people help one another in a spirit of common humanity” (Chatthip, 1999, p.73).

This very influential viewpoint concerns the heart of what it means to be a Thai: to live in a village free from external control and to grow rice. The concept of the village seems almost to be one of paradise. As a consequence, anything that challenges the ways that the traditional villagers live and the way they try to change their lives will always be seen to be antithetical to Thai-ness and, consequently, wrong. As village life has become monetized and the villagers themselves have attained levels of personal mobility and transportation that has freed them from isolation, they have sought out cash paying income for periods when their labour is not needed in agricultural pursuits. Now, villages throughout Thailand boast at least some houses with air conditioning, satellite TV and other emblems of twenty first century consumerism. As people are able to achieve their dreams of personal wealth, they also become estranged from their roots and the moral values attached to those roots. This is not a phenomenon that is restricted to Thailand, of course, although it is held strongly in the Kingdom, which retains many very powerful and conservative social institutions. The concept of an entrepreneur, therefore, which is wholly lacking of Chatthip’s conception of village life, is an alien one to the Thai way of life, no matter how well and avidly many Thai people have taken to it. As trade in its various forms has, throughout recorded history, been controlled and conducted by people from other countries, the correlation between trade and the non-Thai has become more firmly established. Entry into the world of commerce has become primarily the preserve of ethnic Chinese, while those who consider themselves more purely Thai prefer government service or the professions, if possible. Of course, this concept of ‘ethnic purity’ is next to meaningless (or, more accurately, highly susceptible to manipulation of social perceptions and expectations) in a land in which waves of migration have led to the thorough intermixing of dozens of different ethnic groups (Evans, 1997).

Resulting from some ambivalence about the role and importance of entrepreneurial activity, therefore, the growth in the number of entrepreneurs required by the modern age has led to some social concern. Efficiency in all forms of agricultural production has yet to penetrate all sectors of the industry in Thailand but it has achieved enough that it would no longer be feasible to argue that, overall, farmers are now primarily involved in subsistence

agriculture. Consequently, more people are freed to work in other forms of activity and, at least in the closing decades of the twentieth century, the long-term blight of the Thai economy, under-population, has been largely resolved and so urban populations have grown. The urban environment has never been described as a 'primordial socialist community' and has always been regarded as a place where commerce has sovereignty over many other forms of non-feudal activity; that is, activities which came under the jurisdiction of the crown and the feudal system which supported it remained their supremacy, even though agencies of the crown used commercial institutions to transact the state's business. Ultimately, support for business and the entrepreneurs who are an important part of creating it came into direct conflict with socially conservative elements in Thai society in the form of organised street demonstrations against the Thaksin Shinawatra government which achieved their aim of restoring military dictatorship to the country. However, in the twenty-first century, business has become such an important part of a sophisticated modern society that it would be almost impossible to try to suppress it without serious damage to the economy overall.

This paper investigates the ways in which entrepreneurs and attitude towards entrepreneurs in Thailand have changed through history and pays particular attention to the ways in which entrepreneurs have been supported since the 1990s and what the future prospects for these issues are likely to be for the future.

#### **Entrepreneurialism in Premodern Thailand**

Throughout recorded history until the modern age, the majority of Thais were subsistence rice farmers who owed the monarch a period of *corvée* labour which could last for several months per year. The *corvée* labour period was generally spent in civil engineering projects or else military service. Men, therefore, found their lives to be circumscribed by the seasonal needs of agriculture and the need to serve the state. Women were more likely to enter into petty trading, using barter to exchange home made food or handicraft items. This was necessary since men were unavailable. The history of the great cities such as Ayutthaya and Angkor Wat in Cambodia, abound in accounts of women rowing small boats through the many canals which were the main urban thoroughfares and selling their produce. Most of these women entered the city to trade and returned to their rural homes subsequently. Urban areas were the homes of government and its religious and military apparatus. They were also the homes of artisans, who made items that brought status to rulers and which were also of intrinsic economic value. Since the non-elite Thais were restricted to rice farming, most artisans had to be imported from other areas, either voluntarily or involuntarily. The warfare that was endemic throughout mainland Southeast Asia for most of known history was largely motivated by the desire to increase manpower and, so, capture slaves. For example, The Chiang Mai Chronicle records King Mangrai the Great travelling to Phukam-Ava in the last decade of the thirteenth century because he had heard of the famous god, silver and bronzesmiths living there. Accompanied by his army, the mighty Mangrai obviously made a powerful impression because the Burmese king of Ava granted him 500 artisan families to take with him back to his capital of Chiang Mai (Wyatt and Aroonrut, 1998, p.39).

After the establishment of Ayutthaya as a great city, many forms of trade were conducted both domestically and with overseas traders. Indians, Persians and Chinese were very important in organizing the trade of the nation. Most Thai people had no role in the trade, even though their home villages might already have been converted to economic specialties. For example, the Chronicles of Ayutthaya describe villages known as, among others, Hamlet of the Shrimps, Village of the Gong Shed and Village of Sweet Mango (Cushman, 2000, *passim*). The movement of peoples around the country, it would seem, had already reached the level by which specializations had been achieved. Since these villages had been placed under the ownership of one of the elite classes of nobility or privileged Chinese merchants, it would be inaccurate to describe the individuals involved as entrepreneurs. However, as the owners of the artisans were unlikely to have a high level of technical knowledge of the crafts involved, it was the workers themselves who would have been involved in innovation and new product development, albeit at not a very rapid pace in most examples. Although, not many of all the associations have been retained through the centuries until the present.

Vietnamese were important early entrepreneurs in the country. As foreigners, they were exempt from *corvée* labour and poll tax and, so long as they could put up with occasional harassment, they could establish their small businesses wherever they could find an empty patch of land and a market. This was particularly common in the northeastern part of the country known as Isan. Étienne Aymonier, who traveled the region in 1883-4, observed that:

“ ... my travelers saw some tens of huts of other Annamese [Vietnamese] who had lived there for five or six years. They burned patches of the forest to plant rice and they distilled alcohol. Being foreigners, they had no poll tax to pay. And because they had come from the border areas of Annam, they knew nothing about their country” (Aymonier, 2000, p.100).

Foreign entrepreneurs have remained important in Thailand, since many of the Thai people lack the education and experience to create lucrative new businesses themselves. It has been observed that Thais are naturally entrepreneurial in nature and a trip to any town or city would reveal the diligence with which so many try to create some profit. However, it has often been necessary for outsiders to show how a new and unknown form of skill or knowledge may be exploited to create a surplus. In recent years, Dr Harvey Ludwig established Seatec International as an environmental engineering consulting firm, which was the first such business in Thailand. Many Thai engineers received training and experience from the company and then subsequently left to establish their own consultancies (Ludwig, 2006).

The rural-urban system had already become established during the period of Ayutthayan ascendancy. When that city was razed to the ground by the invading Burmese army in 1767, the founder of the new (and continuing) Chakri Dynasty established a new capital at Bangkok, albeit initially on the Thonburi side of the river. Goods were grown or created in rural areas under the control of merchants or elites and then sold in urban markets. This is clear from the description of entrepreneurial activity by Fournereau who, visiting the capital in 1892, observed the vibrant Talat Noi (ironically, ‘little market’) and the entrepreneurial activity therein:

“This market is the greatest of Bangkok one finds anything one desires here and naturally, by preference, things from English or German origin. Like in France, in the Middle Ages, each type of business has its special quarter here: in the first part, called Talat Noi, one finds the carpenters, the coopers, the basket makers, the bottle merchants, haberdashers, a few government operated pawnshops, Chinese restaurants and, finally, small stalls in which low quality silks, cloths with flower patterns used for making sarongs, Indian cloths, cotton threads, hats, etc., are sold. The majority of these stalls belong to Chinese (Fournereau, 1998, p.51).

The entrepreneurial activities available for the majority of the common people, therefore, were strictly limited to marketing and petty retail activities. There was no leadership in promoting entrepreneurial activities or in fostering conditions in which high value-adding activities can take place (Ayal, 1966). Public sector activities to foster entrepreneurialism were hampered by lack of resources and understanding (Marsden, 1984).

A similar system has persisted in modern Bangkok, in which large numbers of market traders work hard to earn small amounts of commission from trading goods which belong to a larger scale entrepreneur, who acts in the form of a landlord. This can provide opportunities for small-scale traders to come into contact with much larger economic actors and to enter into relations with them:

“The interaction between micro-entrepreneurs and the volatile real estate market as mediated through relations with landowners’ points to spatial transformations of selling environments vis-à-vis inputs of capital. This results in both opportunities for and marginalization of small-scale cooked-food sellers. Some small food-shop owners have relocated within the growing number of food centres in the city, most situated in department stores and shopping plazas” (Yasmeen, 2006, p.183).

The economic history of Thailand, in short, reveals a series of connected characteristics which are features of entrepreneurialism in the country: most activities are micro-scale in size (i.e. fewer than 10 employees and usually just single-person), retail and service sectors are dominant and women are over-represented numerically. The margins on which the businesses operate are also generally very thin and a sudden economic shock can leave many thousands in a negative cash flow position. A survey of small-scale entrepreneurs in Bangkok and Phetchaburi in 1999 found that most were aged 30-40, with a few older and very few younger. Their education level was lower than average and most had completed only the elementary level of education. Women predominate in the micro-enterprise category, either because of lack of access to suitable resources or because of a long-standing attitude towards gender-suitable work (Maitree, 1999). There are, certainly, larger-scale entrepreneurs and many of these are able to prosper because of already existing connections established by family and relatives. Thailand is a generally low-trust society in which family connections are often significantly more important than economically-based relations. This makes members of influential family-based networks particularly attractive as business partners.

Panthongthae Shinawatra, the son of former Prime Minister Thaksin, was able rapidly to attract capital and success to his media import company in large part because of the willingness of partners to establish a relationship with him. The history of Thai entrepreneurialism, therefore, demonstrates the low level of value-added activities that have been permitted to those Thai people able to participate in entrepreneurial activity. More economically advanced activities have traditionally been entrusted to or controlled by nationals of other countries. Thai entrepreneurs with good ideas for new business activities have often found their inspiration from an overseas partner or educational institution, although there have of course been some natural born geniuses who have personally created new businesses and industries, although this has been rare. Research among entrepreneurs in the Isan region has demonstrated that, up until the 1990s at least, these issues remained relevant to Thai entrepreneurialism. It was dominated by people of ethnic Chinese origin and the activities they pursued were clustered into a comparatively small number of sectors. Personal networking through professional organizations was also a powerful tool (Ueda, 2000). Subsequent research has failed to find tangible links between the possession of network connections and information and subsequently superior performance (Butler, Brown and Wai, 2003).

Research among the Vietnamese migrant community in Thailand also demonstrated the importance of personal connections in establishing a successful business and the clustering of entrepreneurs into a restricted list of industrial activities. After the migration of Vietnamese across the Mekong in 1945, for example, a secret committee established an unofficial machine repair training facility and, as a result, many young Vietnamese men opened businesses in this field subsequently (Walsh and Nguyen, 2005).

### **The 1997 Financial Crisis**

In the years leading up to 1997, the Thai economy was hurtling along at a rapid and seemingly accelerating pace. As subsequent events demonstrated, this progress was hiding a number of structural problems which were revealed with, for many, disastrous results. The closing of many industrial facilities led to the large-scale movement of people out of regular employment and into semi-employment or unemployment. Some people in these categories also started their own businesses. The impact on people in different business sectors was very varied and the ability to cope depended considerably on internal resources such as resilience and determination. Many people faced the prospect of returning from Bangkok to provincial homes where they might be able to find partial or full employment in the agricultural sector, which was benefiting from higher cash prices for some agricultural products. However, most such people had already rejected the agricultural life and preferred to live in the urban environment. To do so, a number of people resorted to petty trading entrepreneurialism and related trades. Food vending and market stall management were popular and available choices. Between 1997-8, the number of people employed in the private sector declined by nearly a million (8.2%) and the number of people in the unpaid sector by more than 300,000 (5.5%) and, while some of these losses were countered by increases in the 'employed' and 'own account' categories (National Statistical Office figures, 1998). However, the total size of the active labour market declined by more than 850,000, which represented a 2.8% decrease overall. Those who were most vulnerable were generally those with lowest levels of education and income (hence savings). When members of the affected population enter entrepreneurial activities, therefore, they are most likely to do so in sectors which offer low margins and few opportunities for improvement.

The 1997 crisis revealed, among many other things, the lack of a coherent, integrated and overarching labour market policy in Thailand.

There are certainly elements of labour market policy objectives which are principally enacted by public sector agencies with diligence and determination but these are not part of a wider whole infused by a vision of what is required for future economic growth. Many other countries share a similar situation, of course, although that does not make the situation any better. A labour market policy for modern Thai society should integrate at least the following elements:

- Active labour market elements: policies and agencies to assist people move into new work opportunities through vocational training, job matching and database management schemes;
- Passive labour market elements: social security payments for the unemployed or those unable to work;
- Migration management policies: thousands of Thais go overseas to work temporarily or permanently, while more than one million overseas migrants are in Thailand in a variety of officially and

- unofficially registered activities. Policies are needed to identify a vision for managing these situations and ensuring that individuals and skills meet current and future jobs;
- Education: there is a need to identify future skills and competency needs and to provide schools and colleges with the resources to enable willing students to obtain those skills and competencies.
  - Business support for entrepreneurs, including research and training facilities, micro-credit support schemes, credit facilities and similar activities.

Currently, these various functions are divided among a host of different and often overlapping government agencies. Coverage of the entire Kingdom is not always assured and long-term funding is rarely guaranteed. Research has indicated that a number of entrepreneurs are not satisfied with the complexity of the search for specialist support that they need, especially when considering the often very limited resources of time and money that they have and on which there are numerous other calls. The quality of support is also not consistently high and this exacerbates the often incipient problems of mistrust between the private and public sectors.

Maitree (1999) found that a sample of SME executives had the following constraints in improving their business prospects:

- Lack of or limited access to credit financing
- Lack of access to wider markets
- Lack of capability for business planning
- Lack of or limited skills of workers
- Lack of knowledge or information on technology
- Lack of skills in financial management and simple accounting
- Lack of knowledge or information on other markets and on business opportunities
- Lack of knowledge or information on tax laws and other commercial laws and regulations.

The next government of Thailand, which was a broad-reaching coalition of political interests under the banner of Thai Rak Thai (Thais Love Thais) led by Thaksin Shinawatra, aimed to address some of these issues. Of course, there had been initial examination of the conditions in which entrepreneurs might flourish prior to Thai Rak Thai, with a number of politicians sponsoring and supporting schemes of differing levels of success. These included the promotion of technology development and business incubation (Swierczek, 1992). However, these attempts were rarely if ever systematically deployed or deeply embedded in the commercial system of the country.

#### **The Thaksin Administration**

The Thai Rak Thai party was elected under a pro-business manifesto and the intention to develop regional Thailand from which it drew most of its support. It also included support from labour unions and activists and a number of radical thinkers who had, in previous decades, been categorized as and excoriated for being Communists. Some of these coalition partners broke with the government in power.

A variety of new institutions was created to support small and medium-sized enterprises (SMEs) as part of a policy programme that came to be known, sometimes vituperatively, as ‘Thaksinomics,’ which was based on the concept of reducing dependence on external demand (export industries) fed by manufacturing industries in urban areas and on unproductive asset speculation (i.e. the property bubble), through developing domestic demand and traditional sectors of the economy. This has led to a dual track form of economic development and it had five main policy areas:

- Revitalizing growth at the grassroots level
- Jump-starting key sectors
- Enhancing economic efficiency and long-term competitiveness
- Providing a stable and supportive macroeconomic environment to facilitate growth while maintaining overall policy discipline
- Promoting the external sector through market expansion and fostering financial stability through regional and global cooperation (ADB, 2005).

Clearly, this policy set required considerable stimulation of the entrepreneurial segment of society and institutions and agencies were established in order to support it. One of the principal forms of support was the creation of the SME Bank<sup>1</sup>. The Bank describes its mission as being “... the leading bank for developing and strengthening

competitiveness of Thai SME entrepreneurs, in the drive towards a strong and sustainable growth of the Thai economy, with high-quality services, good governance, efficiency, and financial stability.” The services that they provide include multi-stage funding such as: general credit; factoring credit; packing credit; leasing and hire-purchase credits; joint venture; L/G (letter of guarantee); and Aval (a guarantee added to a debt obligation by a third party who ensures payment should the issuing person default). Numerous types of loans are also advertised under a variety of schemes, as well as a number of networking activities, newsletters and counseling services. Additionally, many training services are provided, including: New Entrepreneur Creation scheme; accounting system and software application; POS system training for small retail businesses; tax laws and planning training for SME entrepreneurs; market research and new product development training; product distribution and public relations strategic training for SMEs; intellectual property management training; modern financial management training; techniques for capital reduction in SMEs and training for early-retired government officers.

In addition to the SME Bank, there is the Department of Business Development, the One Tambon One Product (OTOP) scheme, the Institute for SME Development and the National Food Institute. It is not clear to what extent these services will survive the military government. OTOP is a scheme aimed at promoting local knowledge and products and selling them in both the domestic and international markets. As of the end of 2006, the 7,405 tambons (sub-districts) of Thailand produced more than 23,000 OTOP items (ThaiTambon.com, <http://www.thaitambon.com/English/TTBPRIA.htm>). The government has assisted the scheme by providing extensive trade fairs and marketing and distribution support which had not previously been available to local people. The purpose of the scheme was not just to promote local products but to enhance rural development while retarding the growth of internal migration. Inevitably, many products have been found to be uncompetitive because of lack of demand or, more importantly, lack of consistent supply and quality control. In a number of cases, government agencies through the Ministry of Labour (especially the Department of Employment) have been able to intervene to provide training and education to help remedy the shortfall in quality control and supply chain management. Once people have the incentive of being able to sell products they themselves have understanding of and to the improvement of which they might be able to contribute, then they are generally more receptive to receiving such training.

It is difficult to evaluate the success or the sustainability of the OTOP scheme overall because of the lack of comprehensive statistics and because many issues are shrouded in political complications. However, it is certainly true that domestic and to a lesser extent some international demand has been created and OTOP items have been integrated into the distribution systems of some large multiple retail stores. Ironically, these foreign-owned retail multiples have sporadically received criticism and demonstrations accusing them of destroying the regional economies of Thailand.

The bankruptcy law of 1940 was amended and enacted in 2004. It represented a modernization of some stipulations relating to the bankruptcy laws and restructuring of various fees and procedures. In bringing the bankruptcy provisions somewhat more closely into line with international norms, as represented by the International Association of Insolvency Regulators (IAIR), the Thai government promoted entrepreneurialism to some extent by reducing the negative implications of bankruptcy.

Figures from the Board of Investment suggest that the various measures were moving in the right direction; the Private Investment Index, which took a baseline of 1995 = 100, fell dramatically in 1997 and had only reached 81.6 in 2004, 87.9 in 2005 and 91.5 in August of 2006, before tailing away again after the military coup of September 2006 (BOI, 2007, [http://www.boi.go.th/english/how/private\\_investment\\_indicators.asp](http://www.boi.go.th/english/how/private_investment_indicators.asp)). Up to date indicators of business registrations are difficult to obtain, although the Department of Business Development figures suggest an initial rise in the number of new businesses. The labour market expanded from 2002 to 2004 by 5.0%, with the majority of this increase led by the private employee classification (15.3% increase). However, the situation remains very volatile with high churn rate of entrepreneurs – besides which, the technical capacity of the Thai civil service to record accurate, comprehensive and timely statistics is limited, especially given how many firms are part of the unofficial or black market sector. Some evidence suggests that the number of household-based businesses in semi-urban and rural Thailand as much as tripled in the wake of the financial crisis but it is not clear how many of these have ever been viable (Paulsen and Townsend, 2005).

## **The Current Agenda**

The military government has sought to differentiate itself from the previous, ousted government by declaring many of the previous policies inappropriate or improper as a result of being 'populist' in nature. It has promoted the concept of the Sufficiency Economy, which is closely related with the ideas of HM the King and, hence, beyond criticism of any sort within the country. The Sufficiency Economy has been summarised by the UNDP in the following way:

“The Sufficiency Economy is an approach to life and conduct which is applicable at every level from the individual through the family and community to the management and development of the nation. It promotes a middle path, especially in developing the economy to keep up with the world in the era of globalization. Sufficiency has three key principles: moderation; wisdom or insight; and the need for built-in resilience against the risks which arise from internal or external change. In addition, those applying these principles must value knowledge, integrity, and honesty, and conduct their lives with perseverance, toleration, wisdom, and insight.

Sufficiency in this sense should not be confused with self-sufficiency, turning inward, rejecting globalization, or retreating towards the mirage of a simpler world. Rather, this approach offers a way to cope with the unavoidable realities of the market and globalization in the contemporary world. The Sufficiency approach stresses that individuals need a certain measure of self-reliance to deal best with the market, and countries need a certain measure of self-reliance to deal with globalization. Sufficiency has the dual meaning of 'not too little' and 'not too much.' The principle of moderation or the middle way is a guide for finding the right balance between internal resources and external pressures, between the needs of society at the grassroots, and the imperatives of the global economy” (UNDP, 2007, p.XV)

It is noticeable that, throughout the whole length of this book length report, the word 'entrepreneur' is used only twice and, on both occasions, to describe events that happened prior to 1997. It may be assumed, therefore, that while the Sufficiency Economy is not necessarily antithetical to the concept of entrepreneurialism, it accords no particular value or virtue to the concept and, hence, little if any support will be provided for those involved in such activities. In this sense, therefore, the Sufficiency Economy may be seen as a return to the traditional, conservative view of Thai-ness and the proper role of people in the Thai economy. However, exactly how that view will be enacted in the future, with its endless bustle of events and external shock, remains to be seen. The 10<sup>th</sup> National Plan, for example, specifies the role of social entrepreneur in the development of the country, particularly with respect to the role of women. Indeed, much of the language of the military-appointed prime minister General Surayud Chulanont and his office in discussing the economy remains very similar to that of the previous, democratically-elected government, although most regional development policies have been scrapped. It is also not clear whether the military government will feel itself bound to follow the 10<sup>th</sup> National Plan, since it was approved in early September, 2006, a few weeks prior to the armed coup. If the junta has an alternative plan by which it intends to guide the development of the economy, then it has not yet shared this with the public.

## **Policy Recommendations**

In considering what might be done to strengthen the role of entrepreneurs in the Thai economy, it is impossible not to have to consider what is practical and will be considered acceptable as well as what is desirable. Even so, there are clearly some areas which must be addressed, popular or not:

- the OTOP programme is a success and should receive further funding and support. Of course, not all areas have been able to develop successful products and those in such tambons may be offered training to work on different products;
- continue to work with innovative free trade agreements such as the Japanese-Thai Economic Partnership Agreement which includes a private sector initiative by Japanese firms to provide apprenticeships in Japan for Thai workers;
- reassert the importance of lifelong learning in Thai society and encourage people to continue to invest in their own skills and competencies. Thailand currently enjoys something of a demographic dividend arising

from minimal payments in support for non-members of the labour market and now is the time to use that dividend to create a more skilled workforce;

- maintain existing provision of government services and be aware of response among customer groups and stakeholders and adjust the provision and nature of services in response to changes of demand;
- work with and within international organizations such as ASEAN and the ILO to obtain better training for the labour market and help in identifying new opportunities for entrepreneurs to consider.

The continuing and probably irreversible internationalization of the Thai economy will lead to the wider identification of possible entrepreneurial opportunities and products by potential or existing entrepreneurs. The introduction of mechanisms by which such innovation and creativity may be transmitted more widely throughout society would be very welcome.

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## **End Note**

<sup>i</sup> SME is Small and Medium Sized Enterprises, which are conventionally categorized as firms with fewer than 250 employees. In Thailand, the great majority of SMEs are much smaller than this.

# Psychic Distance and the Market Entry of Finnish Software Firms to the Japanese Market

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## Abstract

**This paper investigates the concept of psychic distance in the Uppsala internationalization model by analyzing the market and entry mode choice of eight small and medium-sized Finnish software firms. The case findings in this study reveal that, despite of the psychic distance between Finland and Japan, most of the firms entered Japan at a very early stage of their internationalization process by using direct entry modes. This could be interpreted as a sign of the Uppsala internationalization model being non-valid or outdated in the present global business environment. Findings also imply that highly segmented product offering forced the case firms enter into countries which provide a large customer base. In addition, high requirements for close cooperation with customers in sales and after-sales processes increased the need for direct business operations. However, firms were able to overcome psychic distance by hiring local employees and western managers who already had working experience in the Japanese market.**

## Introduction

Several internationalization theories [5, 11, 14, 18, among others] describe internationalization as a gradually developing process through various “stages” where a firm enter first nearby countries using indirect entry modes, such as exporting, which require less commitment to the market. Once the firm has gathered more experience on the market, it starts to develop operations which require more commitment to the market and establish direct business operations such as subsidiaries or joint ventures. One of the best known and most cited internationalization theory is the Uppsala internationalization model [11, 14], which includes the idea that when firms start to expand their operations to foreign markets, they first enter countries with a low psychic distance to theirs and then gradually move on to countries with a greater psychic distance. Although the arguments in the Uppsala internationalization model seem reasonable, it should kept in mind that the model was developed from the viewpoint of large, well established multinational firms. For these reasons, several studies related to international entrepreneurship [2, 3, 6, 20] have investigated the applicability of the model to small and medium-sized high-technology firms. These studies propose that SMEs in the field of international entrepreneurship do not commonly follow incremental step-wise progress in internationalization [11, 14]. Although findings in these studies [2, 3, 6, 20] give support to the conception that high-technology intensive SMEs first internationalize their operations to countries with a low psychic distance to theirs, they have not found evidence supporting the incremental internationalization process viewpoint. On the contrary, SMEs in the high-technology sector tend to internationalize their operations simultaneously to several countries within short time period and using various entry modes.

The conceptual model of Bell et al. [4] suggests that high-technology intensive firms start to internationalize their operations to leading markets, such as the USA and Japan, soon after their establishment. A limited domestic market, niche market segments, and high research and development costs in high-technology sectors can function as drivers for entering markets with a large customer base and purchasing power [4]. For these reasons, this study focuses on small and medium-sized Finnish software firms’ internationalization to the Japanese market. Japan is among the leading markets in the world, and it is a very important market for foreign software firms. Japan is ranked as the world’s second largest software market after the U.S. [9], and the overall software market size in Japan was 131,773 million U.S. dollars in 2004 [23]. However, the Japanese market has commonly been cited as a difficult one to enter for foreign firms [e.g. 7]. Japan can also be characterized as a psychically distant country from Finland due to cultural and language differences [15].

## Literature Review

The concept of psychic distance came popular after Nordic studies by Johanson and Vahlne [11] and Johanson and Wiedersheim-Paul [14], known as the Uppsala internationalization model, were published. In the model, the factors that determine psychic distance between countries were defined as differences in language, culture, political system, level of education, level of industrial development etc. [14]. These factors affect a firm's capability to learn and acquire knowledge from the target country. Thus, the lack of knowledge of foreign markets and operations have proved to be the main obstacle for internationalization. Lack of knowledge relates to the differences between the home and target country. According to the model, firms are expected to enter first into familiar markets with a low psychic distance, but once they have acquired more knowledge about how to operate internationally they start to enter countries with a greater psychic distance. International experience is also connected to the choice of entry mode: a firm first starts irregular exporting to the target country and, while gathering more experience, it starts exporting via independent representatives, may establish a sales subsidiary, and may finally start its own production in the target country. The choice of entry mode is conceptualized as a learning process and increasing commitment to the market [11, 14].

In the Uppsala internationalization model, knowledge of foreign markets is divided into general knowledge and market-specific knowledge. General knowledge includes marketing methods of a product, operation modes, and typical customers in a global scale. It is mainly objective and transferable from previous countries entered to the target country [11, 12]. Market-specific knowledge is experiential knowledge about the target country environment, such as culture, the market structure, customers in the market etc. This knowledge is mainly acquired through operating in the target country [11] and it is highly tacit. Due to this tacitness it is difficult to acquire and transfer from country to country [17]. However, a firm can, to a certain extent, use their experiences and knowledge from earlier foreign operations when entering into a new country. Through their experiences in the market, the firm can learn the general characteristics of markets, such as how to act with customers, suppliers, competitors and public organizations [13].

## Psychic Distance in the International Entrepreneurship Literature

Several studies related to international entrepreneurship [2, 3, 6, 20, among others] have tested the suitability of the Uppsala internationalization model to explain internationalization behavior of small and medium-sized high-technology firms. These studies propose that SMEs involved with international entrepreneurship enter first to geographically close countries, which gives support to the concept of psychic distance. However, these studies have commonly found some additional factors, which explain internationalization of high-technology SMEs better than psychic distance between countries.

The study of Coviello and Munro [6] related to New Zealand-based small software firms implies that entry mode and market choice depend on firms' formal and informal network relationships which evolve over time. The firms' network relationships first give access to countries with a low psychic distance and, in time, these relationships enable market entry to countries with a greater psychic distance [6]. This is somewhat in line with the Uppsala internationalization model [11, 14], with the exception that the internationalization process of small software firms was very rapid, included less stages, and used a number of alternative entry modes simultaneously.

Findings in the study of Moen et al. [20] are consistent with the study of Coviello and Munro [6]. They found very little support to the Uppsala internationalization model related to the market and entry mode choice of small software firms. The entry mode choice of small software firms is more dependent on available network relationships than on the firms' international experience. Initial market selections were related to psychic distance whereas in later choices the psychic distance is less visible. However, their [20] findings suggest that firms prefer countries where English is commonly spoken, because it facilitates communication and networking. This finding gives some support to the concept of psychic distance.

In his study, Bell [2, 3] investigated the internationalization of small software firms in Finland, Ireland, and Norway by validating the applicability of incremental internationalization models in explaining the

internationalization behavior of software firms. Findings of the study suggest that software firms internationalize their operations first to countries with a low psychic distance, but there are other explanatory factors with more explanatory power than the concept of psychic distance. Bell [2] found that internationalization behavior of firms is more related to customers' followership, niche markets, and industry-specific characteristics than to systematic steps or stages as suggested in the Uppsala internationalization model.

## Summary and Research Questions

Altogether, earlier studies propose that the concept of psychic distance is valid, to some extent, in the internationalization process of both large multinational firms and SMEs in the high-technology sector. However, these studies have commonly taken a cross-national viewpoint without focusing on any specific country. For this reason, this study investigates the market entry and entry mode choice of eight Finnish software firms in the Japanese market. According to the concept of psychic distance, Japan can be ranked as a country relatively distant from Finland. Thus, in line with the concept of psychic distance, Finnish firms are supposed to enter the Japanese market only after operating directly in several less distant countries. This helps to validate the applicability of the traditional internationalization theories regarding the present global business environment. Therefore, the following questions are of particular interest in this study:

1. To what extent does psychic distance influence market entry to the Japanese market?
2. To what extent does psychic distance influence entry mode choice in the Japanese market?
3. What are the particular reasons for market entry to the Japanese market?
4. How are firms able to overcome psychic distance in the Japanese market?

## Research Method

The multiple case-study method was selected for this study due to the explanatory nature of the research question. Eisenhardt [8] holds the view that multiple case-study enables studying patterns that are common to the cases and theory under investigation. The case-study method also makes it possible to explain the significance and cause-and-effect relationships of the examined phenomena [24].

The case firms were selected for this study for theoretical reasons and not by random sampling [8]. The selected firms complied with the following criteria: a) they have their headquarters in Finland, b) they have direct business operations in the Japanese market, c) they do business in the field of software, and d) they have a maximum of 500 employees worldwide. Focusing on one single sector in this study helps to complement existing studies related to the software industry [2, 3, 6, 20] and reduces the potential for confusing results [22]. In addition, it allows comparing research results to earlier findings in the software industry, especially to those related to international entrepreneurship. Internationalization process of the case firms in this study was limited only to direct business operations in the target countries (excluding Japan) due to the fact that software products are easily delivered through Internet or firms' file transfer protocol (FTP) server making traditional exporting activities less important than was the case previously.

In this study, Finland was chosen as the country of origin due to its small and open economy with a very limited domestic market. Due to its small domestic market, internationalization is generally a common growth strategy for Finnish software firms. Japan was chosen as the target country for the following reasons: firstly, Japan has the second largest market for software products. Thus, it is among the leading markets for software firms. Secondly, as recognized in several studies [e.g. 7], Japan is a very challenging country to enter and conduct successful business with. Thirdly, due to language and cultural differences between Finland and Japan, Japan can be characterized as being a psychically distant country from Finland [15, 18]. Finally, choosing Finnish software firms in Japan enabled addressing the target group, to a large extent, by using a qualitative case-study method.

Suitable firms for this study were identified from the websites of the Finnish Chamber of Commerce in Japan and Finnish Software Business Clusters, as well as from a list of firms in the publication "Software Product Business Cluster in Finland 2005". By using these sources a total of nine suitable firms were identified. These firms

were contacted with an e-mail request to attend the research. Eight of the nine firms answered and were willing to share their knowledge and their experience of the Japanese market.

Altogether 16 semi-structured open-ended interviews were conducted with managers in each firm's headquarters in Finland and their units in Japan. All executives (with titles: CTO, Director, Executive Vice President, President, Managing Director, and Sales Administrator) that were interviewed had an in-depth knowledge of their firms' international operations and the entry to the Japanese market. The 60-90 minute-long interviews were digitally recorded, carefully listened to, and transcribed verbatim with the help of a word processor. A second listening was arranged to ensure correspondence between the recorded and transcribed data. Complete case reports were sent back to the persons interviewed to ensure the validity and authenticity of the collected data. If interviewees in the case firms found some inaccuracies in the text, these were corrected based on their comments. In addition, some telephone and email interviews were used to collect further information from the interviewees. The collected data was also compared with other sources, such as websites and annual reports of the case firms.

In the data analysis, guidelines suggested by Eisenhardt [8] and Yin [24] were followed. All eight individual cases were written out as stand-alone case histories. After that, the unique patterns of each case were identified and similar patterns were categorized under common themes. This helped to organize and summarize the collected data. In addition, analytical tools were applied within and across the cases as proposed by Miles and Huberman [19]. For instance, checklists and event listings were used to identify critical events related to market entry process of each case firm.

## **Research Findings and Analysis**

This section presents the empirical findings of this study and compares the findings to the theoretical background of this study. Firstly, the internationalization history of case firms is presented from the establishment of a firm until the market entry to the Japanese market in terms of direct business operations. Secondly, development of business operations of the case firms in Japan is described and discussed. Thirdly, the main reasons for the market entry of the case firms are presented. Finally, some strategies to overcome psychic distance in the Japanese market are discussed.

### **Internationalization Activities of the Case Firms before Entering the Japanese Market**

All the case firms had been established between 1990 and 2000, except firm C that had been established already in 1966. The number of overall employees varied from 12 to 300, the average being 127 employees. Fig. 1 demonstrates the internationalization history of the case firms in terms of direct business operations until the establishment of direct business operations in Japan.

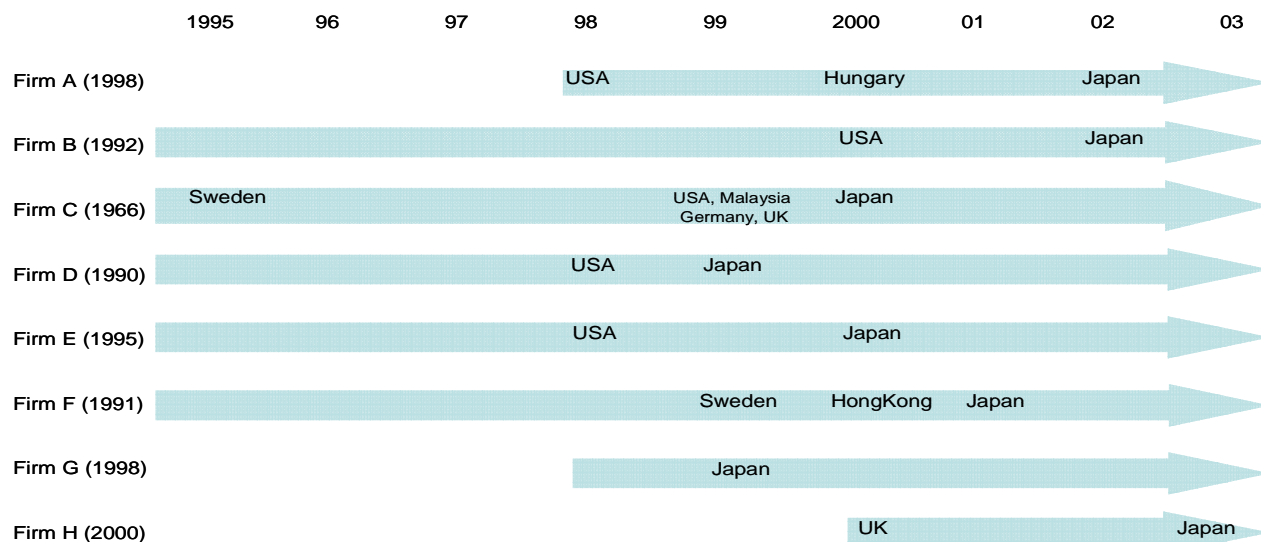


FIG. 1: DIRECT BUSINESS OPERATIONS OF THE CASE FIRMS UNTIL THEIR MARKET ENTRY TO JAPAN

As it can be observed from the Fig. 1, almost all the firms started their foreign direct business operations in countries with large markets for their products and only two in a country with a low psychic distance. Four of the firms started their foreign direct business operations by entering into the USA market, one selected the UK as the first target country, and one firm entered straight into the Japanese market. Only firms C and F started their foreign direct operations by entering Sweden, which represents a psychically close market to Finland. However, pretty soon after entering the Swedish market, they started direct business operations in more distant markets such as Hong Kong and Malaysia. Firm C was the only firm that had direct business operations in more than two countries before entering the Japanese market. Four of the firms (B, D, E, and H) selected the Japan as the second target country and as noted earlier, firm G started their direct business operations first in Japan. These findings demonstrates that firms' internationalization process before entering Japan did not generally follow the concept of psychic distance of the Uppsala internationalization model [11, 14], which proposes that firms first enter countries in a psychical proximity. Six case firms out of eight entered first countries which offer a large market for their products, namely the USA, Japan, and the UK. Only two of the firms started their foreign business operations in a nearby country. However, the internationalization processes of the case firms give support to the conceptual framework of Bell et al. (2003), which affirms that knowledge-based firms tend to internationalize their operations to the leading markets. This is also in line with Bell (1995) in that software firms enter to markets which are assumed to offer growth possibilities to their niche products.

#### Entry Mode Choice of the Case Firms

All in all, the case firms used six different entry modes in their market entry (Fig. 2). Firms C and F started their business operations by using Japanese distributors and firm E by direct sales. Other firms entered the market through direct business operations. Three of the case firms (A, B, and D) used representatives as their first entry mode. Firm G established a joint venture and firm H entered into the Japanese market by selling their shareholding to a Japanese corporation; the firm still had headquarters in Finland and operated as an independent unit of the corporation.

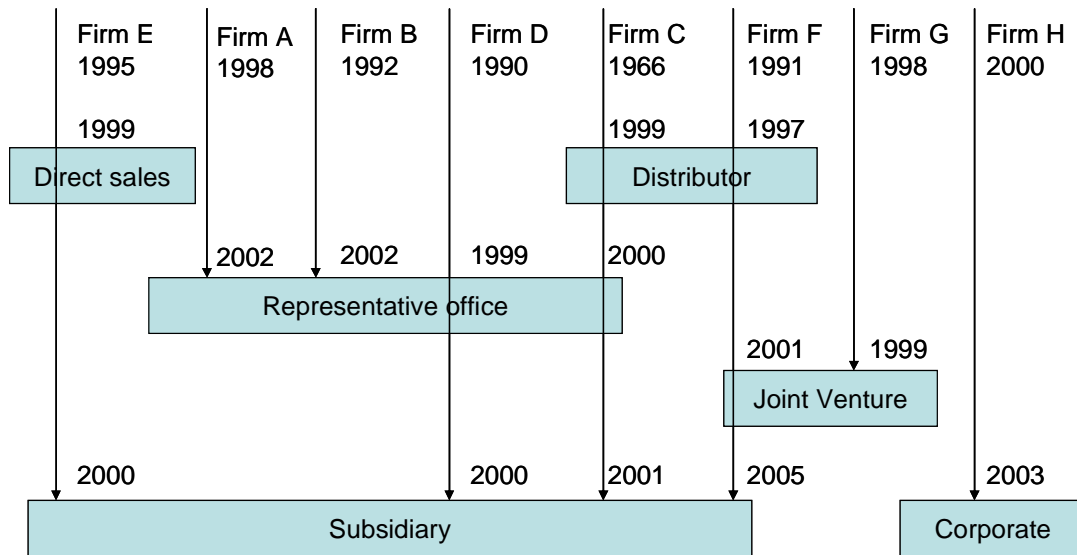


FIG. 2: CASE FIRMS' ENTRY MODES IN THE JAPANESE MARKET

Firms A and B used a representative as their current entry mode. Firm A was established in 1998 as a spin-off from a large Finnish software corporation and they had a representative in Japan from 2002 onwards. Firm A's initially thought handling the market through a distribution channel, but due to the complex nature of the products using a sole distributor proved impractical. Their representative in Japan worked within the distribution channel in technical sales support. Firm B was established in 1992, and they started developing their current products in 1998. In 2002, firm B established a representative office in Japan for two reasons. Firstly, a representative in the market enabled close cooperation with customers in both pre and after sales phases. One informant at firm B commented on this in the following way:

“Keeping regular contacts with our customer is much more difficult if we have to do it from here [Finland], it is the same with visits to potential customers [in Japan]. Regular appointments are required for these types of products... Anyway, physical presence is a must in our business”.

They also contemplated the possibility of handling the market with the help of a distributor. However, product sales would have required deep technical knowledge not possessed by the distributor. Secondly, a representative office enabled a cost-effective market entry and, compared to a subsidiary, required less bureaucracy in the establishment phase.

Four of the firms (C, D, E, and F) used a subsidiary as their current entry mode. In all of these cases, the subsidiary was established mainly for sales and marketing activities although firms C, E, and F had some minor product development activities in Japan. Firm C was established already in 1966, and they entered the Japanese market in 1999 with the help of two distributors. However, quite soon the other of the distributors closed its business and firm C found itself in a situation where they needed to find a new distributor or establish a unit for the Japanese market. They thought that handling the Japanese market with the help of single distributor was too risky. In 2000 they established a representative office, and in 2001 changed it to a subsidiary mode. This enabled better marketing and after-sales support for their customers in the Japanese market. Firm D that was established in 1990 entered into the Japanese market in 1999 by establishing a representative office. The purpose of the representative office was to provide support to their distributor who started to sell their products in Japan at the same year. The representative office also gave good opportunities to find and recruit local employees for their subsidiary that was established one year later (in 2000). The subsidiary enabled better support services to local distributors who handled the sales of their products. Firm E was established in 1995 and they entered into the Japanese market in 1999 with direct sales

from Finland to Japanese customers. However, after half of year they decided to establish a subsidiary. The subsidiary was needed for keeping regular contacts with the distributor and for technical support. Another reason for establishing the subsidiary was the requirement to hire an employee able to speak Japanese. One informant at firm E explained this in the following manner:

”There were many potential customers in Japan, but the market was very difficult to handle without knowledge of the Japanese language. Those negotiations where I was involved were really difficult, because Japanese customers spoke only Japanese and we always needed an interpreter”.

Firm F was established in 1991, and they entered into the Japanese market in 1997 with the help of a distributor. That time they had only few customers in Japan due to the mobile network structure in Japan than was different from those elsewhere, and they were able to handle the market through the distributor. However, when Japanese launched the third generation (3G) mobile network, firm F established a joint venture (in 2001) for the Japanese market, which now offered large market potential for 3G network analyzers. A joint venture with Japanese partners provides better opportunities to network with customers and to give better after-sales support. However, firm F changed their operation mode to sales subsidiary in 2005 to achieve a better control of the market.

Firm G was established in 1998 and they entered into the Japanese market only one year after the start-up establishing a joint venture with their Japanese partners in 1999. Earlier, in their former jobs, the firm’s employees had created personal relationships their Japanese partners who were interested in launching firm G’s products to the Japanese market. Helped by their local partners, the firm was able to get access to Japanese telecom operators. Firm G’s unit in Japan gave maintenance support to the distributors who delivered their mobile games to the consumers.

Firm H was established in 2000, and they got access into the Japanese market by incorporating with a large Japanese corporation. Firm H noticed that successful market entry into the Japanese market required a great deal of financial resources and local knowledge. They decided to sell their shareholding to this Japanese corporation and corporate with them in 2003. This strategy facilitated a successful market entry, and one unit of the Japanese corporation started to sell and market firm H’s products in Japan and in other East and Southeast Asian markets.

As the case descriptions demonstrate, firms C, E, and F followed stepwise entry routes in line with the Uppsala internationalization model, starting their operations in Japan with ‘export’ activities without their own presence. Firms C and E however changed their entry modes to the subsidiary mode within a very short period of time. Five of the firms started their operations in Japan with integrated entry modes. The main reason for using integrated entry modes were the requirements for close cooperation with customers in the sales and after sales process. Thus, the overall development of entry modes of the firms discussed here does not fully support the conception of stepwise extension of operations as suggested in the Uppsala internationalization model [11, 14]. However, the findings are consistent with Coviello and Munro [6] implying that firms are simultaneously using several entry modes in the market. In this study, all firms (excluding firms B and H) used distributors in addition to their own units in the market.

#### **Reasons for the Market Entry to the Japanese Market**

Five of the firms (A, C, D, E, and F) mentioned that the main reason for their market entry was the large size of the target industry in Japan. Firms G and H entered the Japanese market attracted by the sophisticated industry structure for their products, and firm B chose the market for the reason that their important customer was located in Japan (see TABLE 1).



TABLE 1: THE MAIN REASONS FOR THE MARKET ENTRY TO THE JAPANESE MARKET

Main reason for the market entry	Firm A	Firm B	Firm C	Firm D	Firm E	Firm F	Firm G	Firm H
Size of the target industry in Japan	X		X	X	X	X		
Sophisticated target industry							X	X
Important customer located in Japan		X						

Firm A produced virtual designing and modeling tools for mobile phone manufacturers, telecom operators, and electronics industry. The large size of these industries in Japan made the market very important for firm A. Firm C's core business in Japan focused on modeling software for steel and concrete construction industries, which are large industries in Japan and offer good opportunities for selling products to the local construction firms. Firms D and E produced enterprise level security software solutions mainly for banks, financial institutions, and network operators. The Japanese market offered a large customer base for these highly specialized data security solutions. Firm F produced analyzers for telecom networks and, in Japan, sold their products to telecom operators and research and development units which developed mobile networks. Although all these four firms were doing business in very narrow industry segments, the Japanese market offered a large customer base for their products. The market entry of these four firms occurred at the time of the so-called "IT-boom". One informant at firm D explained this in the following way:

"It was really crazy times at the end of 1990s; although our products were based on software, we were not able to deliver as many licenses of our software as we got orders in Japan"

Firm B developed software components for handheld devices such as mobile phones. The market entry of firm B was thought necessary, because they got an important customer from Japan. The negotiations with the customer and product specifications required so much time and traveling between Finland and Japan that firm B decided to establish their own unit in the market. Other reasons for the market entry were attractive markets in Japan that might generate more sales later on to other mobile phone and semiconductor manufacturers.

The main reason for the market entry of firms G and H was the sophisticated target industry in Japan. Firm G sold mobile phone games to consumers through telecom operators which distributed games to end users. Value added services in mobile networks in Japan were well developed and consumers were used to use these services. Another reason for the market entry was based on the idea that sophisticated Japanese telecom markets might teach them something that would be useful later on in other markets. Firm H developed gaming-on-demand solutions and content for broadband networks. Use of their products requires highly developed broadband networks, and in this respect the Japanese market offered the most sophisticated markets for their products.

The above case descriptions underline the fact that almost all of the case firms produced their software for areas such as mobile phones, telecom networks, and data security, that were regarded as very attractive markets for foreign firms in Japan [10]. These findings parallel those of Bell et al. [4] and Rothaermel et al. [21], which indicate that technology intensive firms tend to favor countries with attractive markets. However, the size and sophisticated industry structure in vertical markets seemed to be more important, as a determinant of the country choice, than the overall market size. This became evident in that none of the firms based their choice of the market on the number of consumers, instead the market choice was based mainly on the size of the target industry. Apart from firms G and H, all the other case firms sold their products to other firms in Japan. This finding gives support to Bell [2] in that software firms enter to markets which offer growth possibilities to their narrow product segments.

### **Ways to Overcome Psychic Distance in the Japanese Market**

According to the Uppsala model, experience of foreign markets and operations there lower the uncertainty to invest into more psychically distant markets [11, 12]. However, all the firms expect firm C, entered the Japanese market at a notably early phase in their life-cycle. Four of the firms (A, E, G, and H) entered into Japan within five years after their establishment and three (B, D, and F) within ten years after their establishment. In addition, the case firms' international experience before establishing direct business operations in Japan were relative exiguous (from one year to five years). In addition, the case firms started to use entry modes which require high commitment (such as subsidiary, joint venture, own representative) in the market quite soon after the establishment. However, all the case firms which had international experience in terms of direct business operations reported that those experiences helped them when they started their operations in Japan. The experience gained facilitated mainly in operational level activities such as cost estimations, choice of entry mode, and location choice in the target country, i.e. in issues to be dealt with in the market entry process. This knowledge was reported to be mainly in the headquarters and not facilitated in practical issues in Japan, which required more knowledge related business environment. One informant at firm E highlighted this as follows:

“In the headquarters, they knew how to evaluate cost and time [of establishment] to make everything to work and what steps are required...but so far, the experience is still always personalized...person who established our subsidiary in the USA, he know how to do it, but he was not at all involved [in the establishment process of the subsidiary in Japan], he was managing our subsidiary in the USA...some parts of this process was known in the headquarters, but the knowledge about what we needed on the spot [Japan] was missing”.

These findings are in line with Johanson and Vahlne [13] which indicate that, to a certain extent, a firm can resort to their experiences and knowledge from earlier foreign operations when they are entering into a new country. This also supports the concept of knowledge in the Uppsala model suggesting that general knowledge about markets is mainly objective and transferable from one country to another, whereas market-specific knowledge is tacit and based on experiences of individuals [11, 12, 13]. This tacitness makes it difficult to transfer market-specific knowledge between different countries [17]. All the case firms, except firm A, acquired local knowledge either by recruiting local employees for their unit in Japan or for the headquarters or by partnering with a Japanese firm (firms G and H). This facilitated fast market entry and commitment to the market. Because knowledge of both business practices and technology were critical for the case firms, most of their employees in Japan were recruited from competitors or customers. These employees already knew the products and players in the market. This decreased their training needs and enabled the use of their already existing business connections. In addition, firms C, D, E, and F recruited a western manager with a long working experience in the Japanese market for their subsidiaries in Japan. These managers were able to act as “cultural mediators” between the western culture and the Japanese culture.

### **Conclusions**

This paper investigated the market entry and entry mode choice of eight small and medium-sized Finnish software firms to the Japanese market. In addition, this study analyzed reasons for the market entry and how firms were able to overcome psychic distance between Finland and Japan. The findings in this study show that six of the eight firms started their foreign direct operations by entering into a country that would provide large markets for their products. In addition, the firms started developing their foreign direct business operations relatively early on by establishing foreign units to the main market areas for their products. These findings support the conceptual model of Bell et al. [4] suggesting that high-technology intensive firms start to internationalize their operations to leading markets soon after their establishment. However, these findings give very little support to the internationalization process described in the Uppsala internationalization model [11, 14]. Many of the firms entered Japan at an early stage of their internationalization; one of the firms even selected Japan as the location for their first direct operation abroad. This could be interpreted as a sign of the traditional internationalization or “stage” theories being non-valid or outdated in the present global business environment.

In their entry mode choice, only three firms out of eight followed the traditional stepwise entry route in the Japanese market by starting their operations using indirect entry modes. However, these firms established their own units in the market quite soon after starting these indirect operations. Other five firms started their operations using direct entry modes. Thus, the findings in this study do not fully support the entry route suggested in the Uppsala internationalization model [11, 14], where a firm first acquires knowledge about the market by using indirect operations and then gradually starts to favour direct business operations. The findings in this study highlight that the choice of the entry mode was based on the complexity of the firms' products, which required intensive cooperation with the customers in the sales process, implementation phase, and also made it possible to offer after-sales services near the customers. This gives a less obvious role to the network relationships in the entry mode choice compared to the findings of Coviello and Munro [6] and Moen et al. [20], because only in three cases (G, H, and F), the entry mode choice was related to the firms' available networks.

The findings of this study are in line with the earlier studies in the field of international entrepreneurship [2, 3, 6, 20] in suggesting that high-technology firms select their target countries for other reasons than those related to psychic distance. This study found that most of the firms selected the Japanese market for the reason that it provided a large customer base for the firms' niche products, which were commonly targeted to telecommunication industry or for dealing with large corporations' telecommunication networks' security. The limited local market in Finland was also one reason why the firms started to search market opportunities in major markets, such as Japan and the USA, for their products. Thus, the case firms were forced to enter into these major markets despite of the psychic distance to them. Only this enabled the firms to conduct profitable business in their niche market segments. This is consistent with Lindqvist [16] findings indicating that due to niche product offering, firms in high-technology sectors are forced to internationalize into markets where their target customers are located. Because the firms were actively targeting their products to the Japanese market, this might be the reason why network relationships had a less obvious role in the market selection compared to findings in Coviello and Munro [6] and Moen et al. [20].

Although all the case firms entered the Japanese market quite early on in their internationalization process and with limited international knowledge, they were able to overcome the psychic distance between Finland and Japan. For instance, almost all the case firms hired local employees to handle sales processes in Japan where the Japanese language is an important skill. In addition, each firm with a subsidiary in the market recruited a western manager with a long working experience in the Japanese market to overcome the cultural differences there. These managers had experiential knowledge about business practices in the Japanese market, which helped them to develop their firm's operations in the market. As highlighted in the study of Barney [1], experiential 'tacit' knowledge is a valuable competitive resource for a firm. This finding suggest also that the perception of cultural differences by managers in firms seems to be more important than the actual variation in cultures. From a practical perspective, this is an important managerial implication suggesting that a firm can significantly reduce psychic distance between home and the target country by hiring managers with relevant experiential knowledge. This facilitates the market entry, makes it faster, and helps integrate firms operations to the culture of the target country.

#### **Limitations and Further Research**

This study is not without its limitations. Firstly, it focuses only on direct business operations of the case firms, thus its findings are not fully comparable to earlier studies related to internationalization of small and medium-sized software firms [2, 3, 6, 20]. Secondly, the concept of psychic distance is a wide concept and there are several alternative definitions for it. This study used the definition of psychic distance based on the Uppsala internationalization model [11, 14]. However, further study is needed to investigate the psychic distance concept more deeply, especially on an individual level, because it seems to help firms overcome differences between home and target country. Thirdly, although network relationships had less obvious role in this study compared to earlier findings in the field of international entrepreneurship [2, 6, 20], the supportive role of network relationships in internationalization process requires further study. Network relationships in the internationalization process have been commonly studied using cross-national perspective. Further network relationship studies could benefit from investigations dealing with impacts of network relationships where a firm is targeting their operations to a certain country. Finally, although the sample of this study covered almost all Finnish small and medium-sized software firms having direct business operations in the Japanese market, the sample can be generalized only to some extent and further study is needed to validate these findings.

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# Early Prediction of Employee Attrition in Software Companies-Application of Data Mining Techniques

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## Abstract

Employee retention is one of the biggest challenges in IT companies all over the world. Different companies adopt different strategies to retain the employees. These strategies include large increases in compensation, liberal perks, frequent job rotations, as well as travel and stay abroad. However, literature on turnover indicates that a person's intention to quit is a function of demographic characteristics, job characteristics and organizational characteristics. Individual who have an intention to quit are also likely to engage in other withdrawal behaviors like absenteeism and late-coming. This paper uses data on demographics and the withdrawal behaviors like absenteeism and late-coming to predict turnover. It applies various data mining techniques to identify turnover in organizations. This exploratory study identifies four variables which could enhance the accuracy of prediction of turnover. Further research on the variables needs to be done to contribute to prediction and also identify the possible reasons for attrition.

## Introduction

India has emerged as a major exporter of software services in the international economy in the past decade and a half. India's software sales grew at a compound rate of over 50% between 1995 and 2000. Despite fears that the market for Indian software would surely collapse with the recession in the US, the growth of the software services industry continued and the industry diversified into other geographical and related markets. According to NASSCOM Mc Kinsey report, 2005, the number of people required in the IT industry alone would be 0.8 million in 2010 (Nasscom, 2005).

The initial growth of the Indian software industry could be attributed to the fortunate circumstance of an excess supply of engineers and scientific labour (Arora and Athreye 2002). As the demand for software professionals increased, wages in the software industry started to grow and attrition rates started increasing. More than half of all firms covered in the study by Arora selected manpower shortage and employee attrition as the most serious problems affecting them.

Attrition creates different kinds of threats and problems. When IT professionals leave an organization, not only is the number of them available for assignment to projects decreased, the professionals themselves often take specialized skills, tacit knowledge, and understanding of specific business operations and information systems with them (Moore & Burke, 2002). When attrition is at senior levels then it is also likely that a firm loses some of its customer base to the competitor. "Many of the firms saw employee attrition as an important problem. Several clients commented on the delays due to entire project teams leaving in the midst of the project in response to a more lucrative offer. Such delays were particularly troubling for smaller clients and for product focused clients with a need to shorten product development cycles. In both cases attrition threatened to open up the credibility gap which earlier firms had strived so hard to close" (Athreye 2003).

With increasing competition for human resources, the ability to attract, develop, and retain high-quality employees is becoming the main concern for the industry. Companies are adopting a number of strategies such as market hiring (hiring experienced people from other companies), advertisements, job portals, campus recruitment, headhunters, joint industry-academia programs, employee referrals, and support for higher education, flexi working schedules and retaining freelance headhunters to work exclusively for a particular company. Still, no single approach adequately meets the need.

## **Turnover in Software Industry-Global Scenario**

Turnover of software professionals appears to be a global phenomenon. Some of the studies from US report that the knowledge and skills of IT professionals are needed by a multitude of industries globally. This results in them being more able and willing to change employers than workers in other industries (Freeman & Aspray, 1999). Many IT professionals engage in frequent job-hopping, which provides a greater scope of experience and training rather than remaining in the same position (Summer, 2001 as cited in Snyder et al, 2006). A recent survey indicates that the average time that managers consider acceptable to retain IT workers decreased from an average of 33 months in 2001 to an average of 30 months in 2004 (ITAA, 2004 as cited in Snyder et al, 2006) Capelli (2001) found a particularly high level of turnover among programmers. In a National survey of college graduates done by him, only 19% of computer science graduates remained in the field 20 years later while 52% of the civil engineering graduates did so. A study by George Mason University similarly found that career change among IT workers was double that of workers in other fields (Mandell, 1998). It is increasingly being recognized that the relatively short tenure of IT professionals may be due to the focus by the organizations on hiring workers who have the technical skills needed to deliver on the project immediately, but may realize after the project is completed that the formerly valuable skills are no longer beneficial (Snyder et al, 2006). Providing additional training to the workers creates a contradictory process. While training may increase the ability of the workers to perform better on current and future projects, it also enhances their attractiveness in the market and they become targets for poaching by competitors. Therefore, organizations appear to have chosen the “buy” strategy of seeking necessary skills in new workers rather than retraining (Capelli 2001). However, IT professionals tend to rate career development and a challenging job as greater than monetary compensation in determining their job satisfaction. (Meares & Sargeant, 1999 as cited in Snyder, et al, 2006). This inconsistency makes it difficult for organizations to balance between hiring and training to achieve the balance of skills that are required. In the Indian context, with rising internal competition and continued overseas demand for talent, the average industry attrition ranges between 12 and 35 percent (as reported in popular press), leading to a very high cost of hiring and employee development. For knowledge-intensive activities such as high-tech product development, attrition means not only losing people to competitors but also knowledge walking out of the organization (Moitra, 2001).

The competitiveness of the Indian IT industry rests on its labour pool and therefore, employee turnover is a source of great concern to the industry as a whole. The cost of attrition to the company can be broadly classified in to five categories: the cost of recruiting the new person, the cost of training, the cost of loss productivity, the cost of lost knowledge and the cost of the position remaining vacant till a suitable replacement is found (Sharma, 2007). All these costs would significantly take away the profitability of the firms. Presently cost and quality of personnel are the two sources of competitive advantage for the Indian IT industry.

## **Research on Turnover, Absenteeism and Lateness**

The three dimensions namely turnover, absenteeism and lateness have been grouped together as withdrawal behaviors and have been studied by work psychologists since they impact cost, production and productivity directly. Adler and Golan (1981) define lateness as “the tendency of an employee to arrive at work after the scheduled starting time” Johns (1985) defines absenteeism as the “failure to report for scheduled work” Others define absenteeism as “an individual’s lack of physical presence at a given location and time when there is a social expectation for him or her to be there (Martocchio & Harrison, 1993). The definition of turnover is “the termination of an individual’s formal membership with an organization (Lee, 1997). The connections between the three kinds of withdrawal behaviors have been of interest to researchers.

In particular, the progression perspective has been of particular interest in recent years. It can be conjectured that withdrawal will progress from minor, less salient acts, such as occasional lateness, to more salient acts, such as absence and finally turnover (Johns 2001). Longitudinal studies by Clegg (1983), Wolphin, Burke, Krausz and Freibach (1988) and Rosse (1988) found a lateness-absence progression although Adler & Golan (1981) and Krausz, Koslowsky and Eiser (1998) did not. Blau (1994) found a pattern of increasing chronic lateness that was

associated with elevated absence within the same 18 month period. Several studies reveal a progression from absence to turnover (Krausz et. Al, 1998, Crosby & Brandt, 1988; Rosse 1988). If the progression was indeed existent, then statistically we would expect the relationship between lateness and absenteeism, absenteeism and turnover to be stronger than the relationship between lateness and turnover. The meta-analysis studies support this connection. Koslowsky et al (1997) reported a corrected correlation of 0.40 between lateness and absence and Mitra et al (1992) reported a corrected correlation of .33 between absence and turnover. Koslowsky et al estimated the mean correlation between lateness and actual turnover to be .07 and that between lateness and an apparent composite of actual turnover and turnover intentions to be .27 (Johns, 2001).

The linearity of the progression of withdrawal behaviors is still under scrutiny. However, some studies (Somers, 1999; Sheridan 1985) have found a nonlinear, discontinuous relationship between these behaviors and their relationship with some attitudinal constructs. The review of literature presented above indicates that any study of attrition would need to consider the history related to absence and late-coming.

## **Demographic Variables and the Impact on Withdrawal Behaviors**

The literature on the impact of demographic variables on withdrawal behaviors has been ambivalent. Research has reported ambivalent findings on age, tenure, gender and education. Some studies have reported positive relationship between absenteeism and educational level and gender (Steel & Rentsch, 1995). In a review of literature on turnover among sales professionals, Lucas et al (1987) report that , among all personal characteristics , the most studied and the most consistent in its relationship to turnover is the employee age. Older employees were less likely to leave the organization than younger employees. The role of Tenure and education was unclear; however other researchers (Mobley 1982) consider tenure to be the best single predictor of turnover.

In the research done on IT, Ahuja et al (2007) found age had a modest but significant effect on turnover intention, but tenure did not affect turnover intention. Gender and marital status also did not affect turnover intention. While the database search on turnover and IT/MIS professionals yielded significant results, a similar search on absenteeism and lateness and IT/MIS professionals did not yield any articles. It is therefore, assumed that such a study exploring the relationship between turnover, absenteeism and lateness may not have been explored in the context of software professionals. .

This study attempts to understand attrition by using the demographic variables like age, sex, tenure, nature of the project and martial status along with the withdrawal measures like lateness and absenteeism. This would enable organizations in identifying individual employees who are likely to leave. Application of data mining techniques can help these companies in addressing this problem.

## **Objectives of the Study**

The objectives of the study are as follows:

1. To evaluate the effectiveness of different models with respect to their predictive accuracy.
2. To identify the factors that influence employee attrition
3. To develop a predictive models for employee attrition

## **Methodology**

The methodology adopted involves application of various data mining techniques to predict employee attrition. The models used are artificial neural networks, logistic regression, classification trees (C5.0), classification and regression trees and discriminant analysis. The data on employee attrition was obtained from a software company. The data was extracted from a sample taken from the records of the company. The names of the employees as well as all other such identifiers were first removed from the data. In order to facilitate validation of the models, each employee record was given a unique identification number. The sample consisted of employees who had left the company during the past 3 years as well as those who are still with the company at the time of selecting the sample.

This variable was taken as the dependent variable for the purpose of prediction of attrition. The following data was obtained from the employee records:

- Date of birth
- Gender
- Marital status
- Total years of work experience (binned into 3 categories)
- Months of experience in the present company (binned into 3 categories)
- Months of in the current team (binned into 3 categories)
- Months of experience in the current position (binned into 3 categories)
- Type of position occupied currently in the company (binned into 6 categories)
- Type of software domain expertise
- Number of job changes till joining the present company (binned into 3 categories)
- Month-wise use of casual leave (binned into 3 categories)
- Month-wise use of privilege leave (binned into 3 categories)
- Month-wise data on arrival time at work (binned into 3 categories)

Most of the literature concerning lateness, absence and turnover uses data from employee personnel files to measure the behavior. This study uses the same basis to collect information. The age of the employee was derived from the date of birth. All the experience related variables were binned into categories. The binning was generally based on equi-depth binning. The month-wise data on casual leave, privilege leave and daily arrival times were analyzed to identify changes in the patterns during the past 6 months. The analysis was primarily aimed at isolating cases where the usage was similar, or increasing or decreasing over the past 6 months. When an employee had left the company, the data for 6 months prior to leaving the company was analyzed. Similar analysis was done to identify changes in patterns in arrival times at work.

The normal practice while applying data mining techniques is to divide the data into training and testing data sets. Such division is usually done on random basis. The models are trained using the training data set and then the model thus developed is tested using the testing dataset. The main objective of such separation of training and testing datasets is to make sure that the models developed will not be specific to the special patterns in a particular dataset. Such a separation would be possible where the number of observations is large enough to allow such a luxury. In the present case, the same dataset was used for training as well as for testing because of the dataset contained only a limited number of observations. It is proposed that the models developed and tested could be used with data on other employees in the company for cross validating the model.

## **Sample Profile**

Among all the employees in the sample, 28 percent had left the company where as the remaining 72 percent are still with the company as on the date of sample selection. The sample is predominantly male accounting for 70 percent. Only one-third of the sample employees were married. The group was relatively young with only 30 percent aged above 28 years. The average experience (total experience) was slightly less than 5 years. At the same time, only one-third of the sample employees had more than 6 years of total experience in the industry. The average experience within the company was slightly more than 2 years. More than two-thirds of the sample employees had experience of less than 30 months in the present company. The average experience within the current team was slightly more than 18 months, which is somewhat longer than the usual norm in the industry. The sample employees have spent even less time on average in their current position. The average time in the current position was less than 18 months indicating that the promotions were rather fast and early? Another interesting aspect of the sample was that the average number of job changes was just about one. This was the very first job for about one-third of the sample employees.

In summary, it appears that the employees in the sample are young, with fast growth in the company and continuing in the same team for a fairly long time. They are predominantly male and single.



## Development of Prediction Models

As mentioned earlier, five different types of models were trained and tested. These models are:

- Artificial Neural Networks (ANN)
- Logistic Regression
- Classification Trees (C5.0)
- Classification and Regression Trees (CART)
- Discriminant Analysis

The following section describes each of the models and presents the results with respect to the training and testing of these models. The variables that are significant in each of the models and their relative importance are also discussed in this section.

### Artificial Neural Networks

The artificial neural networks (ANN) are generally based on the concepts of the human (or biological) neural network consisting of neurons, which are interconnected by the processing elements. The ANNs are composed of two main structures namely the nodes and the links. The nodes correspond to the neurons and the links correspond to the links between neurons. The ANN accepts the values of inputs into what are called input nodes. This set of nodes is also referred to as the input layer. These input values are then multiplied by a set of numbers (also called as weights) that are stored in the links. These values, after multiplication, are added together to become inputs to the set of nodes that are to the right of the input nodes. This layer of nodes is usually referred to as the hidden layer. Many ANNs contain multiple hidden layers, each feeding into the next layer. Finally, the values from last hidden layer are fed into an output node, where a special mapping or thresholding function is applied and the resulting number is mapped to the prediction. The ANN is created by presenting the network with inputs from many records whose outcome is already known. For example, the data on age, income and occupation of the first employee (first record) are inputted into the input layer. These values are fed into the hidden layer and after processing (by combining these values using appropriate weights) the prediction is made at the output layer. If the prediction made by the ANN matches with the actual known status of the employee (say either left the company or not), then the prediction is good and the ANN proceeds to the next record. If the prediction is wrong, then the extent of error (expressed in numerical values) is apportioned back into the links and the hidden nodes. In other words, the values of the weights at each link are modified based on the extent of error in prediction. This process is referred to as the backward propagation. The artificial neural networks are found to be effective in detecting unknown relationships. ANNs have been applied in many service industries such as health (to identify the length of stay and hospital expenses) (Nagadevara, 2004), air lines (Chatfield, 1998) and ANNs are used in this paper for predicting the categories of the members of the loyalty programmes (Nagadevara 2005).

A total of 14 variables are used to build the ANNs for predicting the employee attrition. These are in addition to the dependent variable, which is a nominal variable indicating whether the employee is still with the company or had left the company. Most often the mathematical relationships or equations developed by the ANNs are complex and not available to the user. As a result, these are treated as black boxes, only to be used to obtain the prediction results. Nevertheless, it is important to know the relative importance of each of the variables in predicting the categories. The software used provides the sensitivity of the prediction with respect to each of the variables and this can be viewed as an indicator of the relative importance of the variables in question. Table 1 summarizes this information with respect to each of the 14 variables used for building the ANNs.

TABLE 1: RELATIVE IMPORTANCE OF THE INPUTS USED IN THE CONSTRUCTION OF ANNs

Variable	Relative importance
Privilege Leave Used (Binned)	0.148577
Current Position in the Company (Binned)	0.146736
Current Technical Expertise	0.146736
Late Arrival at the office (Binned)	0.144292
Experience in the company (Binned)	0.082996
Total Experience (Binned)	0.078281
Domain Experience	0.071921
Casual Leave Used (Binned)	0.069042
Total number of job hops	0.034097
Marital Status	0.025611
Gender	0.014790
Age (Binned)	0.010350
Experience in the current position (Binned)	0.004343
Experience in the current team (Binned)	0.003620

The prediction accuracy obtained using the ANNs is 81.63 percent. The prediction percentages are presented in Table 6 at the end of this section. While the ANNs are able to predict those who remained with the company with an accuracy level of more than 90 percent, the accuracy level of prediction is only 59 percent with respect to those who left the company. In other words, the ANNs are excellent in their predictions with respect to those who remain with the company. The most important indicator for prediction is the pattern of use of Privilege leave. This is followed by the current position in the company, current technical expertise and the pattern of late arrival at the office. It is not surprising that two of the four most important indicators are the changes in the behavioral patterns of the employees.

#### **Logistic Regression**

Logistic regression is a specialized form of regression used to predict and explain a categorical dependent variable. It works best when the dependent variable is a binary categorical variable. The regression equation developed is very similar to a multiple regression equation with “regression-like” coefficients which explains the impact of each of the independent variable in predicting the category of the dependent variable. One special advantage of logistic regression is that it is not restricted by the normality assumption which is a basic assumption in the regression analysis. It can also accommodate non-metric variables such as nominal or categorical variables by coding them into dummy variables. Another advantage of logistic regression is that it directly predicts the probability of an event occurring. In order to make sure that the dependent variable, which is the probability, is bounded between zero and one, the logistic regression defines a relationship between the dependent and independent variables that resembles an S-shaped curve. It uses an iterative process to estimate the “most likely” values of the coefficients. This results in the use of a “likelihood” function in fitting the equation rather than using the sum of squares approach of the regression analysis. The dependent variable is considered as the “odds-ratio” of a specific observation belonging to a particular group or category. In that sense, logistic regression estimates the probability directly.

In order to get the best prediction results from the logistic regression, it is important to have continuous variables as independent variables. It is also important to define the nominal variables appropriately, so that they are converted into the required number of dummy variables. Thus, the use of binned variables is kept to the minimum possible in the case of logistic regression. The variables used in building the logistic regression and the corresponding coefficients are presented in Table 2.

TABLE 2: VARIABLES IN THE EQUATION

Variable	B	Exp(B)
Age (in years)	.762	2.142
Gender	-.770	.463
Marital Status	1.699	5.470
Total Experience in Years	-.984	.374
Experience at the Company	.263	1.300
Experience in the Current Team	-.461	.631
Experience in the Current Position	-.334	.716
Total number of Job Hops	-.459	.632
Casual leave used	.410	1.506
Privilege Leave used	-.119	.888
Late arrival at the office	-.262	.769
Current Position (Binned)		
Current Position Binned(1)	-.828	.437
Current Position Binned(2)	.623	1.865
Current Position Binned(3)	-.409	.664
Current Position Binned(4)	-2.318	.098
Current Position Binned(5)	3.612	37.035
Constant	-14.489	.000

TABLE 3: OMNIBUS TESTS OF MODEL COEFFICIENTS

		Chi-square	df	Sig.
Step 1	Step	60.179	16	.000
	Block	60.179	16	.000
	Model	60.179	16	.000

The prediction accuracy obtained by the logistic regression is 79.58 percent. In logistic regression, interpretation of the regression coefficient is not as that of the regular regression equation. The exponential value of the coefficient is considered to be the measure of the impact of the corresponding independent variable on the “odds-ratio”. Hence, Table 2 presents not only the regression coefficients, but also its exponential value. The relative importance of different variables on the “odds-ratio” can be obtained directly from Table 2.

**Classification and Regression Trees (CART)**

Classification and Regression Trees (CART) is one of the popular methods of building classification trees. CART always builds a binary tree by splitting the observations at each node based on a single attribute or variable. CART uses gini index for identifying the best split. If no split that could significantly reduce the diversity of a given node could be found, the process of splitting is stopped and the node is labeled as a leaf node. When all the nodes become leaf nodes, the tree is fully grown. At the end of the construction of the tree, each and every observation has been assigned to a leaf node. Each leaf can now be assigned to a particular class and a corresponding error rate. The error rate at the leaf node is nothing but the percentage of misclassifications at the leaf node. The error rate for the entire tree is the weighted sum of the error rates of all the leaf nodes.

The classification and regression trees work best with nominal or binned variables. Hence, the data used to build the classification and regression tree is either in the form of binned data or nominal data. The resultant tree is presented in Figure 1. It can be seen from the tree that experience in the current team is one of the important determinants. Not only it appears at the top of the tree, but it also results in a pure node on one of the branches.

Similarly, the relative importance of different variables could be seen from the tree. As shown in Table 6, the prediction accuracy of the Classification and Regression Tree is 89.80 percent. Here also, the predictions are much better with respect to those who have not left the company.

#### **Classification Trees (C5.0)**

In the case of C5.0 classification trees, the splitting of the records at each node is done based on the information gain. Entropy is used to measure the information gain at each node. This method can generate trees with variable number of branches at each node. For example, when a discrete variable is selected as an attribute for splitting, there would be one branch for each value of the attribute. The construction of the tree, creation of leaf nodes and labeling of the leaf nodes as well as the estimation of error rates are very similar to the CART methodology.

As it is in the case of Classification and Regression Trees, nominal or binned variables are best suited for the Classification Trees. The tree constructed using the classification tree (C5.0) method is presented in Figure 2. One major difference between the CART and the classification trees is that classification trees allow multiple branches at any given node where as CART allows only binary splits. This is evident at Node 4 (Level 3) of the classification tree. In the case of classification trees also, experience in the current team appears to be one of the important factors in predicting attrition. The pattern of late arrival at the office appears to be one of the important determinants under classification trees. The prediction accuracy of the classification trees is 88.44 percent, which is very similar to that of the CART. The prediction accuracy of the classification tree is marginally better with respect to those who had left the company (as compared to CART).

The prediction accuracies of both CART and Classification Trees are very similar. This is not unexpected, considering that both the techniques work on similar principles, but differ only in terms of methodologies and splitting criteria adopted.

#### **Discriminant Analysis**

Discriminant analysis is one of the commonly used statistical techniques where the dependent variable is categorical or nominal in nature and the independent variables are metric or ratio variables. It involves deriving a variate or “z-score” which is a linear combination of two or more independent variables that will discriminate best between two (or more) different categories or groups. The discriminant analysis involves creating one or more discriminant functions so as to maximize the variance between the categories relative to the variance within the categories. The z-scores calculated using the discriminant functions could be used to estimate the probabilities that a particular member or observation belongs to a particular category.

It is important that the independent variables used in discriminant analysis are continuous or metric in nature. Accordingly, the variables used in estimating the discriminant function are the original variables. The coefficients of the standardized discriminant function are presented in Table 4. In addition to the coefficients, the Chi-square statistic as well as Wilks’ Lambda, which indicates the goodness of fit are also presented in Table 5.

The prediction accuracy of employee attrition based on discriminant analysis was 82.09 percent. The predictions are more accurate with respect to the employees who had left the organization. It can be seen from Table 4 that the standardized coefficients with respect to four variables namely, age, experience in the company, casual leave used and late arrival at the office are negative. The dependent variable, which is categorical, is coded as “0” for those who left the company and as “1” for those who remained in the company. Thus it can be concluded that these variable with a negative coefficient have a positive relationship with attrition (employees likely to leave the company)

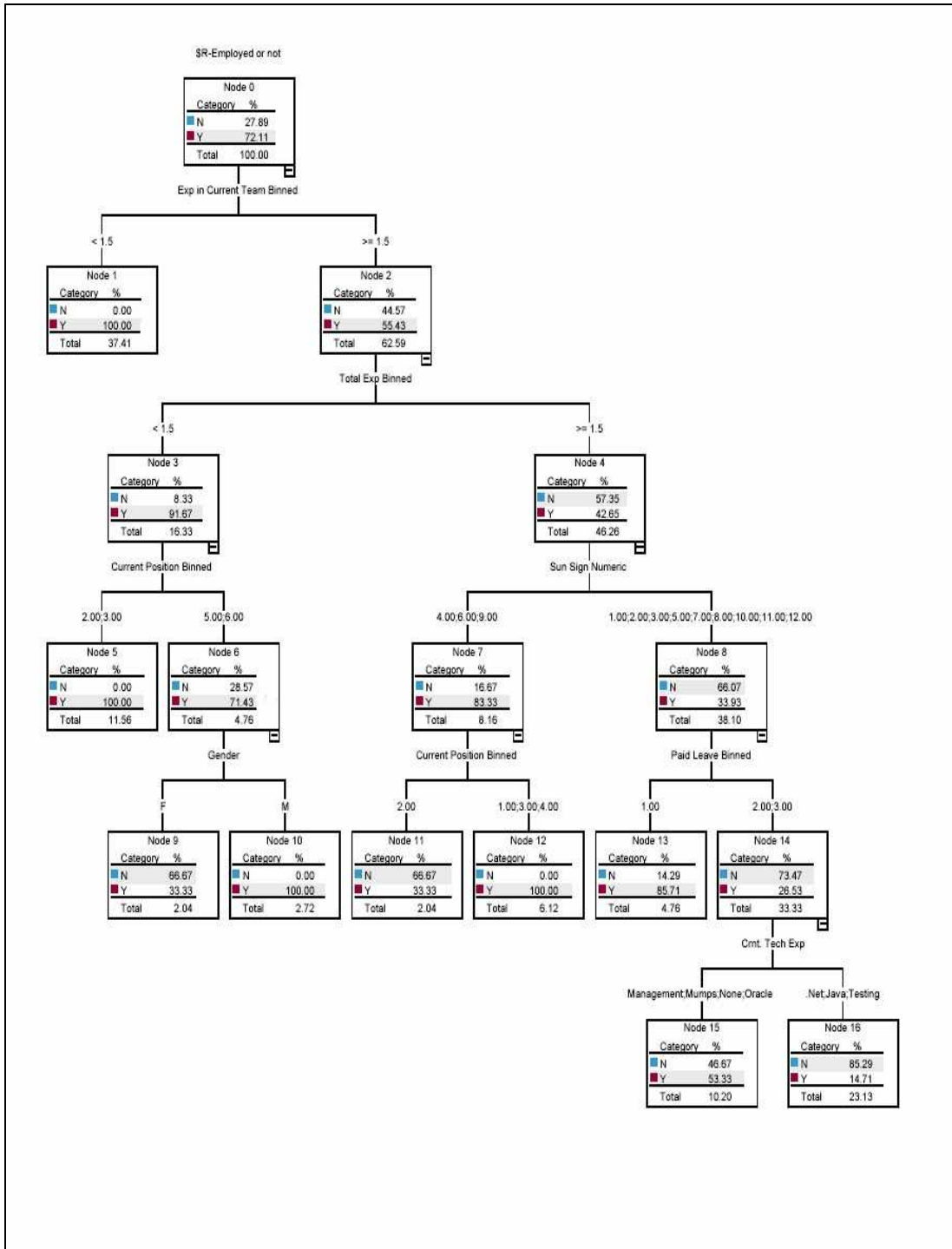


FIG.1 CLASSIFICATION AND REGRESSION TREE DIAGRAM

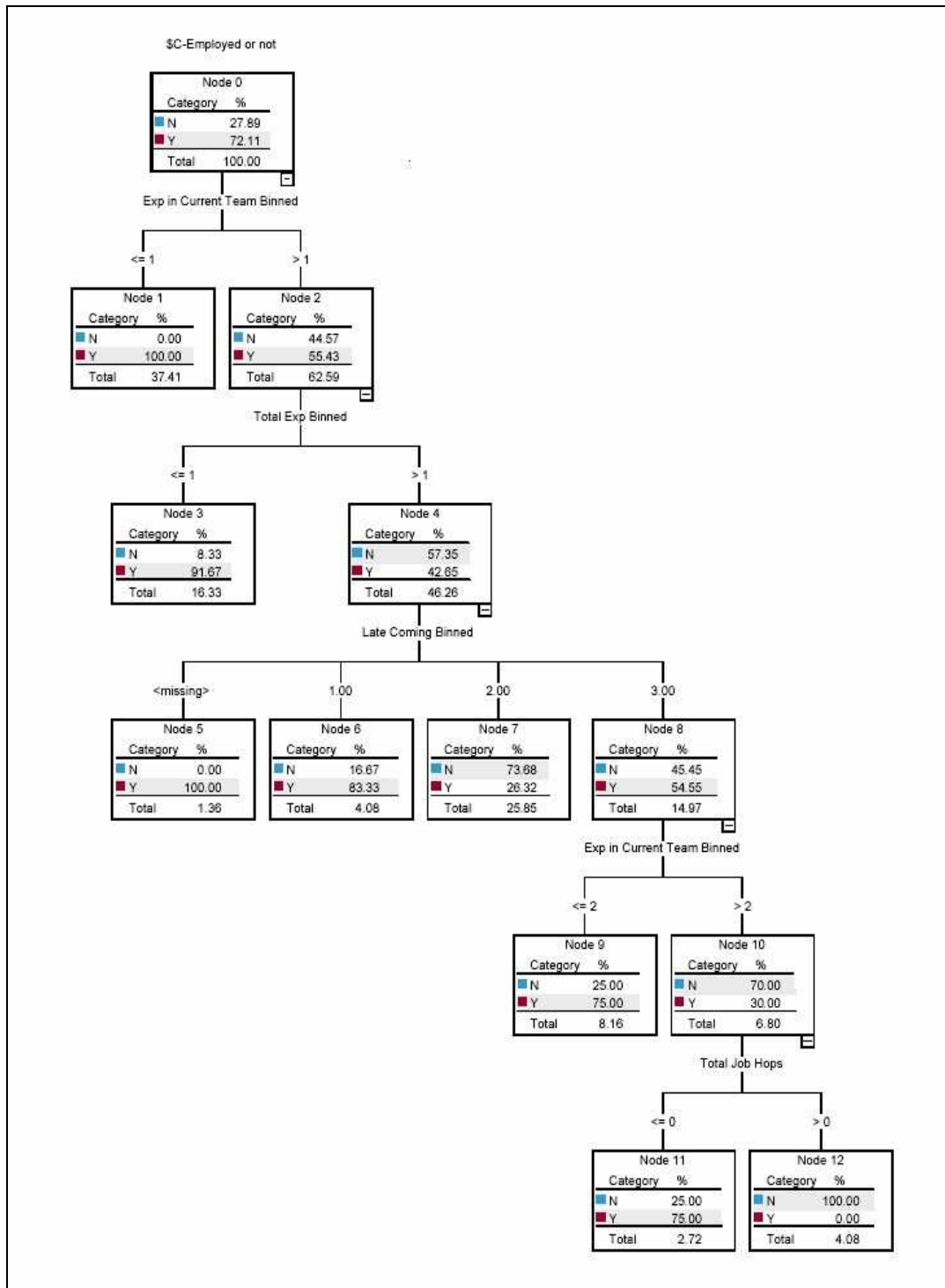


FIG. 2 CLASSIFICATION TREE DIAGRAM

TABLE 4: STANDARDIZED CANONICAL DISCRIMINANT FUNCTION COEFFICIENTS

Variable	Coefficient
Age (in years)	-1.437
Total Experience in Years	1.815
Experience at the Company	-.832
Experience in the Current Team	.629
Experience in the Current Position	.615
Current Technical Expertise	.002
Total number of Job Hops	.197
Casual leave used	-.306
Privilege Leave used	.204
Late arrival at the office	-.073

TABLE 5: CHI-SQUARE STATISTIC AND WILKS' LAMBDA CORRESPONDING TO THE DISCRIMINANT FUNCTION

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1	.742	37.873	10	.000

Table 6 summarizes the prediction accuracies of all the five techniques used for prediction of attrition. Interestingly, all the five prediction techniques have shown reasonable accuracy levels with respect to those employees who remained with the company. On the other hand, discriminant analysis had given the highest accuracy level with respect to those who had left the company. Artificial neural networks are the lowest on predictive accuracy with respect to those who had left the company. From the company's perspective, it is important to predict those who are likely to leave the company more accurately so that pro-active strategies could be initiated to minimize the attrition levels. The company would be in a position to engage those who are predicted as likely to be leaving the company to identify the possible reasons even before the employees have made the final decision. On the whole the classification trees and CART appear to give the best results in terms of prediction accuracy. Both these techniques are able to predict the attrition with an accuracy level of above 80 percent. At the same time the accuracy levels of these techniques with respect to those who remained with the company are above 90 percent.

TABLE 6: PREDICTION ACCURACIES OF DIFFERENT TECHNIQUES USED

Actual	Prediction		
	Left the Company	Not Left the Company	Total
C 5.0			
Left the Company	82.93%	17.07%	100.00%
Not Left the Company	9.43%	90.57%	100.00%
CART			
Left the Company	80.49%	19.51%	100.00%
Not Left the Company	6.60%	93.40%	100.00%
Logistic Regression			
Left the Company	75.00%	25.00%	100.00%
Not Left the Company	18.63%	81.37%	100.00%
<i>The cut value is 0.700</i>			
Artificial Neural Networks			
Left the Company	58.54%	41.46%	100.00%
Not Left the Company	9.43%	90.57%	100.00%
Discriminant Analysis			
Left the Company	86.84%	13.16%	100.00%
Not Left the Company	19.79%	80.21%	100.00%

## Summary and Conclusions

This paper applies various data mining techniques to identify such individuals. Five different techniques namely, artificial neural networks, classification and regression trees, logistic regression, classification trees (C5.0) and discriminant analysis were applied to predict the employee attrition. The overall predictive accuracy was between 79.57 percent and 89.80 percent. The companies would be more interested in the prediction accuracies of those who are likely to leave the company. The prediction accuracies have shown a wide variation in this respect. The ANNs appear to lowest predictive accuracy at only 58.54 percent where as the best prediction was possible with discriminant analysis. The identification of the four variables age, experience in the organization, late coming and casual leave in their relationship to turnover is significant from a research perspective. The role of age as a variable in the Indian context is particularly significant. The IT industry has been hiring in large numbers from the campus. Most of these graduates are first time workforce entrants who appear to have unrealistic expectations from the job and the organization. This unrealistic expectation coupled with scarcity of employable skills, and soaring salaries make them particularly vulnerable for turnover. It is also likely that many employees engage in a process of career exploration in their first few jobs. Therefore, the relationship between age and turnover has to be examined in the Indian context. Existing research on careers also suggests that older employees given their career and life stage, may not be able to move as easily. The role of lateness and absenteeism in predicting turnover requires further examination.

While these predictive accuracies are specific to the data used in the analysis and to the specific company in question, the study has shown that it is possible to predict the employee attrition, and identify those who are likely to leave the company even before they had made their final decision to leave. Such predictive abilities could help the company to initiate proactive measure to minimize the attrition. It is important for the company to try out different models and techniques and identify important variables before finalizing on a specific technique or model. It is also possible to adopt a hybrid methodology rather than depending on a single technique alone to improve predictive accuracies.



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# Technological Knowledge Transfer from Foreign Partners to Uganda's International Joint Ventures: A Case of the Manufacturing Industries

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## Abstract

The study investigates the extent of and factors that affect technological knowledge transfer from foreign partners to IJV in Uganda's manufacturing sector. Government's policy that encourages local firms to acquire and adopt technological knowledge to foster industrialization prompted the study. A total of 103 IJV's were surveyed using a self administered questionnaire. Data was analysed using factor and reliability analysis and multiple regressions. Findings confirm a fairly low incidence of transfer of technological knowledge from foreign partners to IJV and also indicate that learning and development and structural attachment have a positive significant effect on the extent of technological knowledge transfer. This is in line with Blau's (1964) social exchange theory which recognizes the importance of investing in irrecoverable resources in a relationship to create ties that set an expectation of reciprocity. Future research could be directed to conducting a longitudinal study to investigate other types of knowledge preferably in service industries.

## Background of the Study

The application of knowledge is now recognized to be one of the key sources of growth in the global economy (World Bank, 2006). Countries especially those in the developed world are at the forefront of harnessing employer's knowledge as a strategy to increase competitiveness, growth and wealth and to improve performance. And as global competition that has resulted in an increasingly complex and unpredictable business environment intensifies, access to and application of knowledge become decisive factors in determining economic growth (Dahlan, Ramayah, Karia, Fun & Asaari, 2005; Hoeg & Schulze, 2005; World Bank, 2006). Developing countries in general and Uganda in particular who wish to effectively participate in globalization and benefit from it and yet their knowledge bases are insufficient must focus on facilitating knowledge worker productivity for survival more than ever before. In response to these challenges, governments around the world are adjusting their development strategies within a new framework in which accumulation of knowledge by way of knowledge transfer is occupying a central place.

The Government of Uganda in its effort to promote high economic growth and compete globally is committed to building local technological capabilities in-order to propel the country towards the status of an industrialized nation (UNCTAD, 2004). This fundamental national economic move is articulated in Uganda's National Vision 2025 emphasizing macro economic stability through an enterprising, innovative and industrious society. Industrial development is linked with the existing national policies, programs and strategies that regard technology and knowledge among the key factors of production (World Bank, 2006). The expansion or establishment of new industries whose goal is wealth creation and improvement of people's welfare and poverty reduction is expected to increase the value of the county's natural resources, ensure job creation, guarantee enhanced household incomes, raise foreign exchange earnings and facilitate the transfer of technical know-how.

Aware of its insufficient levels of scientific and technological knowledge (UNCTAD, 2004; World Bank, 1995), the Government of Uganda has embarked on several strategies aimed at acquiring and adopting new scientific and technological knowledge from foreign partners. Through its numerous economic reforms, the government has since 1986 attracted many foreign investors, encouraged local firms to form joint ventures in business partnerships with foreign investors in the hope that firms in Uganda could gain knowledge and expertise from such consortia and partnerships and apply it in their own operations and enacted the 1991 Investment Code that delineates the policy that promotes the transfer of technological knowledge from foreign partners. In spite of all

these efforts on the part of Government to accumulate technological knowledge from foreign partners, there is no indication of the extent of transfer of technological knowledge from foreign partners as a result of joint partnerships.

Though there are few existing studies in form of case studies and donor commissioned surveys that provide an insight on the transferability of technological skills in Uganda, we are not aware of any empirical studies that have particularly investigated the transfer of technological knowledge from foreign partners to IJV in Uganda. The few studies revealed that the soft side of technology transfer, absorption of organization and management practices as well as tacit knowledge that refer to the kind of instinct values, personal beliefs, individual actions and experience that resides in people's minds (Nonaka, 1994; Nonaka & Takeuchi, 1995; Polanyi, 1967) was neglected (UNCST, 2000, 2001). The studies further suggest that technologies that were transferred were embodied in new equipment or in patents, blueprint technical drawings and manuals that brought direct outcomes of innovation rather than mechanisms, which facilitate learning about the innovation process itself (UNCTAD, 2002; UNIDO, 2000). Since there is ample literature to show that knowledge transfer in organizations occurs through alliances and other forms of inter-organizational relationships, this study complements literature by investigating technological knowledge transfer from foreign partners to IJV in Uganda's manufacturing sector. The choice for the manufacturing sector cannot be underscored since technological knowledge comprises the knowledge base that manufacturing industries apply in the development, design, production and application of processes, procedures, systems and services.

## **Literature Review**

Starting from Polanyi's (1967) assertion that knowledge comprises of tacit and explicit dimensions that are mutually complementary, several other scholars have also defined knowledge by categorizing it into different forms (Bloodgood & Salisbury, 2001; Edvinson & Sullivan, 1996; Nonaka & Takeuchi, 1995). Nonaka (1994) has categorized tacit knowledge into two dimensions. The technical dimension encompasses skills, crafts, and the cognitive dimension that resides in people's heads in the form of instinct values, experience and personal beliefs that shape the way individuals perceive the world around them. The importance of technical know-how in Uganda cannot be underscored considering that it is such type of knowledge that is required to transform the available resources and to produce direct outcomes of innovation that spur industrial growth (Fernandize, Montes, Gullermo, Bustamante & Vazquez 1999; Shrivastava & Souder, 1987). We consider such technical know-how as technological knowledge, which is defined as a body of experience, contextual information and techniques used in the development, design, production and application of processes, procedures, systems and services (Shrivastava & Souder, 1987).

### **Knowledge Transfer in International Joint Ventures**

Earlier research on International joint venture literature dwelt on three interconnected theoretical dimensions of primary emphasis (Luo, 2000; McFashion & Sweeney, 2003; Parke, 1996; Wong & Ellis, 2002). The dimensions are antecedents, which include JV formation and partner selection; specific management issues pertaining to control and conflict; outcomes that encompass JV stability and performance. The traditional approaches however omitted the concept of learning, which are now the trend of current research and the focus of this study. The concept of learning as a current phenomenon has gained popularity at unprecedented levels in the last century (Bochel et al., 1998; Lyles & Dhanaraj, 2004). The organizational learning perspective focuses on how value is created through the enhancement of partner skills (Inkpen, 2000; Lyles & Dhanaraj, 2004). There are two distinct values on alliance learning (Peridis, 2000), co-specialization and capability enhancement and conduits for skills accessibility. The opportunity for co-specialization and enhancement of capabilities that are associated with new business opportunities arise from the integration of partner capabilities (Griffith et al., 2002; Mimbaeva & Pedersen, 2003). The second value coined "the race to learn" (Hamel, 1991) views alliances as conduits for accessing partners' strategic resources and embedded knowledge (Inkpen & Beamish, 1997; Tiemessen et al., 1997). The second value is considered as a win-win situation because the benefits of learning are transferable to the partners other business hence resulting in a multiplier effect and increasing the incentive to co-operate (Peridis, 2000). The race to learn on the other hand is considered unstable because a faster mastery of skills on the part of a partner that is quicker to learn is likely to lead to alliance instability (Inkpen, 1998). Organizations capable of integrating and utilizing

knowledge according to Griffith et al. (2002) have been linked to improved manufacturing productivity, alliance efficiency and adaptability, supporting international expansion strategies and developing a sustainable competitive advantage.

#### **Factors Affecting Technological Knowledge Transfer**

Some studies have analyzed barriers of knowledge transfer and replication, which include features of knowledge or causal ambiguity (Inkpen & Dinur, 1998; Simonin, 1999; Zander & Kogut, 1995). Other studies explored the effect of social contexts in terms of social distance and organizational culture on the transfer of knowledge (Inkpen, 2001; Inkpen & Dinur, 1998; Kostova, 1999). Gupta and Guvindarajan (2000) also investigated perceived value of the source unit's knowledge, the transferors' willingness to share knowledge, the existence and richness of transmission channels and transferee's willingness to share knowledge. Tsang (2002) also investigated the effect of previous experience in forming and managing alliances or having collaborated with the same partner on knowledge transfer. Yet other studies investigated the characteristics of the transfer process (Argote, 1998; Argote et al., 1990; Baum & Ingram, 1999; Darr et al., 1995). Literature suggests that research on knowledge transfer in joint ventures does not seem to converge as evidenced by a proliferation of constructs and models (Lyles & Dhanaraj, 2004). From our discussion on the various frameworks above, it is evident that several factors affect the transfer of knowledge in Joint Ventures. However some studies on technological acquisitions and innovation emphasize the importance of similar external environments, technological similarity, geographical proximity and comparable internal structures in facilitating effective inter-firm technological knowledge transfers (Rosenkopf & Almeida, 2003; Stern & Henderson, 2004).

#### **External Environment**

External environment refers to anything outside the typical boundaries of an organization that create opportunities and threats to the organization, but over which the organization has little control (Hall, 2002; Robbins, 2001). Five organizational environmental domains include social, political, ecological, economic and technological (Hall, 2003). The different environmental domains have varying impacts on organizations according to Hall (2003). Whereas some organizations face relatively static environments like absence of new competitors, unavailability of new technological breakthroughs, less consumer demands others face very dynamic environments. Erratic government policies and regulations, sophisticated consumer demands, insufficient raw materials and numerous competitors are some of the characteristics of dynamic environments. The relatedness of external environment is an important determinant of where an IJV will search for and acquire competencies (Hansen & Lovas, 2004). Empirical studies of patent data posit that firms continue to seek and draw upon knowledge bases of firms most technologically similar to theirs (Mowery, et al., 1996) and from those in geographically proximate locations (Rosenkopf & Almeida, 2003; Song et al., 2003).

#### **Technological Similarity**

The extent to which firms can internalize new skills and techniques may be partially dependent on the recipients' knowledge bases (Hamel, 1991). Hamel (1991) further observed that if organizations' learning has to be effective, the knowledge bases have to be almost similar or else there will be many learning steps that make learning almost impossible. A partner firm possesses a related technological competence as long as its technological and technical expertise has similarities with what an IJV requires. This implies that elements of similar technological knowledge facilitate the integration of the acquired knowledge base (Hamel, 1991; Kogut & Zander, 1992). The proposition of technological similarity is anchored on Cohen and Levinthal's (1990) notion of absorptive capacity. It is posited that common skills, shared languages and similar cognitive structures enable technical communication and learning (Lane & Lubatkin, 1998). Likewise, technologies that are particularly foreign and unfamiliar to the firm in relation to its technical competency base are difficult to comprehend (Steensma, 1996).

#### **Geographical Proximity**

Studies investigating technology transfer have pointed out that most technological knowledge that accompanies hard technology is highly firm specific, tacit, personal and less transferable across boundaries (Kogut & Zander, 1992; Mowery et al., 1996). To transfer such technological knowledge, the recipient firms would usually need to establish a much closer and more interactive relationship with the knowledge providers (Roberts, 2000). Studies investigating the impact of physical distance have posited that intense interactions often required in R&D demand close proximity (Almeida, 1996). That this is important because the parties need to go through alliterations of trying and testing and

doing some more in order to develop R& D capability (Cummings & Teng, 2003). These studies suggest that geographical proximity reduce the cost and time of communicating and increases the frequency of personal contacts that build social relations thereby facilitating knowledge flow (Rosenkopf & Almeida, 2003).

#### **Comparable Internal Structures**

Technological knowledge is often embedded in a firm's problem-solving techniques, communication channels that with time become taken for granted. These core structural features of an organization where technological knowledge is embedded become implicit, durable and difficult to change (Nelson & Winter, 1982) and as such learning about complex technologies becomes context-dependent. As a result of this, the effective transfer of technological competencies across businesses with less compatible internal structures is highly unlikely for in the absence of such similarities, the recipient firms would lack the following (Stern & Henderson, 2004): The communication channels needed to evaluate, receive and filter rich information; The organization routines and structures for effective storage and maintenance; The implicit problem-solving strategies needed to interpret information and apply it to solve organizational problems and apply it to commercial ethos.

#### **Conceptual Framework and Hypotheses**

Though recent research emphasizes the ease of technological knowledge flow between technologically and geographically proximate firms, we support Rosenkopf and Almeida's (2003) suggestion that the formation of strategic alliances as in case of joint ventures can enable firms overcome geographical and technological constraints. We also posit that even when partners undertake to collaborate with the intention of exploiting external knowledge, certain requirements must be in place for the successful completion of the whole process. One is that partners must be confident that the relaters can be relied upon to behave in such a manner that the long term interest of the partners will be served, they must be committed to the relationship long-term maintenance and willing to have earnest dialogues. Another is that, there must be norms or routines that provide a formal structure to a relationship. Luo (2002) described such ties that manifest at an organizational level as structural attachments that bind parties to a relationship and make it difficult to consider other exchange partners (De Wulf et al., 2003). Lastly, the partner must have the necessary capacity to learn. This capacity includes an ability to internalize within its core organization the knowledge that it acquires through an alliance and the ease with which an organization allows its staff to generate new ideas. Our choice of variables is guided by theories that underpin the model, by previous literature on technological knowledge and by the Ugandan context in which IJV operate. Although some of these factors have been examined extensively in developing economies, to the best of our knowledge, these are yet to be extensively researched in the underdeveloped economies.

The importance of establishing very close and more interactive relations with knowledge providers and the essence of technological similarities is cited in technological transfer literature (Ahuja & Katila, 2001; Hansen & Lovas, 2004; Rosenkopf & Almeida, 2003; Steensma, 1996; Stern & Henderson, 2004). The inclusion of relationship quality factors was based on Uganda's past history. With the expulsion of the Asian community most of who owned the industries and were the custodians of the technical know-how, we believe that investigating trust between IJV and foreign partners and communication behavior cannot be underscored. We drew relationship quality and firm-level learning capabilities' variables from Argote (1999) model and incorporated inter-party attachment from Luo (2002) model. We have not come across any previous research that considered Argote's and Luo's constructs simultaneously. By combining Argote's and Luo's constructs into one integrated model, we have been able to enrich the model further. We can therefore assess the differential impact of these factors in a more reliable way as opposed to testing their effect separately. We integrate this conceptualization with the social exchange theory on the premise that partners will only continue to exchange valuable resources if they perceive the exchange relationship attractive and likely to yield a pattern of reciprocal obligations (Blau, 1964; Demirgarg & Mirza, 2000). The affection that develops motivates partners to share strategic resources like know-how that enhance a firm's ability to recognize and evaluate new knowledge (Cohen & Levinthal, 1990). Such a framework will contribute to theory, contribute to the aforementioned existing gaps in literature and expand research that could significantly impact on emerging economies that will propose solutions to narrow the technological gap between them and advanced nations.

From the review of literature and from our conceptual perspective, we believe that the main motive behind joint venture formation in Uganda is their importance as conduits through which firms can access and learn each

other's critical skills and capabilities (Inkpen, 2000, 2001). We thus seek to investigate the extent to which technological knowledge has transferred from foreign partners to IJV in Uganda's manufacturing sector. The transference of technological knowledge is particularly imperative because technological knowledge constitutes an important phase for industrialization on which developing countries anchor their economic growth. The study assesses how factors such as relationship quality, inter-party attachment, and firm-level learning capabilities affect the extent of technological knowledge transfer in Uganda's IJV.

#### **Trust and Communication Behavior**

The quality of a relationship between IJV and its partners is very important because a firm is able to learn more easily from alliance partners when the degree of trust, transparency and openness between them is high (Doz & Hamel, 1998; Hamel, 1991). Since the cost of developing, deploying capabilities and of sharing know-how in inter-organizational relationships is high, effective mechanisms must be in place to discourage free riding and allow knowledge exchange (Dyer & Singh, 1998). Equally important is the quality of information and know-how exchanged in terms of accuracy, comprehensiveness and timeliness and participation in goal formulation and joint planning referred to as communication behavior.

Existing research suggests that mutual trust between partners reduces the fear of free riding and opportunistic behavior often associated with the exchange and accessibility of assets such as knowledge that create value, are not available on open market and require time to build up (Ahuja, 2000; Gulati; 1995 Zaheer et al. 1998). Building upon this extent literature, that improved relationship quality can contribute to a freer and greater information exchange and expertise between committed exchange partners. Overall, we believe that the amount of knowledge transferred from foreign partners to the IJV will be influenced by the degree of trust between the foreign partner and the IJV. More trust in the partners' competence will result in higher intent to acquire and adopt knowledge on the part of the IJV because higher levels of transparency and openness are often associated with the ease to learn (Inkpen, 1998) and will most probably affect the amount of knowledge transferred. Second, partners who trust each other are likely to lower the level of protectiveness towards each other thus increasing transparency. This nevertheless leads to accuracy, comprehensiveness and timeliness of information provided. Information is a necessary medium in organizational learning for knowledge exploitation (Nonaka, 1994). Individuals obtain and interpret information and learn by updating their mental models (Von Hippel, 1994). As individuals' mental modes are enhanced, organizations ability to search, identify, acquire and adapt external knowledge is also enhanced. We therefore conclude that improved communication behavior will result in greater extents of technological knowledge transfer. Thus, we hypothesized that:

*H1. The higher the quality of the relationship between partners in terms of trust, the greater the extent of technological knowledge transfer.*

*H2. The higher the quality of the relationship between partners in terms of communication behavior, the greater the extent of technological knowledge transfer.*

#### **Structural Attachment**

Cross organizational boundaries aimed at establishing social ties (Luo, 2001) at either individual or organizational level play an important role in knowledge transfer. When the partners have developed a strong attachment that is manifested at organizational level, it's more likely that they will have a basic understanding about each other's skills and competencies (Inkpen & Beamish, 1997). Effective attachments reduce risk by carrying expectations of trust and abstention from opportunism and encourage resource exchange (Luo, 2000; Seabright et al., 1992) of which technological knowledge transfer is part. More so, social ties lubricate the workings of the relationship by supporting the existence of shared values, non-opportunistic behavior (Morgan & Hunt, 1994) and timely communication. We follow Luo (2002) argument that attachments in IJV create a favorable climate for knowledge exchange because increased trust and commitment that develops between exchange partners facilitate the transfer of especially embedded knowledge. Both parties develop a common culture that nourishes mutual learning which when coupled with increased familiarity of policies and procedures with greater understanding of the nuances of each other's knowledge, ease the ability to transfer. We thus hypothesized that:

*H3. The greater the structural attachment between partners, the greater the extent of technological knowledge transfer.*

### **Learning & Development and Creativity & Flexibility**

A transferee's learning capability is reported to be a major influence of knowledge transfer (Gupta & Govindarajan, 2000; Lane et al., 2001; Simonin, 1999). An IJV learning capacity requires that firms have considerable in-house expertise that complements the technology activities of its alliance partners. Organizations that have clear strategies for learning and staff development acquire knowledge more effectively from their foreign parents (Inkpen & Crossan, 1995). Learning and development will enhance individual absorptive capacity and cumulatively improve overall learning of the IJV. Since possession of prior related knowledge is necessary for the effective assimilation of new knowledge (Cohen & Levinthal, 1990) we anticipate that IJV that encourage their employees to learn by formal training and development are more likely to exploit any critical external knowledge opportunities. Likewise, Amabile et al., (1996) posits that the creation of new knowledge depends upon a person's expertise, thinking skills and motivation. She argues that whatever an individual's expertise and creative thinking skills, the environment under which one operates can either enhance or inhibits the level of creativity. This line of argument is also supported by Rice (2003) who argues that employees can engage in creative problem-solving and exploitation of new knowledge as long as the working conditions within which an IJV are operating are flexible enough and conducive to allow for individual and group creativity. We hypothesized that:

*H4. There is a positive relationship between IJV degree of competency in training and development and the extent of technological knowledge transfer.*

*H5. There is a positive relationship between IJV flexibility and creativity and the extent of technological knowledge transfer.*

### **Methodology**

This study focuses on the extent of technological knowledge transfer in Uganda's IJV. The conceptualization is underpinned by three fundamental principles: First, the quality of the relationship in terms of trust and communication behavior helps partners to share strategic resources like knowledge without fear of opportunistic behavior. Second, the strength of the relationship emerging as a result of organizational ties sets an organizational climate where there is more interdependency in the relationship and a more likelihood of sharing information and communicating tacit knowledge. This breeds trust, reciprocity, receptivity and transparency (Lyles & Dhanaraj, 2004) that counteract opportunistic hazards and enhances inter-organizational exchanges of strategic resources thereby increasing a firm's prior related knowledge. Third, firm-level learning capabilities as reflected in the way in which an organization encourages training and development of its staff in addition to supporting creativity and providing a flexible work environment enhances IJV absorptive capacity to recognize, evaluate and utilize foreign technological. Below we present the relationship among variables namely relationship quality, inter-party attachment and firm-level learning capabilities and extent of knowledge transfer as envisaged in our conceptualization that integrates Argote's (1999) and Luo's (2002) framework as depicted in Fig. 1.

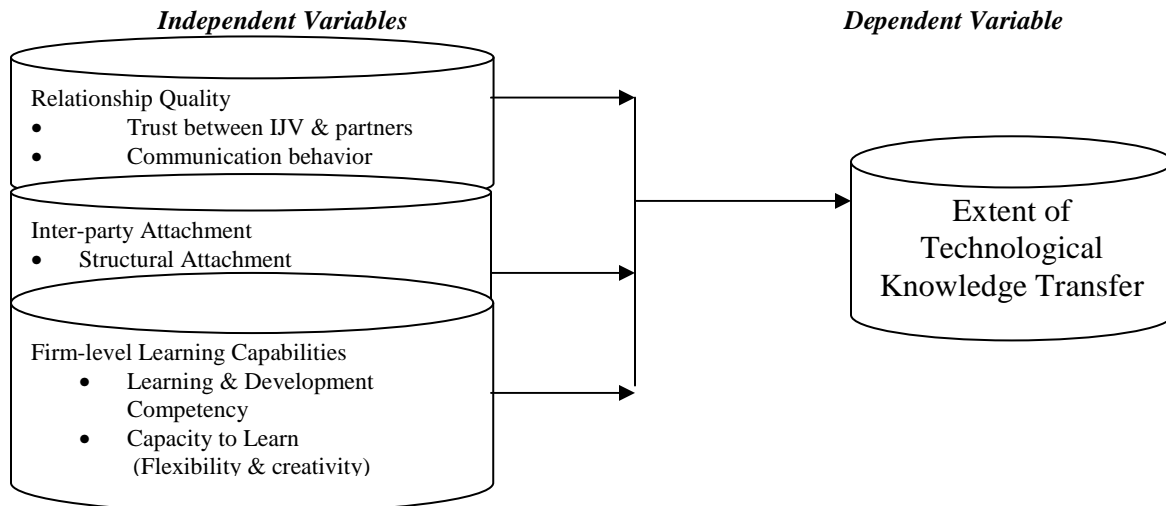


FIG. 1: THEORETICAL FRAMEWORK (Adapted from Muhenda, 2006)

The study was conducted in all the districts of Uganda that had IJV and a total of two hundred and fifty six (256) IJV registered with the Uganda Investment Authority between 1995 and 2003 were purposively selected and their CEO interviewed. The IJV being the key decision making entity among alliance partners and where the technological knowledge outcomes could easily be observable and appraised is the main unit of analysis. The instrument used in the questionnaire was adapted from various authors as indicated in Table 1 below. To ensure goodness of measure, the cronbach alpha coefficient was computed for all the variables where all the coefficients indicated values above 0.50 which strengthened the reliability of the instruments used in the study.

TABLE 1: SUMMARY OF VARIABLES

Variable	Number of items	Cronbach's alpha	Source
Communication Behaviour	5	0.95	Mohr & Spekman (1994) Selnes & Sallies (2003)
Trust between IJV & Dominant Partner	2	0.83	Moorman et al.(1992); Selnes & Sallies (2003)
Structural Attachment	3	0.67	Luo (2001)
Learning & Development	4	0.85	Hurley & Hult (1998)
Creativity & Flexibility	2	0.64	Amabile et al. (1996)
Management Support	2	0.57	Amabile et al. (1996)
Knowledge Transfer Extent	3	0.80	

## Results

A total of 103 respondents were used for the purpose of this study that accounts for 62.5% of the response rate. A total of ninety respondents were male 86.4 % whereas female CEO were only fourteen and accounted for 13.6 %. Only 13.6 % of the respondents were expatriate staff as compared to 86.4 % of local staff. Of these managers, the majority 58.3% had worked in the IJV for periods ranging from one to five years and only 3.9 % of the respondents had worked for less than one year in the IJV. Based on the responses from the managers interviewed, majority of the IJV's in Uganda started their operations from 1990 and account for 58.3%. A total of twenty three or 22.3% of the IJV are Tobacco and Beverages processing industries followed by Chemicals and Chemical Works industries



(19.4%) whereas food processing industries account for (18.4%). The higher percentage of Agro Industries is attributed to Uganda being largely an agricultural country. The smallest group of industries deals in Timber, Paper and Printing and account for 4.9% of the manufacturing industries. Such a low percentage could be attributed to many local firms being involved in the sectors that do not require complex technological knowledge that would have attracted joint partnerships. Majority of the companies earn over 500 million Uganda Shillings (61.2%), which is equivalent to United States dollars \$ 300,000. The Uganda Manufacturers' Association categorizes these as large-scale industries. Majority of IJV employ more than 200 employees, which account for 45.6 %. In our hypothesis generation, we postulated relationships between some factors of relationship quality, inter-party attachment and absorptive capacity on the extent of technological knowledge transfer. Using factor analysis, we were able to identify six dominant factors under each of the three variables namely communication behavior and trust constituting relationship quality; inter-party attachment as a single factor under structural attachment, creativity and flexibility, learning and development and management support factors under firm level learning capabilities. The results of the factor analysis are presented in Table 2 below.

TABLE 2: FACTOR AND RELIABILITY ANALYSIS OF RELATIONSHIP QUALITY, STRUCTURAL ATTACHMENT & FIRM-LEVEL LEARNING CAPABILITIES VARIABLES

	1	2	3	4	5	6
<b>Factor 1- Communication Behavior</b>						
Our foreign partners always keep us updated with latest technological developments	<b>.94</b>	.17	.15	.10	.08	.07
We expect our foreign partners to supply us with accurate information at all times	<b>.93</b>	.18	.11	.09	.08	.09
Our foreign partners are very responsive to our organizations information needs	<b>.92</b>	.15	.10	.05	-.02	.06
We believe that our partners policies on exchange of ideas and information are transparent	<b>.86</b>	-.01	.10	-.07	-.14	.16
We hold regular meetings to keep each other informed about events or changes that may affect the other party	<b>.83</b>	.12	-.01	.06	.20	.02
<b>Factor 2 – Learning &amp; Development</b>						
Our organization sponsors staff to attend professional seminars	.10	<b>.84</b>	.31	.08	.01	.10
Our organization grants study leave to staff to attend short skills improvement courses	.23	<b>.79</b>	.13	.17	.02	.19
There is a training budget to cater for staffs development	.10	<b>.79</b>	.10	.03	.08	.25
We provides opportunities for individual development other than informal training	.12	<b>.70</b>	.18	.16	.08	.17
<b>Factor 3- Structural Attachment</b>						
We are able to access our foreign partners sources of information (databases, resource centers, workbooks)	.17	.16	<b>.75</b>	.16	.06	.27
Our organization encourages both formal and informal coordination with our partners	.07	.31	<b>.68</b>	-.11	.03	.18
We always make long term plans together with our partners	.11	.21	<b>.67</b>	.15	.26	-.11
<b>Factor 4- Trust between IJV &amp; Partners</b>						
Our partners always follow through on all commitments	.01	.07	.02	<b>.94</b>	.02	.04
Our partners devote their time and energy for the good of the IJV	.16	.22	.16	<b>.84</b>	.15	.20
<b>Factor 5- Creativity &amp; Flexibility</b>						
Team members in this organization come from professional backgrounds	.06	.05	.04	.02	<b>.87</b>	.09
Employees in our organization are allowed to try solve the same problems in different ways	.05	.03	.28	.07	<b>.80</b>	.06
<b>Factor 6- Management Support</b>						
There is supervisory support for team work and team working in this organization	.12	.26	.01	.13	.11	<b>.78</b>
Our organization provides guidance and counseling regarding staffs career	.15	.14	.31	.08	.07	<b>.73</b>
<i>Eigenvalue</i>	6.1	2.7	1.6	1.4	1.0	1.0
<i>Percentage of variance</i>	33.68	14.78	8.77	7.85	5.72	5.59
<i>KMO</i>	.80					
<i>Significance</i>	.000					

### Multiple Regression Analysis

To test the simultaneous effects of several independent variables on the extent of technological knowledge transfer, multiple regression was carried out to determine the variance of the effect of the factors mentioned above on the extent of technological knowledge transfer. Table 3 summarizes the results:

TABLE 3: SUMMARY OF REGRESSION ANALYSIS RESULTS

Step	Variables	R square	Adjusted R	Sig F	$\beta$
1.	Controls	0.09	-0.02	0.70	
	<b>Control Variables</b>				
	Duration				1.9
	1-50 Million				0.13
	51- 100 Million				0.1
	101-200 Million				0.1
	201-500 Million				0.1*
	Tobacco & Beverages				-0.3***
	Food Processing				-0.2*
	Textiles & Clothing				-0.2*
	Chemical Works				-0.3**
	Timber & Printing				-0.1
	Metal Works				-0.2*
2.	Independent Variables	0.63	0.55	0.00	
	<b>Relationship Quality</b>				
	Communication Behaviour				0.21 *
	Trust				0.06
	<b>Inter-party Attachment</b>				
	Structural attachment				0.46 ***
	<b>Learning Capabilities</b>				
	Learning & Develop.				0.32**
	Creativity & Flexibility				0.10
	Management support				-0.07
*: significant at 10% level **significant at 5% level and *** significant at 1% level					

### Discussion

Communication behavior, trust between IJV and foreign partners, structural attachment, learning and development and creativity and flexibility have a positive effect on the extent of technological knowledge transfer. Management support is negatively related to the extent of transfer implying that an increase in the degree of management support leads to a decline in the extent of technological knowledge transfer which finding is contrary to our hypotheses. Structural attachment and learning and development have a positive significant relationship with the extent of technological knowledge transfer in Uganda's IJV. The two variables explain 0.63 of the variance in OBP ( $R^2 = .63$ ). The following results are obtained: structural attachment ( $\beta = .46$  at 1% level of confidence) and learning and development ( $\beta = .32$  at 5% level of confidence). The results imply that IJV that offer more learning and development opportunities to their employees and whose degree of structural attachment is higher are likely to, experience higher extents of technological knowledge transfer from foreign partners. Structural attachment and learning and development have a greater impact on the transfer extent than communication behavior.

#### Extent of Transfer of Technological Knowledge in Uganda's IJV

We sought to find out the extent of technological knowledge transfer in IJV in Uganda. Taking 5.0 as the highest extent of knowledge transfer on our scale and 3.0 as average transfer extent, we can conclude that the extent of knowledge transfer from foreign partners to IJV in Uganda is fairly low. Transfer extent recorded a mean score of 2.97, which is slightly below average level of incidence of transfer performance.

#### Relationship between Independent Variables and Extent of Transfer

We attempted to find out how factors such as relationship quality, inter-party attachment and firm level learning capabilities influence transfer of technological knowledge in Uganda's IJV. The findings are consistent with the

dominant factors that were derived from the factor analysis which include communication behavior, trust between IJV and foreign partners (relationship quality), structural attachment (inter-party attachment), learning and development, creativity and flexibility and management support (firm level learning capabilities).

### **Communication Behavior**

Contrary to our hypotheses, communication behavior was not significantly associated with the extent of technological knowledge transfer. The results of our study are inconsistent with several other studies that emphasize the importance of sharing high quality information in exploiting knowledge opportunities in alliances (Dyer & Singh, 1998; Child, 2003; Inkpen, 2001; Nonaka, 1994). The studies cited above confirm that availability of information stimulates an awareness of needs and concepts and is also a means by which behavior is modified, change is effected, information made productive and goals achieved (Cole, 2001). The inconsistency in our findings could possibly be attributed to five (four) major reasons, namely underlying national and organizational cultural differences, information overload, failure to adopt adequate institutional mechanism, and level of technicality. **Underlying national and organizational** cultural differences arise as a result of different cultural orientations of partners and may result in sharing of poor quality information which may have negative impact on the extent of technological knowledge transfer. **Information Overload** refers to overloading users with unnecessary vast amounts of data may lead to situations where useful information is discarded or ignored and not put to effective use. The failure on the part of the IJV to adopt **adequate institutional mechanisms** to ensure effective communication behavior in terms of sharing relevant knowledge among employees including those who may not need it immediately. **Level of Technicality** suggests that a larger component of technological knowledge comprises of tacit elements and finding proper language to articulate what they know and share expertise with novices may often be difficult for the partners to communicate with the IJVs.

### **Trust between IJV and Foreign Partners**

The contrary results that found no positive and significant relationship between trust and knowledge transfer are similar to earlier findings by Lane et al.(2001) and Lyles et al. (2000). Lane et al. (2001) did not find trust to be directly associated with learning. An earlier study done by Lyles et al. (2000) in Vietnam found that changes in learning structures like parent assistance accounted more for changes in IJV knowledge acquisition than they found for trust. The prevailing logic of why trust does not significantly affect the extent of technological knowledge transfer from foreign partners to IJV in Uganda could be justified by the fact that successful knowledge distribution depends on the amount of explicit knowledge available in the IJV (Davenport & Long, 1998). Technological knowledge comprising largely tacit elements, is difficult to convert to explicit knowledge and therefore difficult to share and adopt even in the presence of a strong relationship commitment. Another possible reason could be due to earlier history experiences that brought anew dictatorial regime to power that summarily expelled the Asian community, thus seriously undermining investor confidence. Though succeeding governments sought to attract foreign investors to Uganda, the confidence of potential Asian investors in particular could not be readily rekindled (UNIDO, 2000). This could partly explain why trust between IJV and foreign partners is not significantly associated with the extent of technological knowledge transfer in Uganda's IJV given that the most dominant foreign partners are of Indian nationality and account for 49%.

### **Structural Attachment**

Structural attachment was shown to be positively and significantly related to extent of technological knowledge transfer. Luo (2001) urges that attachments in JV create conducive climate for knowledge exchange because increased trust and commitment that develops between exchange partners facilitates the transfer of embedded knowledge. As a source of enduring commitment from each party over time, attachment helps create a repository of reliable information from exchange partners (Inkpen and Beamesh, 1997). Research on attachment has also investigated the relationship between personal and structural attachment and how they interactively influence performance. Luo (2002) reported that both personal and structural attachments exert a strong positive influence on IJV performance. Luo's (2002) study further posits that such attachments stimulate IJV sales and profits. Due to increased acquaintance with policies and procedures between exchange partners along with greater understanding of the nuances of each other's knowledge, the ability to transfer is enhanced. This underlies the positive association between structural attachment and technological knowledge transfer extent in this study.

### **Learning and Development**

Learning and development was shown to have a positive significant effect on the extent of technological knowledge transfer as earlier predicted. As already discussed, absorptive capacity requires that a firm develops considerable in-house expertise that complements the technology activities of its alliance partner. Organizations that have clear strategies for learning and staff development acquire knowledge more effectively from their foreign parents (Inkpen & Crossan, 1995). Absorptive capacity of the transferee is reported to be a major influence of knowledge transfer (Gupta & Govindarajan, 2000; Lane et al., 2001). The results from this study are also consistent with Lyles and Salke (1996) who demonstrated empirical support for the linkage between training of local employees by foreign parents and knowledge acquisition. The findings of Hathaivaseawang (2004) also showed that formal training was an important predictor of acquired marketing knowledge. It is thus true to presuppose that IJV in Uganda that support employees' learning and development initiatives are more likely to exploit any critical external knowledge opportunities.

### **Creativity and Flexibility**

Surprisingly, creativity and flexibility were found to be positively but not significantly related to enhanced technological knowledge transfer. The inconsistency in our findings could possibly be attributed to some of the following factors. One key influence on the success of any creative enterprise is the acquisition of requisite resources particularly necessary financial support (Damarpour, 1996). **Lack of adequate resources** that is characteristic of many developing economies could be a major hindrance to creativity and flexibility given that forty percent (40%) of the IJV in Uganda earn less than 300,000 US dollars in gross annual revenue. With insufficient resources, the chances of trying out new ideas and rewarding employees for their innovations are severely curtailed. The situation is further compounded by lack of supervisory and managerial support crucial to the process of ensuring supply of the necessary resources. Interviews with the shop floor staff confirmed inadequate resources and restrictions as being setbacks in the bid to trying out new ideas. For the majority of staff interviewed, experimenting and trying to solve same problems in different ways is considered a waste of resources and is not acceptable in the majority of IJV. Other possible reasons could include some of the following. **Conflict of opinion** because of diverse professional backgrounds and cultural backgrounds of team players. . In addition, **inability to share creative** ideas across units and or even within teams could inhibit the extent of technological knowledge transfer. **Inherent socio-psychological dynamics** also feature. Knowledge that is always considered a source of power which if lost could undermine the experts' spheres of influence and peer recognition could also be responsible for the inconsistency in our findings. On the other hand, **hierarchal extrinsic rewards that breed conformity** and conservatism and skill specialization may discourage creativity among IJV staff.

### **Management Support**

Management support, however, does not affect the extent of technological knowledge transfer in this study yet earlier studies reported significant association between management support and knowledge management product (Davenport & Long, 1998; Rice, 2003). The only prevailing logic as to why executive support does not positively influence the extent of knowledge transfer could be that since knowledge would already be acquired, applied and disseminated, with time it becomes automatically integrated with or without any support. Hence the contrary results.

### **Policy Implications**

The results confirm a low incidence of the transfer of technological knowledge from foreign partners to IJV in Uganda which findings could guide policy makers. The Uganda Government could encourage, support and strengthen the existing policy on investment in general and IJV in particular. There is need to enforce the policy, which encourages the transfer of foreign technology and expertise and lays out all conditions which limit the ways in which technical know how may be used. The Government could institute punitive measures for non-compliance like refusal of license renewal and denial of investment incentives like tax holidays. In addition, the overall findings also suggest that IJV resources also influence the extent of knowledge transfer, hence the need to emphasize IJV earnings in technological knowledge transfer. Government could moderate the erratic high levels of taxation, lower

interest rates on business loans and restrict importation of competing products. The findings of the study also suggest that relationship characteristics among organizations in an alliance may facilitate or inhibit the extent of technological knowledge transfer. Therefore, the government should illustrate to participating firms how the process of technological knowledge transfer could be enhanced and improved to facilitate the transfer of knowledge from foreign partners to IJV. This could be accomplished through seminars and workshops where dissemination of research results could be discussed and stakeholders encouraged to share experiences. Government could also fund or solicit funding for research in technological knowledge transfer fields and ensure that the types of skills that are needed by local industries are generated in adequate numbers through policies that promote firm-level learning and that encourage interaction between educational institutions and industries. Strengthening technology support institutions and establishing new relevant institutions in addition to enforcing science subjects in schools could also be appropriate options.

## **Recommendations for Future Research**

This study has contributed to the body of knowledge in the area of knowledge management especially in supporting theory development. Further empirical research could explore other variables like technical and organizational infrastructure that has been cited in knowledge management studies (Davenport et al., 1998; Davenport & Marchand, 2000; Shyrme, 1999). The convergence of telecommunications and computing that allow the exchange of knowledge across firms regardless of geographical boundaries could warrant future research. Technologies that support communication building, people networks and on the job learning are considered crucial for organizational learning and knowledge transfer whose influence on technological knowledge transfer could be investigated further. This study confined itself to IJV in the manufacturing sector omitting service industries because it investigated the extent of technological knowledge. More empirical research could be extended to service industries to investigate the transfer of other forms of knowledge. A longitudinal study is recommended for this type of research to address the continual process that takes place during the transfer of technological knowledge.

## **Limitations**

Several limitations were experienced in research design and methodology, the nature of data collected and the population size. Such limitations have a bearing on result interpretations and generalizations. The first limitation is due to the population size. The IJV were identified from the Uganda Investment Register only. Collecting data from listed and non-listed IJV could strengthen the findings of this research. Another limitation is that one CEO responded to the questionnaire on behalf of the IJV, which makes the responses not fully representative of the views of all employees.

Secondly, some methodological problems were encountered. Some data collection methods adopted for the study have inherent disadvantages: questionnaire retrieving requires frequent reminders; and some participants require long distance travels to access them. Another problem could have resulted in the directive from Uganda Investment Authority requesting the CEO's to fill the questionnaire which directive may have been unwelcome and hence the incomplete 56 questionnaires were returned but could not be used. Lack of understanding of some terminology in the instrument might also have interfered with the interviewees understanding of some questions in the instrument because 58% of the items were discarded after factor analysis. The other problem is that this study was a cross-sectional study where data collected at one point in time might not convey a true picture of the facts on the ground.

## **Conclusion**

This study investigated the extent to which technological knowledge from foreign partners has transferred to IJV in Uganda. We first examined the extent of technological knowledge transfer from foreign partners to IJV in the Ugandan manufacturing study. The results confirmed a low incidence of extent of transfer of technological

knowledge from foreign partners to IJV in the Ugandan manufacturing sector. This is divergent from government's effort to encourage joint partnerships aimed at tapping into foreign partners technological bases. Secondly, we examined the relationship between a set of factors and the extent of transfer of technological knowledge. Results revealed that learning and development and structural attachment significantly impact the extent of technological knowledge transfer from foreign partners to IJV in Uganda. Results also indicate a non significant relationship between communication behavior, structural attachment, creativity and flexibility and management support and the extent of technological knowledge transfer. Based on the findings, this study calls for concerted efforts on the part of the Government of Uganda to provide a policy and legal framework that will guide the acquisition and adaptation (our term for knowledge transfer) of technological knowledge from foreign partners. The study is very useful because it brings out differences in current thinking, contributes to current discussions, arouses interest to the broader audience and proposes solutions for remedying alleged deficiencies that are in line with current theories.

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# Reconsidering Platform Strategies in the Vertical Interfirm Division of Labor: The Platform Strategies in the Chinese and Japanese Mobile Phone Handset Industries

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## Abstract

The study attempts to elucidate the determinants of multi-layer platform strategies along the vertical interfirm division of labor for product development drawing on the cases of the Chinese and Japanese mobile handset industries. Firms could devise and exploit their proprietary platform designs in pursuit of both product development efficiency and product diversification. Yet, the global surge of product modularization encourages the product development in open interfirm networks. Particularly semiconductor vendors, which integrate product functions on chipsets, are reported to drive the transition. Meanwhile, the study highlights the vertical interfirm division of labor due to the difference in required development capabilities between core chipsets and circuit board designs. The vertical interfirm process is not sufficiently open until the chipsets and/or boards each are arranged in the form of technological and/or product platforms. These findings designate that effective product platform strategies resides in the management of vertical interfirm process: vertical architecture.

## Introduction

In the past decade, the vertical disintegration of product development and manufacturing activities has drawn our attention to interfirm modularity (e.g., Chesbrough, 2003; Christensen, Verlinden, and Westerman, 2002; Sturgeon, 2002). Product modularity, which is based on standardized product design rules and elements, enables manufacturers to decompose complex problem-solving into a set of localized problem-solving steps (Baldwin and Clark, 2000). The shift to modular product architecture has even enhanced interfirm modularity. Specialized vendors each cover specific component/technology development activities while manufacturers focus on product design and manufacturing activities.

The vertical disintegration of product development has shaped the global open interfirm product development networks, so that even emergent firms could rapidly develop products at a relatively low cost by adopting element technologies from specialized vendors. For instance, wireless handset manufacturers in China make use of the interfirm modularity in which specialized vendors provide element technologies (i.e., wireless cores/platforms, components, handset designs, software, etc.) to help handset manufacturers quickly release a variety of new models.

Amongst a variety of element technologies, a technology platform, which consists of the wireless chipset, software, reference product design, and related technological supports for the product concerned, plays a critical role to shape the open interfirm networks (Iansiti, 2003; von Hippel, 2005). The technology platform provides a standardized product design to realize a set of core product functions. Manufacturers may easily develop products by using the platform in open product development networks.

However, standardized element technologies such as a technology platform could be transferable and/or shared between firms, so that these technologies would not necessarily secure firms' competitiveness (Pil and Cohen, 2006). The availability of a technology platform in open product development networks is liable to cause harsh competition, which requires firms to pursue product variety. Thus, assembly product firm relying on interfirm modularity is further required to struggle to both quickly develop a variety of products and distinctive products in the competition (e.g., the Chinese industries).

In carries on both product variety and distinctiveness, a firm attempts to design proprietary product platforms. A product platform is a set of subsystems and interfaces that forms a common structure from which a firm

can efficiently develop a stream of derivative products (Meyer and Lehnerd, 1997). For automobiles, a product platform is generally defined by a combination of chassis, engine, drive train, transmission, and other major subsystems upon which a variety of different models can be based (Nobeoka and Cusumano, 1997). Product platform development requires the architectural knowledge to properly arrange various elements on a platform design particularly when new technologies are introduced into the product platform. Thus, even in interfirm open networks, firms for themselves need to integrate various technologies into products paying sufficient attention to both the uneven changes of various components and the interdependencies between them (Brusoni & Prencipe, 2001; Staudenmayer, Tripas, and Tucci, 2005).

The industrial shift toward interfirm modularity seems to blur the role of close coordination within and between firms, which were once regarded as one of the most critical factors of effective product development (e.g., Japanese automobile firms, Clark and Fujimoto, 1991; Yasumoto and Fujimoto, 2005). In digital electronics industries, open interfirm networks have threatened assembly product manufacturers, which have accumulated both the architectural and component knowledge on their products in close coordination within and between firms. Yet, even in the open interfirm networks of the vertical interfirm division of labor, it would be difficult to develop a novel technology platform into a distinctive proprietary product platform without interfirm collaborations.

Many of past researches discuss product platform designs in terms of the intrafirm perspective view. Meanwhile, we attempt to explore how to design product platforms in the interfirm context of the vertical interfirm division of labor. More specifically, the study will examine how assembly product manufacturers develop external new technology platforms into proprietary product platforms in the collaborative relationships with technology platform vendors. The study would contribute to not only elucidating the role of the interfirm collaborations in open interfirm networks but also drawing the competitive product development strategies in the era of vertical disintegration.

In the section 2, we will review past researches to propose our perspectives. In the section 3, we attempt to consider the generality of successful designing of product platform drawing on three cases: a mobile phone handset manufacturer in Japan, an ODM in Taiwan and a design house in China. In the section 4, we will discuss the results of the comparative study between these cases. Finally, in the section 5, we will present some implications for product platform design of electronic products and show future research issues.

## **Research Perspective**

The standardized knowledge of product technologies (i.e., open technology platforms), which is independent of firm/product-specific contexts, enhances the open interfirm division of labors for assembly product development. In spite of the openness of technology platforms, each specific product development is context-dependent. Product developers need to not only develop distinctive products but also quickly yield a variety of products in the harsh competition according to open interfirm product development networks (Christensen, Verlinden, and Westerman, 2002). These conflicting requirements encourage product developers to establish proprietary product platforms to achieve both product distinctiveness and variety.

A product platform design needs to cope with both market and technological changes. For instance, the lifecycle of software products are short, software firms need to redesign the product platforms for the next generation of software product development (Cusumano, 2004; MacCormack and Verganti, 2003). The successful product platform development needs a proper organizational coordination within and between firms (Robertson and Ulrich, 1998).

The perspective of “product architecture” explicates the necessity of organizational coordination. Product architecture is characterized in a spectrum from the “modular” to the “integral” according to the “interdependency of functions and components (Ulrich, 1995).” The development activities for integral architecture products are hardly decomposable into independent element development activities as the interdependency of functions and components is relatively high. In contrast, modular architecture products are characterized with the lower technology interdependency of functions and components, so that product designers can easily divide the development activities into relatively independent element development activities. Thus, the coordination between the development



activities of product platforms depends upon the architectural attributes of the platforms (Meyer and Lehnerd, 1997; Sanderson and Uzumeri, 1997).

Modularity is attributed to the architectural stability. The stability enables firms to refurbish modular products by realigning or replacing a part of element technologies without changing the architectural configurations of elements. Yet, even the product development based on interfirm modularity is accompanied by the coordination between product elements (Staudenmayer, Tripas, and Tucci, 2005). Particularly drastic element technology change may cause architectural instability to erode the decomposability between product designs and elements, and thus would enhance collaborative problem-solving within and between firms (Iansiti, 1997; Takeishi, 2002).

High technological uncertainty with new technology introduction sometimes causes the lack of architectural knowledge (Yasumoto and Fujimoto, 2005). Novel core technologies cause high technological uncertainty as the introduction of such technologies may lead to the interdependent changes of functions and components. The technological change will force firms to abandon their accumulated architectural knowledge which defines the interdependency between functions and components.

When technological system is static, open transactions between related firms could serve as a forum for product development. Yet, the cost of creating and maintaining interface standards will be prohibitively high as technological systems are rapidly changing. The logic makes us infer that when adopting novel core technologies, product developers should build information channels to monitor technological changes and have intensive contacts with external specialized vendors. The product development capabilities based on the close collaboration foster the knowledge exchange/sharing (Clark and Fujimoto, 1991; Iansiti, 1997; Takeishi, 2002), which shapes architectural knowledge. Thus, a product platform development accompanied by novel technology platform introduction will necessitate close interfirm coordination even in the vertical interfirm division of product development.

In electronic product industries, a firm attempts to integrate many functions into a product. The continuous improvement of the advanced technology of semiconductor process enhances the innovation for the convergence of functions. On the other hand, specialized chipset vendors (i.e., technology platform vendors) offer technology platforms as nearly total solutions that encapsulate many of product functions into a chip. The progress of function encapsulation built inside System on Chip (SOC) continuously redefines the architectural interdependencies of functions and components. Product developers should pay attention to the changes of the interdependencies in order to effectively renew their product platforms. Such changes resulting from technology platform renewals should call for close interfirm collaborations between technology platform vendors and product developers even in open interfirm product development networks.

## **Case Study**

### **Research Focuses and Data Collection**

The study focuses on the proprietary product platform development in the mobile phone handset industries in Japan, Taiwan, and China. Handset developers in any of these countries have increasingly exploited external technology platforms from vendors though the level of the vertical disintegration of handset development may differ by countries. Any of handset developers may shape proprietary product platforms based on standardized technology platforms. Yet, several prominent handset developers collaborate with technology platform vendors in both technology and product platform developments even in the open interfirm networks.

According to Funk (2002; 2004), in the period from 1994 to 1998, mobile phone handset manufacturers focused on not only product quality but also the variety. He indicated that by offering a variety of mobile phone handsets more than Ericsson and Motorola, Nokia acquired the biggest market share among them. In the initial time of the 2G mobile phone handset industry, manufacturers internally developed mobile phone handsets including core components. However, in the end of the 1990s, many specialized vendors started to offer core components or solutions to mobile phone handset manufacturers. The vertical disintegration occurs in the mobile phone handset industry according to the change raised a new issue to mobile phone handset manufacturers: how to effectively cooperate with external specialized vendors into mobile phone handset development.

The perspective in the previous section makes us infer that the interdependency of technology platform and product platform designs have critical impacts on the coordination between handset developers and vendors. The

interdependency technologies interact with each other. Handset developers' product platform development would rely on the coordination. The interdependency may often occur in handset platform development even though vendors provide standardized technology platforms to define the interrelations between handset components.

After product functions are defined, product designers translate them into specifications and start to decide which function can be implemented by particular component. Sometimes a function should be implemented by various components. For instance, in the development of the MP3 music function, designers should consider the memory size for storing, the alternative technologies for playing (i.e., software or hardware), the modification of the play settings during calling-in, and other usages of user. These problems require handset developers to consider the NAND memory (hardware), Base Band chip (hardware), Operating System (software), User Interface (software) and other related components so that the MP3 function is achieved by the compatibility between these components. Technology platforms which may relate these elements to the MP3 function could be redeveloped or modified in the process. Such interdependency will encourage the coordination between handset developers and technology platform vendors.

The study sheds lights on how handset developers collaborate with technology platform vendors in handset product platform development. At first, the case attempts to outline the interfirm handset development networks. Following the description, we examine the critical product development capabilities in the networks, which are common to relatively competitive handset development firms, drawing on the cases of handset developers in these regions.

The data of handset development was collected by semi-structured interviews from 2005 to 2007 in China, Japan, and Taiwan. More than 50 firms, which included handset manufacturers, mobile service carriers, wireless core chip vendors, software vendors, component vendors, and design houses, were involved in the study. We focus on a relatively competitive handset developers in each country, who develop proprietary handsets exploiting the close collaborations with technology platform vendors. We also make use of the information appeared in published journals and reports.

#### **Technological Structure of Mobile Phone Handset and Vertical Interfirm Division of Labor**

The technological structure of mobile phone handset is divided roughly into 'communication part', 'signal processing part', and 'External I/O part'. 'Communication part' implement telecommunication function received from electric wave by antenna etc. and cover the signal to digital data to 'signal processing part'. 'Signal processing part' has its own CPU for controlling all the system which liked INTEL in PC. Finally, 'External I/O part' controls each inputs and outputs of source of information from every components, liked display panel, key pad, and others. Finally, these parts are laid out to be a Printed Circuit Board (PCB), which is a terminal main body of mobile phone handset. The display, the key, and the digital camera, etc. are main devices in the circuit of the terminal main body.

In our concern, we choose the 'signal processing part' to be mainly analysis, because this part plays the role as the center of the mobile phone handset. In this part, there is a Base Band chip(BB chip) that controls signal and the communication processing. However, recently, the multimedia function has come to be valued in the mobile phone handset. Therefore, the BB chip become not only process the telephone calling function but also executes the multimedia function, liked MP3, high quality of camera imaging, games, video playing, touch panel screen, Global Position System(GPS) and so on. These value added GSM mobile phone handsets have been called feature phone, smartphone, and PDA phone and to fit each market segment. As the various functions required in a mobile phone handset, the development man-hour of software also has been rapidly increasing. These applications, firmware, operating system (OS) software should be designed and assured according to hardware components. Smartphones and PDA phones often use Windows, Linux, and Symbian OS to control the entire system including hardware component drivers, communication, application, and others. Feature phones use the Real Time Operation System (RTOS) that has real time of switching each task at several ten-micro second for controlling the entire system. Usually, these OS are offered to mobile phone handset manufacturers by IC chipset vendors together with chipsets.

As multimedia functions have increased in a mobile phone handset, BB chip vendors should consider the product architecture for designing mobile phone handset. Because of advanced semiconductor process technology, BB chip vendors can design powerful BB chips to execute multimedia functions. Furthermore, between BB chip vendor and mobile phone handset developer, there is not a simple buyer-supplier relationship, but a closed relationship with each other. Otherwise, because a BB chip is not a passive component, which received signal and

reactive only, and these passive components are almost standard, that can be purchased from the IC catalogue list of chip vendor.

On the contrary, the design of a BB chip will need system-level knowledge of mobile phone handset, and sometimes need to cooperate with operator if the telecommunication technology is advanced. For instance, Qualcomm cooperates with Japanese Operator 'au by KDDI' closely to implement its own telecommunication standard and advanced service based on their advanced technology of BB chips (Inagawa,2006). Because the BB chip can implement the various functions, the developer of mobile phone handset will need to understand the interdependencies of the chip with other components. Learning the interdependencies will become more difficult if BB chip vendor change their design of BB chip that will cause interdependence of other components. According to Clark (1985), we can consider that such innovations in core component design represent a movement 'up the system hierarchy' and, sometimes, represent revolutionary changes where system foundations are built afresh.

As we described before, when 2G started booming, Nokia and other major manufacturers tended to handle BB chip and software(RTOS, protocol stack, power management, wireless interface, and UI, etc.) and combine them with other devices for designing product platforms. On the contrary, the Japanese manufacturers also develop these components for themselves but did not design product platforms. While specialized chip vendors(TI, ADI, Philips (present NXP), Qualcomm, etc.) started to offer BB chips from the end of 1990's, both in 2G and 3G, most of Japanese manufacturers adopted BB chip from outside. Nowadays, most of the mobile phone handsets are using advanced 3G telecommunication technology and developing mobile phone handset based on operators' services requirement. In Asia, especially in Taiwan, PC manufacturers started duplicate their successful ODM business model for mobile phone handset. They follow the specifications from Motorola, Sony Ericsson, and so on, and develop the detail specifications of their mobile phone handsets. Otherwise, they also elaborate their procurement capability of components and advantage of economies of scale for that Ultra Low Cost (ULC) mobile phone handset outsourced from Motorola, Sony Ericsson and so on.

Finally, China mobile phone handset industry can be regarded as a divergent path of upgrading which is while export growth has been overwhelmingly led by multi-national corporations, increasingly fierce competition in the domestic market ignited by the advent of local mobile phone handset manufacturers have induced unique industrial evolution in the manner of backward linkage effects : (1)outgrowth of design houses specialized in mobile phone handset development and (2)emergence of IC fabless ventures that design core ICs for mobile phone handset. The emergence and evolution of China's mobile phone handset industry is likely to have international implications as the growth of the global demand for low-cost and multi-function mobile phone handsets is expected to accelerate(Imai and Shiu,2006). There are several types of mobile phone handset development in vertical interfirm division of China mobile phone handset industry, in the case of design house, they only focus on design and rely on the EMS's volume production(Marukawa, Yasumoto, Imai, and Shiu,2007). Here we choose the design house as analysis because of their benefits of sales are higher than local mobile phone handset manufacturers. The benefits of design house roughly come from design fee which follow customers'(mobile phone handset manufacturers) requirements or specifications. Another benefits come from the PCBA(Printed Circuit Board Assembly) which means design house offer a PCB which components has been mounted on, and this part of benefits have been increasing for design house compared to design fee. In the case of PCBA business model, design house licensed BB chip from external BB chip vendor and provide a list of product functions for their customers. After their customer decide which functions are necessary, design house started to select their pre-verified components to develop a PCBA. Compared to design service by customer's specifications, PCBA business model needs to do some market research by themselves for their understanding what are the functions will be required in future. In the fast changing market, shorten product life cycle, design house will face the high uncertainty in the PCBA business model. So, in our research, we will take PCBA business model as analysis to find out what is the successful factor for designing product architecture.

In sum, although in the following 3 cases, they implement the same procedure of mobile phone handset development including (1) product definitions, (2) product design, (3) pilot production and review, (4) testing, acquisition of compulsory certification, (5) preparation for volume production (FIG. 1), however, there are different levels of uncertainty from market when they define their product functions and design their product architecture. At PCB level, we can distinguish different levels of market uncertainty influence between Japan, Taiwan, and China.

Although, Japanese manufacturers and Taiwanese ODMs follow the specifications from operator and major companies respectively, Japanese manufacturers have to reach many advanced service which has been offering by operators, on the contrary, Taiwanese ODMs design the low-end and middle-end of mobile phone handsets outsourced by major companies, and which have been exported to BRICs. Therefore, it shows that high market uncertainty influenced on product design in Japan compared to low market uncertainty influenced in Taiwan. China mobile handset design houses also face a high uncertainty for product functions definition in their PCBA business model as we describe before. At the followings, we will analyze three different business models for different levels of uncertainty they are facing, and also consider what to do with technology uncertainty from BB chip vendors next.

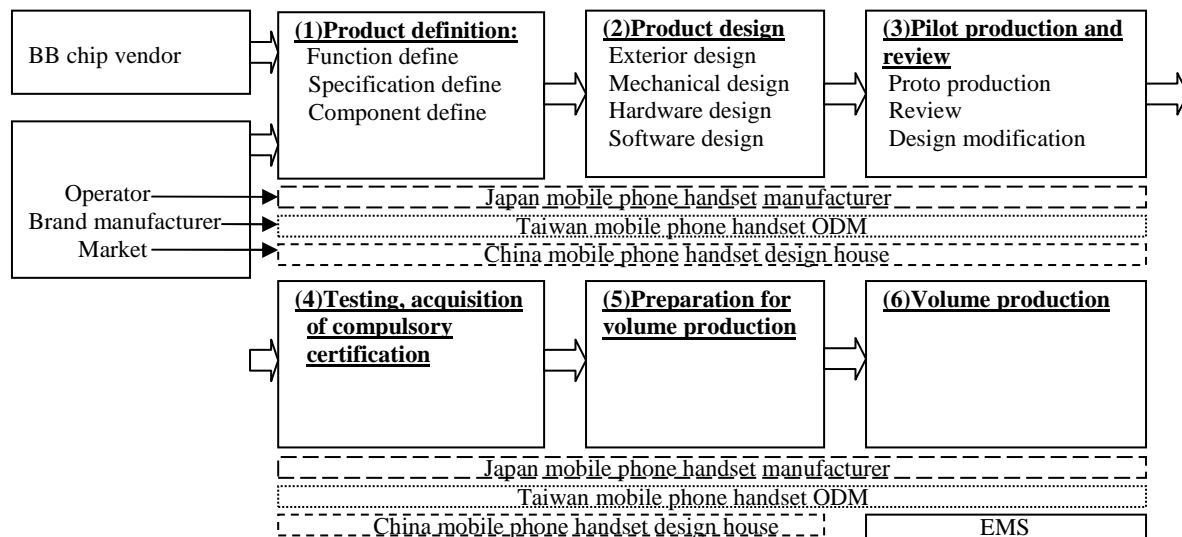


FIG. 1 : VERTICAL INTERFIRM DIVISION OF MOBILE PHONE HANDSET DEVELOPMENT IN JAPAN, TAIWAN, AND CHINA

#### Japanese Mobile Phone Handset Manufacturer

Ever since NTT DoCoMo operator introduced i-mode service in 1999 and 3G service (W-CDMA) in 2001, mobile phone handsets have become not just a communication tool but also a multimedia terminal product. There are a total of three operators competing in the service area while eleven mobile phone handset manufacturers are competing in product differentiation. Firm A was a late-entrant manufacturer in 1998. However, it provided more products compared to others, therefore, it has the highest market share amongst its competitors at the present.

Firm A has 6 Business Units: (1) 1st Personal Communication Business Unit (for NTT DoCoMo operator), (2) 2nd Personal Communication Business Unit (for Softbank operator), (3) 3rd Personal Communication Business Unit (for overseas market, mainly for Vodafone operator), (4) 4th Personal Communication Business Unit (for au by KDDI operator), (5) IP Communication Business Unit (for fax machine, cordless phone handset, etc.), and (6) Platform Development Center. 1st, 2nd, and 4th Personal Communication Business Units receive service requirements from three different operators respectively, and develop mobile phone handsets for them tailored to the domestic market. Moreover, they are not allowed to exchange customer information with other business units.

Although the service requirements of these three domestic operators are different from each other, some components of a handset model are similar to and are shared within its handset lineup at Firm A. For instance, most parts of an user interface application software do not have feature characters, so these can be regarded as common software platform and can be shared with different mobile phone handsets. To give an actual example, model number 904, 905, and 705 mobile phone handsets have the same PCB design; but 904 model has VGA, 3 mega camera pixels, and other functions. Whereas 905 model adds extra mobile television function, while 705 abandons

high performance in exchange for a slimmer body. However, in order to share these common components with other various mobile phone handsets developed by the business units, Firm A has established 'Platform Development Center'. This 'Platform Development Center' develops common software (the basics of protocol stack, user interface, mailer, browser, etc.) and hardware (display panel, camera module, etc.) that are to be shared, and also manages these common components as libraries with clear specifications and definitions.

The 1st, 2nd, and 4th Personal Communication Business Units also use three different technology platforms respectively for developing mobile phone handsets. When adopting a technology platform for developing mobile phone handsets, technological uncertainty constantly rises. Because technological uncertainty causes unexpected yet unclear software bugs, a long debug process is always required. Without practical usage experiences, a new technology platform includes various unexpected bugs during the development stage of a chipset. Moreover, a technology platform which performs advanced multimedia functions also has compatibility problems with software and hardware components. For example, when Firm A began to use a technology platform that is composed of an NEC-Panasonic BB chip and a TI OMPA application processor to design 900i series mobile phone handsets, they made an effort to debug. Even though Firm A referred to the development board and product design offered by NEC, Panasonic, and TI, it did not secure the right information on the condition of the technology platform. From this experience, they concluded that it was necessary to cooperate with technology platform vendors closely in order to put the required knowledge on the core chipset.

Afterward, Firm A joined the core chipset development project with DoCoMo, Renesas, Fujitsu, and Mitsubishi in 2006. In this project, they developed a comprehensive mobile phone handset platform combining a single-chip LSI for dual mode mobile phone handsets supporting HSDPA/W-CDMA and GSM/GPRS/EDGE. They also developed core software such as operating systems. The new technology platform will help DoCoMo to accelerate their global adoption of W-CDMA services, and to lower the cost of these handsets for mobile phone handset manufacturers at the same time.

This technology platform is built on the previously developed single-chip LSI technology, which is a combination of a BB chip and an application processor; a processor for dual-mode W-CDMA and GSM/GPRS phones from DoCoMo and Renesas since July of 2004. The jointly developed technology platform adds new functions, such as support for HSPDA and EDGE technologies, and full development support including OS, middleware, and drivers. This technology platform also can serve directly as a base system for W-CDMA handsets, and eliminates the need for mobile phone handset manufacturers such as Fujitsu and Mitsubishi to develop separate systems for common handset functions, thus significantly reducing time and cost of development. If the technology platform is further spread and adopted, a further cost reduction of the mobile phone handsets will also be expected.

By joining this cooperation, Firm A can propose their IP (Intellectual Property) into the core chipset and receive royalty fees. Moreover, Firm A also has the benefits of time-to-market compared to its competitors. Usually, a technology platform vendor offers development board and reference design as technical support for saving product development lead time. However, on the contrary, Firm A used to believe that relying on these development supports deeply would not help them understand the interactivity among components. Furthermore Firm A also mentioned that in the past, they did not have such experience in designing core chips while other competitors had, so it was difficult for them to find out problems or to create something new by themselves. As a result, '1st Personal Communication Business Unit' and 'Platform Development Center' are mainly responsible for the core chip development project. 'Platform Development Center' also verifies the compatibility of components related to the core chipset.

#### **Taiwanese Mobile Phone Handset ODM**

The starting point of Taiwanese mobile phone handset industry was approximately 1994 when BenQ began developing mobile phone handsets. In 2000, PC ODM such as Quanta Computer, Compal Electronics, Inventec, and Arima computer simultaneously began production of mobile phone handsets by investing in their mobile phone handset subsidiaries or in-house divisions. Between 2001 and 2004, Chi-Mei group, Hon Hai Precision Ind., High Tech Computer, Asustek Computer, Mitac International, Wistron, and Gigabyte Technology also entered the market actively. Some companies developed their own brand mobile phone handsets while some duplicated the ODM business model of PC to mobile phone handset business.

Firm B entered the mobile phone handset industry in 1999 and has become the biggest ODM of mobile

phone handset in Taiwan. It receives specifications from Motorola and Sony Ericsson, and then shape detailed mobile phone handset designs and manufacture them. Nowadays, Firm B has 7 product development teams for developing 2G, 2.5G and 3G handsets. In 2006, mobile phone handset models were developed under several different technology platforms including 2G chipset such as, Calypso and LoCosto from TI; and 3G chipset from Qualcomm. In 2006, Firm B used Calypso and Locosto to develop 2~3 product models and 6 derivative models. In its R&D division, 'New Product Development Team' keeps surveying on several different technology platforms and propose to their customers to replace present core chips if these technology platforms perform better and show cost advantage.

Firm B develops software (i.e., device drivers, firmware, games, melody, phone address book, file management, MP3 drivers, etc.) for executing multimedia functions or for integrating some other IC chips (i.e., Bluetooth, NAND memory, melody IC, image sensor, etc.) from 3rd parties. However, when they adopt a new TI's chip for developing mobile phone handsets, they face high technological uncertainty. For instance, at the initial time of adopting one technology platform, they found that there were more than 10,000 software bugs and 1,000 hardware bugs. The reason was that TI could not expect the usage of customers, such as mobile phone running out of battery if it were used to take pictures. Firm B emphasized that in order to overcome these problems, it enhanced their debugging capability by hiring more Quality Assurance Engineers 3 years ago. Furthermore, Firm B also cooperates with TI and became a *α* site customer of TI. Since the release of LoCosto' engineering samples in 2005 by TI, Firm B have exerted an effort on debugging capability for their new core chip. Firm B has system-level experience that is similar to the usage of customers, so TI can get feedbacks and continuously upgrades their version of the core chip. On the other hand, through this cooperation Firm B also acquired knowledge regarding the core chip faster than other competitors did, and this also contributed to the saving of the lead time for its mobile phone handset development.

#### **Chinese Mobile Phone Handset Design House**

Beginning in the 90's, mobile telecommunication service industry started a worldwide full-fledged growth. The trend soon spread to China. Driven by the surge demand both from the world and from its domestic market, China's mobile phone handset industry has exhibited a spectacular growth since the late 90's. Export and domestic consumption rose almost parallel until 2003, after which the latter became more or less flat. In 2005, around 75 percent of handsets produced in China were exported. Although local mobile phone handset manufacturers turn increasingly outward-looking recently, multi-national companies altogether still contribute to close to 95 percent of its total export. When we turn our eyes to the domestic market, however, a strikingly distinct picture could be seen. Stating from just around 5 percent in 1999, local brands' shares increased radically until 2003, when China's official media triumphantly announced that Chinese mobile phone handset makers had captured more than 50 percent of the domestic market; then almost all of a sudden came the reversal. Since 2004, a majority of local mobile phone handset manufacturers slid into a retreat, which continued until early 2006.

Because of the increasingly heated competition in the domestic market, the advent of local mobile phone handset manufacturers to induce organizational or technological innovations where strong cost sensitivity and enduring quests for novelty coexist has been ignited. These domestic-competition-induced innovations, as we call them, may have international implications as global demand for low-cost and multi-function mobile phone handsets is expected to grow in coming years. According to (Marukawa, Yasumoto, Imai, and Shiu, 2006), there are many phone models in the market, but the number of sales for each model is small. For instance, it is necessary to aim at one million units by the number of sales of one model in Japan, but in China, if 200,000 units were sold, profit would be paid. Therefore, it is thought that the development cost put on one model is far greater in China than in Japan.. In Japan, the life cycle of a model is 6 months, but in China there is no rule on the life cycle of a model. On average, the life cycle of a model is 9 months, but sometimes there would be a model that keeps selling for two years. Recently, a phenomenon can be observed is that if a manufacturer can not release derivative models every month, a fall in its market share would shortly follows.

The domestic market share of a local mobile phone handset manufacturer reaches approximately 50% in 2003. Despite that, its market share has changed radically that it is experiencing a descent. In 2006, even with the achievement on financial affairs, the improvement is still lesser in market share compared to major foreign companies such as Nokia and Motorola. However, the design house industry has not fallen in as extremely as the

local mobile phone handset manufacturers. According to a U.S. research company, iSuppli's investigation, there are about 50~60 design house companies in China, and it is expected that the products that the design house design will account for 50 percent or more for the volume of shipment of the local mobile phone handset manufacturers. In addition, the top 5 design house companies account for 70 percent of the mobile phone handset design market. The major design house has the ability to implement all processes of the mobile phone handset design composed of the circuit, software, the mechanism, and externals (i.e., case). Moreover, this major PCBA business model is based on its own independent marketing research and then provides solutions to the customers. However, this type of business model has been gradually adopted by other design houses.

It is a conformational change of the chipset market to be changing the business environment for design house companies in China greatly in recent years. Design house companies mainly procured chipset from Europe and America vendors such as TI and Phillips until 2004. However, the Taiwanese IC chipset vendor Mediatek suppressed the license fee at about the end of the same year and started to release their new chipset. The adoption with the design house began to extend. As a result, the market share of Mediatek has been increasing radically that it exceeded TI's market share, and reached about 40% in 2006 (Merrill Lynch, 2006).

Compared to the TI's technology platforms, Mediatek's technology platforms had more powerful performance on executing multimedia functions. In other words, Mediatek's technology platforms integrated various multimedia functions such as Bluetooth, camera, etc. more than TI chipset did. However, their new technology platform contained a lot of technological uncertainty. Design house companies did not adopt it except that of Firm C. Firm C believed that Mediatek's technology platforms would fit the requirements of the market, and began to adopt it since the end of 2004.

Firm C emphasized that a successful mobile phone handset development should match the needs of the market concerned with available related technologies. Firm C mentioned that when they observed a selling point in the market, various divisions including sales division and R&D division would be organized to form a 'Project Research Committee.' In other words, these members from each division can give different technology perspectives, market perspectives, or operator perspectives into the discussion on the possibility of commercialization. If the possibility were high, they would start to develop. Unlike other major mobile phone handset manufacturers, 'Project Research Committee' in Firm C was not a permanent organization for deepening technology and researches, but mainly for analyzing technical trend and market requirement.

Developing a chipset takes 10 months or more. Firm C cooperates with Mediatek for 6th months. At the time, the chipsets are developed though did not arrive for the mass production test. At this stage, Firm C gives market information to Mediatek on what the architecture of the product would be. Afterward, Mediatek and Firm C decide the interdependencies of other components at system level. Because Firm C has much experiences in contacting customers, they became an important  $\alpha$  site customer for Mediatek. The  $\alpha$  site customer of Mediatek's 6217, 6218, and 6219 chipset in Taiwan was a design house Darts that was invested by Mediatek before 2004. However, two development teams of Darts have been pulled out to ARIMA and Foxconn respectively. After 2004, Mediatek started to work with Firm C closely to develop 6226, 6228, and 6229 chipsets.

In the close cooperation with Mediatek, Firm C has encountered various problems and managed to solve them in early stages since the kick off of the project. In the early problem-solving stage, they verified compatibility and debug not only Mediatek's chipset but also other components or devices in a laboratory test. The problems of compatibility might be unexpectedly brought up, so it was necessary to fine-tune the settings between Mediatek's chipset and the components or devices such as image sensors, Flash memory, software drivers, etc. Firm C emphasized that by cooperating with Mediatek, they would acquire knowledge on the interdependencies among components. Moreover, they also pointed out that this cooperation saved the product development lead time and accumulated knowledge on product platform design. As a result, in 2006, Firm C successfully developed nearly 50 types of product platforms, which each used several Mediatek technology platforms. To this date, the amount of mobile phone handsets (i.e., customers) which have been developed by their product platform has exceeded 100 types.

## Discussion

The communication standards, national factors, and business models may differ between Japan, Taiwan and China. Nevertheless, we observed that the Japanese firm A, Taiwanese firm B and Chinese firm C all faced high technological uncertainty when they adopted new core chipsets. According to our interviews, they also emphasized that the technological uncertainty could be reduced by close cooperation with core chip vendors.

The firm A collaborated with DoCoMo, Fujitsu, Mitsubishi and Renesas to develop a technology platform based on a highly integrated core chipset. DoCoMo intended to establish a common technology platform to accelerate its services. In the past, DoCoMo only cooperated with the chip vendor: Renesas. Recently Fujitsu, Mitsubishi and the firm A are enrolled in the project. The common technology platform will enhance the benefits of economies of scale. However, the firm A also pointed out that they can learn the characters of core chip and interdependencies among components through the project.

In the case of the firm B and C, they all collaborated with core chip vendors exchanging information with each other. They also emphasized that they solved problems earlier than other competitors by testing their core chipsets and related components and debugging software problems through the collaborative processes with these vendors.

The firm A, B and C represent the leading position in each country's mobile phone industry respectively, so that the cooperation with core chip vendors is considered as a natural result. However, when we turn our eyes to the Chinese local mobile phone handset manufacturers and design houses, they also show the same perspective, "the cooperation with core chip vendors will contribute to their product development." Some of them attempt to be an  $\alpha$  site customer while others want deeper cooperation with core chip vendors. For instance, one of the major design houses, Techfaith, established in 2002, mentioned that the firm established a joint venture with a core chip vendor, Qualcomm, in 2006 as the multimedia will be more value-added in the future. A local mobile phone handset manufacturer, AMOI, provides another emblematic case. The firm has been in cooperation with a local IC core chip vendor, Spreadtrum, to develop the Chinese 3G standard TD-SCDMA mobile phone handsets. Moreover, AMOI also worked with Spreadtrum to design GSM/GPRS mobile phone handset, and thereby took the biggest market share in the local made mobile phone handset market in the beginning of 2007. These cases show that, in general, a simple buyer-seller relationship is not proper to related firms especially when technological uncertainty is high.

However, the limited technical support resources encourage core chip vendors to concentrate on a handful of main customers. Our interviews with the Chinese local mobile phone manufacturers and design houses since 2005 provide some evidences. The interviewees all emphasized that, in their handset development projects, sometimes it is difficult to identify where the problems come from and cannot solve them without technical support from core chip vendors. As a result, these problems always delay their product development. A design house, established in 2005, pointed out that it is necessary to be an  $\alpha$  site customer of Mediatek not only because the firm can receive lower sell prices but also because the firm could develop their handsets with the latest core chipsets quicker than competitors. However, the firm also emphasized that design capabilities and customer experiences are indispensable for the cooperation with Mediatek.

Past researches indicated that interfirm modularity seems to blur the role of close coordination within and between firms, which were once regarded as one of the most critical factors of effective product development (Clark and Fujimoto, 1991; Yasumoto and Fujimoto, 2005). Takeishi (2002) suggested that boundary spanners or gatekeepers enable intra-firm product developers to acquire external complementary knowledge. Yet, our cases show that bilateral close communication channels between handset developers and technology vendors should be also indispensable when technologies change rapidly. Technologies have the attribute of a "system" in nature (Winter, 1987): technologies are embodied in multi-components and interrelated to each other. A set of components together is integrated to provide utilities for customers. The system performance is dependent not only on the performances of individual components but also on the extent of the mutual compatibilities between them (Henderson and Clark, 1990).

In our research, we found that a firm which designs product platforms can be regarded as a system integrator plays the role to deal with the interrelationships between technologies at the product system level. In the



case of the firm A, the specialized platform development center examines components in order to secure high compatibilities between specific core chipsets and common components shared between handset development units. The firm C closely cooperated with core chipset vendor, Mediatek, so that the firm pre-verifies the compatibilities between core chipsets and components.

These cases show that system integrators execute two functions in interfirm product development networks. First, the integrators provide solutions to support product development activities. These solutions reduce technological uncertainty which product developers face in the process of aligning a variety of components from core chip vendors and different 3rd parties. Second, these integrators play the role to maintain the integrity of the systems concerned in case that the systems' performance slippages (Garud and Kumaraswamy, 1995) could occur due to the incompatibilities created by the technological change of core component.

In the vertical interfirm division of labor, any single firm, even a system integrator, can hardly invest in all complementary technologies. Thus, the close cooperation with complementary vendor is a vehicle to acquire such complementary technologies. Nevertheless, sometimes, it is hard to maintain long term cooperation in the interfirm division of labors. Firms in a strategic alliance are liable to preserve their knowledge within them while always attempting to learn from competitors. Yet, we could scarcely find such tensions between mobile phone handset manufacturers and core chip vendors in our cases.

In contrast, some of the China local mobile phone handset manufacturers emphasized that Mediatek's total solutions make it difficult to develop distinguished handsets. This situation is also the case in the DVD player industry in China. Mediatek's total solutions can shorten product development leadtime to market. Yet, companies hardly differentiate their products as Mediatek encapsulates the most of product functions into their chipsets or bundle other components with their solutions. As a result, handset manufacturers could hardly balance the tension between cooperation and competition in the vertical interfirm division of labor. The fact shows that manufacturers can take the most of the values of products only when manufacturers for themselves nurture and hold the capabilities to define and develop the functions or components of the products.

## **Conclusion**

Nowadays, the industrial structures of many electronics industries have been shifted to the vertical interfirm division of labors. Product developers use even core technologies from specialized vendors. Drawing on the cases of a Chinese, Japanese and Taiwanese handset developers, and the study attempts to elucidate how product developers develop product platforms adopting novel technology platforms from vendors. The cooperation with technology platform vendors in the early stage of product platform development helps shaping architectural knowledge, which is insufficient in the technology uncertainty of novel technology platform application. The collaboration between product developers and vendors enhances effective product platform development even in the vertical division of labors for product development. These finding would contribute to not only explicating the dynamics of the product development in open interfirm networks but also revealing the managerial issues of product platform development in the vertical division labors of product development.

Product developers in the vertical interfirm division should learn how to acquire knowledge from core component or complementary vendors. Cooperation with these complementary vendors also can be regarded as knowledge sharing or exchanging. Past researches indicated that core component vendors have component knowledge while manufacturers have architectural knowledge. Manufacturers and vendors exchange complementary knowledge (i.e., component and architectural knowledge) between them in the collaboration.

However, IC chip vendors will have more possibility to put various functions into their chip in the continuous improvement of the semiconductor process. In this case, bilateral mutual learning will become more difficult. In order to have the chance of mutual learning with core component vendors, manufacturers should make more investment into system level architectural knowledge (Takeishi, 2002). In the future researches, we need to explore whether more architectural knowledge can contribute to the earlier reduction of technological uncertainty to the extent that both technology and product platform design activities are advanced.

Furthermore, the mutual learning is competency-enhancing in the long term. The knowledge of

competency-enhancing is derived from accumulated experiences as both of collaborative firms continuously gain a deeper appreciation of (1) which aspects of platforms will drive future improvements, (2) how core chip and the other components are interdependent, and (3) how complementary component vendors are integrated together to develop or improve product platforms. These management issues of product platform development are also left to the future researches.

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## End Notes

- [1] Design House in the context of the mobile phone handset industry is a firm that is specialized in the development

of mobile phone handsets. Design Houses specialized in the development of electronic devices were born in the US in the trend of design outsourcing beginning in the 1990s. Cellon, a San-Jose-based venture established in 1999 by Chinese and US engineers claims to be the first Design House specialized in mobile phone handset development. For more detailed information about Design House, please refer the Ken and Shiu(2006).

## **New Managerial Profile: Knowledge Based Approach**

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### **Abstract**

**A society of the future is the society of knowledge, in which the capability of knowledge concentration and transformation into innovative and applicative solutions are important and respected values. Knowledge has become the central resource of the new society where knowledge workers are key elements of its work force. There is no limit for knowledge society. Knowledge can be gained faster than ever because it moves faster than any other production factor. Modern communication and information technologies made it easier to get to the information. Yet it is still hard to gain applicable knowledge in this jungle of information. The basic strategy for achieving the knowledge society in Europe was set with the Lisbon strategy (European Commission, 2000). The Lisbon Strategy is focused on investing in people and enhancing their knowledge. The aims of the paper are: to analyze new profile of managers; to identify the new managerial role; to identify changes in education and sustainable development of managers.**

### **Introduction**

Knowledge as a key element of future society differs from all other classical production factors. The resources of knowledge are endless. The use of knowledge does not destroy them; on the contrary, it makes them even more valuable. The knowledge gained in the past sticks around. The Romans would say: *Omnia mea mecum porto* (I carry everything with me). We can sell it but we still own it. The same knowledge can be shared with many people. The only limitation to it is the human ability. The main objective for the European Union is to find a way to face the challenges of the global economy. Creating a knowledge society is the best and probably the only way how to achieve this. Innovations, technological modernization, applicative use of knowledge and top design will benefit to the European society and all its inhabitants. The basic strategy for achieving the knowledge society was set with the so-called Lisbon goals (European Commission, 2000). At the Lisbon summit in March 2000, Europe's heads of state declared their ambition to make the European Union *"the most competitive and dynamic knowledge-based economy in the world by 2010, capable of sustainable economic growth, with more and better jobs and greater social cohesion"*.

### **Knowledge Society and Human Capital**

Knowledge is an idiosyncratic feature of a human being. Knowledge society thus cannot be built without sufficient and adequate human capital. Human capital refers by definition to the knowledge and skills accumulated by people in the process of their education and training. The pioneer in the field who published "Human capital" in 1964 is professor Gary S. Becker, a Nobel Laureate (1992) from the University of Chicago (Becker, 1993). In his opinion, *the new economy has increased the value of education and returns for investment on education*. The macroeconomic aspect of education and investment in human capital contribute to economic growth.

Economically, human capital can be measured as "stock" or "flow" type of indicator, where the first one represents the level of education and knowledge of people and the second reflects the process of education. Highly educated and skilled people have an economic advantage on the labor market earning more, which is a return on their investment in education. The income level is a function of education and experience; highly educated people

have a higher price of their skills, thus earning higher income while entering the labour market and experience a more rapid growth during the working life cycle (Samuelson, 1995).

Human capital has become the most important factor and can be effectively used in the economic process only by well-educated and skilled workers.

Economic development is connected to the absorption capability that is defined by the quality of the human capital. Growth conflict is a psychological process in which people due to the lack of knowledge begin to appose the process. Therefore the investment into technology must be necessarily accompanied by investment into human capital. The investment into human capital means education and training of employed people.

The econometric studies (OECD, 2001a) confirm a significant positive impact of human capital accumulation on the productivity (output per employee) and economic growth. Although the human capital theory is clearly defined, some dimensions are more difficult to quantify empirically. The human capital defined as capacity for work has five categories: individual knowledge, experience, skills, capability for work (health), willingness and readiness to work (personality). Some of them can be measured, while others have to be estimated.

Human capital stock is most often measured by the educational attainment of people according to the personal characteristics like age, gender etc. Another method of human capital stock measurement is observation of labor income paid in a year, assessment of the future income for each group of people according to their educational attainment, to sum the estimated aggregate value of human capital. The static model-based estimate origins from current level of education, while the dynamic model takes into account also the education in process (work-study stage and work stage). Education is a foundation of economic and social development, thus the role of human capital is discussed among researchers, economists and politicians.

The new European employment strategy sets ten policy priorities (Commission of the European Communities, 2003):

1. active and preventative measures for the unemployed and inactive,
2. job creation and entrepreneurship,
3. adaptability and mobility,
4. promotion of the development of human capital and lifelong learning,
5. increased labour supply and active ageing,
6. gender equality,
7. combating discrimination,
8. making work pay,
9. transformation of undeclared work,
10. addressing regional employment disparities.

The concept of lifelong learning is an objective of the European employment policy within the fourth policy priority "Promote development of human capital and lifelong learning" that states: "Member states will implement lifelong learning strategies, including the quality and efficiency of education and training systems, in order to equip all individuals with the skills required for a modern workforce in a knowledge-based society, to permit their career development and to reduce skills mismatch and bottlenecks in the labour market." (Commission of the European Communities, 2003).

A recently adopted EC document "Education and Training 2010" (Commission of the European Communities, 2003) is focused on quality, access and openness of education and training systems. EC DG, Employment "Study on human capital in a global and knowledge based society" (De la Fuente and Ciccone, 2003) claims that average level of education by one year represents a 5% increase in economic growth in the short-term and another 2.5% in the long-term. In addition, the positive impact of education on employment, health, and social inclusion has been shown.

Several factors: economic, social and technological – account for the growing emphasis on the human capital (Commission of the European Communities, 2003):

- a) Firstly, in any modern economy today, the **production** of goods and services increasingly relies on human, rather than physical, capital, i. e. on its workers' **individual** and collective endowment of knowledge and skills. For example, Germany's endowment of human capital is today more than twice the value of its physical capital.

- b) Secondly, in the knowledge and information society the quality of education is increasing and directed towards more active and innovative gaining of knowledge and skills.
- c) Thirdly, growth of the “new economy” is also seen as a reason for the expansion of knowledge-based jobs. The idea of a “new economy” focuses attention on the role of ICT and its impact on technological progress.

## **Human Capital for Knowledge Society in Slovakia**

In the new economy - the information society accompanied by the globalization process - education and training are important not only for individuals, who due to their knowledge and skills become more successful and competitive on a more and more open labour market, but also for enterprises, for which human capital has become an important factor of production. The basic principle is intellectual flexibility and life long learning of adults. The main reasons for lifelong learning can be summarized by the following interrelated functions:

- individual function - individual development and career opportunities,
- economic function - productivity and competitiveness of enterprises,
- social function - higher living standard, social inclusion, decreasing unemployment, cultural progress,
- national function - competitiveness of the national economy.

Individual benefits from education and training through better employability, higher productivity, increased earnings, increased mobility in the labour market and by widening their career opportunities. By investing in the human resources enterprises improve their productivity and competitiveness not only on local markets but also on the global markets. “The economic performance of 62 world wide car assembly plants around 1990, measured in terms of labour productivity and product quality (assembly-related defects per vehicle), proved to be closely associated with the presence of three dimensions of business strategy, lean production, team working and innovative human resource management (HRM) practices. Economic growth and social development of countries are invariably associated with large and sustained investments in education and training; countries with the highest incomes are also those where workers are most educated” (ILO, 2003).

The available data from the employment register that we analyzed for Slovakia include people employed by enterprises, small businesses and institutions. The analysis of the data on employed people by the educational institutions shows that 36 % of them have secondary specialized and secondary general education, 38.7 % are skilled or unskilled workers.

Based on the UNDP report on human resource development in 2004 Slovakia went down at the 42<sup>nd</sup> position in HDI (from the 39<sup>th</sup> in 2001). Education that is taken for the top priority in any economy is not recognized in Slovakia. The proof can be seen in the percentage of the GDP invested into the sector. While in the most developed countries it accounts for approx 1.33% (1998) in average and the trends show its growth, in Slovakia the GDP percentage invested into education fell from 1.05% in 1990 to 0.64% in 2001. Slovakia thus stood at the last position of the OECD member countries.

The similar situation is characteristic for research in Slovakia. The GDP percentage invested in research fell down from 1.45% in 1993 to 0.59% in 2002 and contribution from state budget went down from 0.46% to 0.26% in the same period. The average in the EU countries accounts for 1.9% of GDP with the highest investment being in Sweden (3.78%), Finland (3.37%), Germany (2.48%), USA (2.27%), France (2.15%) in 2002.

Following the EU education priorities the most important issue is to increase investment into education. Thus it is particularly important to increase investment in human capital from public funds, the business sector and individuals. The secondary priority is the introduction of lifelong strategies that is the education and training of adults. Education of adults is not only an investment by the individuals, but also by enterprises with a view to promote productivity, competitiveness and a more active ageing. The management in progressive companies that is aware that competitiveness can be only achieved with well-educated people, will strive to encourage employees to continue education and training – by entering the long-life learning.

Human capital development – the increase in the educational level and flow of highly educated youth on the labor market – does not only lead to welfare and better living standard of individuals and companies, but it

becomes necessity in the knowledge-based society. High-tech intellectual industries need highly educated people. Human (intellectual) capital is a key factor of productivity. Thus in the new economy human capital has become the only real “wealth of nation”.

The solutions to the above mentioned negative trends in Slovakia have become the top priority for the Slovak government. Along the lines of the Lisbon Strategy they are planning to increase the competitiveness of the Slovak enterprises through highly educated workforce. Increased investment into education and research is the subject to numerous reforms in public finance, education systems and enhanced links between research and educational institutions. The changes should be achieved by 2010 (Strategy of the Slovak Republic’s Competitiveness by 2010 - draft).

## **Managerial Competences in the 21th Century**

While thoroughly analyzed managerial competences of the 20th century included the combination of hard and soft skills with the focus on the hard ones, ie were assumed to be mastered during studies and short-term practical training and shifted primarily towards the preparatory phase for the managerial role, the new, transformed managerial role requires the combination of the manager’s qualities and knowledge that will allow for integration of individual experts’ efforts and understanding and respecting of customers’ values for sustainable competitive advantage.

The initial perception of a new managerial role includes the views summarized by Brent, Snow and Miles (1996) and refers to organizational structure. They claim that the shift from the traditional structure (functional, divisional and matrix) towards the structures with higher autonomy, network structures, learning organizations etc. requires new managerial competences including technical specialization based on knowledge, experience in various functional fields including international exposure, collaborative leadership, self-controlling skills, continuous learning, ability to work individually, flexibility, integrity, trustworthiness and the like.

Barlett and Ghoshala (1997) identify different competences for individual managerial echelons. The authors present the change of line managers from operations implementers towards aggressive entrepreneurs characterized by creativity, intuition, persuasiveness, commitment, competitiveness, perseverance, knowledge of company technical characteristics as well as that of competitors and clients, internal and external resources and company operations. In their views, middle managers change from administrative controllers towards supportive coaches. Here, the competences of people-oriented integrator include knowing people, ability to, delegate, develop, empower, enhance relationships, build teams, diminish and resolve conflicts. Top managers are gradually changing from the resource allocators to institutional leaders. Their qualities should include primarily those of an institutionally thinking visionary, ie ability to create interesting (demanding) work environment, enhance trust and belief in the organization, ability to combine conceptual perception with motivational challenges.

Another stream in management theories is represented by the idea of learning organization. For the core competence Bob Garatt (2002) (Figure 1) takes common thinking. This means that managers cannot exercise individualized thinking at the top of the pyramid any more. The new phenomenon could be called a processor of the organization where the information from external and internal sources is processed and becomes part of an efficient information network accessible to all employees. Thus, efficient learning can take place as a basis for strategic decision-making. Employees, participating in the decision-making via contributing and processing information identify with it much more readily. The strategic horizon is shifted towards long-term. The responsibility of individuals is growing and is based on permanent employee development through learning. To be competent under the above conditions, the manager must be equipped with knowledge, skills and other personal qualities, such as ability to attract, educate and retain highly qualified employees, abundant in expert knowledge and skills in the area of his/her field, competences to establish and develop the learning organization (cognitive and behavioral phase followed by results), competences in knowledge management (knowledge as the core competitive advantage) and intercultural managerial competences (communication, listening, empathy, creating atmosphere of trust, efficient feedback and the like).

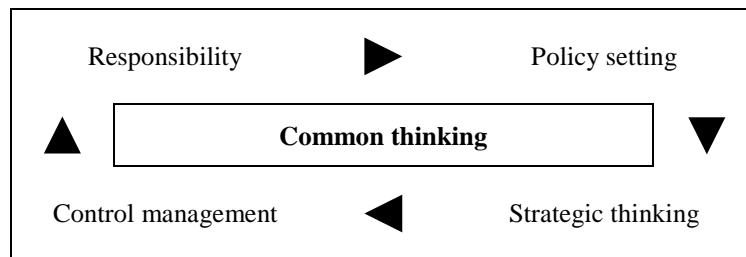


FIG. 1: MODEL OF LEARNING TOP MANAGEMENT. ADOPTED FROM GARATT (2002)

Burack, Hochwarter and Matys (1997) recommend step-like model of competences consisting of core competences (necessary for managers at all levels), such as flexibility towards change, customer-orientation, stress management, teamwork, ability to collect new knowledge. In addition, they specify the competences for middle management, such as creativity, strategic thinking, cultural heterogeneity, art in creating teams, support for participation. Here, the art to create heterogeneous teams achieving synergic effect is the most important. Top management should consist of good leaders at change implementation, persuasive communicators and strategic initiators.

## Managerial Competences in Slovak Companies and Knowledge Society

Our research focused on identification of managerial competences as envisaged by Slovak managers in the view of the shift towards knowledge society.

### Methodology

A questionnaire consisting of 3 open-ended questions was distributed to 421 managers (university graduates) in 86 organizations regardless the organization's size and field of operations with the return of 283 (67.2 %). Descriptive statistics was used to analyze the responses.

### Discussion

The questions in the questionnaire were intended to identify changes in managerial competences in the recent five years, suggestions for adaptation (completion, change) of curricula for to-be managers and balancing of formal and informal learning in the view of needed future managerial competences.

***Q1: Characterize the change in the profile of a manager (primarily, but not exclusively top and middle management) based on your own experience in the recent 5 years.***

The results presented in Figure 2 show the shift from the traditional managerial role of an information and legitimate locus towards permanently learning and developing visionary able to react to changes, set long-term strategies and understand their impact in short- and medium-term horizons and lead continuous human capital development with the aim to build teams aspiring to synergic effect. The changes are expected to result in the transformation leaders capable to persuade others to follow as well as to identify with the objectives to be pursued jointly.

To summarize the results of the survey is not simple due to different requirements set on different levels of management and the individual, subjective wording and phrasing of the responses because of open-ended questions. However, the common grounds were identified and can be presented as follows:

1. Need to increase customer-orientation and focus on satisfaction of the customer's needs and wants
2. Ability to master various situations and requirements stemming from globalization
3. Continuous attainment and enhancement of skills in ICT applications along with technological progress
4. Ability to persuade and explain
5. Drive for continuous learning and ability to evolve it in one's subordinates
6. Implementation of individual responsibility for permanent staff growth and effective feedback



7. Development of communication skills (including foreign languages)
8. Ability to envisage impacts of one's own decisions and enhancement of conceptual skills
9. Ability to vent constructive criticism
10. Ability to resolve conflicts
11. Flexibility and ability to recruit flexible staff as well as enhance flexibility

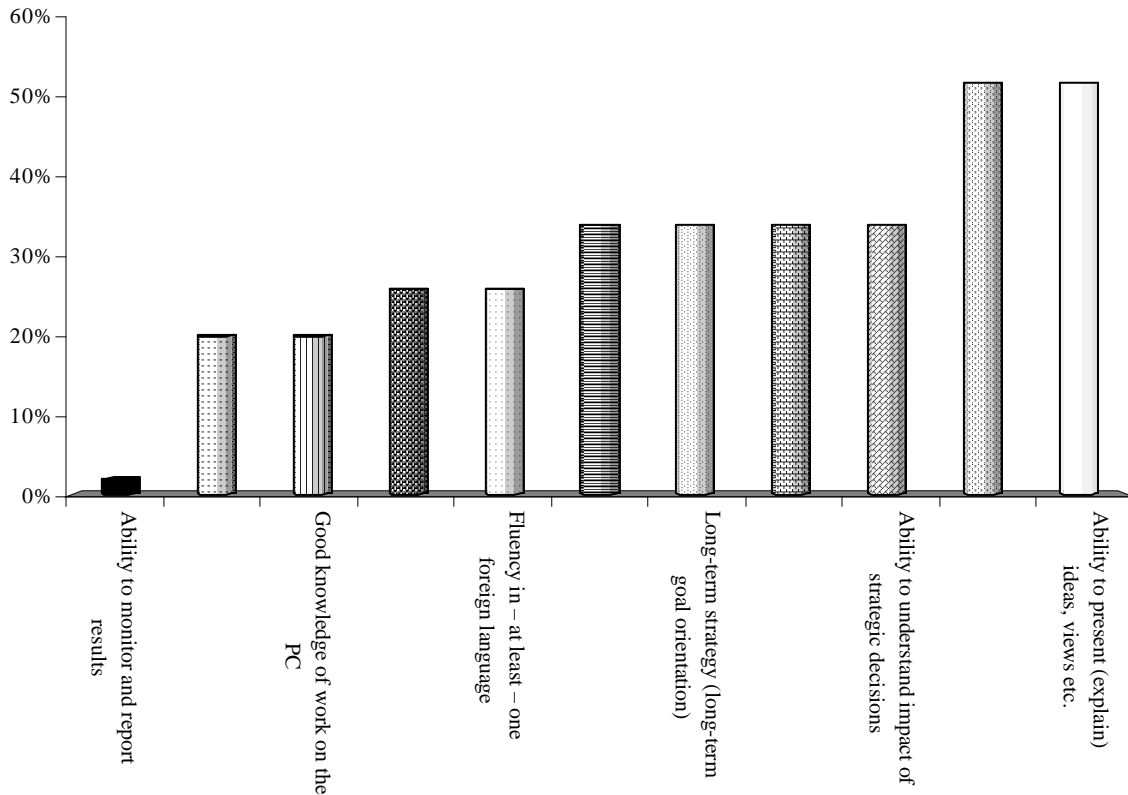


FIG. 2: NEW PROFILE OF A MANAGER

***Q2: What do you think is missing in the current profile of a manager? What do you suggest to complete (adjust) current curricula for to-be managers in the view of the lacking managerial competences?***

In a way, all respondents (Figure 3) suggested closer interlink between theory and practice focused on the customer, not individual measurable outcomes of the daily routine. This requires change of learning processes so that the students could see and understand the outcomes of their decisions to be able and ready to undertake full responsibility for their decisions in practice, furthermore, to be able to think in the context of added value. Over half of the respondents suggest including hands-on practical training in fictitious enterprises.

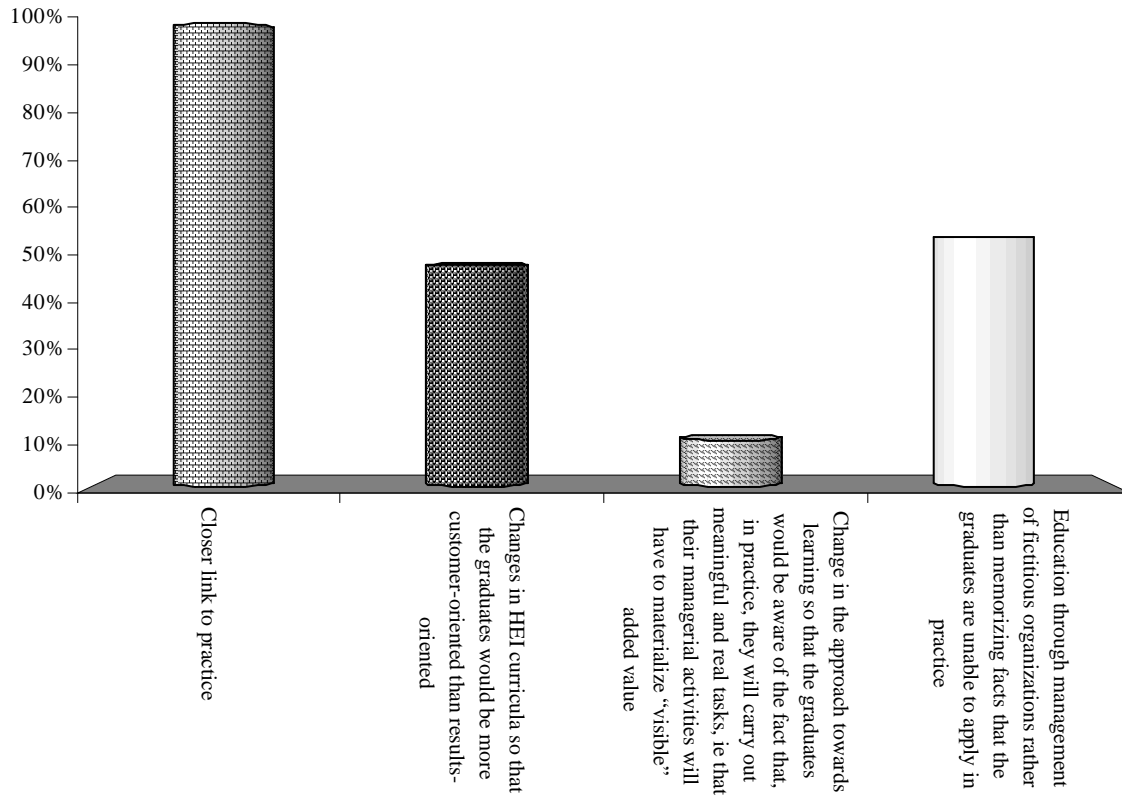


FIG. 3: CHANGE IN CURRICULA IN MANAGEMENT STUDIES

***Q3: Is it feasible for managers to enhance/complete their knowledge and skills in informal education (practice, e-learning, self-study, random courses etc.)?***

Over a quarter of respondents (Figure 4) claim that they continuously learn utilizing all above-mentioned ways. However, and it is critical, 60 % of respondents are unable to grow because their business does not leave any space for their self-education in either of the ways. 32% respondents utilize formal educational opportunities for their growth, many of them (18%) organized by their organizations themselves. Systematic knowledge-exchange events (conferences) are stressed by only 10% of respondents.

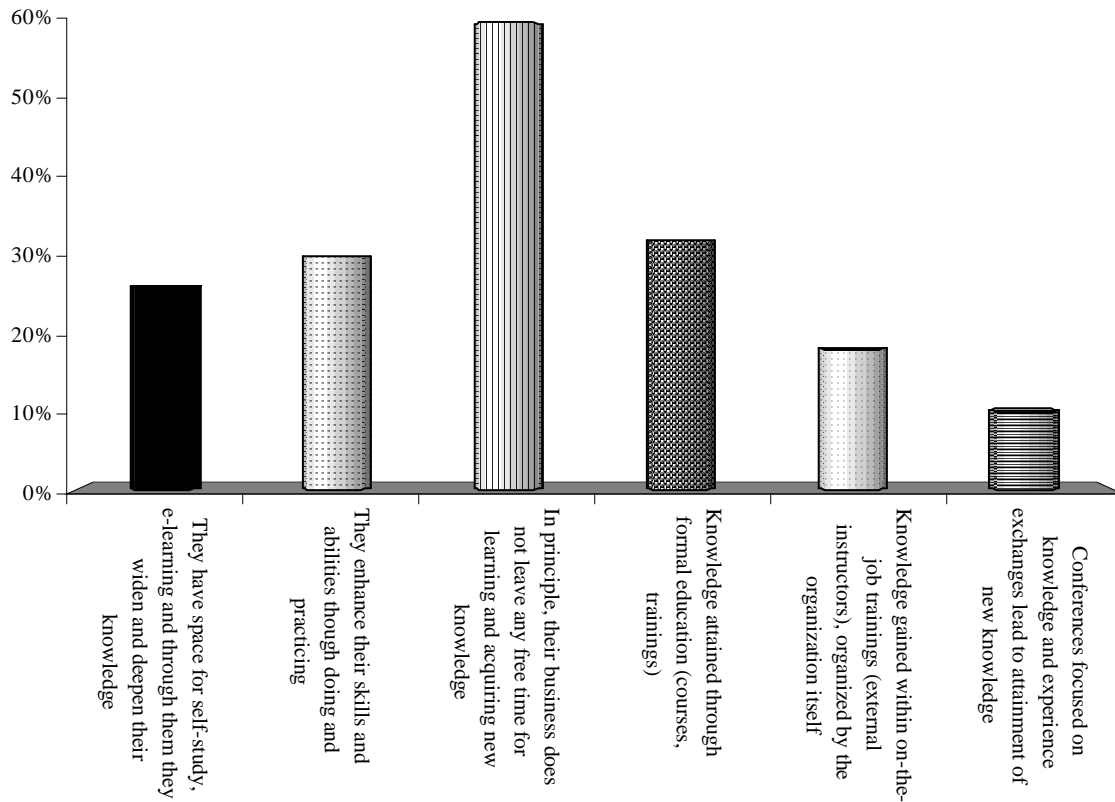


FIG. 4: FORMAL AND INFORMAL EDUCATION IN MANAGERIAL DEVELOPMENT

## Conclusion

The research shows that the change in managerial competences in organizations in Slovakia is replicating the global developments as identified by HRM theoreticians. The managers – respondents make it clear that they understand and foresee the changes in their own roles. The brief survey shows also the ‘white areas’ in the perception of the managerial role. Over half of the respondents being unable to develop due to the lack of time signals that the managerial role (in contradiction to the future trends) is still perceived as omni-potent and omni-solving which means that the manager is involved in all activities of the continuum (from strategy to daily routine). If managers are to be leaders (models) for their followers, it is them to start the change in organizations towards continuously growing (learning and developing) human (and humane) entities. Informal education and training provides good opportunities to grow in addition to the formal ones.

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**Section 9: Managing Service Businesses in a Global Economy**

# What's Driving Globalisation in the Services Industry in India and China? An Empirical Analysis

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## Abstract

Despite the existence of international trade since the time of the earliest civilisations, modern world business activity has celebrated an inordinate intensification with the rapid spread of the free market economy. This phenomenon has been ubiquitously termed globalisation. A hallmark of this condition has been comprehensive reforms in the macro, meso and micro economic environments, such as new levels of foreign direct investment, state corporatisation as well as transformations in the business management culture. It is contended in this paper there are four key forces that are underpinning these changes. These forces are 1) market, 2) cost, 3) government, and 4) competition. Collectively, these forces shape globalisation. The relativity of these forces was examined with data that were obtained from a study with indigenous managers in China (n = 210) and India (n = 239). Employing a pluralist (quantitative and qualitative procedures) design the data reveal market forces were of the most overall importance in both nations, but for different service sectors the principal force varied across communities. An increasing dominance of an open free market ideology will impact all spheres in life, which in turn will compel all levels (macro, meso and micro) to transform mindsets in unique ways to blend values of tradition and modernity.

## Introduction

Globalisation is an encompassing, complex evolutionary phenomenon that affects all spheres of daily life. For instance, globalisation has been viewed as a worldwide phenomenon, but its effects are nevertheless felt at the national (macro), regional/organisational (meso), and the individual (micro) levels (Jeanett, 2000). The roots of globalisation lie in the interaction and integration of economic, social, cultural, technological and political dimensions, and the amalgamation of these multiple layers has forged particular properties during exchange in dialogue or business (Yip, 1989). Arguably, globalisation commenced during the interaction and trade between the earliest civilisations, although history records the more notable contributors, such as Marco Polo or Christopher Columbus as the entities that forged the global forces which were to lead to colonisation, the ultimate spread of capitalism and the beginning of globalisation (Rennen and Martens, 2003; Robertson, 1992). And although the acceleration of globalisation has been linked with particular events or innovations the manifestations of globalisation is more likely to be drawn by government discussions, societal pressures or global governing bodies.

A salient feature of the modern world has been an unprecedented reshaping of national economic frameworks. In fact, many of the former socialist nations of Eastern Europe have undertaken a historic transformation from centrally planned bureaucratic systems to competitive free market economics (Rennen and Martens, 2003). Further, a number of the south east countries that were once British colonies (e.g., Hong Kong, Malaysia, Singapore), and neighbouring states (i.e., Vietnam) have emerged as models of market dominated business practices. In particular India, a nation bound by strong traditions as well as cultural and organisational imperatives liberalised the national economy in the early 1990s. And China, after reopening People's Republic of China to the West in 1978, became a member of the World Trade Organisation (WTO) in 2001. These changes, which were prompted by "...pragmatic interest in terms of enhancing an understanding of differences and similarities so as to facilitate better cross cultural business encounters." (Westwood and Posner, 1997: 31) demonstrate an increasing rate of engagement in the complex global marketplace by national governments.

This ascending of economic liberalisation has highlighted the changing relationship between State and capital. Although governments have found a freedom of economic action by attracting investment for national development, and thereby have created an unprecedented shift in wealth from a 'welfare state' to a region of

'corporate welfare', a new set of dilemmas are being faced by Chinese and Indian managers. On the one hand, they will be obliged to meet the targets of global imperatives, but on the other hand there will be a need for determining a path that will provide a fine balance between tradition and change.

The purpose of this study is to ascertain the viewpoint of indigenous Chinese and Indian managers as to the driving forces of globalisation in the services industry of the two countries. The importance of the forces of globalisation will be initially assessed at the macro level (government/market/cost/competition). Next, from in-depth qualitative based discussions, an elucidation of these forces for specific sectors of these two national communities will be delineated. The implications and likely future challenges will be outlined in the concluding section of the paper.

#### **Macro Level Drivers of Globalisation**

At the *macro* level, many national governments across the globe are seriously considering embracing globalisation. Indeed, the liberalisation of the Indian economy to foreign investment in 1991, China joining the World Trade Organisation in November 2001, and the recent expansion of the European Union from 16 to 25 countries are examples of this trend. Government policies are increasingly moving away from 'introvert' policies and are allowing foreign investment in the indigenous economy (Stiglitz, 2002). Apart from government initiatives towards the liberalisation of trade policies, and the push for deregulation of industries, other supplementary factors including the telecommunications revolution, and the recent trend toward homogeneity in market requirements have all contributed towards the current wave of globalisation and the emergence of a borderless economy that transcends political and geographic boundaries for global trade (Jeanett, 2000; Khandwalla, 2002). In addition to the *government* being one of the driving forces towards globalisation at the *macro* level, industrial organisational theory has identified three other forces enabling global orientation. These forces include *market*, *cost* and *competition* (Levitt, 1993; Morrison, 1990; Yip, 1989; Yip, Johansson, and Roos, 1997). Drawing on seminal work by Yip (1989), the current study employs these four forces of globalisation as the *macro* level drivers within the context of the *macro-meso-micro* framework of the logic of globalisation. The current study defines the four *macro* level forces that impact globalisation:

- *Market forces* enable the extension of industry's market scope beyond national boundaries. They are indicated by new customers from global markets, use of global channels and adoption of techniques and processes from global sources.
- *Cost forces* enable the extension of industry's operation scope beyond national boundaries. They are indicated by global economies of scale, favourable logistics, differences in country costs (including exchange rates), and outsourcing.
- *Government forces* enable the extension of industry's legal and regulatory scope beyond national boundaries. They are indicated by tariff and non-tariff barriers and regulations encouraging an economic climate that fosters global linkages.
- *Competition forces* enable the extension of industry's competitive scope beyond national boundaries by creating well established benchmarks. They are indicated by the matching of structures, processes, systems and strategies employed by competitors.

These four *macro* level forces of globalisation are characterised on the basis of the different roles that each one plays within the *macro* environment (Yip, 1989; Yip, et al. 1997). Specifically, *market* forces act as a customer base, *cost* forces as an organisational base, *government* as a regulator base and *competition* as a competitive base.

In summary, the *macro* level pressures of globalisation are shaped by the four broad forces of *market*, *cost*, *government* and *competition*. These four forces operationalise the *macro* level paradigms that enable the manifestation of globalisation and permeate through the economy providing organisations (*meso* level) with the necessary driving force by constantly revamping their structures and processes to take advantage of the favourable global environment.

#### **Services Industry Dynamics in India and China**

The services industry has been burgeoning across the globe over the past two decades (Nankervis, 2005). The forces of globalization, enabled by the World Trade Organization (WTO), the disappearing geographical trade boundaries, the information technology revolution along with rapidly changing nano-technology and bio-technology initiatives, and the intensified global competition are some of the factors that have enabled the expansion of the services



industry worldwide (Bhattacharjee, 2005; Jeanett, 2000). Nankervis (2005: 1) reports that "...the services industry has now supplanted both the *primary* (agriculture, mining) and the *secondary* (manufacturing) economic sectors, as a predominant *tertiary* sector..." in a number of countries across the globe. Clearly, the services industry can no longer be ignored, due to its primacy in the economies of all developed, and most developing countries in the world. The rapid rise in global services is "...without doubt one of the most challenging social, cultural, political, and especially, economic forces in almost all countries in the world..." (Nankervis 2005: xi).

Specifically, in the Indian and Chinese services industry context, Nankervis (2005) explains that the multifaceted nature of services in the Indian and Chinese economies is a major economic and social influence. In fact, the *macro* level drivers of globalization, supported by a well established services industry with a number of sectors that have now expanded across the globe, contributed 48 percent towards the Indian Gross Domestic Product (GDP) and 33.3 percent towards the Chinese GDP (as per 2005 estimates) (*CIA World Factbook*, 2005). This important burgeoning industry acts as the backbone of this intensification towards globalization in both countries.

While the Indian and Chinese economies continue to embrace global opportunities, their emergence as dominant global economies in the next few decades has been predicted by academics, practitioners and institutions world over. For example, a scenario built on World Bank and Goldman Sachs estimates on the ten largest economies of the world of the future has suggested that between 2051-2100, India would emerge as the largest economy of the world with 16 percent of world income, closely followed by China with 15 percent (Hooke, 2003; Wilson and Purushothaman, 2003; *World Development Report*, 2002). As per 2003 estimates, China ranks second with 12.5 percent world income, India ranks fourth with 5.5 percent share of world income, with USA ranking number one with 21.7 percent world income (Wilson and Purushothamanm 2003; *World Development Report*, 2002). Clearly, the World Bank and Goldman Sachs forecasts, the relative importance of the services industry in India and China (including the current intensification to globalization in the services environment in these two economies) warrant an investigation into the macro level drivers enabling the globalisation of the vast services industry.

#### **Methodology**

##### **Research Design and Site**

The study employed a pluralist research design. Increasingly, scholars (Adler, Campbell and Laurent, 1989; Chaston and Mangles, 2001; Ellis and Watterson, 2001; Hauser, 1998; Hill, Miller, Weiner and Colihan, 1998; Offermann and Spiros, 2001; Teagarden, et al.1995; Wilk, 2001) are applying both quantitative and qualitative approaches to their investigations. The main reason why a pluralist approach is gaining currency is the recognition of a need to complement quantitative studies with qualitative research as a hybrid technique, which provides researchers with a deeper understanding of the pattern of statistical results (De Ruyter, Moorman, and Lemmink, 2001; Pearson and Entrekim, 1998; Sower, Duffy, Kilbourne, Kohers, and Jones, 2001; Trevelyan, 2001; Zotteri and Verganti, 2001). A number of researchers (Foss, 1996; Watson, 1997) have promoted a pluralist approach to research, and Mingers (2001: 240) has even claimed, "...rather than advocating a single paradigm, be interpretive or positivist, or even a plurality of paradigms within the disciplines as a whole, ...research results will be richer and more reliable if different research methods, preferably from different (existing) paradigms, are routinely combined together."

This study was conducted in five phases. In the first phase, the macro level drivers of globalization were defined from theory underpinning the international management literature, and feedback from academic scholars and practitioners across the globe. In the second stage, a draft survey questionnaire was designed on the basis of available literature and inputs from managers in India and China to measure the four macro level drivers. The questionnaire was translated into Mandarin and back translated into English with the assistance of professional bilingual translators. The third phase entailed pilot testing of the questionnaire in three countries, namely, India, China and a neutral context, Indonesia, and refining the questionnaire on the basis of feedback from the results. The subsequent modified questionnaire was administered to Indian (in India – English version) and Chinese (in China – Mandarin version) managers with the assistance of sponsoring institutions, namely, the Indian Institute of Management Calcutta in India and the Consulting Group in China, in the fourth phase. The samples included 239 Indian managers and 210 Chinese managers from various sectors of the vast services industry in India and China. The empirical results were then presented to samples of Indian and Chinese managers (15 managers each) at qualitative one-on-one interviews and focus group sessions in India and China respectively. The managers at these qualitative sessions, who were representative of the respondents in the quantitative phase of the study, were invited

to provide a first hand understanding of the results that were obtained in the various empirical analyses, by providing experiential evidence. A brief description of the demographic characteristics is presented in Table 1.

A prominent feature of the sample was a one third representation of female managers, demonstrating the changing role of women in the corporate scenario in these two traditionally male dominated societies. A second feature of the sample was the dominance of younger managers (less than 40 years of age) represented by 62.4 percent in India, and 76.2 percent in China, respectively. This feature was a characteristic of the importance placed on a young well trained and skilled workforce, and the phasing out of the seniority based promotion system in both countries. A third feature of the sample was that the respondents reported extensive exposure to the services industry, which is illustrated by 65.3 percent of Indian managers and 38.1 percent of the Chinese managers having more than 10 years experience. A final feature of the sample was that all the assessed service sectors were well represented in both countries.

TABLE 1: DEMOGRAPHICS % OF INDIAN (N = 239) AND CHINESE (N = 210) MANAGERS

	India	China		India	China
<b>Managerial Level</b>			<b>Gender</b>		
Executive	35.1	28.6	Female	33.5	38.6
Middle	40.6	45.2	Male	66.5	61.4
Supervisory	24.3	26.2	<b>Service Sector</b>		
<b>Age (in years)</b>			Accounting, Finance,		
Less than 30	24.6	29.5	Banking, Taxation and Legal	24.3	24.8
30 – 39	37.7	46.6	Education	9.2	11.9
40 – 49	28.9	21.0	Insurance	10.0	7.6
50 and above	8.8	2.9	Tourism and Hospitality	9.3	8.6
			Information and	20.1	17.1
			Communications		
<b>Tenure (in years)</b>			Consulting	18.4	11.4
Less than 10	34.7	61.9	Government	5.4	6.7
10 – 19	51.1	28.1	Other	3.3	11.9
20 and above	14.2	10.0			

#### Measures and Analysis

Industrial organisation theory has identified four *macro* level forces impacting global orientation in terms of industry drivers of globalisation; namely *market*, *cost*, *government* and *competition* (Yip, 1989; Yip, et al. 1997). The four industry drivers of globalisation were each defined in two statements. The first statement provided a concise meaning of the driver and the second statement provided some examples of the driver. The definitions were adapted from Yip (1989) and simplified for vocabulary equivalence with first hand feedback from indigenous Indian and Chinese managers in the pilot phase of the study, thereby minimising any loss of meaning from the original definition. The final analysis included the same definition of the industry drivers of globalisation utilised in the pilot study with some additional instructions for respondents.

A non recurring ranking scale was employed to measure the impact of the *macro* level drivers of globalisation. Respondents were asked to read the definitions of the four industry drivers of globalisation and then rank them from one to four to show the level of impact of globalisation each driver had in the services sector in which the respondents were involved. It was explained that number one had the highest impact, number two the second highest impact, number three the third highest impact, and number four the least impact. It was also explained to the respondents that each statement could only attract one rank score, and that each rank could only be utilised once.

## Results

Table 2 shows the means, standard deviations, ranks and bivariate correlations among the *macro* level pressures of globalisation for the Indian and Chinese samples. Given that the *macro* level variables were measured using a non recurring ranking scale, Spearman's rho was used to calculate the nonparametric correlations (SPSS, 2005).

TABLE 2 MEANS AND CORRELATIONS AMONG *MACRO* LEVEL PRESSURES

Drivers of Globalisation	India	China	Market	Government	Cost	Competition
Market	1.88 <sup>1</sup> (1.082)	1.89 <sup>1</sup> (1.092)	N.A.	-.421 ***	-.112	-.330 ***
Government	2.61 <sup>2</sup> (1.083)	2.78 <sup>4</sup> (1.021)	-.484 ***	N.A.	-.346 ***	-.258 ***
Cost	2.69 <sup>3</sup> (0.982)	2.75 <sup>3</sup> (0.986)	-.022	-.368 ***	N.A.	-.387 ***
Competition	2.87 <sup>4</sup> (1.070)	2.58 <sup>2</sup> (1.135)	-.432 ***	-.093	-.543 ***	N.A.

- Notes: a. Superscripts on mean scores are their rankings of the means in ascending order of importance from 1 to 4. 1 is most important.  
 b. Values in parentheses are standard deviations of the means.  
 c. Overall mean score and rankings for total data = Market – 1.88<sup>1</sup>, Government – 2.69<sup>2</sup>, Cost – 2.72<sup>3</sup>, and Competition – 2.74<sup>4</sup>.  
 d. Correlations above the diagonal are for the Indian respondents and correlations below the diagonal are for the Chinese respondents.  
 e. p\*\*\* < 0.001.

The mean scores shown in Table 2 indicate that *market* was the leading driver of globalisation in both the Indian and Chinese services industry. Furthermore, while *government* was rated as the second most influential driver in the Indian services industry, *competition* was seen to be the second most important driver of globalisation in the services industry in China. *Cost* and *competition*, though important *macro* level enablers were ranked third and fourth by the Indian managers. In contrast, the Chinese managers rated *cost* and *government* to be their third and fourth influential *macro* level forces. Explanations for these similarities and differences in the rank scores of these constructs were given by managers at the qualitative feedback sessions whose contentions are elucidated in the next section.

The correlation results presented in Table 2 demonstrate the significant inverse relationships between the four *macro* level pressures in India and China. The first feature of Table 2 was the significant separation between *market* pressures and *government* pressures as well as between *market* pressures and the pressures of *competition* in India and China as evidenced by the significant inverse correlations. A second notable feature of Table 2 was the difference in the relationship between *government* pressures and pressures of *competition* in the Indian and Chinese samples. Thirdly, an insignificant inverse relationship between *market* and cost pressures in both countries was observed. A detailed discussion on the implications of these characteristics in India and China is presented next.

### Discussion

The quantitative results for the ranking of the *macro* level pressures of globalisation, namely market, cost, government and competition, presented some striking similarities and differences for the Indian and Chinese samples (Table 2). These results were presented to the managers at the various focus group and face-to-face interview sessions in India and China during the qualitative phase of the study. The explanations provided by the managers for the study findings were both interesting and purposeful, and are presented after a brief overview of the service industry dynamics in India and China in the following sections.

### The Indian Scenario

While globalisation has been enabled by the *government* acting as a supporter of reform favouring global initiatives such as allowing FDI in a phased manner in various service sectors (Department of Industry Policy and Promotion

of the Ministry of Commerce and Industry of India, 2005), the respondents in the quantitative phase of the current study ranked *market* as the leading driver of globalisation in the Indian services industry closely followed by *government*, *cost* and *competition* in that order (Table 2), which was rather surprising.

At the face-to-face interview sessions in India, the managers were asked to provide some understanding as to whether the rankings of the *macro* level pressures from the quantitative phase of the study were in line with their knowledge and experience. Furthermore, managers were also invited to highlight some of the key *market* and *government* oriented reforms favouring globalisation that had assisted their service sector to tackle the complex challenges associated with globalisation. A summary of the two leading drivers of globalisation in some of the service sectors representative of the feedback sessions in India are presented in Table 3. Table 4 shows that *market* was the leading driver of globalisation in three of the five sectors, namely, the financial services, information technology and public relations/media sectors. *Government* played a leading role towards globalisation in the real estate consultancy, and consumer product/service sectors. A feature of the face-to-face interview sessions in India was the managers' appreciation of a growing importance of a borderless *market*, as being instrumental in extending various services sectors in India, beyond national boundaries (as summarised in Table 3).

TABLE 3: SUMMARY OF THE LEADING DRIVERS OF GLOBALISATION IN VARIOUS SERVICE SECTORS IN INDIA

Services Sector	Leading Drivers of Globalisation	
	# 1	# 2
Financial Services (Banking, Accounting, Auditing, Taxation)	Market	Government
Information Technology	Market	Government
Public Relations/Media	Market	Cost
Consultancy (Real Estate)	Government	Market
Consumer Product and Service	Government	Market

Managers at the qualitative face-to-face interview sessions in India, who were representative of the five sectors featured in Table 3, provided experiential evidence in support of *market* being one of the leading drivers of globalisation in their respective sectors. A marketing executive, from a leading consumer product and service company in India that has set up skin care clinics in India and overseas, provided support for *market* as the leading driver of globalisation in the consumer product and service sector. The manager explained, "...without customers across national boundaries, it would be of no potential benefit for the indigenous organisation to set up/conduct business overseas". Furthermore, the huge expansion of the Indian diaspora to different parts of the globe, due to increased migration opportunities for well educated and skilled Indian migrants, has resulted in India emerging as the "...biggest remittance market with USD 25 billion remitted by Non Resident Indians (NRIs) (out of a total of USD 150 billion global remittance) in 2004", remarked a middle level manager at one of India's emerging remittance gateway and consulting companies. This comment was a further demonstration of the importance of *market* towards the intensification to globalisation in the Indian services scenario. A team leader from a newly set up Business Process Outsourcing (BPO) office for an overseas telecommunications MNC stated, "...the nature of the industry is that we service global clients...support customers from different countries overseas...an innate sense to globalisation..." which highlighted the growing importance of a worldwide borderless market. Adding to this contention, a senior manager at one of India's leading Information Technology (IT) organisations elucidated the importance of market forces towards globalisation initiatives in the Indian IT sector when he stated,

*"...we have clients all over the world...truly everywhere from [North] America to Latin America to Europe to Asia and Australia. [Also], in the IT industry...market is by all means the leading driver because in terms of government, they had deregulated the IT sector a long time ago, that is lesser of an impact compared to market. Competition ahead...now...Indian companies even buying out at times international organisations because it will give them an*

*international exposure...Wipro, Infosys [leading Indian IT organisations] all have had acquisitions abroad, all have been given leapfrogging advantage in globalisation”.*

These comments from the managers at the face-to-face interview sessions in India support the results from the quantitative analysis and provide some understanding as to why *market* was ranked as the leading driver of globalisation in the Indian services industry.

The quantitative results from the Indian sample showed that *government* was the second most important driver of globalisation in the Indian services context (Table 2). This result was surprising, given the important role government played in the ‘opening up’ of the Indian services industry to globalisation, since the reforms of 1991. Nevertheless, managers at the qualitative feedback sessions attributed *government* being ranked second (after *market* forces) to the fact that the government led initiatives, which facilitated the liberalisation of the various service sectors to foreign competition and investment, were only a starting point towards the intensification to globalisation. The managers (of the feedback sessions) explained that the government led initiatives, including the deregulation of various sectors and the allowance of FDI on a sector-wise basis, were the major reform measures enabling the globalisation of a number of service sectors in India. In addition, other government measures including the removal of licensing requirements towards encouraging the private sector to set up operations and compete freely with overseas MNCs, the setting up of excise free zones and tax holidays, the establishing of quality control mechanisms as per international standards (ISO), and the employment of worldwide accounting and auditing standards enabled various foreign companies to operate in the Indian economy. The managers at the feedback sessions further explained that these government led reform measures were a ‘one off’ initiative. Once these regulations were in place, it was imperative that the *market* forces impinge on the various service sectors that had taken advantage of the favourable business environment facilitated by the government initiatives to shape global ventures. As a middle level manager employed with a remittance gateway and consulting company explained, “...*government reforms are initiated once every four to five years...major ones...significant ones...hence, market comes first*”. This statement and other similar comments from the managers at the various interview sessions were consistent with the quantitative results where *market* was rated as a more important *macro* level pressure of globalisation than *government*.

#### **The Chinese Scenario**

While government still continues to play a major role in the development and expansion of the Chinese economy, it has certainly moved away from a ‘command and control’ regime to a more ‘guided capitalism’ approach (Stiglitz, 2002). Under this ‘guided capitalism’ approach, the government intervenes from time to time to ensure that the guiding plans developed to ensure the smooth transition into a globalised Chinese economy are progressing. Given the importance of these government led initiatives towards globalisation in China, it was surprising to note that the study respondents in the Chinese sample from the quantitative analysis suggested that *market* was the leading driver in the Chinese services industry, closely followed by *competition*, *cost* and *government*, in that order (Table 2).

At the face-to-face interview and the focus group sessions in China, the managers were asked to provide some understanding as to why such a ranking order was observed, and whether these rankings, were in line with their knowledge and experience. Furthermore, managers were also invited to highlight some of the key market oriented reforms favouring globalisation that had assisted their service sector to tackle the complex challenges associated with globalisation. A summary of the two leading drivers of globalisation in some of the representative service sectors from the qualitative sessions are presented in Table 4.

TABLE 4: SUMMARY OF THE LEADING DRIVERS OF GLOBALISATION IN VARIOUS SERVICE SECTORS IN CHINA

Services Sector	Leading Drivers of Globalisation	
	# 1	# 2
Information and Communications Technology	Market	Competition
Consumer Product and Service	Market	Competition
Education	Market	Competition
Public Service Agencies	Competition	Government
Retail Service	Competition	Market

Table 4 shows that *market* was the leading driver of globalisation in three of the five representative sectors, namely, information and communications technology, consumer product and service, and education. *Competition* played a leading role in the retail service as well as public service agencies. A key feature of Table 4 was the qualitative session managers expressed the growing importance of *market* towards the globalisation initiative in the Chinese services industry, which was consistent with the quantitative results for the Chinese sample (Table 2). Furthermore, the qualitative results (Table 4) suggested that *competition* was the second most important driver of globalisation in the Chinese services industry which was also consistent with the empirical results (Table 2).

The qualitative face-to-face interviews and focus group sessions with Chinese managers provided support for the patterns observed in the quantitative results. For instance, a senior academic from one of China's premier international universities summarised the impact of *market* as the leading driver of globalisation in the Chinese services industry as a whole when he stated, "...*market is the key force...driving force to deal with globalisation. When people are talking about globalisation, people have to consider whole world as one market...as consumers need products/services...*" Furthermore, the North China Director of a reputed Information and Communications Technology (ICT) organisation, which provides services on a global scale, further elaborated on this viewpoint. He remarked, "...*profit is the leading driver...globalisation's objective is profit...which is related to market...no point globalising without profit.*" This comment highlights the impact of *market* forces and the extensive competition in the ICT sector, which encourages Chinese organisations (in the ICT sector) to engage in business activity overseas in search of international success. To support this view, a senior manager from the telecommunications area of the ICT sector, explained the importance of *competition* in addition to *market* towards the globalisation of the ICT sector in China. He remarked,

*"...the challenge/pressure comes from foreign company that use very international marketing procedures, so internal systems like Enterprise Resource Planning (ERP) gives them lot of pressure...a challenge to traditional Chinese system"*.

In addition, a sales manager from one of China's leading consumer product and service organisations that competes with multinational companies around the world (Samsung, LG and Siemens in particular) illustrated the significance of market and competition as the leading drivers in the consumer product and service sector in China. He remarked,

*"Our organisation applied an international strategy to make it an international brand...hence market is the first driver...customers. Competition comes second...locally in the Chinese market, we don't think national brands can compete with our organisation...so our organisation's competitors come from overseas..."*

These comments provide support for the contention that the *macro* level pressure of *market* was the leading driver of globalisation in a majority of the assessed Chinese service sectors and also support the quantitative findings.

A different view of the impact of four drivers of globalisation was expressed by an audit manager from a multinational retail giant. The audit manager explained the significance of competition in the Chinese retail scenario when she stated, "*Competition comes first...forces our company to obtain more capital and market*". This comment

highlights the intense competition and profit taking in the Chinese retail service sector. In addition, an Associate Professor from one of China's leading international universities remarked on the important role of competitive forces towards globalisation in the public services sector in China when she stated,

*“Especially for government agents, competition will definitely be first followed by government...we do not have full awareness of global competition...and now is really the right time for us to understand international competition...why Premier Zhu Rongji wanted us to join WTO...this was one of the reasons...to face competition globally”.*

In summary, the qualitative feedback sessions provided some degree of consensus on the impact of market and competition as the two leading drivers of globalisation in China. While it was surprising to note that *government* was ranked fourth by the respondent managers (in the quantitative phase of the study), a leading academic from one of China's premier universities explained this puzzling observation at a face-to-face interview, by stating,

*“Ranking of these four factors depends on the degree of openness of industry...if it is widely open, market is the driving force for that industry...if less open industry to outside, don't need market as it is protected by government”.*

This comment highlighted the growing openness of the various service sectors in China to foreign investment. Indeed, the number of Foreign Direct Investment (FDI) projects in various services sectors in China in 2004 providing support to a study conducted by Foreign Investment Department of the Ministry of Commerce in China (2004). However, it should be noted that this remarkable transformation of the Chinese economy, from an insular one to a globally competitive superpower, was made possible by the increased allowances and continuing support provided by the Chinese government to enable the Chinese manufacturing and service organisations to emerge as service providers of international renown across the globe.

## Conclusion

Globalisation can have a considerable influence on the national economic activity. The evidence of this study that was conducted in the two large Asian economies of China and India is that the market forces and phenomenon of globalisation were intimately interrelated within the services industry. For instance, it was demonstrated that market was an important driver of globalisation in the service industry of both countries. Nevertheless, although these market forces appeared to control the destiny of service corporations, it was also evident that when there was a consensual acknowledgement there were considerable benefits to continue certain local industries (i.e, without any influence of foreign competition), government intervention as a 'protection measure' was endorsed. Hence, in some service sectors, government, cost of competition forces were more important drivers of globalisation. A salient observation from the results of this study is that global companies intending to undertake business encounters in China or India need to be mindful of the varying impact of the global dimensions on their industry.

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# **The Impact of Organizational Reform on Managerial Mindset Intensity: Empirical Evidence from Indian and Chinese Service Industry Managers**

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## **Abstract**

The cognitive orientations of managers in processing fast moving global knowledge structures have become critical as corporations around the world make sense of the upheavals of globalisation. As Chinese and Indian firms make unprecedented marks in the global arena, significant reforms and mindset reorientations are emerging as areas of scholarly attention. The capability of intensification of global mindset in terms of synthesising multiple organisational imperatives, structural and technological diversities and entrepreneurial cultures are being impacted by national, organisational and managerial level reforms in these two countries. The study presented in this paper compares some of the identified determinants of global mindsets of managers in the service sector in India and China. Based on a study of 239 Indian and 210 Chinese managers, the results suggest that there is an increasing level of leveraging organisational level reforms evident in both countries as they seek to extend their global visibility and advantage.

## **Introduction**

While globalisation has extended the reach of companies from the developed world, appearance of new players from China and India without the accumulated legacies of their rivals has changed the competitive dynamics of the global game. As barriers to cross-border commerce fall rapidly, creativity in translating global ambitions to reality has become critical to organisations around the world. Global mindset is being viewed as the capability that can strengthen companies in this regard. It is the cognitive capability in processing information emerging dynamically from their competitive landscapes in terms of multiple organisational environments, structural indeterminacy, and cultural heterogeneity (Doz and Prahalad, 1991). This shift in focus from structural, administrative and technical priorities to mindset-based capabilities has become necessary with the increasing complexity of global managers around the world.

Conceptualisation of global mindset highlights two critical elements. Firstly, the cultural and contextual diversity, and secondly, in terms of the ability to integrate imperatives of local and global parameters specific to an industry (Chatterjee, 2005). These conceptualisations lead to meta-competencies in the interpretive world of managers in terms of abilities in developing and interpreting strategic opportunities that transcend national borders. Empirical relationships between global mindset and changing internal and external variables or their reverse impact in an Asian setting are yet to emerge in the literature. Whether global mindset impacts strategy and structure or structural and strategic reforms impact global mindset have not been widely researched. In one of the studies in this area, it was suggested that global mindset was an independent variable driving globalisation (Levy, 2005) while others hold that global mindset is dependent on a firms' attention to strategy, structure and other imperatives (Murtha, Lenway and Bagozzi, 1998).

The paper posits that the intensity of global mindset is dependent on the structural, technological and entrepreneurial reform measures at the organisational level. The hypotheses postulated by this study are tested in the context of the dynamic and burgeoning services industry in India and China. The paper argues that strategic integration achieved through global-local balance, entrepreneurial orientation achieved through economic and learning priorities and technology intensity impacts directly in cultivating and nurturing a global mindset at the managerial level. This empirical study clarifies its conceptual underpinning and contextual divergence in India and China in collecting and disseminating its data. The findings of this study provide some evidence into the linkages between organisational reforms and the development of a managerial global mindset.

**A Conceptual Model of Global Mindset Development**

The question of how multinational organisations cope with the complexities of globalisation pressures has become an important and challenging issue in the field of international management. Scholars have long argued that economic and industrial achievement is context specific and is not achievable by the mere adoption of Western management practices and processes, but rather by work practices and institutional frameworks that blend traditional social values and mores with prevalent structures and emergent technologies (Kao, Sinha and Wilpert 1999). For instance, core competencies of Chinese organisations and employees differ from those of North American ones that differ from those of South African ones. However, increased sharing of information through technological advancements in a borderless economy and subsequent increase in knowledge about different contexts and systems provides organisations (organisational level) and managers (managerial level) with a valuable resource in blending conventional practices with modern ideology. This view is shared by a number of scholars (Evans & Doz 1992; Pucik 1992; Bartlett and Ghosal 1989) who contend that sole reliance on structural changes are not sufficient in responding to the complexities associated with globalisation, and that learning and innovation at the organisational level facilitated by HRD measures at the managerial level is critical to the success of multinational corporations worldwide. Rhinesmith (1995: 36) argues that, “as companies gain a better understanding of the new, global world in which we are competing, they are learning that people are a new competitive edge”.

Some of the key organisational factors which have enabled global linkages at the organisational level include *organisational strategy* (Bartlett & Ghoshal, 1989; McDougall 1989); *technology intensity* (Cavusgil & Knight, 1997; Kohn, 1988) and *entrepreneurial orientation* (Burpitt & Rondinelli, 1998; Covin & Slevin, 1989). Clearly, these are salient features of corporations that are vital for mitigating further change. However, an important caveat is that the organisational level contextual pressures of organisational strategy, technology intensity and entrepreneurial orientation operate simultaneously and this compels managers to develop values, skills, competencies and a culture favourable to compete in the global environment. Recent studies have emphasized managerial level global reform and the cultivation of a global mindset to create an intelligent global organisation (Gupta & Govinarajan, 2002; Jeanett, 2000; Rhinesmith, 1995). A critical success factor for any organisation is the level of global mindset orientation amongst its managers (Harveston, 2000; Murtha, Lenway and Bagozzi, 1998). In this context, a global mindset is defined as the “*The ability and willingness of managers to think, act and transcend boundaries of goals, values and competencies on a global scale*” (Ananthram and Chatterjee, 2004).

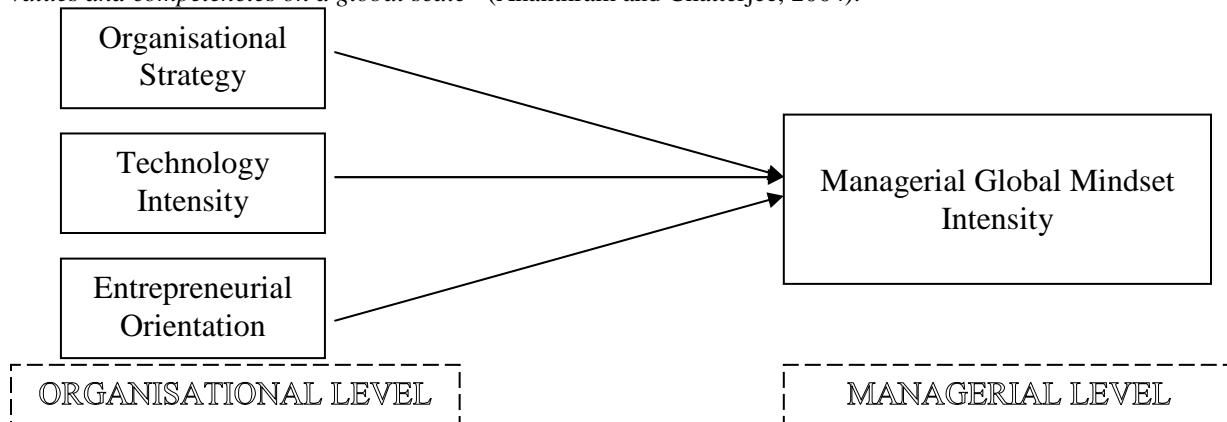


FIGURE 1: A CONCEPTUAL MODEL OF GLOBAL MINDSET DEVELOPMENT

Source: Adapted from Ananthram and Chatterjee, 2004

These arguments provides a rationale for a deeper level understanding of the societal, psychological, cultural, economic and individual level parameters shaping the mindsets of managers (Begley & Boyd, 2003; Gupta & Govindarajan 2002; Jeanett, 2000; Beechler, Taylor, Boyacigiller, & Levy, 1999; Murtha, Lenway & Bagozzi, 1998; Rhinesmith, 1995, 1993, 1992; Bartlett & Ghoshal, 1989). Based on these contentions, a conceptual model of

global mindset development linking the organisational level reform measures and managerial global mindset intensity is developed. The linkages hypothesised in Figure 1 are explained in the next section.

#### **‘Organisational’ Level Reform Measures and their Impact on ‘Managerial’ Global Mindset Intensity**

Organisations worldwide are taking advantage of the favourable *macro* environment that supports globalisation initiatives, and are refocusing their schemas to foster global expansion (Boettcher and Welge, 1996; Domzal and Unger, 1987; Svensson, 2001; Yaprak, 2002). Organisations understand the importance of gaining a sustainable competitive advantage given the increased level of competition in the globalised business world and the constant dynamism in the global business environment. Recent trends indicate that this increased level of competition not only impacts major developed Western European and North American economies, but also the newer globally oriented emerging economies in Asia (Bryan, Fraser, Oppenheim, and Rall, 1999; Chen, 2004; Garten, 2000; Lasserre and Schutte, 1995). Researchers are puzzled by the proposition of how organisations across the globe, pressurised by the *macro* level forces of *market*, *cost*, *government* and *competition*, take advantage of the new and complex globalised business environment to develop a sustainable competitive advantage (Bartlett and Ghoshal, 1998; Harveston, Kedia and Davis, 1999; Kidger, 2000; Ohmae, 1994; Porter, 1990; Yip, et al. 1997). These issues have received a great deal of scholarly theoretical and empirical attention in the last decade (Beechler, et al. 1999; Burpitt and Rondinelli, 1998; Makhija, Kim, and Williamson, 1997; Murtha, et al. 1998). A salient contention of this literature is that scholars and practitioners believe that the *organisational* level initiatives impacting the dynamics of the organisation provide a schema for organisations to change their focus and outlook in order to function effectively in the global business environment and build organisational support for global reach (Bartlett and Ghoshal, 1989; Burpitt and Rondinelli, 1998; Cavusgil and Knight, 1997; Covin and Slevin, 1989; Kohn, 1988; McDougall 1989).

The international management literature identifies a number of organisational paradigms that have enabled global linkages at the *organisational* level. These include 1) changing the *organisational structure* (Robbins, Bergman, Stagg and Coulter, 2003) to take advantage of the favourable globalised environment (i.e., altering work specialisation, departmentalisation, chain of command, span of control, centralisation/decentralisation of authority, formalisation, job redesign or actual structural design initiatives), 2) revamping the *organisational strategy* (Hedlund, 1986; Nohria and Ghoshal, 1997) to integrate other global initiatives (i.e., employing international, global, multi-domestic or transnational strategies), 3) rethinking *organisational systems* (Almeida and Bloodgood, 1996; Tesar, 1977) to foster global momentum (i.e., automation and technological advancements, innovation, quality assurance and control, risk management), 4) reshaping *organisational processes* (Burpitt and Rondinelli, 1998; McDougall and Oviatt, 1997) to enable smooth overall functioning (i.e., human resource management initiatives to change workforce attitudes, perceptions and expectations, workplace regulations and overall entrepreneurial orientation change), and 5) restructuring *organisational policies* (Harveston, 2000) that provide an overarching influence to other organisational paradigms to gain a sustainable competitive advantage. The current study explores three *organisational* level variables which have enabled global linkages at the organisational level; namely, *organisational strategy* (Bartlett and Ghoshal, 1989; McDougall 1989), *technology intensity* (Cavusgil and Knight, 1997; Kohn, 1988), and *entrepreneurial orientation* (Burpitt and Rondinelli, 1998; Covin and Slevin, 1989) and tests their impact on the development and nurturing of managerial global mindset intensity. The relationship of these *organisational* level variables and their link with the *managerial* level global mindset intensity is explored next.

#### **Organisational Strategy**

Organisations tend to change their strategies as they globalise. These transformations are undertaken in order to cope with competitive pressures, and eventually, to maintain a sustained competitive advantage (Jeanett, 2000; Kotler and Kartajaya 2002; Porter 1987). This notion has been explored in research by Hedlund (1986; 1993; 1994), Nohria and Ghoshal (1997), and Malnight (2001). These authors suggest that strategies aimed at global dispersion of operations, interdependence of sub-units and emphasis on cross unit learning and structural flexibility enable organisations to successfully operate in the complex marketplace. This viewpoint was explained in detail by Prahalad and Doz (1987). These eminent researchers contended that global competition required organisations to continually balance *global integration* expectations (the attribute and action orientations consistent with centralised production systems that serve a unified world market) and *local responsiveness* expectations (the attribute and action orientations consistent with serving a fragmented world market). Bartlett and Ghoshal (1989) conceptualised this strategising

theory and suggested four types of strategies based on the degree to which *global integration* and *local responsiveness* expectations are important, namely; 1) *international*, 2) *multidomestic*, 3) *global*, and 4) *transnational*.

Successful strategy implementation requires visionary senior management to think and act with a common perspective (Bouquet, 2005; Catoline, 1989; McAlesse and Hargie, 2004). A number of scholars have contended that a global perspective engendered by organisational capabilities to foster global linkages and accept global challenges is vital to the conceptualisation and implementation of organisational strategies (Harveston, 2000; Jeanett, 2000). This notion is shared by Prahalad and Doz (1987) who argued that organisational capabilities to exploit complex strategic perspectives to its full potential depend on managerial mindsets that "...equilibrate integration and responsiveness expectations rather than predispose decisions in favour of one dimension at the expense of the other..." (p. 179-181). This contention is further strengthened by Murtha, et al. (1998) who suggests that "...process theorists have variously specified the direction of relationships between mindsets and business policies that can leverage international strategic change. Mindsets confer insight to design appropriate policies..." (p. 98 – 99). Building on these arguments linking the *global integration* and *local responsiveness* expectations of organisational strategy to *global mindset intensity*, hypothesis 1a and 1b have been developed.

***H1a. Global integration expectations of organisational strategy will positively influence global mindset intensity.***

***H1b. Local responsiveness expectations of organisational strategy will positively influence global mindset intensity.***

#### **Technology Intensity**

The international management literature identifies technology as another source of organisation specific advantage (Dunning, 1988; Hymer, 1976). Consistent with the work of Palvia (1997), and Harveston (2000), *technology intensity* is defined as the extent to which organisations utilise their core technology to gain maximum competitive advantage. In recent times, a great deal of manufacturing and services processes, from the design and development of the products and services, to their delivery, have become technology driven (Maxwell, 2000; McLoughlin and Harris, 1997; Nankervis, 2005). Managers operating in a technologically oriented global marketplace are compelled to endorse the best available technologies (Rosenbloom, 2000). Clearly, being technologically 'savvy' is a competency that managers across different levels need to possess (Rose and Jones, 1985; Smith, 1991; 1992). In this context, Rosenbloom (2000) argues that managers who are willing to employ new technologies that are dynamic and adaptable to changing economic situations and business requirements can successfully compete in the global marketplace. As technological isolation can lead to organisations losing out to competing organisations, which are constantly engaged in making the first pre-emptive strike by taking advantage of their core technological advantage, or, matching rival technologies, it is imperative that managers reorient their global perspective in terms of being sympathetic to technological revolutions (Rosenbloom, 2000). Contemporary managers are encouraged to understand the importance of transcending national boundaries using technology as one of their core organisational paradigms. Based on these arguments, the current study contends that the *organisational* level paradigm of *technology intensity* assists in the development and cultivation of *global mindset intensity* of managers that allows them to think and act globally. Consistent with the *macro-organisational-managerial* contextual model of the logic of globalisation, hypothesis H2 is generated.

***H2. Technology intensity will positively influence global mindset intensity.***

#### **Entrepreneurial Orientation**

*Entrepreneurial orientation* has been the subject of much attention amongst researchers who have linked it to organisational growth (Covin and Slevin, 1988; 1991; Miller and Friesen, 1983). Numerous studies offer different definitions of the term entrepreneurial orientation (Barringer, Macy and Wortman, 1996; Caruna, Morris and Vella, 1998; Covin and Slevin, 1988; 1989; Lumpkin and Dess, 1996; Miller and Friesen, 1983; Smart and Conant, 1994). These studies contend that *entrepreneurial orientation* is an economically oriented mono-dimensional paradigm, encompassing the extent to which organisations engage in risk taking, innovation and proactiveness in international expansion (Harveston, 2000). In addition, it is argued that entrepreneurial orientation has another dimension of *learning*, especially with the growing importance of managing information and knowledge in contemporary times (Burpitt and Rondinelli, 1998; Dutton, 1993). Knowledge as an asset and knowledge management as a process have been of utmost importance to organisations across the world (Naik and Iyengar, 2003). A similar view was shared by

Dutton (1993), and later by Burpitt and Rondinelli (1998) who examined how the organisational paradigm of a two dimensional entrepreneurial orientation (*economic* and *learning*) influenced organisational decision making and ultimately, the overall competitive orientation of the firm. A recent study on work goals of managers across eight divergent Asian contexts revealed the importance managers and organisations are placing on learning (Chatterjee and Pearson, 2002). Arguably, organisations operating on a global scale are forced to apply a dynamic entrepreneurial outlook in order to be able to adapt to the ever changing global business environment.

*Entrepreneurial orientation* at the organisational level is related to *managerial* level managerial orientation, in terms of *global mindset intensity* of managers (Burpitt and Rondinelli, 1998). These researchers contend that the overall *entrepreneurial orientation* of the organisation necessitates the development of a broad global outlook in terms mindset reorientation. In addition, working in an organisational environment which constantly integrates the cross verging global forces of *economic* and *learning* initiatives provides managers with certain skill sets that foster global thought (Jeanett, 2000; Tarabishy, Solomon, Fernald Jr. and Sashkin, 2005). In turn, these skill sets lead to higher *global mindset intensity* (Bouquet, 2005). These arguments provide underpinning for the following two predictions, namely, H3a and H3b.

**H3a. Economic orientation will positively influence global mindset intensity.**

**H3b. Learning orientation will positively influence global mindset intensity.**

#### **Services Industry Dynamics in India and China**

The services industry has been burgeoning across the globe over the past two decades (Nankervis, 2005). The forces of globalization, enabled by the World Trade Organization (WTO), the disappearing geographical trade boundaries, the information technology revolution along with rapidly changing nano-technology and bio-technology initiatives, and the intensified global competition are some of the factors that have enabled the expansion of the services industry worldwide (Bhattacharjee, 2005; Jeanett, 2000). Nankervis (2005: 1) reports that "...the services industry has now supplanted both the *primary* (agriculture, mining) and the *secondary* (manufacturing) economic sectors, as a predominant *tertiary* sector..." in a number of countries across the globe. Clearly, the services industry can no longer be ignored, due to its primacy in the economies of all developed, and most developing countries in the world. The rapid rise in global services is "...without doubt one of the most challenging social, cultural, political, and especially, economic forces in almost all countries in the world..." (Nankervis 2005: xi).

Specifically, in the Indian and Chinese services industry context, Nankervis (2005) explains that the multifaceted nature of services in the Indian and Chinese economies is a major economic and social influence. In fact, the *macro* level drivers of globalization, supported by a well established services industry with a number of sectors that have now expanded across the globe, contributed 48 percent towards the Indian Gross Domestic Product (GDP) and 33.3 percent towards the Chinese GDP (as per 2005 estimates) (*CIA World Factbook*, 2005). This important burgeoning industry acts as the backbone of this intensification towards globalization in both countries.

While the Indian and Chinese economies continue to embrace global opportunities, their emergence as dominant global economies in the next few decades has been predicted by academics, practitioners and institutions world over. For example, a scenario built on World Bank and Goldman Sachs estimates on the ten largest economies of the world of the future has suggested that between 2051-2100, India would emerge as the largest economy of the world with 16 percent of world income, closely followed by China with 15 percent (Hooke, 2003; Wilson and Purushothaman, 2003; *World Development Report*, 2002). As per 2003 estimates, China ranks second with 12.5 percent world income, India ranks fourth with 5.5 percent share of world income, with USA ranking number one with 21.7 percent world income (Wilson and Purushothamanm 2003; *World Development Report*, 2002). Clearly, the World Bank and Goldman Sachs forecasts, the relative importance of the services industry in India and China (including the current intensification to globalization in the services environment in these two economies) warrant an investigation into the dynamics of the workings across the *organisational* and *managerial* levels.

## Methodology

### Research Design and Site

The study employed a pluralist research design. Increasingly, scholars (Adler, Campbell and Laurent, 1989; Chaston and Mangles, 2001; Ellis and Watterson, 2001; Hauser, 1998; Hill, Miller, Weiner and Colihan, 1998; Offermann and Spiros, 2001; Teagarden, et al.1995; Wilk, 2001) are applying both quantitative and qualitative approaches to their investigations. The main reason why a pluralist approach is gaining currency is the recognition of a need to complement quantitative studies with qualitative research as a hybrid technique, which provides researchers with a deeper understanding of the pattern of statistical results (De Ruyter, Moorman, and Lemmink, 2001; Pearson and Entrekin, 1998; Sower, Duffy, Kilbourne, Kohers, and Jones, 2001; Trevelyan, 2001; Zotteri and Verganti, 2001). A number of researchers (Foss, 1996; Watson, 1997) have promoted a pluralist approach to research, and Mingers (2001: 240) has even claimed, "...rather than advocating a single paradigm, be interpretive or positivist, or even a plurality of paradigms within the disciplines as a whole, ...research results will be richer and more reliable if different research methods, preferably from different (existing) paradigms, are routinely combined together."

This study was conducted in five phases. In the first phase, a conceptual model (presented in figure 1) was developed from theory underpinning the international management literature, and feedback from academic scholars and practitioners across the globe. In the second stage, a draft survey questionnaire was designed on the basis of available literature and inputs from managers in India and China to measure the variables. The questionnaire was translated into Mandarin and back translated into English with the assistance of professional bi-lingual translators. The third phase entailed pilot testing of the questionnaire in three countries, namely, India, China and a neutral context, Indonesia, and refining the questionnaire on the basis of feedback from the results. The subsequent modified questionnaire was administered to Indian (in India – English version) and Chinese (in China – Mandarin version) managers with the assistance of sponsoring institutions, namely, the Indian Institute of Management Calcutta in India and the Consulting Group in China, in the fourth phase. The samples included 239 Indian managers and 210 Chinese managers from various sectors of the vast services industry in India and China. The empirical results were then presented to samples of Indian and Chinese managers (15 managers each) at qualitative one-on-one interviews and focus group sessions in India and China respectively. The managers at these qualitative sessions, who were representative of the respondents in the quantitative phase of the study, were invited to provide a first hand understanding of the results that were obtained in the various empirical analyses, by providing experiential evidence. A brief description of the demographic characteristics is presented in Table 1.

A prominent feature of the sample was a one third representation of female managers, demonstrating the changing role of women in the corporate scenario in these two traditionally male dominated societies. A second feature of the sample was the dominance of younger managers (less than 40 years of age) represented by 62.4 percent in India, and 76.2 percent in China, respectively. This feature was a characteristic of the importance placed on a young well trained and skilled workforce, and the phasing out of the seniority based promotion system in both countries. A third feature of the sample was that the respondents reported extensive exposure to the services industry, which is illustrated by 65.3 percent of Indian managers and 38.1 percent of the Chinese managers having more than 10 years experience. A final feature of the sample was that all the assessed service sectors were well represented in both countries.

TABLE 1: DEMOGRAPHICS % OF INDIAN (N = 239) AND CHINESE (N = 210) MANAGERS

	India	China		India	China
<b>Managerial Level</b>			<b>Gender</b>		
Executive	35.1	28.6	Female	33.5	38.6
Middle	40.6	45.2	Male	66.5	61.4
Supervisory	24.3	26.2	<b>Service Sector</b>		
<b>Age (in years)</b>			Accounting, Finance, Banking, Taxation and Legal	24.3	24.8
Less than 30	24.6	29.5	Education	9.2	11.9
30 – 39	37.7	46.7	Insurance	10.0	7.6
40 – 49	28.9	21.0	Tourism and Hospitality	9.3	8.6
50 and above	8.8	2.9	Information and Communications	20.1	17.1
<b>Tenure (in years)</b>			Consulting	18.4	11.4
Less than 10	34.7	61.9	Government	5.4	6.7
10 – 19	51.1	28.1	Other	3.3	11.9
20 and above	14.2	10.0			

### Measures

Three key organisational factors that have enabled global linkages at the organisational level were employed as the *organisational* level pressures in this study. These *organisational* level reform initiatives are specified as *organisational strategy* (Bartlett and Ghoshal, 1989; McDougall, 1989); *technology intensity* (Cavusgil and Knight, 1997; Kohn, 1988) and *entrepreneurial orientation* (Burpitt and Rondinelli, 1998; Covin and Slevin, 1989).

### Organisational Strategy

Organisational strategy was assessed by analysing two dimensions, *global integration* expectations and *local responsiveness* expectations. *Global integration* expectations were defined as reflecting the attributes and action orientations consistent with centralised production systems that serve a unified world market, while *local responsiveness* expectations were defined as reflecting the attributes and action orientations consistent with serving a fragmented world market by focusing on country level goals. Murtha, Lenway and Bagozzi (1998) operationalised organisational strategy from the seminal conceptual work by Bartlett and Ghoshal (1989) and Prahalad and Doz (1987), and in this study, an adaptation of the Murtha, et al. (1998) scale was used. *Global integration* and *local responsiveness* expectations were assessed by asking four questions for each construct. The pilot analysis resulted in further adaptation of two items measuring *global integration* expectations and two items measuring *local responsiveness* expectations. Respondents were asked to report their expectations on their organisation's global expansion initiatives on a seven point Likert scale (1 = extremely unlikely to 7 = extremely likely). An arithmetic mean was obtained to measure both the *global integration* and *local responsiveness* scores. Though the individual items employed in this study were adapted to suit the country contexts, two factors were expected, and two factors emerged from a factor analysis with varimax option. A closer inspection, however, revealed significant cross loading of the items suggesting that the dimensionality of the instrument is problematic. Reliability assessments were undertaken to determine the internal consistency of the organisational strategy scale. A Cronbach alpha coefficient of .68 for the global integration expectations and .60 for local responsiveness expectations was obtained. Although lower than the acceptable threshold of .70, the assessments were deemed acceptable, in line with Guildford's assessment (1965, p. 31) who noted that "...an alpha of 0.70 to 0.98 is considered quite reliable, while values as low as 0.35 have been found acceptable when used with other measures." Furthermore, the results of the factor and reliability analyses were shown to the managers at the qualitative feedback sessions in India and China and they were asked to explain the inconsistency in the factor analysis. Managers in both these countries were unsure as to why these patterns were observed, but felt strongly that questionnaire items measuring the two factors did in fact represent the global integration expectations construct and the local responsiveness expectations

construct. Hence, given the acceptable reliability scores and feedback from the managers at the qualitative sessions, it was decided to retain the items as per the original pattern (Burpitt and Rondinelli, 1998).



### **Entrepreneurial Orientation**

Entrepreneurial orientation is defined as the extent to which organisations engage in risk taking, innovation and proactiveness in global expansion, which shapes its overall competitive orientation. Two dimensions of this organisational paradigm have been identified from Burpitt and Rondinelli's (1998) adaptation of Dutton's (1993) entrepreneurial orientation definition, namely, 1) *economic orientation* and 2) *learning orientation*. Both dimensions specifically focus on managerial perceptions of organisational level activities regarding global entrepreneurial orientation. This study adapted a scale originally developed by Burpitt and Rondinelli (1998). *Economic orientation* and *learning orientation* were assessed by asking four questions for each construct. The pilot analysis resulted in further adaptation of three items measuring *economic orientation* and two items measuring *learning orientation*. Respondents were asked to report on items relating to their organisation's economic and learning orientations on a seven point Likert scale (1 = strongly disagree to 7 = strongly agree). An arithmetic mean was obtained to measure both the economic and learning orientation scores. A factor analysis with varimax option revealed

### **Technology Intensity**

Technology intensity is defined as the extent to which organisations utilise their core technology to gain competitive advantage. Several studies have found a relationship between the type of technology employed or the use of technology and globalisation (Almeida and Bloodgood, 1996; Johnston and Czinkota, 1982; Kriplani and MacIntosh, 1980; Tesar, 1977). Palvia (1997) developed an instrument measuring technology intensity which was adapted by Harveston (2000) and in this study; an adaptation of the Harveston (2000) scale was used. The original measure employed four questions. In the current study, however, an original additional item was included. This extra item was designed after a series of discussions and feedback with supervisors, senior academics at Curtin University and across Asia, as well as, with Indian and Chinese managers. Respondents reported on items regarding their primary product or service technology on a seven point Likert scale (1 = strongly disagree to 7 = strongly agree). An arithmetic mean was obtained to measure technology intensity.

### **Global Mindset Intensity**

This variable is defined as the ability and willingness of managers to think, act and transcend boundaries of goals, values and competencies on a global scale. Global mindset has been conceptualised in international management literature as cognitive structure, a set of observable behaviours, individual competencies, leadership traits and strategic maturity (Gupta and Govindarajan, 2002; Murtha, et al. 1998; Rhinesmith, 1992; 1993; 1995). Following the work of Barham (1987), Cateora (1996), Gray (1997) and Kedia and Chhokar (1986), global mindset intensity was assessed by asking managers a series of questions about their attitude towards globalisation. Questions were adapted from Burpitt and Rondinelli (1998). The pilot analysis revealed acceptable internal consistency and external validity scores and the items were not modified for the final analysis. Respondents were asked to report on a seven point Likert scale (1 = strongly disagree to 7 = strongly agree) to indicate their level of agreement/disagreement with each statement. An arithmetic mean was obtained to measure global mindset intensity.

The technology intensity, entrepreneurial orientation and global mindset scales were investigated for their dimensionalities. Previous researchers (Harveston, 2000; Palvia, 1997) have found that the technology intensity and global mindset paradigms were unidimensional, and thus, the five items measuring technology intensity and the four items measuring global mindset were factor analysed with entrepreneurial orientation items, which were expected to form two distinct constructs (Burpitt and Rondinelli, 1998). Hence, four factors were anticipated, but five factors were obtained. A second round of factor analysis was conducted by constraining the factor structure, a priori, to four factors as a result of initial empirical results (Harveston, 2000; Burpitt and Rondinelli, 1998; Palvia, 1997). The technology intensity and global mindset items loaded onto two separate factors, and the entrepreneurial orientation items loaded onto two distinct factors with some cross loadings. Two items measuring economic orientation and two items that were part of the learning orientation scale were deleted because of cross loadings. Hence, economic orientation and learning orientation were each reduced to a two item scale.

Reliability assessments were undertaken to assess the internal consistency of the technology intensity, global mindset and entrepreneurial orientation scales. A Cronbach alpha coefficient of .78 and .84 were obtained for the technology intensity and global mindset scales respectively. Furthermore, an alpha score for economic orientation of .53, and an alpha score for learning orientation of .68 were obtained. Although the reliability score for economic orientation and the reliability assessments for learning orientation were both lower than the acceptable

threshold of .70, the constructs were deemed acceptable, given contentions from Guildford (1965) who has proclaimed that alphas as low as 0.35 can be acceptable for adapted instruments.

## Results

### Means and Correlations

Table 2 shows the means, standard deviations, and bivariate correlations among the *organisational* and *managerial* level variables evaluated for the Indian and Chinese samples. Given that the *organisational* and *managerial* level variables were measured using seven point Likert interval scales, the Pearson coefficient was used to test the correlations (SPSS, 2005). Mean scores that were less than three were considered low; scores of three to five were considered moderate; and scores above five were considered to be high. It is shown in Table 2 that the higher levels of *organisational* reform measures in terms of global integration and local responsiveness expectations, technology intensity as well as economic and learning orientations in the Chinese sample over the Indian sample, highlighted the growing importance that Chinese global organisations placed on *organisational* level reform compared to their Indian counterparts. In addition, the results (of Table 3) also indicated that Indian and Chinese managers possessed a high level of global mindset intensity.

TABLE 2: MEANS AND CORRELATIONS OF ASSESSED CONSTRUCTS FOR INDIAN (N = 239) AND CHINESE SAMPLES (N = 210)

	India	China	strglo	Strloc	Techn	ecoor	lroor	glmin
strglo	4.52 (1.12)	5.12 (0.79)	1	.489**	.380**	.322**	.361**	.376**
strloc	4.56 (1.04)	5.11 (0.65)	.792**	1	.362**	.254**	.279**	.323**
techn	4.35 (0.83)	4.93 (0.77)	.544**	.472**	1	.149**	.210**	.416**
ecoor	5.47 (0.92)	5.66 (0.93)	.369**	.212**	.340**	1	.210**	.230**
Lroor	5.13 (0.99)	5.60 (0.99)	.220*	.207**	.300**	.299*	1	.333**
glmin	5.19 (1.04)	5.01 (0.98)	.378**	.368**	.505**	.333*	.365**	1

- Notes:
- Correlations below the diagonal are for the Indian respondents (n = 239) and correlations above the diagonal are for the Chinese respondents (n = 210).
  - Values in parentheses are standard deviations of the means.
  - Bold values on the diagonal are construct reliabilities for total data (n = 449).
  - Strglo = Global Integration Expectations, Strloc = Local Responsiveness Expectations, Techn = Technology Intensity, Ecoor = Economic Orientation, Lroor = Learning Orientation, and Glmin = Global Mindset Intensity.
  - \*\*p<.01.

Another key feature of Table 3 is that a majority of the examined variables are significantly correlated for both the Indian and Chinese samples. The *organisational* level reform measures of *organisational strategy* (global integration and local responsiveness expectations), *technology intensity* and *entrepreneurial orientation* (economic and learning orientations) are significantly correlated for both the Indian and Chinese samples, indicating the high connectivity between these variables. Also all the organisational level variables were significantly related to global mindset intensity indicating In spite of reasonable support for the study hypotheses, it is widely acknowledged that correlation results provide limited forecasting capacity (as the significant correlations could be influenced by sample

size), and consequently, other statistical techniques are necessary. Hence multiple regression analysis was conducted to confirm the linkages between the assessed variables.

#### Multiple Regression Analysis

Table 3 presents the multiple regression analysis for the constructs of the *organisational* level pressures and the constructs of individual level as well as organisational level *managerial* paradigms with global mindset intensity for the Indian and Chinese samples. All the models presented in Table 3 reflect Adjusted R<sup>2</sup> scores greater than 0.22, thereby providing some degree of confidence in predicting the assessed relationships. The results indicate some similar and dissimilar predictors of global mindset intensity in the two samples. For instance, the *organisational* level constructs of technology intensity and learning orientations had direct impact on the cultivation and nurturing of global mindset intensity for Indian and Chinese respondents. However, while economic oriented entrepreneurial outlook also provided impetus towards the development of a global mindset amongst Indian respondents, the relationship was not supported with the Chinese sample. Interestingly, both the strategic orientation constructs were not contributing to the cultivation of a broader global outlook in both samples.

TABLE 3: RESULTS OF REGRESSION ANALYSIS FOR THE *ORGANISATIONAL* LEVEL REFORM MEASURES PRESSURES ON MANAGERIAL GLOBAL MINDSET INTENSITY FOR INDIA AND CHINA

Variables	Global Mindset Intensity			
	India		China	
	b	t	b	T
<b><i>Organisational Level Pressures</i></b>				
Global Integration	-.024	-.249	.134	1.807
Local Responsiveness	.158	1.773	.081	1.148
Technology Intensity	.339	5.126***	.284	4.292***
Economic Orientation	.134	2.211*	.086	1.345
Learning Orientation	.196	3.412**	.184	2.847**
Adjusted R <sup>2</sup>	.322		.258	
F	23.617***		15.546***	

Notes: a. b = beta, t = t value, F = F statistic.  
 b. \*p < 0.05, \*\*p < 0.01, and \*\*\*p < 0.001.

#### Discussion: Use of Qualitative Feedback Sessions to Supplement the Quantitative Findings

The multiple regression analysis for the Indian and Chinese samples indicated that three of the five *organisational* level constructs were compelling Indian managers to develop and nurture their global mindset intensity (Table 3). The Chinese sample of the other hand suggested that two *organisational* level constructs significantly contributed to the manager's global mindset intensity (Table 3). The quantitative analysis indicated that while organisational reform measures of changing core and subsidiary technologies as well as rethinking organisational learning orientation perspectives had significant linkages leading to managers developing global thinking in Indian and Chinese respondent service organisations, the organisational strategy constructs of global integration and local responsiveness expectations were not related to the global mindset variable in the both samples. Indeed, earlier discussions on the qualitative feedback responses from the Indian and Chinese samples had indicated that a vast majority of the respondent global service organisations in India and China were constantly changing their technology and global learning orientations at the organisational level as a means to compete in the complex and dynamic global business environment. Most of the core and subsidiary technologies were imported by the Indian and Chinese service organisations from overseas. In addition, managers at the qualitative feedback sessions in India and China explained that indigenous service organisations in both countries that were global players generally installed these globally accepted technologies as cost cutting initiatives, and effective service delivery mechanisms, in order to compete with other organisations within their respective sectors.

Managers at the qualitative sessions in India and China also explained enthusiastically that globally viable technologies were perceived to be vital in order to expand into overseas markets and to compete with global organisations on a worldwide scale. Furthermore, Indian and Chinese managers at the feedback sessions also felt that the possible gains involved on a long term perspective were well worth the investments, and consequently, they required a positive global mindset and outlook in order to perceive such positive notions about globality. In this context, at one of the feedback sessions in India, a senior manager with a leading global IT MNC in India explained the importance of possessing a global mindset in the IT sector. He stated that,

*“Technology is by far the single biggest driver [and] is driving everything right now. Managers have to be technology savvy in order for [them] to know what is the kind of [global] technology demands that [they] would be faced when [their organisation] has to go global.”*

A similar view was shared by a senior academic from one of China’s leading international universities who explained the importance of a broad global outlook engendered by the forces of global technology in the education sector. He explained that, *“Technology is really very important. We encourage all staff to use these [global] technologies.”* The senior academic later added that, *“...you [must] understand the importance of these [global] technologies.”* These global technologies installed in indigenous Indian and Chinese global service organisations thereby necessitated its managers to develop a high global mindset intensity, which facilitated the appreciation of the benefits associated with these global technologies.

In addition to technology reform at the *organisational* level, the entrepreneurial orientation of a global learning philosophy that underpinned organisational policies in the Indian and Chinese respondent organisations was also significantly related to the managerial global mindset intensity in both samples (Table 3). Indeed organisations possessing a global learning philosophy depend on the development of systems, processes and procedures of knowledge and information sharing at a global stage. Consequently, respondents at the feedback sessions in India and China explained that managers employed in global service organisations that valued global learning initiatives in India and China were compelled to develop a mindset that allowed them to strongly believe that their organisations that were engaging in global ventures through these global learning initiatives were being *proactive*. Moreover, managers at the qualitative sessions in both countries agreed that organisations that valued global learning initiatives by providing continuous learning opportunities, and an environment to share knowledge and information, required their managers possess a mindset which facilitates *continuous awareness* of this global learning environment, and thereby continuously engage in expanding their learning horizons. In this context, at one of the qualitative sessions in India, a middle manager in a leading real estate consultancy MNC in India stated that, *“...the essence is in understanding the global market...how foreign clients will be interested in investing in India...what are their risk taking abilities, how the judicial system in India and overseas work.”* This comment was in reference to the impact of global learning initiatives on the mindset of managers. Furthermore, a senior economist and commentator from one of China’s leading international universities elucidated the importance of managers possessing a global mindset espoused by the global learning philosophy of China’s global service organisations. He stated that, *“educational thinking from a broad view – a global perspective and the ability to learn and study about global issues is [vital]...”*

A contrasting result between the Indian and Chinese samples was the impact of the *organisational* level measure of economic orientation pressurising managers to develop a global mindset in the Indian sample (Table 3). The linkage in the Chinese sample was non significant. Indeed, Indian service organisations with a high economic orientation emphasised economic survival and profit making as well as overseas expansion as their underpinning philosophies. Managers at the face-to-face interview sessions in India explained that organisations with these ideologies required its managers to possess an in-depth understanding of the economic, socio-cultural, political and technological scenarios that governed overseas national contexts in order to make prudent business decisions dealing with expansion into foreign locations.

Managers at the face-to-face interview sessions in India further explained that organisations with strong economic pursuits required their managers to appreciate their organisations’ economic goals, and to believe strongly, in the notion that the most attractive opportunities for growth was in overseas ventures. In this regard, at one of the feedback sessions in India, a middle manager with a leading multinational bank in India stated that, *“ [We] need to accept that something that is different is not necessarily bad...need to see the benefit of doing things*

differently.” At another qualitative session, a middle level manager in a multinational IT organisation in India explained the importance of a global mindset in pursuing economic goals. He explained that,

“...the primary competency a manager should possess is a business mindset...the focus is on delivery [of service] itself without making difference to client...should go beyond and create value.”

Moreover, a supervisory manager in a multinational accounting and auditing consultancy firm in India summarised the importance of mindset change in relation to organisation’s economic orientations at an alternative qualitative session. He stated that,

“Awareness of what’s going around...economic related things, new market players, competition...basically information...managers need to be more receptive and adaptive to changing [economic orientation] philosophies, cultures and processes...this mindset has to change to compete.”

These comments from managers at the feedback sessions in India and China provided some support to the assessed significant *organisational* level measures necessitating managers to develop a global mindset.

## Conclusion

In spite of an encouraging development in conceptual area, only little empirical work has been reported in the literature. With the intensification of global competition, global mindset is emerging as the most significant competitive strength. Nothing less than a complete reorientation of global outlook of senior managers can shed the ingrained ethnocentricism inherent in the thinking of global companies. The areas of enduring strengths enjoyed by companies, industries and nations are constantly changing and the advantages of cost, skills, customer service, brand enhancement, knowledge base, and innovation are no longer sufficient in providing global agility to firms.

While strategic, technological and entrepreneurial behaviours are shaped by multitude of factors, they collectively impact upon the cognitive world of managers. The quality of the response from senior managers under conditions of rapid change and complexity involves interpretations and attentions across functions and countries simultaneously. The level of study in this research is primarily at the individual level but its impact at the organisational levels is evident. The study attempts to offer empirical evidence from China and India on constructs drawn largely from Western perspectives. This explicit testing of the universality of the ideas has implications much broader than research on mindsets. The study affirms that organisational level reforms in service organisations across India and China have impacted the cognitive world of their managers. The significance of this research lies in the explanation that motivated forward looking organisations and their leaders need to be able to develop, sustain and enrich their mindset boundaries under diverse contextual settings.

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# Tourism and Economic Growth: The Case of China

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## Abstract

**This study investigates the role of tourism in the long-run economic development of China. Towards this purpose, an error correction model (ECM), the cointegration and the Granger causality techniques are used. The results indicate that while there is a two-way directional causality between international tourism and economic growth, there is only single-directional causality from the real exchange rate to economic growth. These findings support the widely believed tourism-led growth hypothesis in the Chinese economy, and suggest that the real exchange rate affects China's economic growth but not tourism.**

## Introduction

China has been ranked as 4<sup>th</sup> of international tourist arrivals (120 million)<sup>1</sup> and 6<sup>th</sup> of international tourism receipts (\$US29 billion) in 2005 according to the statistics of the World Tourism Organization (WTO)<sup>2</sup>. Meanwhile, China has also been experienced the highest economic growth (8%) in the world in 2005. During the period 1978 to 2005, the annual average growth rates of international tourist arrivals and receipts were 19% and 20%, respectively. Tourism plays an important role in the Chinese economy. The direct contribution of tourism accounts for 1.3% of GDP in 2005, while the impact of tourism on the whole economy is much greater. In 2004, tourism generated \$US184 billion worth of economic benefits (11% of GDP) and employment up to 13.6 million (2% of total employment) in 2004<sup>3</sup>. Recently, the WTO predicted that China will become the most favoured international tourism destination in the future. It is expected that in 2020, the number of international tourist arrivals would increase to 145 million and the corresponding tourism receipts would be \$US75 billion representing approximately 8% of China's estimated GDP<sup>4</sup>. China's tourism industry has demonstrated robust growth and is seen as one of the cornerstones of the Chinese economy and a major source of job creation during the period 1978 to 2005. Has the hypothesis of tourism-led growth been held in China? Recognition of the hypothesis of tourism-led growth has been held in China is important because tourism-led growth means that confronting with scarce resources and the increasing competition in the world economy, the rich natural resource of tourism can be exploited becoming a comparative advantage for China competing in the global economy for foreign exchange earnings and economic growth. On the other hand, if the hypothesis of tourism-led growth is not true, tourism promotion may not only be an ineffective strategy for fostering economic development, it may generate adverse externalities on the Chinese economy damaging the natural environment.

Table 1 details China's international tourist arrivals, international tourism receipts, the annual average growth rates of arrivals and receipts, and the percentage share of international tourism receipts in export, economic growth and trade balance deficit over the period 1978 to 2005. International tourism industry in China has been one of the fastest growing sectors of the economy. International tourist arrivals (column 2) and international tourism receipts (column 4) are plotted in Figures 1(a) and 1(b). As can be seen, there was a great increase in international tourist arrivals and tourism receipts in China for the period 1978 to 2005. International tourist arrivals have increased from 1.8 million in 1978 to 120 million in 2005, while the receipts from international tourists arrivals have increased from \$US0.3 billion to \$US29 billion during the same period. During the period 1978 to 2005, the average annual growth rates of international tourist arrivals and tourism receipts are 18.9% (last row of column 3) and 20.4% (last row of column 5). Column 6-8 of the table indicates that international tourism receipts have made an important contribution to China's economy. As can be seen from column 6, tourism receipts as a proportion of export fluctuated between 2.7% (1978) to 7.2% (1999) with an average rate of 4.9% over the period 1978 to 2005. The ratio of tourism receipts to GDP (column 7) has been on the increase with 0.1% in 1978, and gradually reached 1.3% in 2005 with an annual average rate of 0.9% over the sample period. The last column presents the percentage share of international tourism receipts in trade balance deficit which clearly suggests that tourism even plays a greater role than China's export in terms of net foreign exchange earnings.

However, despite the significant contributions of international tourism to China's economic development over the period 1978 to 2005, little attention has been paid to its empirical analysis, so does the role of tourism in economic growth remains controversial. The proponents of tourism-led growth argue that the tourism-led growth hypothesis has been held for many economies (Balaguer and Cantavella-Jorda, 2002; Dritsakis, 2004; Durbarry, 2004; Jackson, 2006; and Wen and Tisdell 1996). Tourism brings foreign exchanges and contributes to government revenues. Tourism spurs local governments to improve infrastructures such as better water and sewerage systems, roads, electricity, telephone and public transport networks. Consequently, it can improve the quality of life for local residents as well as facilitating tourism. Moreover, tourism promotes regional economic development by creating local tourism cluster industries. For example, tour and travel agencies, retailers, accommodation, transportation, telecommunication, banking, education and research institutions etc. Subsequently, these cluster industries contribute to local employment and improve income distribution. Tourism also increases awareness of the country being visited, stimulates international and domestic trade, and generates FDI and domestic investment in tourism industries.

**Table1. The contribution of international tourism to economic growth in China**

Year	Tourist arrivals million persons	Growth in arrivals %	Tourism receipts US \$b	Growth in receipts %	% Share of tourism receipts in export	% Share of tourism receipts in GDP	% Share of tourism receipts in trade balance deficit
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1978	1.8		0.3		2.7	0.1	-23.1
1979	4.2	132.3	0.4	70.8	3.3	0.2	-22.4
1980	5.7	35.7	0.6	37.3	3.4	0.2	-32.5
1981	7.8	36.2	0.8	27.3	3.6	0.3	15.8
1982	7.9	2.0	0.8	7.4	3.8	0.3	27.8
1983	9.5	19.6	0.9	11.6	4.2	0.3	112.0
1984	12.9	35.6	1.1	20.2	4.3	0.4	-89.1
1985	17.8	38.8	1.3	10.5	4.6	0.4	-8.4
1986	22.8	28.0	1.5	22.5	4.9	0.5	-12.8
1987	26.9	17.9	1.9	21.6	4.7	0.6	-49.4
1988	31.7	17.8	2.2	20.7	4.7	0.6	-29.0
1989 <sup>1</sup>	24.5	-22.7	1.9	-17.2	3.5	0.4	-28.2
1990	27.5	12.1	2.2	19.2	3.6	0.6	25.4
1991	33.4	21.4	2.8	28.3	4.0	0.7	35.3
1992	38.1	14.3	3.9	38.7	4.6	0.8	90.7
1993	41.5	9.0	4.7	18.7	5.1	0.8	-38.3
1994	43.7	5.2	7.3	56.4	6.1	1.3	135.6
1995	46.4	6.2	8.7	19.3	5.9	1.2	52.3
1996	51.1	10.2	10.2	16.8	6.8	1.2	83.5
1997	57.6	12.6	12.1	18.4	6.6	1.3	29.9
1998	63.5	10.2	12.6	4.4	6.9	1.3	28.9
1999	72.8	14.7	14.1	11.9	7.2	1.4	48.2
2000	83.4	14.6	16.2	15.1	6.5	1.5	67.3
2001	89.0	6.7	17.8	9.7	6.7	1.5	78.9
2002	97.9	10.0	20.4	14.6	6.3	1.6	67.0
2003 <sup>2</sup>	91.7	-6.4	17.4	-14.6	4.0	1.2	68.3
2004	109.0	19.0	25.7	47.9	4.3	1.6	80.5
2005	120.3	10.3	29.3	13.8	3.8	1.3	28.8
<b>Mean</b>	<b>44.3</b>	<b>18.9</b>	<b>7.8</b>	<b>20.4</b>	<b>4.9</b>	<b>0.9</b>	<b>26.5</b>

Source: China statistical yearbook various issues and the online data of the National Bureau of Statistics of China

Notes: 1 and 2. The negative growth in arrivals (column 3) and receipts (column 5) were due to the effects of the Tianmen Square incident and the SARS epidemic in 1989 and 2003, respectively.



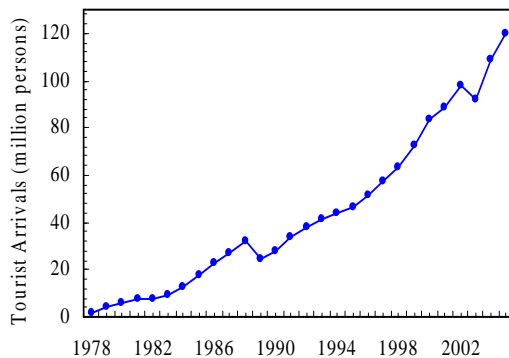


FIG. 1 (A): TOURISTS ARRIVALS, CHINA, 1978-2005

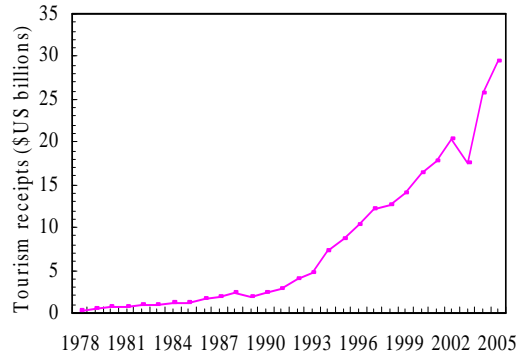


FIG. 1(B): TOURISM RECEIPTS, CHINA, 1978-2005

In addition, tourism enhances the efficiency of resource allocation and facilitates the exploration of economies of scale in local firms to remain competitive. It is from this perspective that the tourism-led growth hypothesis is promoted. Empirical studies supporting these arguments include Balaguer and Cantavella-Jorda (2002), Dritsakis (2004), Jackson (2006), and Wen and Tisdell (1996). Balaguer and Cantavella-Jorda (2002) apply the methodology of the Granger cointegration and causality tests to investigate the role of inbound tourism in the Spanish long-run economic development over the period 1975 to 1997. They find that economic growth in Spain has been sensible to persistent expansion of international tourism, and that the tourism-led growth hypothesis is supported in the case of Spain. Dritsakis (2004) uses an error correction model (ECM) to examine the impact of tourism on the long-run economic growth in Greece over the period 1960 to 2000. He shows that international tourism earnings cause economic growth with a strong Granger causal relationship in Greece. In the context of China, Jackson (2006) regards tourism as a regional natural advantage having potential for activating business links in the socialist market economy of China. It means that tourism could form the basis for regional competitive advantage to foster regional economic development and to reduce regional income inequalities. Jackson's study is a qualitative research focusing on the importance of tourism activity to regional economic development. Using cross sectional data and a single-equation regression, Wen and Tisdell (1996) analyse China's spatial distribution of tourism and find that there is a link between tourism and regional economic development. Besides Jackson, and Wen and Tisdell, there are few published studies on China which indirectly study the relationship between international tourism and economic development. For example, Shan and Wilson (2001) in their empirical analysis find a strong reciprocal relationship between international tourism and trade. Also, Tang, Selvanathan and Selvanathan (2007) in their study find there is a causal relationship between international tourism and foreign direct investment.

On the contrary, opponents of tourism led-growth are very skeptical about the hypothesis of tourism-led growth (e.g. Brandon, 1996; Hazari and Ng, 1993; Oh, 2005 and R. N. Batta, 2003). It is argued that tourism may contribute little to the local economy when there are no backward and forward linkages of tourism with the local sectors (R. N. Batta, 2003), and there is absence of effective policies and regulations in the tourism host country. This could be true when the tourism host countries are less developed where tourism is predominantly nature-based, tourism is the major sector of the economy, major accommodations and businesses are owned and operated by foreign investors. Those foreign investors have backward linkages with their home countries and they import almost everything to the tourism host countries for consumption. When tourism occurs, a significant proportion of tourism expenditures (transports, hotels and food) are spent on prepaid tours, and the expenses made by the tourists in the tourism host countries are little. The economic benefits for the tourism host countries include employment opportunities and tax revenues. However, if local people lack the requisite skills, people from outside will grab the employment opportunities arising from tourism development (R. N. Batta, 2003). Moreover, tourism is demand driven and its prices are determined by monopoly power (Hazari and Ng, 1993). In addition, tourism may lead to deforestation and degradation of forest, and depletion of water resources. In this regard, tourism not only contributes

little to the less developed economy, it also generates adverse externalities on less developed economies such as welfare reducing (Hazari and Ng, 1993) and damaging the natural environment. Empirical evidence backing up the views of tourism led-growth opponents can be found in Hazari and Ng (1993), Oh (2005) and R. N. Batta (2003). Hazari and Ng (1993) in their study show that in a monopoly power framework, tourism may be welfare reducing. R. N. Batta (2003) investigates tourism in Fiji and claims that tourism is demand driven, has high environmental impacts, contributes little to the local economy, makes no contribution to conservation and does not elicit local community participation. Oh (2005) uses a vector auto-regression (VAR) model to investigate the causal relationship between tourism growth and economic growth in Korea. Oh claims that the hypothesis of tourism-led economic growth was not held in the case of the Korean economy as the comparable role of tourism in the Korean economy is significantly less than some countries such as Spain.

This study contributes to the existing literature by applying an error correction model (ECM) and time series techniques of cointegration to investigate the role of tourism in the Chinese economy. A real exchange rate variable is included in the system because the role of the real exchange rate in foreign trade (tourism and export/import) and economic growth is well recognised theoretically and empirically. Specifically, we test the hypothesis of tourism-led growth in China's long-run economic development.

In addition, we also investigate the role of the real exchange rate in the Chinese economy, and whether there exists any causal relationship between tourism, economic growth and the real exchange rate. This study differs from earlier studies in a number of aspects. First, it represents the first attempt to directly identify or test the relationship between tourism, the real exchange rate and economic growth in China, offering insights into the disputed tourism led-growth nexus, and exploring the role of the exchange rate in the Chinese economy. Second, relevant quantitative studies in a multivariate framework regarding causal links between tourism and China's economic growth in the long-run are scarce, thus, this study attempts to fill that vacuum by using the ECM model. Using a single equation model (e.g. Wen and Tisdell, 1996) may produce various estimation biases, giving rise to misleading analytical results. Third, we use pure time-series data while previous studies on the Chinese tourism and growth use either cross-sectional or panel data, which are likely to suffer from problems of data comparability and heterogeneity (Atkinson and Brandolini 2001; Srinivasan and Bhagwati 1999).

The remainder of this paper is organised as follows. Section II presents the data sources, unit root and cointegration analyses, ECM modelling and empirical results. The final section III provides conclusions and policy implications.

## Data Source and Analysis

The three variables used in this study are international tourism receipts (TR)<sup>7</sup>, economic growth (GDP) and the real foreign exchange rate (XR)<sup>8</sup>. The data of the three variables are all quarterly time series for the period 1988:1 to 2005:4. The data for the period 1988 to 2004 are compiled from China Monthly Statistics (1987:1- 2005:4), Comprehensive Statistical Data and Materials for 50 years of New China and various issues of China Statistical Yearbook, all published by the National Bureau of Statistics (NBS) of China. The data for the latest year 2005 are obtained from the website of the National Bureau of Statistics (NBS) of China and China National Tourist Office. GDP quarterly time series for the period 1988 to 2000 is constructed on the basis of the monthly gross industrial output (GIO) and the yearly GDP statistics because of the lack of availability of quarterly or monthly GDP statistics<sup>9</sup>.

Figures 2 plot the three original time series in log form, LTR, LGDP and LXR. It is noticeable that there are a few irregular effects appearing in the series of LTR (Figure 2(a)) around 1989:3, 1994:1, 1998:1 and 2003:1. These irregular effects are the 1989 Tianmen Square Massacre, the depreciation of the Chinese currency in terms of US dollars in 1994, the 1998 Asian Financial Crisis and the 2003 SARS epidemic. In Figure 2(c), it is also visible that a sudden large upward shock occurs in LXR series around quarter one of 1994. At the beginning of 1994 the Chinese government depreciated almost 50% of its currency value in terms of US dollars. At the time, China carried out reform of its foreign exchange system and adopted a unified and the centre government managed exchange rate regime based on market supply and demand of foreign exchange. Overall, as can be seen, there is a clear upward

trend in the three time series indicating that the means are changing over time, and hence the three series in level form may not be stationary.

Figure 2(a) The original series of tourism receipts (TR) in natural logs, China 1988:1-2005:4

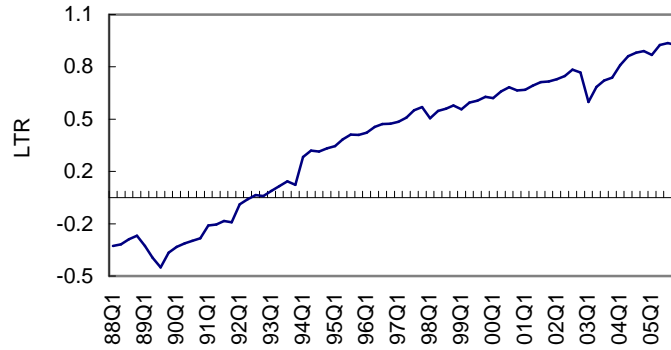


Figure 2(b) The original series of GDP in natural logs, China 1988:1-2005:4

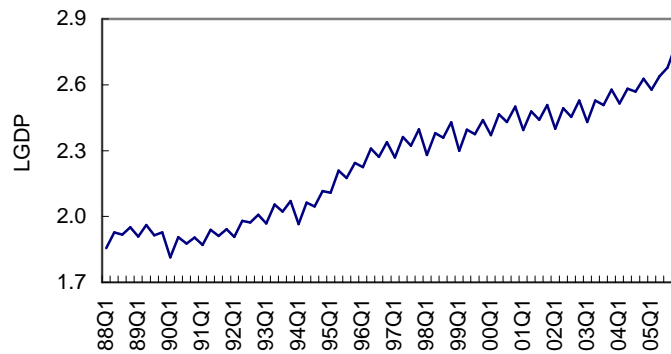
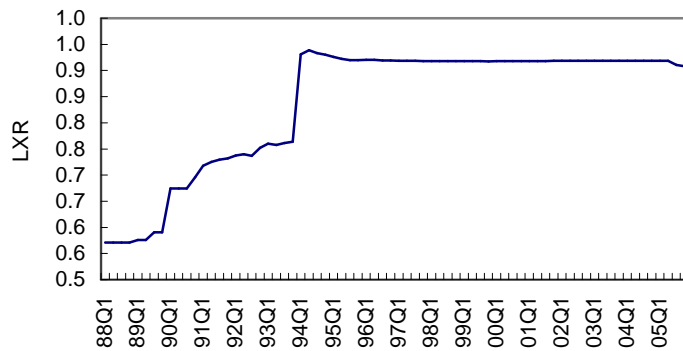


Figure 2(c) The original series of exchange rates (XR) in natural logs, China 1988:1-2005:4



Figures 3 are the plots of the first difference series of the three time series. They suggest no evidence of changing means indicating that the three series, LTR, LGDP and LXR may be integrated of order one, I(1). To statistically validate these preliminary findings and to ensure the three time series are all stationary, the Augmented Dickey-Fuller (ADF), the Phillips-Perron (PP), and Perron and HEGY tests are used to test the stationarity of the three time series in this study.

Figure 3(a) The first differenced series of tourism receipts (TR) in natural logs, China 1988:1-2005:4

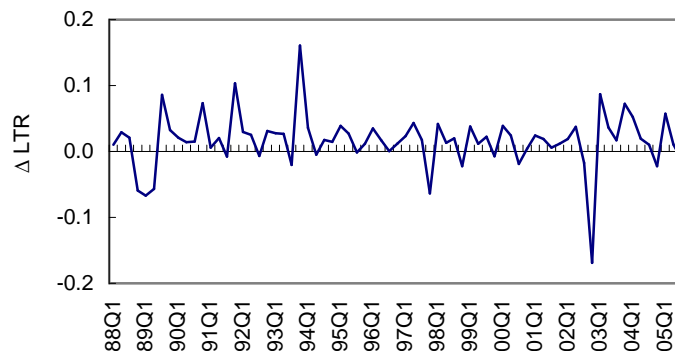


Figure 3(b) The first differenced series of GDP in natural logs, China 1988:1-2005:4

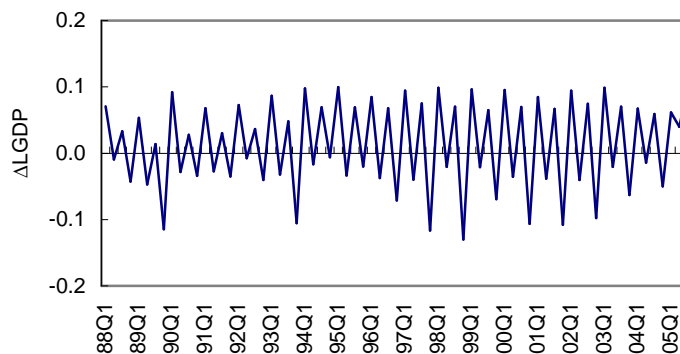
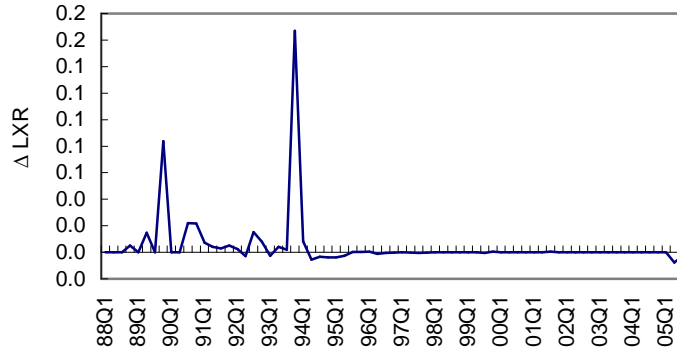


Figure 3 (c) The first differenced series of exchange rates (XR) in natural logs, China 1988:1-2005:4



### Unit Root Test

The ADF test for unit roots are first performed on the level form of the three series LTR, LGDP and LXR. We follow the testing procedure discussed in Ender (1995) by considering the three models:

Trend and constant model

$$\Delta y_t = \alpha_0 + \alpha_2 t + \gamma y_{t-1} + \sum_{i=1}^k \beta_i \Delta y_{t-i} + \varepsilon_t \quad (1)$$

Constant and no trend model

$$\Delta y_t = \alpha_0 + \gamma y_{t-1} + \sum_{i=1}^k \beta_i \Delta y_{t-i} + \varepsilon_t \quad (2)$$

No trend and no constant model

$$\Delta y_t = \gamma y_{t-1} + \sum_{i=1}^k \beta_i \Delta y_{t-i} + \varepsilon_t \quad (3)$$

Where  $\Delta y_t = y_t - y_{t-1}$  is the first difference of the series  $y_t$ ;  $\Delta y_{t-1} = (y_{t-1} - y_{t-2})$  is the first difference of  $y_{t-1}$  etc.;  $\alpha$ 's,  $\gamma$  and  $\beta$ 's are parameters, and  $\varepsilon_t$  is a stochastic disturbance term. The preliminary estimation suggests that the number of lagged terms to be included is 2, which ensures that the errors are uncorrelated. The sample size used in the three models is 72. The difference among the three regressions is the presence of the deterministic elements  $\alpha_0$  and  $\alpha_2 t$ . Equation (1) includes a drift  $\alpha_0$  and a time trend  $\alpha_2 t$ , equation (2) includes a drift  $\alpha_0$  but no time trend and equation (3) excludes both  $\alpha_0$  and  $\alpha_2 t$ .

The ADF test is applied to the series LTR, LGDP and LXR separately. To reinforce the analysis, the Phillips-Perron (PP) test is also used as Monte Carlo studies have found that the Phillips-Perron test has greater power to reject a false null hypothesis of a unit root (Enders, 1995, p242). Estimation is carried out using the econometric software EVIEWS. The results of the ADF test for stationarity on the original series are reported in Table 2. As can be seen, the level series of LTR and LXR are non-stationary, but the series of LGDP in level form is stationary. The PP test confirmed the ADF test giving a same result.

**Table 2. ADF and PP tests for a unit root on the level series**

Variables	Model (1)		Model (2)		Model (3)	
	Trend & Constant		Constant & No trend		No trend & No constant	
	ADF	PP	ADF	PP	ADF	PP
LTR (2)□	-1.60	-1.86	-0.56	-0.62	-1.40	1.43
LGDP (2)□	-2.56	-5.43**	0.07	-0.58	2.78**	2.14
LXR (2)□	-1.44	-1.28	-2.46	-2.21	1.36	1.47

Notes: \*\* denotes significance at the 1% levels; numbers in brackets are number of lags used in the ADF and PP tests in order to remove serial correlation in the residuals.

As can be seen in Figure 2(c), structural changes may have occurred to the series of LXR around 1994:1. The depreciation of the Chinese currency in terms of US dollars by 50% at the beginning of 1994 induced a one-time rise in the mean of LXR, which was an exogenous shock but likely to have a permanent effect on it. When there are structural breaks, the various Dickey-Fuller and Phillips-Perron test statistics are biased towards the non-rejection of a unit root (Enders, 1995). Thus, it is necessary to use the procedure developed by Perron (1989) to test for a unit root in the presence of a structural change. The following regression equation was considered for the exchange rate variables:

$$y_t = \alpha_0 + \mu_1 DU_t + \mu_2 DT_t + \alpha_1 y_{t-1} + \alpha_2 T + \sum_{i=1}^k \beta_i \Delta y_{t-i} + \varepsilon_t \quad (4)$$

where,  $y_t$  represents LXR<sub>t</sub> in time t;  
 $DU_t$  represents a level dummy variable.  $DU_t = 1$  if  $t \geq \tau + 1$  and 0 otherwise. The structural break of LXR in period 25 (1994:1) occurs so that  $\tau = 24$ ;  
 $DT_t$  represents a slope dummy variable.  $DT_{(25)} = 1, DT_{(26)} = 2, \dots$  if  $t \geq \tau + 1$  and 0 otherwise.  
 $\alpha_0$  an vector of intercept term;  
 $T$  a deterministic trend;  
 $\alpha_i, \mu_i$  and  $\beta_i$  the parameters;  
 $k$  the lag length; and  
 $\varepsilon_t$  the disturbance terms.

The model is generalised to allow a one-time change in the structure occurring at a time. It permits an exogenous change in the level of the series and in the rate of growth. The value of the test statistics of the Perron (1989) test at various lag lengths of LXR are reported in Table 3. The Perron test indicates that the null hypothesis of a unit root is not rejected by the series of LXR in the presence of a structural break at all lag lengths. This confirms the previous finding of the ADF and PP tests that the series of LXR in level form is non-stationary.

**Table 3. Perron test for a unit root in the presence of structural change**

	T	$\lambda$	t-statistic				Critical value
			K=0	K=1	K=3	K=5	
<b>LXR</b>	70	0.36	3.20	2.82	2.26	1.63	<b>-4.22</b>

Notes: T = number of observations,  $\lambda$  = proportion of observations occurring before the structural change, K = lag length. All estimated values of  $\alpha_i$  are significantly different from unity at the 5%.

In general, tourism activities fluctuate strongly with seasons. Besides the natural seasonal fluctuations, China's centrally planned economic regime has also generated a regular pattern of large seasonal fluctuations (Rawski, 2002) in its economy. In Figure 2(a) and 2(b), the seasonality of the both original series of LTR and LGDP seems discernible. In order to investigate the possibility of seasonal unit roots in the series, the commonly used

HEGY (Hylleberg et al, 1990) test is applied to the two series<sup>10</sup>. This test is based on the following auxiliary regression model:

$$y_{4t} = \pi_1 y_{1t-1} + \pi_2 y_{2t-1} + \pi_3 y_{3t-2} + \pi_4 y_{3t-1} + \varepsilon_t \quad (5)$$

Where

$$y_{4t} = y_t - y_{t-4}; \quad y_{1t-1} = y_{t-1} + y_{t-2} + y_{t-3} + y_{t-4};$$

$$y_{2t-1} = -y_{t-1} + y_{t-2} - y_{t-3} + y_{t-4}; \quad y_{3t-2} = -y_{t-2} + y_{t-4};$$

$$y_{3t-1} = -y_{t-1} + y_{t-3};$$

And  $\varepsilon_t$  is a normally and independently distributed error term with zero mean and constant variance. For estimation, we apply the least squares method and include an intercept, three seasonal dummies and a time trend in model (5). The HEGY test involves testing the following three hypotheses:

- (i)  $H_0: \pi_1 = 0$  vs  $H_1: \pi_1 < 0$  ;
- (ii)  $H_0: \pi_2 = 0$  vs  $H_1: \pi_2 < 0$  ;
- (iii)  $H_0: \pi_3 = \pi_4 = 0$  vs  $H_1: \text{at least one } \pi_i \neq 0 \text{ } i=3,4$  .

First two hypotheses (i) and (ii) involve the use of the t-test and the third involves the use of F-test. If null hypothesis (i) is not rejected, it means that there is a unit root at the zero frequency (i.e. a non-seasonal unit root in the series). If null hypothesis (ii) is not rejected, it means that there is a seasonal unit root at the semi-annual frequency only. If null hypothesis (iii) is not rejected, it means that there is a seasonal unit root at the annual frequency only.

Table 4 presents the values of the test statistics and the corresponding critical values at the 5% level for the two time series, LTR and LGDP. The results show that null hypothesis in (i) is not rejected for the two time series, indicating that both series have a non-seasonal unit root. The null hypotheses (ii) and (iii) are not rejected for the LGDP time series indicating that there is a seasonal unit root at the semi-annual and annual frequencies of the series, respectively. For the LTR series, the null hypothesis (ii) is rejected but not the null hypothesis (iii) indicating that the LTR series has a seasonal unit root at the annual frequency but not at the semi-annual and quarterly frequencies.

**Table 4. HEGY test results for seasonal unit roots**

Hypotheses	The test statistics		Critical values
	LGDP	LTR	
(i)	1.51	-1.64	-3.71
(ii)	-2.95	-4.50*	-3.08
(iii)	-5.02	-3.99	6.55

The results so far confirm that the LTR and LXR time series have at least one unit root and hence are non-stationary in level form. For the LGDP time series, the ADF and PP tests indicate that there is no unit root in the series. However, the HEGY test shows that there is, at least, one non-seasonal unit root in the series, which contradicts the result of the ADF and PP tests, and grants that the ADF and PP tests for a unit root on the first difference of the series are required. Moreover, in accordance with the Granger theorem, cointegration necessitates that the variables should be integrated of the same order (Enders, 1995; Engle and Granger, 1987; and Granger, 1986). Thus, in order to ensure LTR, LGDP and LXR are stationary integrated of same order, the ADF and PP tests for a unit root on the first difference of the three series are performed. The results of ADF and PP tests in the three models are presented in Table 5 which confirm that the first difference of the three series LTR, LGDP and LXR are all stationary integrated of order one, I(1).

**Table 5. ADF and PP tests for a unit root on the 1st difference of the three series**

Variables	Model (1)		Model (2)		Model (3)	
	Trend & Constant		Constant & No trend		No trend & No constant	
	ADF	PP	ADF	PP	ADF	PP
LTR (2)□	-5.37**	-8.29**	-5.41**	-8.35**	-4.10**	-7.29**
LGDP (2)□	-8.53**	-26.12**	-8.49**	-26.13**	-6.14**	-20.85**
LXR (2)□	-5.23**	-8.30**	-4.64**	-7.96**	-4.26**	-7.65**

Notes: \*\* denotes significance at the 1% levels; numbers in brackets are number of lags used in the ADF and PP tests in order to remove serial correlation in the residuals.

### Cointegration Test

Even though the three individual series LTR, LGDP and LXR are of non-stationary and of order I (1), it is possible that a liner combination of the three variables may be stationary. Modelling a liner relationship between the three variables, even if each of the variable is non-stationary (that is I (1)), as long as they are cointegrated, the regression involving the three series may not be spurious. Thus, it is necessary to investigate whether the three series LTR, LGDP and LXR are cointegrated having long-run equilibrium relationships. The Johansen methodology is used to perform the cointegration test among the three variables.

To minimize the effect of seasonal fluctuations, a centered seasonal dummy variable is applied when conducting the cointegration test. The reason to use the centered seasonal dummy variable is that a standard 0-1 seasonal dummy variable will affect both the mean and the trend of the level series in a model system, but the centered seasonal dummy variable can shift the mean without contributing to the trend (Johansen, 1995). In addition to the centered seasonal dummy variable, an event dummy variable is also introduced into the cointegration test to capture the combined irregular effects in the cointegration analysis. These irregular effects are reflected in the series and are particular visible in the series of LTR (Figure 2 (a)) around 1989:3, 1994:1, 1998:1 and 2003:1, which are the effects of the Tianmen Square Massacre, the depreciation of the Chinese currency in terms of US dollars, the Asian Financial Crisis and the SARS epidemic, respectively.

A model, which contains 2 lags, a drift and two exogenous dummy variables, is chosen to test cointegration among the three variables after a careful search and test. The result of the Johansen cointegration rank test is summarized in Table 6. It indicates that at least there is a presence of two cointegration vectors at 1% level of significance. In other words, at 1% level of significance, the null hypothesis of no cointegration is rejected for rank of zero, while the alternative hypothesis of one or more cointegration vectors is accepted. Moreover, at 1% level of significance, the null hypothesis of no cointegration is also rejected for rank less than or equal to 1, and the alternative hypothesis of two or more cointegration vectors is accepted. Thus, it is concluded that the three variables of LTR, LGDP and LXR are cointegrated and there exists long-run equilibrium relationships between the three variables, LTR, LGDP and LXR in China.

**Table 6. Johansen cointegration tests**

Null Hypothesis	Alternative Hypothesis	$\lambda_{\max}$ tests	95% CV	99% CV	$\lambda_{\text{trace}}$ tests	95% CV	99% CV
Rank = 0	$r \geq 1$	29.21**	23.78	28.83	52.99**	34.55	40.49
Rank $\leq 1$	$r \geq 2$	21.76**	16.87	21.47	23.78**	18.17	23.46
Rank $\leq 2$	$r \geq 3$	2.02	3.74	6.40	2.02	3.74	6.40

Note: \*\* denotes rejection of the null hypothesis at the 1% significance level.

### The Error Correction Model, Granger Causality Test and the Empirical Results

To test the tourism-led growth hypothesis and the sensitivities of the exchange rate in the Chinese economy, an error correction model (ECM) is developed. The model includes three equations:



$$\Delta \text{LGDP}_t = \alpha_1 + \alpha_{\text{lgdp}} \hat{\epsilon}_{t-1} + \sum_{i=1}^k \alpha_{11}(i) \Delta \text{LGDP}_{t-i} + \sum_{i=1}^k \alpha_{12}(i) \Delta \text{LTR}_{t-i} + \sum_{i=1}^k \alpha_{13}(i) \Delta \text{LXR}_{t-i} + \beta_1 D_{\text{et}} + \rho_1 D_{\text{st}} + \epsilon_{\text{lgdpt}} \quad (6)$$

$$\Delta \text{LTR}_t = \alpha_2 + \alpha_{\text{ltr}} \hat{\epsilon}_{t-1} + \sum_{i=1}^k \alpha_{21}(i) \Delta \text{LGDP}_{t-i} + \sum_{i=1}^k \alpha_{22}(i) \Delta \text{LTR}_{t-i} + \sum_{i=1}^k \alpha_{23}(i) \Delta \text{LXR}_{t-i} + \beta_2 D_{\text{et}} + \rho_2 D_{\text{st}} + \epsilon_{\text{ltrt}} \quad (7)$$

$$\Delta \text{LXR}_t = \alpha_3 + \alpha_{\text{lxr}} \hat{\epsilon}_{t-1} + \sum_{i=1}^k \alpha_{31}(i) \Delta \text{LGDP}_{t-i} + \sum_{i=1}^k \alpha_{32}(i) \Delta \text{LTR}_{t-i} + \sum_{i=1}^k \alpha_{33}(i) \Delta \text{LXR}_{t-i} + \beta_3 D_{\text{et}} + \rho_3 D_{\text{st}} + \epsilon_{\text{lxrt}} \quad (8)$$

After a general-to-specific search in accordance with the Akaike Information Criterion (AIC) and Schwarz Criterion (SC) (Akaike, 1974), 4 lags, a constant, a trend and two exogenous dummy variables are included in the ECM model. A number of lags for each of the three variables have been included to capture the short-run dynamic relationships in the ECM system. In particular, the model includes changes in LGDPt, LTRt, LXRt, and lagged  $\Delta \text{LGDP}_t$ ,  $\Delta \text{LTR}_t$  and  $\Delta \text{LXR}_t$ . De is the event dummy variable for capturing the possible combine effects of the 1989 Tianmen Square Massacre, the 1998 Asian Financial Crisis and the 2003 SARS epidemic. Ds is the centered seasonal dummy variable for minimizing the effect of seasonal fluctuations.  $\hat{\epsilon}_{t-1}$  is the lagged error-correction term.  $\alpha_i$ ,  $\alpha_{ij}(i)$ ,  $\beta_i$  and  $\rho_i$  are the parameters; and  $\epsilon_{\text{lgdpt}}$ ,  $\epsilon_{\text{ltrt}}$  and  $\epsilon_{\text{lxrt}}$  are the white-noise disturbance terms that may be correlated with each other. All the endogenous variables in the model are in real terms in natural logarithm form. The fit of the three equations are best for the data and there are no signs of residual autocorrelations in the model. Table 7 shows the results of the Granger causality test based on the ECM model. The results show that, at the 5% significant level, there is a bi-directional causal relationship between economic growth (LGDP) and tourism (LTR), and only a one-directional causal relationship runs from exchange rate (LXR) to economic growth (LGDP). That is, the empirical results support the widely believed tourism-led growth hypothesis in the Chinese economy, and suggest that the real exchange rate affects China's economic growth but not tourism. The findings are robust and consistent with the results by Jackson (2005), Wen and Tisdell (1996), as same as the conclusions by Balaguer and Cantavella-Jorda (2002) for Spain, and Dritsakis (2004) for Greece.

**Table 7. Granger causality test based on error correction modelling**

Dependent variables	Wald test statistics		
	$\Delta \text{LGDP}_t$	$\Delta \text{LTR}_t$	$\Delta \text{LXR}_t$
$\Delta \text{LGDP}_t$		4.13**	36.46**
$\Delta \text{LTR}_t$	4.33**		1.20
$\Delta \text{LXR}_t$	0.12	0.14	
Conclusion	LGDP $\Rightarrow$ LTR	LTR $\Rightarrow$ LGDP	LXR $\Rightarrow$ LGDP

Note: \*\* denotes rejection of the null hypothesis and the critical value with one degree of freedom is 3.84 at the 5% significance level.

## Conclusions and Policy Implications

Applying quarterly time series data from 1988:1 to 2005:4 to the ECM model and using the Johansen Cointegration method and the Granger causality technique, we have found that the causal links between tourism and economic growth are bi-directional, whereas only a one-way directional causality runs from the real exchange rate to economic growth. That is, the tourism-led growth hypothesis has been held in the Chinese economy, and the real exchange rate has had impact on China's economic growth but not on tourism.

These findings do have some important implications for policy makers in China and elsewhere. Now, globalisation is increasingly testing the ability of China's economy to adapt and maintain its competitive edge. Confronting with the worsening environment issues, income inequality, social frictions, and the increasing cost of investing in China, China must seriously consider its long-run strategies to maintain its economic growth. Since tourism is a natural resource leading growth, the Chinese government ought to emphasise and utilise tourism to form the basis for long-run competitive advantage hence fostering economic growth. In particular, tourism should be used as a long-run effective strategy to promote economic development in its less developed western regions where export of manufacturing goods is disadvantaged while its natural resource of tourism is abundant. Recently, the Chinese government in a five-year plan promised to use foreign direct investment effectively to make the service sector a key area to attract foreign direct investment, and to steer foreign direct investment toward the less developed inland western regions<sup>11</sup>. In this regard, it is strongly recommended that the Chinese Government should be wisely encouraging foreign investors to invest in tourism industry or local infrastructure in the less developed inland western regions to promote tourism. A successful tourism promotion would also activate business links in the region. For example, the demand for other services such as retailers, restaurants and accommodation would increase. Tourism creates local tourism cluster industries. Those cluster industries further contribute to the increase in local employment hence improving income distribution and welfare in the regions. Better tourism, greater economic development should be, and vice versa. In addition, the real exchange rate in the long-run may become a great challenge to China's economic development due to the appreciation of the Chinese currency against other currencies since the middle 2005. Finally, it suggests that in the course of economic development, especially when exploring tourism in the less developed western regions, encouraging participation of the locals to ensure that tourism is effectively linked with the local sectors should be preceded over any participants from outside and good environment protection laws and policies should be formulated and implemented in China.

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Contact author for the full list of references

### End Notes

1. The statistics of international tourist arrivals and international tourism receipts were collected from the website of China National Tourist Office: <http://www.cnto.org/chinastats.asp>.
2. The ranking statistics of international tourist arrivals and international tourism receipts were released by World Tourism Organization (WTO) in September 2006 (Source: <http://tinet.ita.doc.gov>, An official U.S. Government site produced and maintained by the Office of Travel and Tourism Industries).
3. The statistics were released by the World Travel and Tourism Council's Research and Economics Unit but cited from "China Daily" on line 10. 10. 2006.
4. WTO online sources: <http://www.world-tourism.org/newsroom/releases/2005/May/asian.htm>.
5. The years (1978-1980, 1984-1989 and 1993) with negative rate are not included in the calculation for the average rate of 59.8%. Those negative rates present percentage rates of tourist receipts in net export (deficit).
6. The relevant quarterly time series data for the period 1978-1987 is not available, thus, this study focus on the period 1988-2005.
7. This is international tourism receipts including transportation, food, accommodation, sightseeing, shopping and communication etc.
8. All data are in real values.
9. It is found that the annual growth pattern of GDP is similar to that of GIO. Following Liu, Song and Romilly (1997) and Liu, Burrigge and Sinclair (2002), the estimated GDP is given as:  $GDP_{t,q} = g_t \times GIO_{t,q}$ ,  $q = 1, \dots, 4$ ;  $t = 1988, 1989, \dots, 2000$ ; where  $g_t$  is the annual GDP/GIO ratio and  $GIO_{t,q}$  is the quarterly value of GIO. However, the GDP quarterly data from 2001:1 – 2005:4 was obtained from the website of the National Bureau of Statistics (NBS) of China and China National Tourist Office.
10. The fixed exchange rate regime has prevailed in China and the Chinese currency had been maintained at a certain fixed value over ten years from 1994 to 2005. Thus, the HEGY seasonal unit root test is not applied to the foreign exchange rate series.
11. Reported by Xinhua, the China state-run news agency on 15 January 2007.

# The Correlation between Cherry Picking and the Distance Consumers Travel

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## Abstract

Recent studies indicate that effective cherry picking entails saving costs through a (1) price search over time or (2) a price search across stores, or both. Many consumers however do not search across stores where considerable store loyalty is present. This does not mean that those consumers do not shop across time at the same store. This study aims to examine the relationship between cherry picking and the distance that consumers travel to do grocery shopping through conducting a survey at 10 different retail outlets across 3 days. The study will enable retailers to benefit from this form of consumer behaviour by taking a proactive approach towards store switching and store location – two of the main influencers of cherry picking behaviour. This study found that there is a highly significant correlation between cherry picking and the distance that consumers travel to do grocery shopping.

## Introduction

Retailers know the cherry picking consumer as a shopper who goes from store-to-store, buying only items that are specially priced. This perception raises various questions for a retailer: who are cherry pickers; how do they behave; and, how does this behaviour impact on retailers? Secondary research conducted by Urbany, Dickson and Sawyer (2000) and Hoch (2004) show that customers are loyal to stores for many different reasons: some are loyal from choice, some are loyal because both parties have invested time and effort in building a relationship, while some are loyal because their needs are met or exceeded, and others because the relationship is profitable to both sides. A number of factors play a part in influencing the loyalty and the commitment of customers, such as the quality and value of your core offering, levels of customer satisfaction, 'elasticity' inherent in the sector or product category, other competitors in the market, and even social, demographic and geographical influences.

The aim of this article is to examine the relationship between cherry picking and the distance that consumers travel to do grocery shopping and whether geographical influences play a role in customer behaviour concerning store switching and location.

Crocker (2005) define cherry picking as “selecting the best or most desirable” The term is used to describe both buyer and seller behaviour. Sometimes the phrase describes sellers who are selective about which customers they serve. The term also describes the behaviour of buyers who are selective about which products or services they purchase at what locations and prices. In both seller and buyer contexts, cherry pickers opportunistically take the best and leave the rest.

This article focuses on the buyer-side of cherry picking in the context of grocery shopping and compares the behaviour of consumers who switches stores and store location and whether geographical influences play a role in customer behaviour concerning store location compared to visiting a single store.

The research article will discuss the literature review, the problem statement and the study's specific research objectives, results of the study and recommendations. The research will also reveal future research needs.

## Reason for the Study

Limited research has been conducted concerning cherry picking, store switching and location in the marketing and retail sector. This is evidence in the limited knowledge available about store switching and location behaviour. This study attempts to clarify certain perceptions concerning store switching and location behaviour to establish whether

a relationship between cherry picking and the distance that consumers travel to do grocery shopping exist. The objectives are important elements in a dissertation, which give direction to the study. These will be discussed next.

## **Objectives of the Study**

Retailers can be severely affected by cherry picking and store switching and need a thorough understanding of what influences and constitutes such behaviour could lead to a substantial competitive advantage in the retailing market. To achieve the objectives of the study, the main aim of this article was to determine whether a relationship between cherry picking and the distance that consumers travel to do grocery shopping exists and whether geographical influences play a role in customer behaviour concerning store location and store switching. To attain the objective of this article, the following hypotheses were drawn:

H<sub>1</sub> There is a correlation between customers who price shop over time and consumers who price shop across stores between cherry picking and the distance that consumers travel to do grocery shopping.

H<sub>2</sub>: There is a significant relationship between store switching and store location.

## **Limitations of the Study**

The demographic profile of the respondents is not representative of the South African context. This could be attributed to the context of the study, the greater Tshwane area, and the specific malls that were targeted.

## **Literature Review**

Cherry picking and customer loyalty, store switching and location, and cherry picking and the distance travel will be briefly discussed.

### **Cherry Picking and Customer Loyalty**

Cherry picking means taking the best and leaving the rest (Fox and Hoch, 2003). Cherry picking is described as a continuum much like a shopper's degree of price sensitivity. A shopping trip is therefore classified as cherry picking if two or more grocery stores are visited on the same day. Customers are loyal for different reasons, namely:

- some are loyal from choice,
- some are loyal because both parties have invested time and effort in building a relationship,
- some are loyal because their needs are met or exceeded, and
- some because the relationship is profitable to both sides.

This paper focuses on buyer-side cherry picking in the context of grocery shopping and compares the behaviour of consumers who cherry pick by switching grocery stores and location of the stores. Consistent with economic theory of search, the propensity to cherry pick is found to be inversely related to shoppers' transaction and inventory holding costs, both due to demographics (e.g., working women, age, income, household size, home ownership) and geography (distance between nearby stores).

### **Store Switching and Location**

Secondary research (Halbritter, 2005, Carter, 2005, Fox and Hoch, 2003) reveals that consumers can cherry pick in at least two related ways. First, each week they can buy their entire market basket at the retailer where they get the best deals. To the extent that competing retailers promote non-identical items, store switching across weeks increases the number of cherry picking opportunities compared to consumers who are store loyal. Moreover, the transaction costs associated with switching stores across weeks do not seem to be much greater than those incurred by store-loyal shoppers, assuming that travel costs to the stores from which they choose are similar and that consumers switch often enough to be adequately familiar with store layouts.

Second, shoppers could engage in a more extreme form of cherry picking where store switching occurs within weeks. In this case, customers split their market basket across stores within a week (potentially on the same

day) to benefit from deals offered by different stores. Gauri, Sudhir and Talukdar (2005:1) observe three types of cherry pickers, namely:

- Those who cherry pick through price searching over time, indicating that these consumers may be store loyal but still price sensitive and thereby delaying their shopping over time, but still doing it at the same store.
- Customers can cherry pick through price searching across stores which implies that customers still do all their shopping on one day but, based on price, shop across different stores.
- Cherry pickers can be customers who shop both across stores and over time. What constitutes cherry picking behaviour is central to this study and our definition of such behaviour will form the foundation for all the findings.

#### **The Distance Travelled by the Shopper**

The cost of shopping also increases with the distance the shopper must travel to the store, reflecting the time and/or direct cost of transportation. We cannot measure travel distance for specific shopping trips, however, because we do not know with certainty where each trip originated and what route the shopper took. Thus, we must treat travel distance as a household trait, rather than a state variable. If we make the simplifying assumptions that (i) all trips originate from home, and (ii) the shopper travels from the first store visited directly to subsequent stores without intermediate stops, then the distance between the closest and next-closest stores reflects the cost of an incremental store visit. We therefore hypothesize that there is a negative relationship between the probability of cherry picking on a given shopping trip and the distance between the closest and next-closest stores to the consumer's home.

Loyalty cards and its influence on store switching and store location seems to be not the prime reason for choosing a particular store, while factors such as price, quality, service, and convenience contribute more to fostering loyal shoppers, according to consumer research food and grocery. A number of factors play a part in influencing the loyalty and the commitment of customers, such as the quality and value of your core offering, levels of customer satisfaction, 'elasticity' inherent in the sector or product category, other competitors in the market, and even social, demographic and geographical influences.

To achieve the objectives of the study, the main aim of this article was to determine whether a relationship between cherry picking and the distance that consumers travel to do grocery shopping store exists and whether geographical influences play a role in customer behaviour concerning store location and store switching. The true definition of cherry pickers needed to be studied. Therefore the following hypotheses were formulated.

H1: There is a significant relationship between store switching and store location.

H2: There is a correlation between customers who price shop over time and consumers who price shop across stores between cherry picking and the distance that consumers travel to do grocery shopping.

Next the research methodology used in this research will be explained.

## **Research Methodology**

Secondary and primary sources were used to gather information. The main secondary sources used were journals, articles, press reports, and books. The main source of primary data was questionnaires. The sampling, data collection methods, measures and inferential statistics of the study will be highlighted.

### **Sampling**

The target population of this study was grocery shoppers where grocery shopping can be defined as shopping for food, toiletries and detergents excluding bread and milk. These sample elements were targeted in the context of shopping malls through the use of mall intercepts and interviewer-administered personal interviews. Mall intercept surveys is a variation of in-house personal interviewing that involves engaging shoppers in a shopping centre, qualifying them and thereafter conducting the interview. This form of survey is more flexible than in-house personal surveys and the interviewer also has full control of the interviewing environment. This form of interviewing is most useful in concept testing like cherry picking (Tustin, Ligthelm, Martins and Van Wyk, 2005:152).

Leedy (2004:18) distinguish between probability samples and non-probability samples, the difference being that in the case of probability sampling, the probability that any member of the population will be included in the sample can be determined, while in non-probability sampling, this probability cannot be specified. In this study

probability sampling was used. A sampling frame was obtained of shopping malls in the greater Tshwane area where specific shopping malls were selected based on convenience and a wide LSM spread. A relatively representative sample was obtained through targeting shopping malls for various LSM groups in different areas of Tshwane.

A realised sample size of 176 was obtained from a target sample size of 250 with 100% of the questionnaires being usable. This could be attributed to the use of personal interviews as a data collection method. The data collection method will be discussed in greater depth in the following section.

#### **Data Collection**

The questionnaire was pre-tested through 10 quasi interviews where respondents were selected based on convenience and respondents were scanned through only allowing the “main family grocery shopper” to participate.

Data was collected over a three day period at 10 different shopping malls through the use of personal interviews as a survey method. A wide spread of respondents were targeted through conducting the survey at different times each day – morning, afternoon and early evening. Personal interviews is generally regarded as the best survey method in testing concepts (Tustin, Ligthelm, Martins & Van Wyk, 2005:155) like cherry picking. In-house knowledgeable interviewers, with an academic background, were used to decrease the likelihood of interviewer bias. No incentives were used to gain a higher response rate.

#### **Measures**

The main construct of this study (location) was measured through the use of Likert-type scales as opposed to the demographic variables, like respondent income and age, whose questions delivered only nominal data. The basic scale design therefore consisted of a Likert-type scale with five scale points (with labels ranging from strongly agree to strongly disagree) and 11 scale items. This scale was found to be highly reliable with a Cronbach’s Alpha of 0.7. The constructs measuring cherry picking behaviour as price searching across time and price searching across stores were measured using similar scales with five scale items. These two scales were also found to be reliable. No items on any of these scales were reverse scored.

#### **Inferential Statistics**

In this study the researchers want not only describe the sample data such as means, standard deviation and proportions but they wish to make inferences about the population based on what was observed in the sample. Inferential statistics allow researchers to make inferences concerning the true differences in the population (Tustin *et. al.*, 2005).

The dataset is further augmented by locations of panel households and grocery stores. These locations allow us to compute travel distances both from shoppers’ homes to stores and between stores in order to assess the relationships between geographic variables and cherry picking. Therefore the following null and alternative hypotheses can be formulated:

H0:  $\mu \neq 10$  km

H2:  $\mu = 10$  km

The research findings of the research will be highlighted next.

## **Research Findings**

Descriptive and inferential statistics were used to test the hypotheses in this study.

#### **Descriptive Statistics**

The sample in this study consisted of 67 percent females and 33 percent males with the average age of between 24 and 28 years. A relatively diverse spread of language across respondents was obtained with most respondent’s preferred language being Afrikaans (40%), English (17%) and North Sotho (15%). This demographic variable is greatly influenced by the province (Gauteng - where North Sotho is a commonly spoken language) and city (Pretoria – where Afrikaans origins date back to the settlers). It is also influenced by the race of the respondents which was distributed as 45 percent African, 52 percent White, 2 percent Coloured and 1 percent Indian.

Two important characteristics are evident from the study. First, 20 percent of the sample does not cherry pick at all. Second, the distribution is heavily skewed with a long right tail. Thus, most households are on the low end of the cherry-picking continuum. The mean and median of the percent cherry-picking distribution are 7.7% and

4.2%, respectively, while households in the top decile cherry pick on 32.0% of shopping trips. Though they may not seem compellingly large, these statistics belie the fact that each cherry-picking trip is made up of multiple store visits. If we consider the distribution of store visits, which reflect retailer traffic counts, we find that the mean and median are 13.2% and 8.2% respectively, while the top decile cherry picks on 49.3% of visits.

**Cherry Picking Behaviour**

As describe earlier cherry picking occurs when a consumer visits two or more grocery stores on the same day. The response of the study is shown below in figure 1.

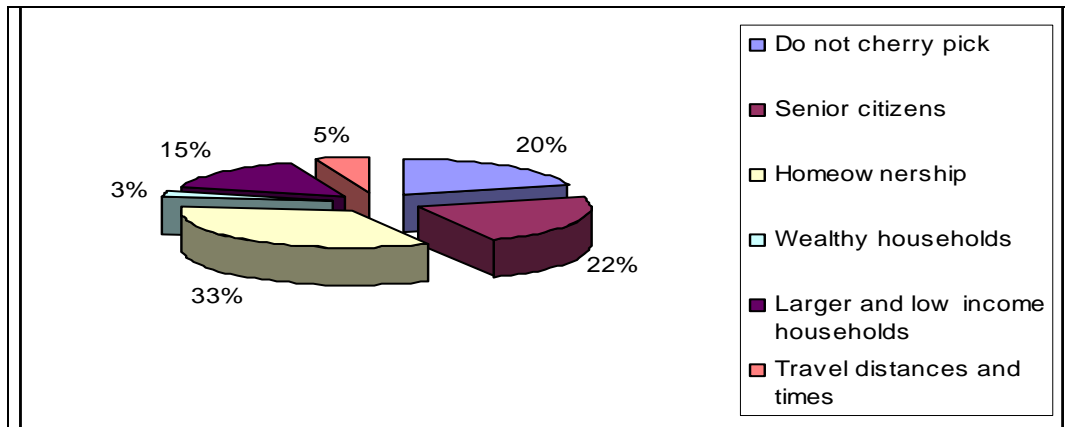


FIG. 1: CHERRY PICKING BEHAVIOUR

Fig. 1 shows the distribution across households of cherry picking trips as a percentage of all the household’s shopping trips. 20 percent of the sample does not cherry pick while households are less likely to go cherry picking when there is a working adult female in the family only five percent of the sample. Presumably because it is more costly for them to spend time shopping for groceries. Senior citizens ( $\geq 65$  years old) are less likely to be employed outside of the home and so have more time to invest in shopping. Therefore if there is a senior citizen in the household increases cherry picking by 22 percent.

Homeownership also implies greater inventory carrying capability. This further implies that home owning households can take advantage of the greater number of discounts available through cherry picking because they have more opportunity to accelerate purchases by forward buying. As indicated in figure 1 homeownership increases the propensity to cherry pick by about 33 percent.

Wealthy households are assumed to have higher opportunity costs and are less price sensitive. Indeed, household income has a negative impact on percent cherry picking and only three percent of the respondents indicate that they sometimes cherry pick. Whereas larger and low income households are assumed to be more price sensitive and will switch stores, both because they have to spend a greater proportion of their income on groceries (budget constraint) and 15 percent of the respondents indicated cherry pick because they have greater returns to price search by virtue of purchasing scale see figure 1.

Travel distances and times also exert an influence on cherry picking propensity. Although we find no effect for how close the nearest store is to the home, there is a negative effect for the distance from the nearest to next-nearest store. We take this as evidence that the household considers the incremental cost of the extra store visit (which can be very low if nearby stores are close together or more costly if not) against the expected benefit of the additional discounts available if that extra store visit is made. Figure 1 shows that each extra kilometre between stores decreases percent cherry picking by about 5 percent.

**Consumer Loyalty**

As noted in the secondary research customers are loyal for different reasons and some are loyal because they feel they have invested time and effort in building a relationship with the staff of the retailer. In the question 4 of



questionnaire the respondents were asked how loyal they are to their grocery store. The response is indicated in table 1.

TABLE 1: DESCRIPTIVE DATA OF THE CUSTOMER

		Frequency	Valid Percent	Cumulative Percent
Valid	Not loyal	17	10.12	10.12.
	Indifferent	34	25.6.	35.18
	Very loyal	108	64.29	99.47
	Total	168	100.0	100.0
Missing	System	8		
Total		176		

Table 1 indicates that 64.29 percent of the respondents are loyal to their stores while only 10.12 percent reveal that they are not loyal to their stores. This response shows that most of the respondents are loyal to their stores. Next store location will be discussed.

**Store Location**

Most agree respondents (65 percent) agreed that they remain loyal to store conveniently located to them and will not change stores even when a store further from them offers a product cheaper than their regular store. This response indicates that these respondents will not cherry pick even if another store offers lower prices.

**Store Switching**

The respondents were asked whether they would switch from their usual store if lower prices are offered at another store thus price shop across store. Of the respondents, 34.1 percent strongly disagreed that they would switch to another store if that store offers lower prices. While 32 percent of the respondents agreed that they would switch stores if another store offers lower prices. 23.8 percent of the respondents indicated that they are indifferent to lower prices and store switching and will not switch stores.

This question was further analysed to establish whether race has an influence on the respondent's perceptions concerning price shop across stores. The respondents were grouped into African, white, coloured and Indian. More respondents of the African group, 47.4 percent, strongly disagreed that they would price shop across stores than compared to 42.2 percent respondents of the white group strongly disagreed that they would price shop across stores. 33.3 percent of the coloured group respondents strongly disagreed that they would price shop across stores. The response disclosed interesting information as 100 percent of the Indian group respondents strongly agreed that they would price shop across stores compared to 34.4 percent of the African group, 31.1 percent of the white group. None respondents of the coloured group agreed that they would price shop across stores. The 23.8 percent of the respondents who were indifferent to price shop across stores consists of 19.2 percent of the African group, 26.7 percent of the white group, 66.7 percent of the coloured group and none of Indian group.

The study established that respondents of the African group would have less of a tendency to price shop across stores to any of the other groups. This group shows that they are less prepared to cherry pick than any of the other groups.

H<sub>1</sub> = There is a significant correlation between store switching and store location

The response of the hypothesis is shown in table 2.

TABLE 2: THE PEARSON CORRELATION

		(STORE IN Q5) is conveniently located	total: price shop across stores
(STORE IN Q5) is conveniently located	Pearson Correlation	1	.073
	Sig. (2-tailed)	.	.348
	N	167	166
total: price shop across stores	Pearson Correlation	.073	1
	Sig. (2-tailed)	.348	.
	N	166	175

Table 2 shows that the Pearson correlation indicates a perfect correlation of 1 at a significant level of 0.05 2-tailed. When conducting the z-test, H01 was rejected thus accepting Ha1. Therefore, by accepting Ha1, one may conclude that there is a significant correlation between store switching and store location.

The study also seek to establish how far the respondents would be prepared to travel for products on special or offered at lower prices. The respondents who would price shop across store indicated that they would be prepared to travel 10 km for lower priced products.

The study aims to show that there is a significant correlation between cherry picking and the distance that consumers travel to do grocery shopping. The following hypotheses were formulated.

H02:  $\mu \neq 10$  km

Ha2:  $\mu = 10$  km

When conducting the z-test, H02 was rejected thus accepting Ha2. Therefore, by accepting Ha2, one may conclude that there significant correlation between cherry picking and the distance that consumers travel to do grocery shopping.

## Discussion

The study aimed to examine the relationship between cherry picking and the distance that consumers travel to do grocery shopping and whether geographical influences play a role in customer behaviour concerning store switching and location.

Twthane consumers indicated that there is a relationship between cherry picking and the distance that consumers are prepared to travel to do grocery shopping. Geographical influences also play a role in customer behaviour concerning store switching and location.

### Summary of Research Findings

Most respondents indicated an average income of between R 5 000 and R 15 000 (43%), or less than that (39%). The average amount that respondents spend on grocery shopping is R 1 560 stating that, on average, the cherry pickers are prepared to travel 10 km for products on special or offered at lower prices.

### Managerial Implications

Knowledge regarding store switching and store location behaviour will enable retailers to get more sales from its price sensitive shoppers and increasing their market share of the industry. Retailers need to know how cherry picking affects them. Cherry picking and store switching behaviour vary depending upon whether the store is the shopper's primary grocery outlet or a secondary grocery outlet. The reasoning for this analysis is that it is one thing to be a shopper's primary store, where every so often the shopper cherry picks your competition and so spends a bit less money at your store than on a single-store trip. It is another thing to be a secondary store, the one which is actually being cherry picked. Not only does the shopper fail to spend as much in your store, but when she does patronize it, she opportunistically buys more sale items. For each household, we designated as its primary store the

grocery chain at which the household spent the most money over the two-year period. All other stores were designated secondary outlets.

Much of the savings on cherry picking trips is due to the purchase of more promoted items, where this savings is subsidized by manufacturer discounting. Thus, the burden of cherry picking is borne by both retailer and manufacturer, with manufacturers selling more on deal as a result. Also of interest to manufacturers, cherry pickers are not brand loyal. Returning to the retailer's perspective, households that cherry pick more often also have more family members and so consume more goods, suggesting that cherry picking households may generate more retailer revenues. In fact, the cherry picking households spend R1 576/month while households that cherry pick less frequently spend only R1 498/month.

The research indicates that as long as a retailer advertises products, opportunism in the form of cherry picking is inevitable. While retailers must make broad offerings, they can also find ways to embrace this segment. Cherry pickers tend to cherry pick the second store they visit when shopping two stores in a single day. At the second store they are buying less and buy at a higher discount. Cherry pickers are more vigilant shoppers that pay lower prices, but are nevertheless a segment large enough to matter to retailers. Fox (2005) advises the retailer not to marginalize cherry pickers. This is price competition with other retailers; therefore, the retailers want to have the most attractive offers and weekly ads. Retailers should want to offer the things people want and care about, while being competitive in the process. The current study shows that not much research as been done in South Africa about cherry picking.

#### **Recommendations for Future Research**

The research has indicated that insufficient research has been done on the loyalty cards system and its influence on cherry picking and store switching. Future research should focus on furthering the findings of this article. Future research may also include a comparative study between South Africa and the United States of America to determine whether South Africans or Americans are more prone to cherry picking or not.

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# **Vulnerability Analysis and Sustainability in Tourism: Lessons from Phuket**

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## **Abstract**

Much current research in the global tourism industry focuses on its sustainability, within the dynamic and often turbulent environments in which it operates. Sustainability has been variously defined in ecological, socio-cultural, and more recently, economic and commercial, terms, but it has often been falsely assumed that the management of sustainable tourism can occur in the absence of comprehensive analyses of its multiple underlying vulnerabilities. This paper presents a conceptual model for the strategic analysis of vulnerability in tourism, and applies it to the case of a Phuket hotel following the 2004 tsunami.

## **Introduction**

The global tourism sector is estimated to be the largest industry in the world with a growth rate of 25 per cent in the past decade (UNEP & WTO, 2005). The movement of people, and hence foreign currency, as a result of tourism between countries is significant. In 2003, for example, international tourism receipts represented approximately 6 per cent of global exports or US\$525 billion (<http://www.world-tourism.org/facts/eng/economy.htm> 10.16.2005), with the value of international tourism growing to US\$622 billion in 2004 (WTO, 2005a). In 2004 more than 760 million international arrivals were recorded, with the World Tourism Organisation (WTO) predicting that this number could double by 2020 (WTO, 2004).

With such a present and likely future impact on global economics and the ongoing development of individual nations, it is perhaps not surprising that attention has been focused increasingly on the industry's sustainability, as the key to its long-term survival and growth. However, the extension of the notion of sustainability to the management of the industry has been slower to develop than in other industries, due to its inherently complex nature, its multiple stakeholders and constituencies, and its fragmented and often reactive strategies.

This paper explores the development of notions of industry sustainability in global tourism; the consequent linkages between sustainability and crisis management concepts and practices; and argues for the need to utilise vulnerability analysis as a crucial tool in the management of sustainability in tourism. A case study of the hotel sector in Phuket following the 2004 tsunami crisis is used to illustrate the relationships between sustainability, vulnerability analysis and crisis management in tourism.

## **Sustainability in Global Tourism**

The concept of environmental sustainability has been discussed for decades, especially in relation to such issues as beach erosion, air and water pollution, flora and fauna protection, promoted by both scientists and environmental activists, and primarily as a reaction to the damage wrought by industrialisation. Thus, concerns about beach erosion and the destruction of fauna in the wake of tourism and hotel developments (Mangun 2001); the over-development of coastal strips (OAS, 2000); rainforest destruction in Sumatra and Borneo (Kontogeorgopoulos, 1999); and land and water pollution in tourism destinations (Shaw, 2000) dominated the sustainability agenda in the latter part of the twentieth century.

Subsequently, the debate on sustainability in tourism shifted towards the potential (and actual) adverse effects of tourism on endangered ethnic groups and traditional cultures, including hill tribes in Northern Thailand,

and similar communities in Sri Lanka, Indonesia, the Philippines and Pakistan (Richter, 1999), including the impacts of sex tourism in Thailand, the Philippines, Vietnam and Sri Lanka. This broadening of sustainability concepts was also associated inevitably with the deleterious effects of tourism on destinations as a whole, encompassing ecologies, sub-cultures, and locational infrastructures, specifically roads, bridges, water and sewerage facilities. These issues are summarised by Shaw (2000) as competing demands on limited resources, environmental pressures, economic inequity, cultural dislocation, and flawed tourism project management.

A series of composite indices were developed subsequently in an attempt to measure the comparative sustainability of particular tourism destinations. They include the Environmental Sustainability Index, which compares countries and their most popular tourism destinations across a broad range of indicators, grouped into environmental systems, environmental stresses, human vulnerability, societal adaptability, and global stewardship; the Ecological Footprint, which aims to measure the amount of renewable and non-renewable land area required to support given resource demands, and can thus be used as a tourism planning tool; and the Dashboard of Sustainability, which links 100 economic, environmental and social indicators, and examines their interactions on a country-by-country basis (Stevens, 2005). Whilst these indices have been criticised for their accuracy and reliability, particularly in their ability to compare country performance in these broad areas, they represent a serious attempt to evaluate and quantify the multiple impacts of the tourism industry on selected tourist destinations.

Similarly, the articulation of more holistic definitions of sustainability and sustainable development by bodies such as the World Tourism Organisation (WTO), and the International Institute for Sustainable Development (IISD), illustrate the growing maturity of the understanding of sustainability in tourism. Thus the WTO promulgates sustainable tourism development as: *'(meeting) the needs of present tourists and host regions while protecting and enhancing opportunities for the future. It is envisaged as leading to management of all resources in such a way that economic, social and aesthetic needs can be fulfilled while maintaining cultural integrity, essential ecological processes, biological diversity and life support systems'* (Liu, 2003).

The IISD definition is more concise, if similar in tone – 'to be sustainable, development must improve economic efficiency, protect and restore ecological systems, and enhance the well-being of all peoples' (Laimer & Ohlbock, 2004).

Despite these encouraging developments in reframing the notion of sustainability in tourism, their reactive (rather than proactive) and destination-based foci are arguably less than adequate in their applications to the sustainability of the industry as a whole. For instance, whilst there have been some extensions of the concept in reaction to recent natural and human disasters such as 9/11, tsunamis, the Bali bombings and other terrorist acts, SARS and Avian 'flu epidemics, there have been only limited empirical studies and conceptual models which incorporate sustainability and crisis management. As examples, the 2002 'Contribution of the World Tourism Organization to the World Summit on Sustainable Development' ([www.tourismforum.scb.se/Papers](http://www.tourismforum.scb.se/Papers), accessed 16.10.2005), held in Johannesburg, makes no reference to either crisis management or recovery strategies, whilst the World Travel and Tourism Council (WTTC) 'Crisis Guidelines for the Tourism Industry' ([www.wttc.org/publications/pdf/Security](http://www.wttc.org/publications/pdf/Security), accessed 16.10.2005) addresses such issues but primarily as a reactive destination-based strategy, rather than as an opportunity to evaluate the vulnerability propensity of particular destinations, industry sectors and/or the industry as a whole, in order to prepare for likely future crises and their effective management.

Much current generic crisis management literature (Lajtha, 2002; Lagadec and Rosenthal, 2003), suggests that such reactive strategies are inadequate in response to modern types of crisis, and that proactive imperatives such as 'think systemic, be prepared for the unknown, get acquainted with unforeseen complexities, with very high speed shock waves across the boundaries. And prepare leaders for total surprise' are required (Lagadec and Rosenthal, 2003). The United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP, 2002) recommended the development of more comprehensive models for sustainable tourism incorporating the whole range of crisis management strategies from preparation and prevention to recovery.

The incidence of global crises, both natural and man-made, which have had significant impacts on the tourism industry has doubled every ten years since 1960 (Pelling, Ozerdem & Barakat, 2002); and as an illustrative snapshot, the period 2004-2005 witnessed the Asian tsunami; hurricanes Katrina, Rita and Wilma in the Caribbean, the US and the Gulf of Mexico; tropical storms and mud slides in central America; a drought in the Amazon; Avian

'flu in Asia; further bombings in Bali; volcanic eruptions and earthquakes. Many of these, if not entirely predictable, may have been factored in as sustainability components of crisis management strategies.

## **Sustainability and Crisis Management in Tourism**

Crises are generally perceived as unanticipated or unavoidable incidents with the capacity to cause destruction or harm, and the World Tourism Organisation (WTO) defines a tourism crisis as '...any unexpected event that affects traveller confidence in a destination and interferes with the ability to continue operating normally' (WTO, 2005). Whilst useful, these definitions are somewhat limited, as some types of crises (for example, currency fluctuations, growing political unrest, potential terrorist threats, and some natural disasters) may be predicted weeks or even months before their impacts are felt. As examples, regular seasonal crises such as typhoons, and monsoons in the United States, Hong Kong and Southeast Asia, and volcanic eruptions in Indonesia were anticipated long before they devastated their regions and associated tourist destinations. Conversely, whilst general terrorist threats or incidents are expected and feared in all contemporary tourist destinations, specific events are usually impossible to predict precisely.

The WTO definition also links the loss of 'traveller confidence' with 'the ability to continue operating normally'. Whilst it might be expected that a significant crisis will necessarily involve reputational and/or actual harm to affected tourism destinations, there are examples of locations which have suffered only minor collateral damage; of others which have actually benefited from such events; and of other cases in which neighbouring destinations have profited from the misfortune of their competitors. Thus, while the 1997 'Asian financial crisis' devastated the economies of many Southeast Asian nations, including Thailand, Malaysia and Indonesia, the severe weakening of the Thai baht together with its proactive government's 'Amazing Thailand' tourism promotion resulted in increased tourism activity and income, in both the short and longer term.

Simultaneously, the political turmoil in Indonesia (1997-2004) frightened tourists away from Bali and Java, to the benefit of neighbouring tourism rivals such as Penang, Phuket, Australia and Singapore). Sadly, the combination of ongoing political unrest, economic decline, multiple and ongoing terrorist threats and events, and more recent natural disasters throughout Indonesia, have only served to strengthen the competitive tourism industry positions of (at least) Singapore and Australia. Both destinations, and other regional countries such as Malaysia, New Zealand, and Vietnam, experienced additional, arguably shorter term, advantages as a consequence of the '911' incident, due to tourist perceptions of greater personal security in these destinations together with attractive currency exchange rates.

An interesting tourism phenomenon experienced by Bali following the first bombing in 2001, and subsequently by Phuket and Sri Lanka after the 2004 tsunami, which might be described as 'compassionate tourism' or 'defiance tourism', was the flood of tourists from Australia and Europe who returned to those destinations immediately after the events either to demonstrate their ongoing support for the affected communities or to show their objection to terrorism. Evidence from both Bali and Phuket, however, seems to suggest that this may be a short term phenomenon (Israngkura, 2005). Nevertheless, the above examples suggest that tourism crises and their impacts are more complex than such simplistic definitions can explain.

Accordingly, it is suggested that the strategic management of tourism, whether globally, in particular industry sectors, and/or in specific destinations, would benefit from the development and application of more holistic models of sustainability, incorporating crisis management and vulnerability analysis tools, as part of an iterative rather than a linear approach. The concepts of vulnerability and vulnerability analysis are discussed in subsequent sections of this paper, but it is important to realise that the relationship between sustainability and the crisis management components of preparation, prevention and recovery, is not a linear cause-effect one, but rather that crises may precipitate industry or destination-based recovery strategies that in turn become preventative or preparatory stages towards the long-term sustainability of the tourism industry. Thus, the lessons learnt from one crisis are analysed in relation to their contributions to the management of sustainability in future such scenarios. All of these events necessarily take place within a multi-layered canvas, involving complex relationships between economic, socio-cultural, political, geographic, technological and overall industry characteristics.

## **Vulnerability and Vulnerability Analysis**

The significance of vulnerability analysis (VA) lies in its capacity to use evaluative and predictive techniques in order to facilitate the development of proactive and preventative management strategies for the sustainability of the tourism industry, at all its various levels. But what is 'vulnerability' and how might it be analysed?

As with the development of concepts of 'sustainability', research on vulnerability and VA is relatively new, and has been applied in a variety of specific and more generic contexts. Gabor and Griffith (1980), Timmerman (1981), Cutter (1993), and Gillard and Givone (1997), for example, examine the vulnerability of human or natural resources through exposure to hazardous materials. Others (UNDRO 1982, 1991; Blaikie et al., 1994; Green et al., 1994; Weichselgartner & Bertens, 2000) focus on the risks posed by natural phenomena (for example, floods, hurricanes, tsunamis), or the differential risks faced by particular communities or social groups (Susman et al., 1983; Downing, 1991; Dow, 1992; Cutter, 1993; Dow & Downing, 1995).

Over time, the definitions of vulnerability have broadened and deepened to become more holistic and generic. Thus, Bohle et al. (1994) describe vulnerability as:

*...an aggregate measure of human welfare that integrates environmental, social, economic and political exposure to a range of potential harmful perturbations. Vulnerability is a multi-layered and multi-dimensional social space defined by the determinate, political, economic and institutional capabilities of people in specific places at specific times*

Weichselgartner and Bertens (2000), more concisely, suggest that it concerns 'the condition of a given area with respect to hazard, exposure, preparedness, prevention, and response characteristics to cope with specific hazards. It is a measure of capability of this set of elements to withstand events of a certain physical character'. This definition perhaps best encapsulates the complicated relationships between sustainability, crisis management and vulnerability analysis in the global tourism industry. As the definitions imply, vulnerability is a more complex concept than that of risk', which is usually focused on a single hazard in a specific context. Vulnerability has been examined from three particular perspectives – vulnerability as a pre-existing condition; vulnerability as a 'tempered response'; and vulnerability as a 'hazard of place' (Weichselgartner, 2001). The first perspective explores the source(s) of exposure or risk, the second, coping responses, whilst the third is integrative, incorporating 'risk as well as (the) social response, but within a specific area or geographic domain'(ibid. p. 3). Weichselgartner goes on to develop a theoretical model of vulnerability analysis which identifies 'qualities' or 'factors' which may cause actual or potential damage (for example, specific hazard, exposure levels, preparedness, prevention, responses), and then 'maps' the comparative degree of damage over a given area (p.10) Bohle (2001) builds on these earlier definitions to include 'external' and 'internal' sides of vulnerability, in which the former refers to 'the structural dimensions of vulnerability and risk'(p.2) and the latter to 'coping and action to overcome or at least mitigate the negative effects' of the relevant threats, in other words the recovery component of crisis management.

## **An Analytical Model for Vulnerability Analysis in Tourism**

The following model further develops the concept of vulnerability analysis as a practical planning tool to assess the degrees of impact (both positive and negative) of multiple threats on parts of, or whole, tourism industries in particular continents or nations. It is intended to be used in concert with the Delphi technique, rather than as a precise quantitative measure, and its differences from some of the earlier matrices (see Appendix 1: The Washington State Hazard Identification and Vulnerability Assessment, Worksheets 1 and 2; New York University Medical Center Hazard Vulnerability Analysis; WS Hazard and Impact Matrix; and Michigan State University Vulnerability Analysis Chart) rest in its industry or sectoral foci, and its specific applications to tourism

## **A Vulnerability Analysis Model**

### **Level of Impact Intensity**

(+)

**XII**

**XI**

**X**

**IX**

**VIII**

**VII**

**VI**

**V**

**IV**

**III**

**II**

**I**

**Vulnerability Issues – Industry – Economic – Political – Social – Technological – Natural – Product/Service**

**I**

**II**

**III**

**IV**

**V**

**VI**

**VII**

**VIII**

**IX**

**X**

**XI**



## XII

(-)

### (\* See the descriptors of the levels of impact in Appendix 1)

The model is based upon the Modified Mercalli Scale (1931) which was developed to assess the relative impacts of earthquakes on different locations, unlike the more widely-known Richter Scale, which measures the intensity of the natural phenomenon. The motif of an earthquake seemed symbolically appropriate for the tourism industry, as it combines both long and short term impacts with differential impacts on areas closer to or further from its epicentre. As the model illustrates, it comprises the multiple vulnerabilities affecting the tourism industry, scaled according to the relative intensity of their impacts (see Appendix 2) on parts of, or the whole, tourism industry in particular continents, regions, nations or destinations; and is intended as a comprehensive strategic planning tool, in the preparation, prevention, or recovery stages of the cyclical crisis management sequence discussed earlier in this paper.

In the model, *industry* vulnerabilities include the relative fragmentation, segmentation, sectoral interface difficulties, dynamic alliances and ownership configurations of the tourism industry in particular regions or destinations, or within specific industry sectors. As examples, whilst natural or man-made disasters may have significant adverse effects on parts of the industry, the cohesiveness of government-private alliances (marketing strategies; well-maintained tourism infrastructures; mutually supportive relationships between hoteliers, restaurateurs, tour operators and travel agents; ‘compassionate’ tourists) may serve to mitigate the intensity of the short or long-term impact. This was certainly the case in Bali following the first terrorist bombing, and in Phuket in the immediate wake of the 2004 tsunami. With respect to the latter, Israngkura (2005) predicts that ‘the tsunami will have small macroeconomic impact, as the incidence did not affect the level of confidence or create negative (stakeholder) expectations as was the case of SARS ..in 2003’(p.18).

*Economic* vulnerabilities encompass global, regional and national economic performance, and may have positive or negative impacts. Severe currency fluctuations, such as occurred in the Asian economic crisis in 1997 or subsequently in Indonesia, actually had positive impacts on both countries’ tourism industries, although Indonesian tourism was soon adversely affected by political and social upheaval, and later terrorism, which together served to effectively destroy its short term tourism hopes.

*Political* factors which are likely to produce more (or less) vulnerability include government policies and marketing strategies for the tourism industry (for example, promotional campaigns such as the successful ‘Amazing Thailand’ programme; taxation incentives or disincentives, for both tourism operators and tourists; visa issues), funding programmes and infrastructure development, inter-regional competition or cooperation, security and safety issues (including terrorist threats and incidents, crime and disease). The intensity of these vulnerabilities may differ from destination to destination, and need to be factored in accordingly. As examples, whilst Australia and Singapore may be perceived as safe and largely free from threats to tourists, Thailand and Indonesia may represent more threats to inexperienced tourists. In the latter cases, analyses of comparative vulnerability may result in the development of more sophisticated infrastructure (for example, higher level security measures at airports, hotels and restaurants, upgraded marketing campaigns or more restrictive tourism routes).

*Social* vulnerabilities derive from the attitudes and current trends in tourist markets, in response to both their perceptions of the safety of regions or destinations as a consequence of natural disasters and terrorist threats, and their view of the novelty (or otherwise) of particular tourism locations. They also encompass the perceived levels of receptiveness and support for tourism, and potential damage to traditional cultures and societies. *Technology* may include the relative effectiveness and efficiency of the provision of services in airports, hotels and restaurants, the difficulties in the technological interfaces between different tourism sectors, or the threats presented by ‘virtual’ tourism or internet booking systems to particular destinations or tourism sectors (for example, travel agencies, linkages between airlines and hotel operators). These factors also have significant impacts, both positive and negative, on the desirability or novelty of various tourism *products and services*, predicated on the dynamic nature of competition and market demands.

The final vulnerability issue concerns *natural* factors, ranging from the impacts of soil erosion and the over-development of tourism in particular destinations, climate changes, and the dramatic effects of natural disasters such as hurricanes, tornadoes, and tsunamis, as earlier discussed.

Whilst the model facilitates the analysis of all these vulnerability issues discretely, it also encourages more holistic interpretations of the overall potential and actual positive and negative impacts of such factors on particular destinations, industry sectors and whole industries, at single and multiple time periods. As such, it represents a useful tool for industry managers to evaluate their own vulnerability parameters, and those of their competitors, as part of their ongoing tourism preparation, prevention, recovery and response (PPRR) planning strategies. The following section depicts an application of the model to a Phuket hotel following the 2004 tsunami, as an illustration of its utility in the iterative recovery and preparedness stages of crisis management in tourism.

## **Vulnerability Analysis and Sustainability in Phuket**

If the Vulnerability Analysis Model (VAM) is applied to the levels of intensity of the impact of the 2004 tsunami on the hotel sector in Phuket, Thailand, with a view to considering the most effective management strategies to adopt in order to both recover in the short term and to ensure the sustainability of individual properties in the longer term, some interesting lessons emerge. The research study was intended to canvas the opinions of a representative sample of hotel managers in Phuket with respect to the effects of the tsunami on future business, and the nature of their strategic management responses, but unfortunately due to circumstances only one hotel manager was interviewed. Accordingly, the following case findings cannot be claimed to represent the experiences of other hotels, but despite this severe limitation, the case (The Seaview Hotel) illustrates the utility of the application of the model.

### **The Seaview Hotel**

The hotel studied is one of four properties in a Thai-owned chain, classified as four star, with more than 400 rooms and employing around 350 staff, predominantly Thais, only 10 percent of whom were originally from Phuket. Prior to the tsunami, occupancy levels ranged from 75 percent in the high season (November-April), to 65 percent in the low season (May-October), with tourist markets primarily from Europe in the high season; from Australia, New Zealand, Korea and China in the low season; and from Japan in both seasons. It should be noted that the tsunami struck Phuket at the beginning of the lucrative high tourist season.

Following the impact of the tsunami, occupancy levels in the short term dropped dramatically, to 15-20 percent. The hotel manager reported that there was a distinct difference in the immediate reaction of its disparate tourist markets. Australians and South Americans tended to be more sympathetic to the plight of Phuket, as compassionate or defiant tourists, whilst its Japanese and Chinese tourism markets appeared to be deterred for superstitious reasons. European tourists appeared more concerned with their perceptions of physical security.

The physical impact of the tsunami on this hotel was apparently minor, as it is located on a hill overlooking Patong Beach (the most popular tourist beach in Phuket), only minimal damage was experienced to the hotel's swimming pools and gardens, and no staff or guests were seriously injured.

An analysis of the Seaview Hotel's vulnerability in the wake of the tsunami would suggest that it rates as a 5 ('medium-term effect on a single tourism agency in a single country or region') on the VAM scale with respect to the level of intensity of the tsunami impact. However, as one of the many accommodation establishments in a devastated tourism region, it undoubtedly rated more highly as a consequence of tourists' perceptions of the entire region (erroneously) and of tourism in Thailand more generally.

### **The Seaview Hotel's Recovery Strategy**

The management immediately took action to remedy the physical damage to the hotel's facilities, in advance of any specific offers of support from Thai government agencies, but with the expectation that such help would be forthcoming, as had been the case in earlier threats to tourism such as the 1997 economic crisis. In a show of good faith, and in contrast to the actions of other Phuket hotel managers, the Seaview Hotel management maintained all staff members on normal salaries, apart from those who wished to take leave or resign (5 percent), despite the fact that for the first three months following the tsunami there were no new guests, and at the time of interview (December 2005) it had not returned to normal occupancy levels.

Whilst the hotel subsequently received no direct government financial assistance, as most of this was directed to infrastructure rebuilding (roads, transport systems, tourism marketing), indirect assistance was provided in relation to delayed payments to government bodies, and moratoria on loan interest and insurance premiums. Taking advantage of the low occupancy rates immediately following the tsunami, the hotel also began retraining its staff in service quality and language issues, added new specific modules on guest safety procedures, linked itself with the emergency monitoring systems of companion hotels located closer to the centre of potential future such events, and is using constant emergency monitoring operators.

The manager reflected that 'the tsunami was a new thing for us. To be honest, I think it is good that it happened. It was a great career experience. We appreciate a (sic) real value of gained knowledge which can be used to educate others in emergency management. This is a good side' (Interview with the General Manager, December 2005). He also identified several crucial issues in the recovery stage of crisis management, including a focus on people rather than property; the maintenance of staff and guest confidence in the ongoing operations of the hotel; the need for government attention to all tourism properties in the region ('It is not good for all of us if on the same street there are some well recovering (sic) hotels looking as new ones and others which are totally smashed'), and its emphasis on the redevelopment of active marketing campaigns, including high-level reassurances of the region's safety for tourists.

## **Discussion & Conclusion**

The Seaview Hotel case suggests that, although a particular hotel may be more (or less) directly impacted by a natural disaster such as the 2004 tsunami, it will be adversely affected by the perceptions of the destination's safety by potential tourist markets. It implies therefore that in such a case, recovery strategies will inevitably involve the combined efforts of private sector operators, the national government and local authorities, in order to address effectively the recovery component of crisis management strategies and thus to restore guest market confidence in the tourism destination. Such multi-faceted and integrated approaches necessarily include attention to the immediate restoration of property damage; the support and maintenance of hotel employees; the rebuilding of essential tourism infrastructure, and temporary relief to private sector hoteliers from taxation and loan repayments burdens; and above all, a comprehensive and proactive marketing campaign focused on traditional and newer guest markets. Fortunately, the Thai government was forthcoming in most of these responsibilities, with the result that Phuket is beginning to regain its status as one of the preferred tourism destinations in South East Asia within two years of the tsunami impact. In contrast, Bali has failed to recover as effectively, due both to the different nature and frequency of its threats, and to the failure of the Indonesian government to act as quickly and as cooperatively as its Thai counterparts.

In applying the VAM to the Phuket experience, recovery has been assisted by the generally positive collaboration of tourism industry stakeholders (private and public sector agencies, compassionate and defiant tourism markets); favourable currency exchange rates for its primarily Western tourist markets; its relatively politically stable environment; attractive Thai social characteristics, which reflect tolerance, friendliness, and careful attention to guest needs; and the consistency and relative quality of the services provided to tourists at all levels of the tourism industry.

In their planning for the longer-term sustainability of the tourism industry in Phuket, both the Thai government and individual hotel managers could benefit from utilisation of the VAM as a predictive tool to identify the destination's and their broader inherent vulnerability (weaknesses and strengths), and thence to factor into their strategies recovery plans to address each of the identified issues. Perhaps the most crucial aspects are that tsunamis occur only in particular seasons, and other potential threats such as regional competition and product life cycles are both predictable and amenable to the careful monitoring of tourist market analyses.

## Appendix 1: VAM Scale for the Tourism Industry

Level of Impact	Impact Descriptors
I	Minor, short-term effect on a single tourism agency in a single country or region
II	Minor, short-term effect on an entire tourism sector, in a single country or region
III	Minor, short-term effect on more than one tourism sector, in a single country or region
IV	Minor, short-term effect on more than one tourism sector, in more than one country or region
V	Medium-term effect on a single tourism agency in a single country or region
VI	Medium-term effect on an entire tourism sector in a single country or region
VII	Medium-term effect on more than one tourism sector, in a single country or region
VIII	Medium-term effect on more than one tourism sector, in more than one country or region
IX	Long-term effect on a single tourism agency in a single country or region
X	Long-term effect on an entire tourism sector, in a single country or region
XI	Long-term effect on more than one tourism sector, in a single country or region
XII	Long-term effect on more than one tourism sector, in more than one country or region

(Adapted from the Modified Mercalli Scale, 1931)

NB. The levels of impact intensity, as in the original Mercalli Scale, are not mathematically based, but a ranking based on observed or anticipated effects, preferably applied by the Delphi Method. There is necessarily a degree of subjectivity, and the impact descriptors may be of positive or negative value. There are, however, quantitative criteria – reduced hotel occupancy levels, decline in profit margins etc. – which should be factored into expert judgements of the impact intensity)

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# Community Based Tourism in Global Strategies: A Case of Huai Hee Village in Village

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## Abstract

Since tourism has become Thailand's economic development strategies. In northern Thailand in particular, a growing number of indigenous communities have been turning to tourism as an alternative to expanding their commercial agriculture. However, while tourism has generated the biggest revenue for the country, most destinations have begun to deteriorate both culturally and environmentally and it caused conflict of interests among stakeholders. This begs the question of how to operate tourism that can really be a sustainable solution to the development of initiatives in the region. Community based tourism (CBT) has therefore become one of alternatives in many communities' development strategies as a means for community development and environmental conservation. The case remains to be made whether or not CBT, as practiced in northern Thailand, is really a sustainable option in practice? To begin to provide an answer, this paper briefly reviews the concept of CBT and then presents the findings of a case-study on perceived impacts of tourism in the CBT destination of Huai Hee village, Mae Hong Son province, which questions the authenticity of this concept in practice and raises concerns of how to operate tourism for a solution to some of the problems of poverty, conflict and socio-cultural and natural resource degradation in the destinations. The paper concluded with key issues for an achievement of sustainable tourism. **Key Words:** Sustainable Tourism, Community-based Tourism, Tourism in Northern Thailand, Natural Resource Management, Socio-cultural Management.

## Introduction to the Research

According to the government's policy on economic development at regional level, tourism is seen as an essential instrument for job generation and income contribution. Development of tourism has taken place in the northern region where has become a popular tourist destination in Thailand because the region has various activities and experiences to offer to visitors such as unique natural beauty, distinctive history, rich cultural heritage, hill tribes, trekking, elephant riding and river rafting (TAT, 1998). In addition, many activities have been created and festivals have been revised in order to support tourism in the region. Thus, NTd has become a destination significantly influenced by tourism development and numbers of visitors visiting the region have recently increased.

Following the general success and growth of tourism in Thailand, many communities in the region have pursued it as their preferred development alternative. Some see tourism as a tool for local income generation and the local community empowerment; others perceive tourism as the solution to conflict of interests towards land use problems as well as to prevent the situation of being evicted from their land (PRLC, 2000). Thus, a diversity of tourist experiences in National Parks and historical sites has been provided. Since 1997 the Royal Forestry Department (RFD) has opened up National Parks to private tourism businesses and worked on a proposal to grant leases to private operators for development of tourist infrastructure. Under promotion of tourism, the RFD has recently implemented large tourism related infrastructure projects, with the construction of roads, parking lots, visitor centres, bungalows, camp sites and nature trails neatly coinciding with the 'RFD's Visit National Park Year 2000'. The project aimed to attract more than 20 million domestic and international visitors to the parks during that year. Most of the annual budget was allocated for constructing building, paving roads, buying vehicles, hiring staff and paying administration costs. This suggested that although tourism has generated the biggest revenue for the country, the country's natural resources would be further sacrificed for short-term economic gain.

As tourism is an agent of changes, tourist activities led northern Thailand to become a mass tourist attraction with impacts on the physical, social, economic and built environment. As a consequence, tourism in the region has faced many problems because of deterioration of most tourism sites both in cultural and environmental aspects. These problems are caused by a lack of: appropriate operation and maintenance of destination; expert interests; involvement of local community in all stages of tourism development process, collaboration among

stakeholders; sufficient funding support from the government (TAT, 1998). As a consequence, CBT has been recognized as a solution to the problems. The case remains to be made whether or not CBT is really a sustainable option in practice. Therefore, this study aimed to investigate perceived impacts of tourism on host destinations in northern Thailand and raises concerns of how to operate tourism for the sustainability and a solution to the problems of poverty, conflicts and socio-cultural and natural resource degradation in the destinations.

## **Defining Community Based Tourism (CBT)**

CBT typically subscribes to a number of broadly defined goals such as economic development, community development and empowerment, resources conservation and social sustainability. It is generally considered to involve host community members in the tourism enterprise. This means that tourism activities are developed and operated, for the most part, by local community members, and certainly with their consent and support. Three types of CBT enterprises have been identified:

- 1) The purest model is the enterprises that are owned and managed by the community, where the community members are employed by using a rotation system. Thus profits are allocated to community members;
- 2) The enterprise involves family or group initiatives within communities and;
- 3) The enterprises are a joint venture between a community or family and NGOs/ an outside business partner.

CBT is recognized as a contributor to the growth of employment opportunities, a reasonable share of the revenues particularly for women, young people and aboriginals. This may include revenue streams which go to co-ops, joint ventures, community associations, businesses that widely employ local people, or to a range of entrepreneurs starting or operating small- and medium-sized enterprises. Another important feature of CBT is its respect for local culture, heritage and traditions as well as concerns for the natural heritage, particularly where the environment is one of the attractions. According to UNEP, CBT does not simply seek to maximize profits for investors. It is rather more concerned with the impacts of tourism on the community and the environment. CBT emerges from a community development strategy and is used as a tool to strengthen community organization through community-wide participation. The Project for Recovery of Life and Culture (PRLC) (2000) define CBT as tourism that contributes to: conservation of natural resource and the local culture, local economic development, local participation and providing socially and environmentally responsible products to visitors. It is essential that the community has substantial control and involvement in the development of initiative. At each stage, awareness and education should be an important element. This will not only keep people interested and supportive, but it will also prepare them to take advantage of opportunities so that the main benefits remain in the community.

Levels of participation by local people are considered critical to the success of CBT. Much of the attention in CBT focuses on concepts and principles actions, incentives natural & cultural resources benefits and communities that live in and around the destination since they have frequently been neglected in the decision-making process. Often the result has been a lack of ownership that has in turn affected the sustainability of conservation and development efforts. If local people have participated in the design of activities, invested resources in implementation, and are able to obtain reasonable returns, then the likelihood of long-term conservation and economic benefits increases. If the distribution of benefits is such that most participants are employees for whom tourism provides an unreliable and poor source of income, the linkage between tourism and the need to conserve resources is potentially weaker, and the long-term benefits more questionable. Not surprisingly, in CBT considerable resources are usually invested in engaging people in bottom-up, small-scale tourism developments that can contribute to CBT objectives. The key elements in the processes of participation are the involvement of people in the decision-making processes, in implementing programmes, their sharing in the benefits of development programmes and their involvement in efforts to evaluate the programmes (Cohen and Upnoff, 1977; Timothy, 1999). Thus, recognition of the value of local knowledge and environmental management practice is crucial for the achievement of local participation (Berger, 1996; Boyd and Ward, 1993). This is to ensure that the benefits include income generation, the enhancement of the local residents' quality of life and economic returns that can be used in maintaining and managing the tourism resources. Furthermore, the local community would participate in supervising

the tourism development of the area and ensuring that it is appropriate. However, Sproule and Suhandi (1998, pp.215-235) argue that though there is increasing recognition of the need to involve communities in participation in general, there is much less agreement about exactly who should participate and to what extent.

Pretty (1995) classified the types of involvement into seven levels of participation which range from 1)manipulative participation, 2)passive participation, 3)participation by consultation, 4)participation for material incentives, 5)functional participation, 6)interactive participation, and 7)self- mobilization. One of the most issues in concerns is about the capability of the local people in tourism planning and its operation. In tourism aspect, how to involve the locals in all stage of development is the key issue.

## **Research Methodology**

To achieve the objectives of the study, Huai Hee destination in Mae Hong Son province was chosen as a case study as tourism at Huai Hee is recognised by many other Community Based Tourism (CBT) proponents in Thailand as a successful model for other communities to follow. In addition, the project was nominated as a finalist for the ‘TO DO! 2000 Contest for Socially Responsible Tourism’, organised by the German organisation Studienkreis Fur Tourismus und Entwicklung. It was also proposed as a ‘model community in forest conservation through CBT activities in the Green Earth Contest’, organised by the Petroleum Authority of Thailand. Tourism has been implemented since 1996 and managed by collaboration between NGO workers and the host community.

The methodologies adopted for data collection were: semi-structured interviews; focus groups and participatory rural appraisal (PRA) with local residents and other stakeholders in both public and private sectors and; participant observation in addition to documentary analysis of records at the case-study location and also other documents which chart the process of tourism development in the area. The stratified random sampling and convenience sampling approach were applied in the research. The population sample frame consisted of all individuals of both sexes, over eighteen years old and had involved in the tourism enterprise in the destination. Descriptive statistics was used for content analysis.

## **A Case Study of Huai Hee Destination**

Mae Hong Son province is located approximately 900 km from Bangkok and can be reached either by Highway No. 108 via Mae Sa Rieng, or by Highway No. 1095 via Pai (see Figure 1). The potential for tourism is based on the natural resource areas and the diversity of population ‘hill tribe cultures’ such as Lawa and Karen. In recent years, Mae Hong Son has become one of the main visitor destinations in northern Thailand, and is based primarily on the living culture of the Long Neck Karen because they live only in the Mae Hong Son area (TAT, 2001).<sup>1</sup> Further, as Mae Hong Son is a borderland to Burma, there has been a great influence on the local tradition and architecture. The Burmese-style temple and Poi Sang Long event are also the main attractions in the area. In addition to the unique characteristic of natural resources of mountain peaks, caves, hot springs and wild sunflower field, alternative activities such as elephant riding and bamboo rafting have been created to support tourism in Mae Hong Son. The Huai Hee village is situated in the Tambon Huai Pu Ling, Muang district, which is about 26 km from the town centre of Mae Hong Son. It takes up to 2 hours to drive the 26 km. on a dirt, rough and winding mountain road to the village. The village is quite isolated from the outside world due to difficult access especially in rainy season.



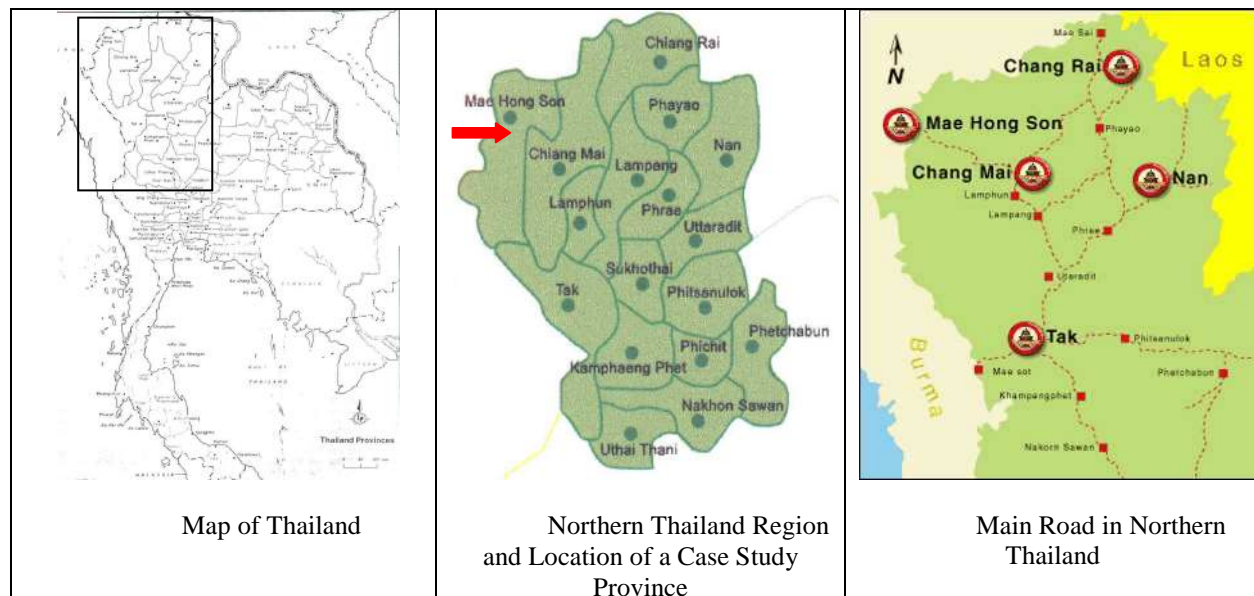


FIG. 1 LOCATION OF HUAI HEE DESTINATION

The people in Huai Hee belong to the Karen ethnic group. They are originally from Burma or from further north, possibly from Tibet. Originally the villagers were Animist but have become Christian during the last 35 years. At present there are 197 inhabitants in the village, represented as 31 families living in 28 households. Huai Hee's economy has traditionally been based on agriculture. Villagers have for the most part been self-sufficient. Like many other highland people in Thailand, the villagers of Huai Hee are blamed for deforestation and the deterioration of highland watersheds. They were threatened with deportation from their traditional living area if they did not change their way of living. As a result, the Project for Recovery of Life and Culture (PRLC) is an NGO organised under the North-Net foundation came in to the village as a mediator to find a sustainable solution for land use rights. Attention to development work is strengthening local communities and stressing a holistic development approach. Through a land classification system, the land area was classified for different purposes such as rice growing, a village dwelling area and land areas to be protected and conserved.

In 1996, community based tourism (CBT) was introduced by PRLC as a tool for conservation of natural resources and local culture of the Karen. It was proposed as a way for negotiation with the authorities and villagers to be involved in tourism management in their village. With an increased awareness of the importance of environmental sustainability, they wanted to involve and control the tourism enterprise in their community. PRLC supported the community by providing the villagers with technical assistance and training while the management of the projects remained in the hands of villagers. Through the implementation of tourism, villagers have had the opportunity to explain and demonstrate to visitors how they protect their forest and at the same time continue to live their lives in accordance with their traditions. Thus, the villagers are slowly being understood by the authorities who earlier accused them of destroying the forest and ruining the watersheds. In recent years, the development of tourism has gradually been recognized. This has been evident in the villagers' interviews:

*'...we are blamed for deforestation and the deterioration of highland watersheds. We are threatened to be evacuated from the village where we have been living for generations. It is our home-land, we don't want to leave. To fight against that...we use CBT to communicate with outsiders that through generations, we as the highland people have supported land use management through our traditional subsistence techniques. If our way of life really causes*

*damages to the natural resources, there would not be any forest left in this area. So far ...our voice could be heard through CBT'*

Recently, villagers are becoming more involved in tourism as accommodation providers in the form of home-stay, tour guides, cooks and selling handicrafts (Fig. 2). In comparison with the income obtained from traditional subsistence that provided people daily basic needs, tourism provides opportunity to earn hard currency.



FIG. 2 ATTRACTIONS AT HUAI HEE DESTINATION

## Tourism Operation and Local People Involvement

In addition to being under the supervision of PRLC, the villagers organize themselves into a ‘tourism club’ to manage tourism through a co-operation among shareholders in the community. The villagers own and manage the enterprise. A rotation system is employed to ensure the members receive fair and equal opportunity to engage and benefit from tourism. In the host family, an adult member of a host family is also appointed as a local guide. Profits are mostly allocated to the villagers (80 per cent of total income each time) and the rest is allocated to the tourism club and community development projects fund. So far, the tourism committee recognized that the input and involvement of the whole community is essential for success. This has been evident through the process of tourism development that has been taken place since 1996. Visitor management is in the hands both of business entrepreneurs in Mae Hong Son as transport providers and of tour operators but equally important, in the hands of the local community as well. The entrepreneurs control the access and transport to the site but the locals manage the visitors on the site.

The general views of villagers and local NGOs indicate that the CBT at Huai Hee faces problems of being dependent on NGOs in terms of marketing. This is because the villagers do not have knowledge or skills in marketing tourism in their area. Therefore, the PRLC staff set up a travel agency to tackle visitors and as a result, most of the benefits go to the travel agency. This has been supported by the data in Fig. 3. However, the villagers in general seem satisfied with income obtained; at least there is no evidence to the contrary.

Tour	No of persons	Travel Agency (price per head)	Locals (Total)	Community (Total)
Karen Culture and Ecology Tour (2days, 1 night)	2	3,280	800	200
	3 or more	2,400	800	200

FIG. 3 TOUR PRICE AND BENEFITS SHARING BETWEEN THE TRAVEL AGENCY AND THE VILLAGERS  
(Figure are presented in Thai Baht)(\$=40 Baht).

Source: The tour leaflet of travel agency in Mae Hong Son and interviews with the villagers of Huai Hee Village

Women in the village tend to have much lower literacy rates, educational opportunities, access to resources, control of assets and decision-making powers than men. For many women, the tasks of caring for visitors add considerably to their daily household duties, especially when husbands are away working as trekking porters and guides. They played a vital role in the transition from trying to meet tourism demand to proactively developing sustainable management and visitor services. This has been evident in the villagers’ interviews:

*‘When tourists are in the village, it is our job to cook and prepare food for them. We use the local materials as much as possible... For example, when we cook, we use vegetable that we have in the garden. When tourists go for trekking, we use leaves for food packing. We want them to appreciate the way we live and they like that...It really gains our pride for what we are. The Karen culture is unique and that is what tourists are interested in...’*

They also have coordinated a cultural revival. Craft cooperatives, traditional dancing and singing are now generating income for the women of the community and promoting pride in their local culture. Although local participation is seen as essential to the strategy of fair benefits sharing in the community, it can be argued that the villagers can also receive unequal opportunity in participating in the enterprise. There is much less agreement about exactly who should participate and to what extent. This is evident in practice in that the participation in home-stay projects at Huai Hee is limited by the condition and size of the house, Thai or English language ability and age. This means that those who are not in the conditions required for the enterprise would be excluded from the project. Moreover, the personal interviews indicate that alongside the positive consequences, the negative side of community involvement could be to add greatly to the cost of tourism planning and development, and to lengthen the period needed to develop plans for the projects.

Alongside tourism management, many attempts were made to determine possibilities for supporting community resource management. The villagers perceive the success of tourism comes from the cooperation among stakeholders in the community and support from outsiders. They think that long-term success of tourism is that the number of visitors is increased so that profit can be made by the local business entrepreneurs. They expect that tourism would not only continue to provide stable income to the local economy but also contribute to the natural resources conservation. Overall expectation from tourism development is that they don't have to evacuate to elsewhere and are able to have control over their land and its surrounding environment and their community's future.

## **Tourism Impacts**

In terms of tourism impacts, the general views of villagers at Huai Hee indicate that the impacts of tourism development on Huai Hee destination were perceived as mostly positive in aspects of physical environment, society, culture, economy and employment. This is probably because the negative consequences are not yet obvious or the impacts are not recognised because the respondents benefit from the enterprise.

So far, development of tourism has been perceived as a contribution to the conservation and preservation of natural resources in the area. Some percentage of the profits are allocated to community development and conservation initiatives, such as the planting of tree seedlings, renovation of the natural trails, waste management and providing loans for women to invest in handicrafts products. The villagers do not perceive there to be negative impact on the natural environment in the area. This is probably because the number of visitors is still relatively small and the locals fully manage the enterprise. Therefore every thing is under their control. This has been evident in the villagers' interviews:

*'...no there are no negative impacts to the natural resources in the area. We have really been taking care of it as it is our lives. For generations, the villagers' lives have been depending on the natural surrounding. But what we are afraid of that may happen in the future is the waste problems. If there are many visitors, there will be more waste. We will discuss the matter with PRLC...'*

In terms of socio-culture, on one hand, tourism development caused positive impacts in the community in terms of standard of living, family life, improvement of housing condition, good relationships among the villagers and improvement in foreign language ability. Besides English, the villagers now tend to be more interested in learning Thai as the majority of visitors are Thai. This has been evident in the villagers' interviews:

*'...We are told that to be home-stay providers, we have to improve our house condition and surroundings and toilet...make sure that they are clean. We also plant some flowers that make the house really nice. We like it too and we hope the visitors also like it... It would be good for us if there are many visitors come to our village. So we can sell handicrafts and earn money from home-stay and guiding. Working in the farm does not give us cash. We want cash, so at least we can buy a pack of instant noodle and a can of sardine, and some biscuit to kids. It is really nice to be able to afford to eat something different. We also want TV. Many of the youth have to migrate to Mae Hong Son for employment...they bought a TV set for a family...'*

On the other hand, tourism has influenced the loss of interest among youth in land stewardship while some older members prefer to maintain their traditional lifestyles of farming and increasing commercialization of local cultural products. Further, it has influenced the drinking habits of the villagers so that they become addicted to coffee drinking. Coffee was not a traditional drink in the community but it was introduced according to the visitors' demand. Moreover, the relationships between locals have improved through tourism management and meetings. For example, the relationship between the older people and young people is well developed as young people work together with their elders to teach visitors about medical plants and other traditional uses of the natural resources. Thus, conflict of interests between them in terms of having different attitudes to life, is mitigated. At the same time, co-operation between the rest of villagers also increases, which has been evident in the villagers' interview:

*'...Although our offspring are keener on working with tourism than maintaining our traditional farming, we like tourism. It brings us together... means that we have meeting among the villagers more often to discuss about the plans, management of tourism resources and its conservation and preservation. Thus we do more activities together such as at the clean-up day and maintenance of the resources, share local knowledge to visitors ...Besides, we have more cash...'*

In economic aspect, tourism development has contributed to positive impacts on the local economy in terms of income generation and employment opportunities. The direct income to the villagers is generated through the provision of accommodation, food and refreshment, souvenirs and through employment as local guides. In comparison to the income from farming, tourism brings 'quick cash' to the community. Further, women in the village are willing to increase their workloads tremendously through the sale of handicrafts 'weaving cotton wares' in order to gain some new measure of financial independence. In terms of benefit sharing, although profits are mostly allocated to travel agency and tourism entrepreneur at down town of Mae Hong Son, the locals are satisfied with income obtained that depending on the degree of involvement in the business 'more they work, more they earn' basis.

## **Discussions and Suggestions**

Based on the outcomes of the study, CBT is perceived as a tool for community development, local income generation and conservation of socio-culture and natural resources. These were conducted through a process of community participation. Additionally, tourism was used as a way for negotiation with the authorities in aspects of natural resources management so that it would be possible for the villagers to have more control over their land and their community development now and in the future. Thus, key successes of CBT seem to be the involvement of the whole community in the tourism enterprise, the cooperation among stakeholders in the community and support from the outsiders. Tourism in Huai Hee destination appears to have had both positive and negative consequences. It has contributed to conservation and preservation of the natural resources, society and culture and has positive impacts on the local economy. On the other hand it has influenced the loss of interest among youth in land stewardship and increasing commercialization of local cultural products and alien consumption. However, it is not seen as a problem now but in the future this could possibly lead to acculturation of the local culture. The identity of the Karen would then be modified. Therefore, whether or not CBT in Huai Hee would contribute to sustainability of the destination in the long term is a subject of some debate.

One of the most issues in concerns is about the capability of the local people in tourism planning and its operation. Based on the study, how to involve the locals in all stage of development is the key issue. However, it is suggested that the successful local participation process could be identified as demonstrated in the Fig. 4.



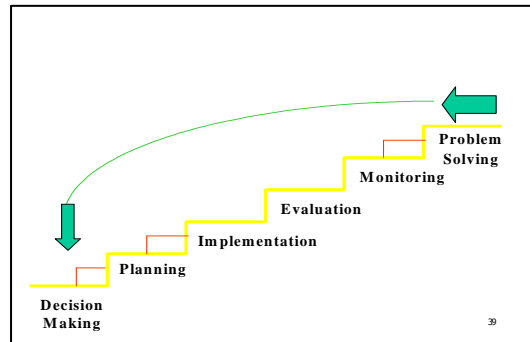


FIG. 4 'PEOPLE PARTICIPATION MODEL' DEVELOPPED FROM CASE STUDY SURVEYS IN NORTHERN THAILAND (2000-2004) and SITIKARN (2004)

In terms of fully participation of the local community in the development process, it could be differently interpreted. Based on this study, it is important that the locals must involve with the process of decision making as they are the one who receive direct affects from the initiative. Therefore they should have an opportunity to express their concerns. The project plans were implemented based on the decision made. Following this, the project plan requires evaluation and monitoring to minimize potential problems. To get through the whole process of development is not easy due to the lack of required knowledge and skills among the locals. Therefore supports from the experts or superior authority are essential for the whole process of initiative development. The supports could be done through the program of training, work shop and study tour.

Further, the economic benefits among the locals is an essential issue that need to be in consideration as it is important to recognize that when communities are earning from their natural resources in order to gain income through the initiative to improve the quality of life of its members. It is assumed that when residents receive benefits, they are more likely to support conservation as well as promotion of cooperation among the members. These could be a path to sustainability.

This study suggested that CBT as practice in Huai Hee village can be seen as a potential force for peace, cross-cultural understanding, wealth, community development and conservation of socio-culture and natural resources of the host destination. This is because an operation of the enterprise engaged with four essential components of sustainability including: 1) Conservation. This involves a contribution to the conservation or preservation of natural environment, social and cultural characteristics of the local community; 2) Local employment and income generation and distribution. This has implications for a range of new business and employment opportunities. Communities are earning from their natural resources in order to gain income through tourism to improve the quality of life of its members. It is assumed that when residents receive benefits, they are more likely to support tourism and conservation, even to the point of protecting the site against poaching or other encroachment; 3) Educational experiences and appreciation about natural environment and local culture. Tourism provides opportunities for visitors to learn through experiences obtained from the activities undertaken to acquire better understanding of the destination, its natural setting, and of its people, including the multilingual interpreters employed at the sites. The local residents have an opportunity to share and exchange knowledge with visitors. Through these educative experiences, there is increasing environmental and cultural awareness among stakeholders and; 4) Local participation and empowerment of host community. This includes involvement of the local residents in participation at all stages of the development process including decision-making, planning, implementation, auditing, evaluation and problem resolution as well as applies to both direct and indirect participants and beneficiaries, and collaboration between stakeholders such as the government sector, private sector and local residents.

Further, the study also demonstrated that in practice, a micro solution provides to a macro solution. Therefore working at community level is essential as success collaboration at community level will also provide collaboration at regional level. This paper does not pretend to offer any formal solutions to the problems occurred from tourism development but high light some issues that need to be considered for an achievement of sustainable tourism such as:

- Promote increased CBT as a means to community development and resources management opportunities;
- Human resources development in tourism and hospitality management skills;
- A better balance (needs to be achieved) between economic development and conservation/protection of environment and socio-culture of the host community;
- Enhance the environmental and socio-cultural awareness amongst stakeholders;
- Continuously build communication channels to enhance the information exchange and cooperation between stakeholders;
- Strengthen local participation in all stages of development (decision making, planning, implementation, evaluation, monitoring and problem solving);
- Tourism development plan and management need to be reformed according to local characteristics and;
- Establishment of CBT networks for marketing contribution channels and other collaboration.

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### **End Notes**

<sup>1</sup> Due to the popularity of the hill tribes and increased interest among both national and international visitors, students, researchers and academic, a cultural centre and the Tribal Development and Assistance Centre were established to provide information about the hill tribes.

# **Marketing Organizations as Network Brokers for Tourism Network: Empirical Insights from the Shizuoka Convention Bureau's Experience**

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## **Abstract**

Convention tourism has received dedicated interest from both public and private policy makers for its economic opportunities across countries. Unfortunately, however, due to somewhat simultaneous undertakings of such investments, the expected economic gain has been largely conditioned by the marketing and management effectiveness of destinations. More specifically, in the intensified market competition, a fate of the past frenzied public and private investments is left to the hand of convention marketing organisations (CMOs) that markets the destination outside. Building on the inter-firm network literature, this study defines the CMO as a network broker of the destination convention services network and investigates its role and influence in the development of convention organiser's attitude and behavioural intention towards the convention destination. It develops such a model and tests it in a structural equation modelling framework with data collected from convention organisers for the Shizuoka Convention Bureau in Japan.

## **Introduction**

Tourism has gained a growing recognition as the driver of local economic and socio-cultural developments. Convention tourism has developed to claim a distinct research attention within the broad tourism industry. Since 1980s, the development of convention centres has been aggressively promoted as a means of local development and re-development given its associated economic benefits. Nonetheless, the infrastructure development alone does not guarantee any success. The destination has to be promoted as a superior convention host and its capacity has to be managed appropriately through effective demand and supply management. In the tourism literature, it has been recognised that tourism consumers enter a less discrete, more extended series of services episodes consisting of nested, but contingency-bound service encounters and experiences along their journey. This is also the case of convention tourism. However, given the distinctive characteristic of convention tourists who are more restricted in terms of the exposure to contingency-bound service encounters commonly associated with holiday makers with more of luxurious free time in the destination, there is a greater possibility and need for the systematic management of convention tourism services system within the destination. Traditionally, a convention marketing organisation (CMO) has taken the lead in the pursuit of the systematic management of the convention services network in the destination. However, over years, its role had been redefined in response to the evolution in thinking and practice of broader tourism management and marketing management context. Faced with the ever-intensifying market competition, CMOs are expected to play a more active role as a coordinator of the convention services system.

## **Background**

### **Convention Tourism: a driver of local developments**

Organised meetings, conventions, have a long history in civilisation (Montgomery and Strick 1995). Nonetheless, it is rather a recent phenomenon that economic activities derived from conventions as a whole gained recognition as an industry (Spiller 2002). Under the over-arching theme of tourism, convention tourism has evolved to claim its own place in the field and is now regarded as a significant driver of local, national and international developments (Dwyer and Forsyth 1997, Dwyer et al. 2000).



As with consumers in the tourism industry, convention attendees enter a series of interaction episodes with service infrastructure, facilities and providers throughout their journey, purchasing and consuming ranging services. The literature is in agreement as for a positive economic contribution of those convention attendees to local, national and international economies (c.f., Braun 1992, Crouch and Ritchie 1998; Dwyer and Forsyth 1997; Dwyer and Mistilis 1999, Fenich 1992; Rutherford and Kreck 1994). In particular, Kim, Chon and Chung (2003) stress conventions' greater potential of economic contribution along the following five characteristics of convention tourism: 1) conventions' power to draw a larger group of people; 2) a broader supply chain network base of the convention industry which encompass many service sectors; 3) convention attendees' tendency for longer stay when compared to pleasure-seeking tourists; 4) the attendees' tendency to engage in pre- and/or post-convention tourist activities; 5) overseas attendees' dynamic purchasing behaviour. Furthermore, in addition to these direct economic contribution of conventions, Rutherford and Kreck (1994) suggest an indirect, time-lagged economic benefits of the convention tourism to host destinations through convention attendees' re-visits as a holiday-maker and their positive word-of-mouth to induce new visitors. Although the current discourse on host benefits of the convention tourism is dominated by the economic contribution, Dwyer (2002) asserts that other types of host benefits should not be overlooked. For instance, Holcomb and Beauregard (cited in Fenich 1992, p. 186) earlier suggested that the convention centre development lead to an enhanced city image. More recently, McCabe et al. (2000) suggest potential environmental and technological contributions of convention tourism to destination local communities.

Both private and public sectors have been eagerly pursuing economic opportunity embedded in convention tourism. For instance, in the US, this has manifested itself in "a boom in the development of convention centers over the last two decades which is nothing less than remarkable" as a catalyst for local development and renewal (Sanders, 1998, p. 58). On the other hand, on the international front, Australian federal government has been spearheading a nation-wide, collective effort to promote the country as a preferred convention destination against more established world-class convention destinations in the region and the world (McCabe et al. 2000). The country's success, in turn, has stimulated similar concerted promotional efforts in the established convention destination countries (e.g., Japan, Hong Kong and Singapore) as well as the emerging (e.g., Korea). These somewhat concurrent aggressive investments in convention tourism have fuelled intensity of market competition among destinations across different levels of the economic system (i.e., local, national and international). To many convention destinations, Lawson's earlier prophecy has now become a reality that "the greatest challenges facing the industry in the next decade and beyond are likely to be concerned with maintaining growth and sustaining the benefits of investments" (2000, p.200).

#### **Convention Marketing Organisations and New Challenges**

The growing competition among convention destinations underscores the increasing importance of coordinated, industry-wide efforts within each destination, or the system-wide approach. When compared to consumers in the conventional services industry, tourism consumers enter a less discrete, more extended series of services episodes consisting of nested, but contingency-bound service encounters and experiences along their journey. In a word, whole journey experiences come to constitute a tourism services outcome of a tourism consumer. And for this very reason, each consumer's tourism services outcome is idiosyncratic. In this service value chain embedded in the 'web' of services systems along the journey, it is contingencies that pose both challenges and opportunities for effective management of tourism. In this respect, it is logical as well as necessary to manage the tourism services value chain systematically against contingencies in the web. However, in reality, no single tourism service organisation can match resource requirements associated with the systematic value chain management, nor can justify such a pursuit given its limited business opportunities in the broad web of services networks. This is also the case of convention services organisations. However, they should recognise that at least in the destination, convention tourists are more restricted in terms of the exposure to contingency-bound service encounters commonly associated with holiday makers with more of luxurious free time in the destination. And this unique characteristic of convention tourists creates an opportunity for a systematic management of convention tourism services network within the destination. In particular, given convention tourists' preference to efficiency, safety, and elegance and leisure opportunities for their destinations (Buhalis 2000), it is crucial for a convention destination to be able to offer those benefits through such a systematic management. But a question is who is going to spearhead such an effort.

Public policy makers have been active in support of an initiative in systematic destination services network management and creation of a convention marketing organisation (CMO) in destinations. CMOs have come to exist under different labels (i.e., tourism and convention bureau, convention and visitor bureau or simply convention bureau) and under varying ownership structures across countries. Despite these differences, however, all CMOs have traditionally shared the same goal - i.e., the marketing (here focus is on sales) of the destination on behalf of members of the local convention services network, such as hotel, restaurant, transportation, convention centre, tourist attraction and so on (McCabe, Poole, Weeks and Leiper 2000). According to Gartrell (1994, p. 16), the CMO is “the single most important marketing organisation for a community, projecting an image for that destination into the various target markets”. Though the extant literature on CMOs is rather deficient (Yoo and Weber 2005, Weber 2001), it offers some insights into alternative CMOs functions. For instance, Morrison, Bruen, and Anderson (1998) earlier reported the following five functions of CMOs: 1) a driver of local economic development; 2) a coordinator of the industry supply chain network; 3) a marketer of local community; 4) a promoter of community image; and 5) a quasi-public representative.

Yuan, Gretzel and Fesenmaier (2003) more recently stress the growing importance of the CMOs’ coordinator role as an information-intensive boundary spanner of the destination convention tourism industry. They suggest that real opportunities and challenges of the CMOs lie within the system while underscoring the traditionally fragmented nature of the industry and thus, poor coordination efforts within the convention tourism services network (Go, Govers and Vliegthart 2002). Their thesis is also in line with King (2002) who earlier advocated, in a broader tourism context, a need for a paradigm shift in strategic thinking and practice of a destination marketing organisation (DMO). He urges the transformation of DMOs from a mere promoter of the ‘place’ to the designer and facilitator of favourable tourists experiences in the destination. Notably, these recent effort to redefine DMOs’ and CMOs’ function seems to be a direct response to the renewed understanding of the marketing concept and the marketing function among marketing professionals. The former is now more commonly understood in line with Drucker’s original notion as a business philosophy beyond a mere function of sale and promotion of products while the latter is redefined to be “the effective generation, sharing and utilisation of customer and market information and knowledge across the organisation” so as to promote and facilitate an organisation-wide pursuit of superior customer value creation and innovation (Miyamoto 2005, p. 192).

The convention tourism literature is not clear as for a CMO’s coordinator role as a marketing agent for the destination services network. On this, the inter-firm networks literature offers valuable insights as well as a useful framework. In their earlier seminal work (1992), Snow, Miles and Coleman declared the dawn of inter-firm networks era and contended the criticality of ‘network broker’ for a successful network organisation. According to them, there are three network broker roles “especially important to the success of network organizations: architect, lead operator, and caretaker” (1992, 15). In their framework, a network architect and lead operator are defined as those responsible for design and implementation of *radical* improvements in the network operating processes, respectively whereas a network caretaker refers to one who promotes and enables continuous *incremental* network process improvements. Although they did not explicate in their work, the livelihood of network broker is intimate information and knowledge on market and consumers as well as internal operating systems. Drawing from their framework, the aforementioned coordinator role of the CDM can be further refined as an architect, lead operator and caretaker of the destination convention services network. And for its successful operation, the CDM, though the effective management of market intelligence throughout the services system, needs to explore opportunities for superior value creation (e.g., enhanced efficiency, safety, and elegance and leisure opportunities) within the destination convention services network, systematically devise incremental as well as radical improvements in pursuit of the opportunities, and spearhead collective efforts to materialise the opportunities.

In addition, the extant literature also suffers from the following two deficiencies: 1) a poor regional representation (i.e., the domination of North American origin of the articles) and 2) a lack of rigor in statistical analysis (Yoo and Weber 2005). The present study aims to address these short-comings. More specifically, it develops a structural equation model, explores a role and influence of a CDM in the process of client attitude and behavioural intention formation with the data collected from convention organisers for Shizuoka Convention Bureau in Japan.

## The Current Study: Shizuoka Convention Bureau (SCB) in Japan

Shizuoka Prefecture is situated a little eastward off the centre of main island of Japan (see Figure 1). Facing the Pacific Ocean, it sits between Tokyo and Nagoya in an hour distance from the two major cities by a bullet train. In Japan the region is more commonly known for Mt Fuji as well as Tokugawa Ieyasu, the founder of the Tokugawa Bakufu which controlled the country over 250 years prior to the country's rapid modernisation in the Meiji Era. It is also known as a home of Japanese multinational companies like Honda and Yamaha, a producer of green tea and mandarin oranges, and a popular tourist destination for hot springs. A focal convention marketing organisation, Shizuoka Convention Bureau (SCB), resides in Shizuoka City, capital city of the prefecture as well as one of 50 Cities for International Convention Tourism in Japan registered by the Ministry of Land, Infrastructure and Transport.

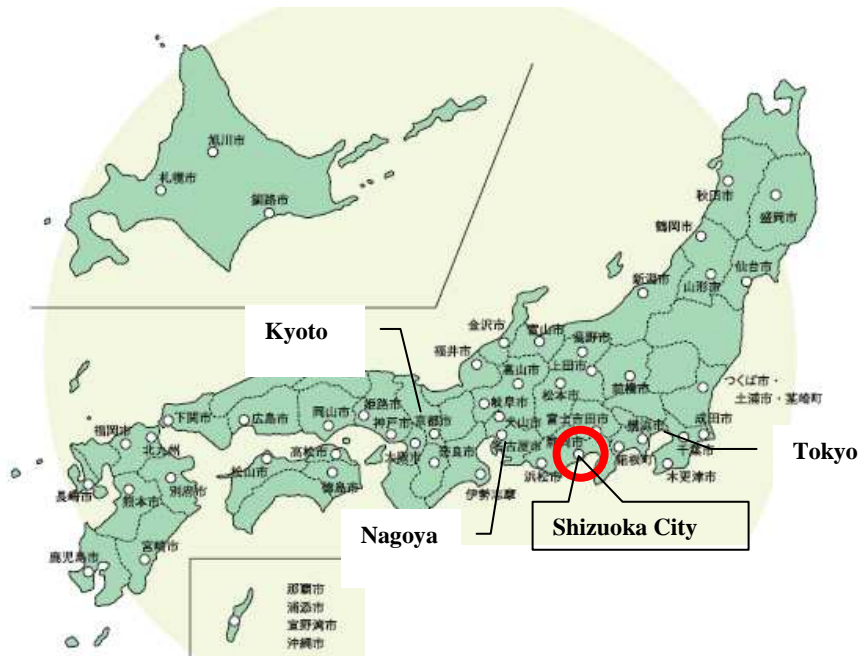


FIG.1: MAP OF JAPAN

Source: Adopted from Shizuoka Convention Bureau 10<sup>th</sup> Anniversary Memories, p.22)

This September the SCB will mark its 12<sup>th</sup> year of operation as a ‘*Zaidan Hojin*’ (i.e., incorporated foundation). According to the SCB 10<sup>th</sup> Anniversary Memoir (n.d.), however, its origin goes back to 1989 when the Sizuoka Chamber of Commerce initiated a vision to transform the city into an attractive host city of international events and conventions. Following a year-long research and discussions, the vision was translated into one of the city strategic plans and led to an establishment of the SCB as a ‘*Nin’i Dantai*’ (i.e., unincorporated association with no legal rights) in 1992. It began operations with three full-time staff and from one of offices in the city municipal building. In 1993 and 1994, the SCB successfully expanded its support base and strategic and operational scope to include the city’s neighbouring cities (4) and towns (2). Following the city’s registration for a City for International Convention Tourism in 1994, the SCB began to prepare its transformation into a ‘*Zaidan Hojin*’ with financial backings from Shizuoka Prefecture government, Shizuoka City municipal, the partner municipals, various non-profit organisations, and business enterprises in the region. And in 1995 it acquired the legal status as an incorporated

foundation. From its humble beginning as an unincorporated association, the SCB has developed itself as a more skilled marketing agent for the region in the ever-intensifying market competition, being supported by on-going developments of convention tourism service facilities and infrastructure in the region. Figure 2 summarise key statistics on the SCB's operations. Although there are year-to-year fluctuations, both the number of conventions, exhibitions, and events supported by the SCB and their participants indicate an upward trend. To provide some insights into the nature of convention tourism, it is worthy exploring reasons for the outstanding increases in the number of visitors in 2001 and 2003. The SCB 10<sup>th</sup> Anniversary Memoir (n.d.) marks 2001 for a hosting of the 'Sekai O'cha Matsuri 2001' (2001 World Green Tea Festival) with 111,227 participants and 2003 for a hosting of 'Kokumin Taiku Taiki' (National Sport Festival) which boosted the number of sport event participants 200,000 more than the previous year. These clearly illustrate highly challenging nature of convention tourism for both demand and supply management.

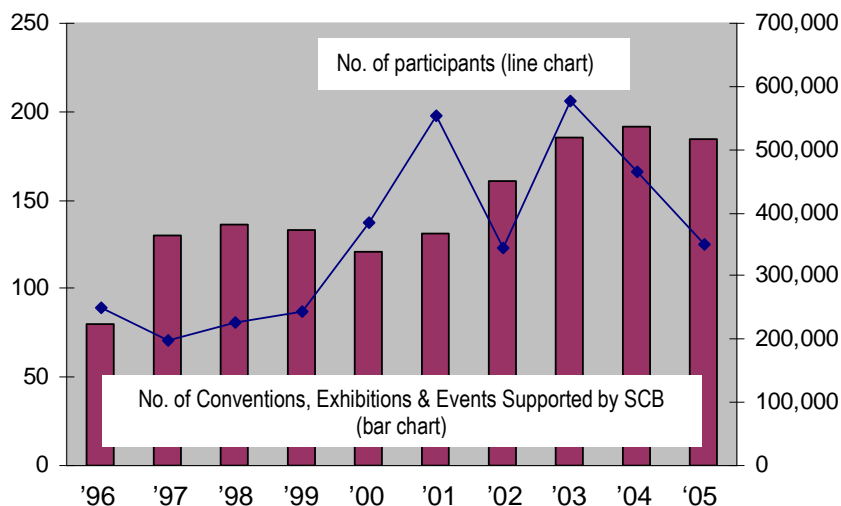


FIGURE 2: TIME-SERIES DATA ON SCB SUPPORTED CEEs AND THEIR PARTICIPANTS STATISTICS

Source: Compiled from Shizuoka Convention Bureau 10<sup>th</sup> Anniversary Memories

In addition, the SCB has also been active to attract international CEEs. Although there has been some fluctuation in terms of the number of CEEs supported by the SCB, there is a continuing increase as for the number of overseas participants from 643 in 1996 to 7,848 in 2004 throughout the time period (The SCB 10<sup>th</sup> Anniversary Memoir n.d.).

The SCB is fully aware of its role as a marketing agent of the region. It defines its primary role as a facilitator of region-wide cross-sectoral (i.e., public, private and communal sectors), collective efforts to promote the region as an ideal convention. For the purpose, the SCB has actively engaged in generation of customer and market information and knowledge through collaboration with researchers from local universities and commercial consulting companies as well as dissemination of information and knowledge (i.e., current problems and future opportunities) among members of the convention services network and its broader public. In The SCB 10<sup>th</sup> Anniversary Memoir (n.d., p. 30), the SCB defines its key function along the following five areas of activity: 1) marketing promotion of the region as a preferred convention destination and support for convention organisers; 2) public relations for Shizuoka City as a international convention tourism host city and its surrounding region; 3) market research on convention and convention planning; 4) generation and dissemination of information on conventions; and 5) development of and training for convention professionals. In more recent years, the SCB has been trying to establish the region's strategic value proposition as a preferred convention destination through the promotion of a unique Shizuoka-way of hospitality with a variety of local produces and food.

The SCB offers various (free and charged) services to convention organisers as part of its inducement strategy, ranging from a subsidy of up-to 1,000,000 yen (US\$8,700 at the exchange rate of 115 yen to US\$1), the

installation of 'Welcome' display monuments, referrals to convention services providers in the region to commercial services for out-sourced convention related activities. In particular, building on its earlier research findings, the SCB has been spearheading collective efforts in the region to further improve transportation efficiency for convention attendees and opportunity-building of the attendees' encounter with the region's culturally unique attractions (e.g., foods and tourism assets). Now, the construction of a much-debated and controversial regional airport is under way in one of the SCB's constituent regions. This addition to the services infrastructure will surely enhance the SCB's market position and opportunity to host more national and international CEEs. However, at the same time, it has also created a substantial expectation-ridden pressure on the SCB from public given the significant financial investment pouring into the project. The SCB now faces a critical challenge to move up to a next level. Once the airport opens in March 2009 as projected, the SCB's performance will be measured in relation to its economic contribution to the potentially resource-draining airport project. It is now in a great need of knowledge on how to attract more CEEs effectively. Unfortunately, the SCB does not seem to have sufficient knowledge on its role and influence in the process of attitude formation of its clients, convention organisers. The present study aims to explore the important issue in a structural modelling framework based on the data collected from 105 respondents who organised conventions under the support of the SCB during 2004 and 2005.

## Research Methodology

The data was collected from convention organisers who organised conventions under the support of the SCB during 2004 and 2005. The conventions ranged in scope from a prefecture-, regional-, national- and international-level. There were 128 cases of conferences which drew no less than 100 attendees. Here this cut-off number for the case selection for our data analysis was used in line with the SCB's criterion set for its financial support for convention organisers. The questionnaire consisted of six major sections, covering the following areas of inquiry: 1) transportation efficiency and convention centres and accommodation services; 2) performance assessment of different types of convention service providers involved; 3) self-assessment of effectiveness of different aspects of the convention management; 4) self-assessment of effectiveness in entertaining the attendees with host city tourism attractions; 5) assessment of the SCB's service quality across different types of supports; 6) the respondent's attitude to Shizuoka City as a convention host city. Due to more or less idiosyncratic convention organisers' needs (e.g., scope and size of conventions), not many respondents completed all the attribute specific questions in the instrument. Hence we decided to focus only on those questions asking the convention organisers' overall attitude and behavioural intention. More specifically, the study used the following six questions as a single-item scale for their respective construct:

- *Convention bureau support*: 'Overall, how effective was the Shizuoka Convention Bureau in supporting you?';
- *Transportation efficiency*: 'how effectively could you guide the attendees from Shizuoka Station to the convention venue?';
- *Host city tourism attractions*: 'Overall, how satisfactory could you entertain the attendees with Shizuoka's unique tourism attractions?';
- *Convention success*: 'Overall, how well did you manage the convention?';
- *Satisfaction with Shizuoka as a convention destination*: 'To what extent are you satisfied with Shizuoka as a convention destination city?'; and
- *Recommend Host City*: 'To what extent would you likely to recommend Shizuoka as a convention destination?'

As for our model building and testing, there are five issues which warrant some brief discussions. First, our initial model development was driven by the hand-on knowledge of the first author of this paper who has been involved in research projects for the SCB over years. Second, in the model framework, we decided not to include convention organisation's repeat intention (i.e., hold another convention in the destination again). Given the customary practice among convention organisers to rotate convention destinations regularly, it was believed more practical to focus our investigation on the present behavioural intention (i.e., a positive word-of-mouth) rather than

adding another model construct of distanced future repeat intention. Third, for our measurement model which consisted of single-item scale constructs alone, we set a reliability of each scale at .80, assigning 20% of variance of each scale as a measurement error. Fourth, for the model testing and respecification, we used EQS6.1 (Bentler and Wu 2005) and in search of the best fitting model we adopted Anderson and Gerbing's (1988) a nested modelling approach whereby structural sub-models are compared based on a  $\chi^2$  difference test. Finally for our model testing, 105 cases were used instead of 128 for 23 cases had incomplete responses across the six questions concerned. Of the remaining cases, there were 57 conventions with attendees between 100 and 499; 25 conventions with attendees between 500 and 999; 18 conventions with attendees between 1000 and 1999; 4 conventions with attendees between 2000 and 2999 and one convention with attendees of 4,000. Figure 3 depicts our initial model.

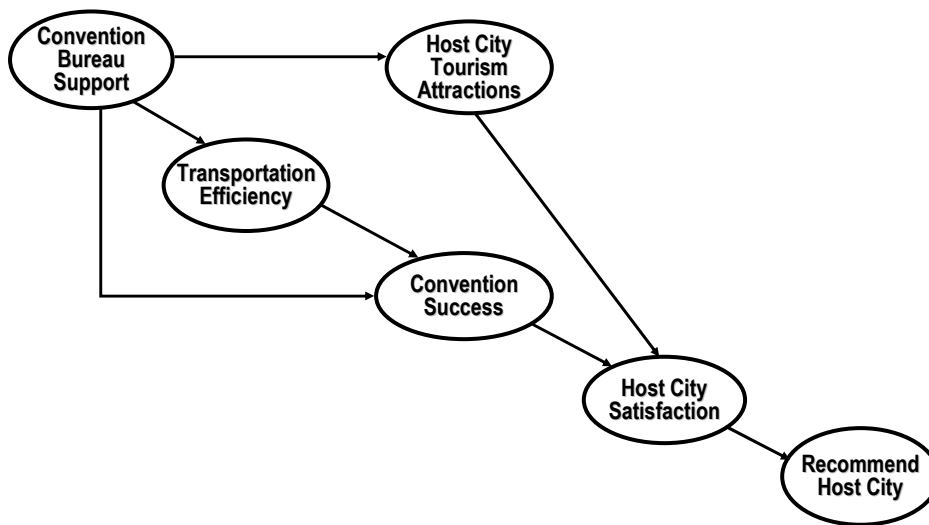


FIG. 3: INITIAL MODEL

Building on the notion of a CMO as a marketing agent and a spearhead of the convention services network presented in the preceding sections, the model aims to capture its role and influence in the development of convention organiser's attitude (i.e., satisfaction) and resultant behavioural intention (i.e., positive word of mouth) towards the host city with three intervening constructs between them. Building on the notion that 'transportation efficiency' and the convention organiser effectiveness in entertaining the attendees with 'host city tourism attractions' are function of 'convention bureau support' effectiveness, the model posits casual paths from the latter to the former. Then the model posits two structural paths from 'convention bureau support' and 'transportation efficiency' to 'convention success', reflecting the criticality of the latter two as the ingredients of a successful management of the convention. As for determinants of the organiser 'host city satisfaction', the model focuses on two dimensions of convention attendees benefits – the functional (i.e., 'convention success') and tourism (i.e., 'host city tourism attractions') needs – and posits their respective paths to the former. Finally the model incorporates the conventional path from customer attitude to behavioural intention. This line of reasoning is also consistent with Buhalis (2000) who stresses the benefits sought after by business travellers as efficiency, safety, and elegance and leisure opportunities. From a convention organiser's perspective, a success in meeting the functional element of the convention depends on the organiser's ability to ensure efficiency in attendee transportation and the management of

the convention program. On the other hand, in their effort to make each convention somewhat more entertaining and memorable, they are under pressure on how to better meet the attendee need for leisure or tourism opportunities unique to each destination (i.e., the leisure element of convention). In a word, the SCB is expected to support the organiser in their design and operations of both functional and leisure value chain. As for the safety issue, it was considered irrelevant in the present study as personal safety in public enjoys a commodity status in the country. As opposed to a convention function which is more or less same, host city attractions, especially tourism attractions, makes each convention.

## Findings & Discussions

Table 1 presents estimated correlation coefficients between the six model constructs and their respective standard errors of estimate in parentheses. All correlation estimates are statistically significant at  $p < .05$ . This measurement model was a just identified model with no degree of freedom ( $\chi^2$  (d.f. = 0) = 0.00; Normed Fit Index = 1.00). Nonetheless, given the model is a base or measurement model, this did not pose any problem to the study. Table 1 presents a summary of the correlation estimates and their respective standard errors of estimate. As for construct validity test of each model construct, it should be stressed again that all model constructs were measured by a single item with the set reliability of .80. Thus, irrelevant was convergent validity test. Furthermore, because of the set reliability for the present study (i.e., a construct explains 80% of variance in the observed variable), it was expected to not to encounter a problem situation whereby discriminant validity is threatened by an unusually high correlation coefficient estimate greater than .90 between model constructs. For testing of discriminant validity, we used a series of  $\chi^2$  difference tests by each time fixing a correlation of a pair of model constructs at 1. For instance, when the model fixed the correlation between 'host city satisfaction' and 'recommend convention host city' (which had the highest correlation estimate of 0.80) at 1, the model  $\chi^2$  deteriorated significantly (i.e.,  $\Delta\chi^2$  (d.f. = 1) = 21.43), supporting their distinctive property from each other.

TABLE 1: ESTIMATED CORRELATION COEFFICIENTS BETWEEN SIX MODEL CONSTRUCTS

	<u>CBS</u>	<u>TC</u>	<u>HCTA</u>	<u>CS</u>	<u>HCS</u>	<u>RCHC</u>
Convention Bureau Support (CBS)	1					
Transportation Efficiency (TE)	.25 (.12)	1				
Host City Tourism Attractions (HCTA)	.42 (.11)	.42 (.11)	1			
Convention Success (CS)	.74 (.07)	.44 (.11)	.35 (.11)	1		
Host City Satisfaction (HCS)	.52 (.10)	.48 (.10)	.56 (.09)	.49 (.10)	1	
Recommend Convention Host City (RCHC)	.55 (.12)	.35 (.11)	.54 (.10)	.44 (.11)	.80 (.10)	1

Testing of our initial model (see Figure 3) did not yield a satisfactory result with the following goodness of fit measures:  $\chi^2$  (d.f. = 8) = 29.25,  $p < 0.01$ , Normed Fit Index (NFI) = .983; Comparative Fit Index (CFI) = .987; Joreskog-Srobom's AGFI = .771; Standardised Root Mean Residual (SRMR) = 0.110; Root Mean Square Error of Approximation (RESEA) = .161). Carefully studying outputs from Lagrangian Multiplier Test and Multivariate Wald test in light of logic, the model was subjected to a series of step-by-step model respecifications.

The final model produced the following satisfactory goodness of fit measures:  $\chi^2$  (d.f. = 7) = 5.89,  $p > 0.55$ ; NFI = .996; CFI = 1.00; Joreskog-Srobom's AGFI = .944; SRMR = 0.032; RMSEA = .00. Figure 4 presents the final model together with key model estimates.

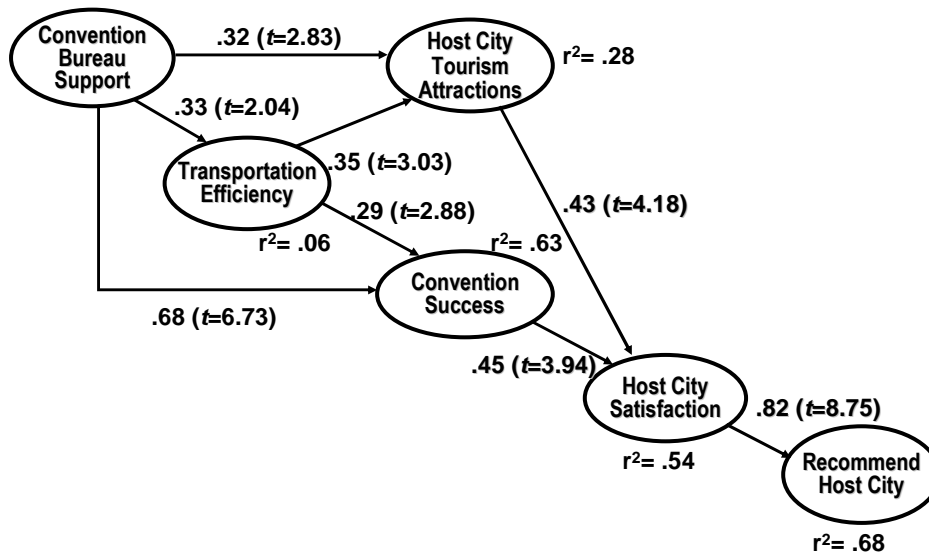


FIG. 4: FINAL MODEL

When this model was compared against a sub-structural model with no path from ‘transportation efficiency’ to ‘host city tourism attraction’ (with one more degree of freedom), the obtained  $\Delta\chi^2$  for the one degree of freedom was 8.85 ( $\chi^2$  (d.f. = 8-7) = 14.74-5.89), supporting a better model fit of the final model. Similar results were obtained when the final model was compared to two sub-structural models with an extra model constraint: one with an additional path from ‘convention bureau support’ to ‘host city satisfaction’ and another with a path from ‘convention bureau support’ to ‘recommend host city’. The obtained  $\Delta\chi^2$  were 0.24 ( $\chi^2$  (d.f. = 7-6) = 5.89-5.65) and 2.21 ( $\chi^2$  (d.f. = 7-6) = 5.89-3.68), respectively.

Results from these model comparisons underscore two important points. First it is suggested that ‘transportation efficiency’ (between the Shizuoka station to the convention venue) influences the convention organiser’s effectiveness in offering host city tourism attractions to the attendees. This seemingly odd structural path will be discussed in the later section. On the other hand, convention bureau support was found to have no direct effect either on the convention organiser’s post-convention ‘host city satisfaction’ nor the organiser’s behavioural intention to ‘recommend host city’. Its influence on them is all through intervening constructs in the model. In addition, it is noteworthy that ‘host city tourism attraction’ does not have a direct path to ‘convention success’. Instead it acts, together with convention success, as an important determinant of ‘host city satisfaction’. These findings underscore the criticality of the availability of the host city tourism attractions and its ease to incorporate them in the convention program for the development of the convention organiser’s satisfaction with the host city as well as the SCB’s competence in supporting convention organisers in their efforts. If the convention organiser’s ability and effectiveness to facilitate the attendee opportunities to encounter host city tourism attractions is further enhanced through the SCB’s support, the organiser’s overall host city satisfaction would also increase.

Table 2 presents a total effect of each of the model constructs on ‘host city satisfaction’ and ‘recommend host city’.



TABLE 2: STANDARDISED TOTAL EFFECTS OF MODEL CONSTRUCTS ON HOST CITY SATISFACTION AND RECOMMEND HOST CITY

	<b>CBS</b>	<b>TC</b>	<b>HCTA</b>	<b>CS</b>	<b>HCS</b>
Total Effect on Host City Satisfaction	.51	.28	.43	.45	-
Total Effect on Recommend Host City	.42	.23	.35	.37	.82

In Table 2, it is noteworthy that ‘convention bureau support’ exerts more influence (i.e., .51) on host city satisfaction than any other antecedents including ‘convention success (.45). And notably more than a half of its total effect derives from its indirect path via ‘convention success’ to ‘host city satisfaction. Similarly, investigation into its total effect on ‘recommend host city’ reveals again its importance (.42) only second to ‘host city satisfaction’ among others. These findings suggest two things. First they underscore the importance of convention bureau support services for functional aspects of convention management other than ‘transportation efficiency’. At the same time, the findings are highly indicative of the importance of the SCB’s (more enhanced) competence at supporting the convention organisers in their opportunity-building effort for the attendee encounter with host city tourism attractions given the observed structural path coefficients from ‘convention bureau support’ to ‘host city tourism attractions’ (.32) and from ‘host city tourism attractions’ to ‘host city satisfaction’ (.43). The following sections explore these issues further.

Table 3 presents summary statistics of responses to specific convention bureau service areas and practices.

TABLE 3: SUMMARY STATISTICS ON SPECIFIC CONVENTION BUREAU SERVICE AREAS AND PRACTICES

<b>Item</b>	<b>Mean (SD)</b>	<b>r (p-value)</b>	<b>N</b>
1. Convention Bureau staff services	6.1 (0.72)	.76 (p<.01)	97
2. Host City subsidy for a national convention	6.1 (0.87)	.54 (p<.01)	39
3. ‘Welcome’ display monument for convention attendees	5.5 (1.07)	.51 (p<.01)	90
4. Convention Bureau web site	5.4 (1.09)	.67 (p<.01)	39
5. Free Host City mini-guide	5.4 (0.99)	.57 (p<.01)	98
6. Referral to various convention support services specialists	5.4 (1.19)	.56 (p<.01)	32
7. Free Host City ‘Dining & Night Life’ map	5.3 (0.99)	.51 (p<.01)	93
8. Free sample photos of Mt. Fuji for convention information kit	5.1 (1.85)	.51 (p<.01)	30
9. Referral to convention centres	5.1 (1.46)	.44 (p<.05)	28
10. Referral to attraction event organisers at a convention party	4.7 (1.48)	.35 (p<.10)	26

As evident in Table, convention bureau staff services plays an important role in the mind of the convention organisers - i.e., a large correlation with the overall convention bureau support effectiveness (i.e.,  $r = .76$ ) together with its observed large mean (i.e., one of the two top ranked attributes together with ‘a subsidy’) and a relatively more stable deviation or smaller standard deviation (i.e., .72) despite its large number of response (97). While indicating the current effective SCB’s relational client-focused approach to its service management, close examination of Table 3 also urges for a further exploration of opportunities for superior value creation and innovation in terms of its referral service from the aforementioned network broker’s perspective. Although it does not seem to be a common problem, given the observed relatively poor assessment of the bureau’s referral service effectiveness (i.e., referral to convention centres and attraction event organisers), it is worthwhile to re-examine the current service process and practices from a more relational services management perspective. When perceived to be appropriate, the bureau staff should get more willingly involved in the convention organiser’s search and selection process of their ideal convention centres as well as attractive event organisers. As a boundary spanner, the SCB staff sits in the best position. They should become a co-designer and co-operator of a convention organiser’s convention value chain by effectively matching the organiser’s needs with talents and skills of the best alternative

service provider building on their local knowledge on the services network. This approach not only enhances the effectiveness of those referral services but also the effectiveness of the bureau staff services. Then they together further enhances the overall effectiveness of the bureau's support service quality.

Lastly this section examines issues surrounding the convention organiser's effectiveness in their pursuit of tourism opportunity-building for the attendees. Table 4 presents summary statistics on responses to the five aspects of host city tourism attractions.

TABLE 4: SUMMARY STATISTICS ON CONVENTION ORGANISER EFFECTIVENESS IN TOURISM OPPORTUNITY-BUILDING FOR THE ATTENDEES ALONG FIVE HOST CITY TOURISM ATTRIBUTES

Item	Mean (SD)	r (p-value)	N
1. Able to introduce unique local souvenirs to the attendees	4.9 (0.95)	.53 (p<.01)	96
2. Able to introduce unique local tourist spots to the attendees	4.8 (1.05)	.52 (p<.01)	89
3. Able to cater unique local food at a convention party	4.8 (1.31)	.47 (p<.01)	95
4. Able to stage tourist attraction event for the attendees	4.8 (1.59)	.36 (p<.01)	79
5. Able to cater a convention lunch based on unique local produces	4.6 (1.22)	.44 (p<.01)	94

On the contrary to responses to convention bureau support service attributes in Table 3, responses to the host city tourism attractions are more converging as for ratings and the numbers of responses. Although all the five questions received higher ratings than the mid scale point of 4, these results As suggested from in Table 4, the convention organiser's effort to stage the attendee opportunity for host city tourism is largely limited to the convention venue (i.e., sale of local souvenirs, catering with unique local foods and produces and staging of tourist attraction event). By comparing the observed standard deviations across the four attributes, it is indicative that the organiser's effectiveness to introduce local souvenirs at the convention venues is rather a well-established practice as opposed to the practice of hosting of local event attractions at the convention. From a practical perspective, however, responses to Item 1, 3, 5 in Table 4 can be explained largely as the product of the convention organiser's choice decisions on more or less pre-configured service modules available at each convention centre.

There seem to be two explanations for the structural path in the final model which was not posited in our initial model. That is, a path from 'transportation efficiency' to 'host city tourism attraction'. The first line of explanation is that some convention venues had both an easier access to Shizuoka station and better convention tourism services network – a services capacity like a greater variety in the aforementioned pre-configured service modules and superior tourism services offering. Or alternatively, it can be argued as that the convention organisers were capable of finding host city tourist destinations along the route between the convention venues and Shizuoka station. Thus the convention organisers could effectively introduce a transportation-convenient tourism sports to the attendees. This is certainly the advantage for the convention tourism of the region. These propositions need to be further researched for clarity as each proposition leads to a different structural model. If the former is found to be the dominant explanation, then the present model needs to be respecified by changing the structural path into mere correlation. On the other hand, if the latter is found to be the case, our model has an important implication to a development of new convention centres and related convention tourism services infrastructure developments.

Finally, in light of its strategic priority on the promotion of convention tourism attractions, the observed mean responses (just under 5 on the 7-point scale) suggest more room for the SCB as a network brokers in their support for the convention organisers as a co-designer of the convention organiser's convention tourism value chain as well as in its effort to promote and support both an incremental and radical improvements of those tourism attraction services in the services network.

## Conclusion

Over the decades, convention tourism has been recognised as one of important economic driver of local development. Accordingly, the sector has received an unprecedented level of support and commitment from both public and private sectors in many countries. However, due to the somewhat concurrent actions taken, the convention destination market has invited ever intensifying competition. Again this background, the convention marketing organisations (CMOs) have been created as a marketing agent of the destination. For a successful development of convention tourism in the destination, the CMOs are now under pressure to transform itself from a mere promoter of the place into a network broker of the convention services system. From the network broker's perspective, this study examined the CMO's role and influence in the development of convention organiser's attitude and behavioural intention to the destination. More specifically, it explores present short-comings and future opportunities of the network broker from the Shizuoka Convention Bureau (SCB) in Japan. While generating empirical evidence for the critical role of convention bureau support to the convention organiser's successful management of convention, the study produced findings which indicate the current shortcoming of the SCB as well as the SCB strategic opportunities and directions. The study supported the notion that the convention organiser's overall satisfaction with the convention host city, the sole determinant of the organiser's behavioural intention, is a function of two elements of convention organiser's need: the functional (i.e., convention success) and the leisure (i.e., the convention organiser's effectiveness in meeting the attendee's need for host city tourism experience). Given the structural paths and their varying magnitudes of influence, it was suggested that the SCB can further improve its effectiveness as a network broker by improving the process and intensity of its involvement as co-designer and co-operator of both the convention organiser's convention value chain (i.e., functional) as well as convention tourism value chain (i.e., leisure).

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# **An Empirical Analysis of a Framework on Building Consumer Trust in Mobile Travel and Tourism Contents**

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## **Abstract**

The purpose of this paper is to study building and maintaining consumer trust in mobile travel and tourism contents (M-TTC). Trust development life cycle in e-commerce is a trust building flow of online consumers. Travel information and contents in mobile commerce are in an early and immature stage toward the ubiquitous era. Travel and tourism industry is an information-intensive and network-oriented business. Both bricks and clicks, the public and private, and the virtual and physical aspects of business are involved. A framework of travel and tourism contents under m-commerce context is proposed to identify conceptual components for building information and contents that can draw continuous consumer trust. The results based on the focus group interview methodology highlights a conceptual foundation m-trust model of mobile content in travel and tourism industry. It shows what important factors are and how trustworthiness can be improved.

## **Introduction**

Expansion of internet usage has triggered rapid changes in diverse social groups and industry domains. Jupiter Research forecasts online travel spending to hit from \$85 billion in 2006 to \$128 billion in 2011 [1]. WTO (World Tourism Organization) announces that websites (.travel domain) of travel industry will cast new influences on internet directory [12].

Tourism Industry is rapidly changing as internet usage increases. This trend is observed not only among tourism firms that lead innovation through information technology, but also in public sectors trying to build new channels. Large cities and rural governments try to utilize their diverse tourism resources such as natural scenery, landscape, culture, history etc. to boast up local economy and promote local image. The reliance of them on internet usage for collecting tourist information is increasing everyday.

Korean Ministry of Culture and Tourism (MCT) recently declared the opening of the era of the U-travel. U-Travel focuses on tourists' mobility and the diffusion of mobile phones and PDAs. Korea National Tourism Organization (KNTO) and Jeonrabuk-do province have begun a new service for reservation and the provision of location-based tourism information through mobile system. Public sectors, tourism firms, domestic and international information users, system managers, and communities are all participated in local tourism information portals. As accessibility to information technology infrastructure is constantly increasing, the importance of reliability in contents under limited economic resources is also increasing.

This study discusses a framework on establishing consumer trust from the perspective of mobile consumers, mobile vendor and mobile technology. We will also discuss the role of government.

## **Literature Review**

### **Trust Life Cycle in E-commerce**

As a result of the expansion of e-commerce, the number of participants in various on-line communication and business continue to increase rapidly. Information technology improves accessibility of participants and encourages incessant competition both in quantitative and qualitative improvement in the exchange of information. Research on the concept of trust has been carried in many different areas including business, psychology, and medical science.

Generally, trust is a state involving confident positive expectation about another's motives with respect to one in situations entailing risks [3, 4]. Ambrose and Johnson (2000) suggest three characteristics of the trust [15]. First of all, the relationship between truster and trustee depends on mutual advantage. Secondly, trust includes 'uncertainty' and 'risk'. There is no perfect guarantee but only expectation met between truster and trustee. Thirdly, trust believes trustee's honesty and benevolence also that trustee will not allow the action premised on risk. According to Ratnasingham and Kumar (2000), there are three important considering factors to gain customer trust that are competence trust, predictability trust, and goodwill trust [5].

According to Fung and Lee (1999), customer trust formation in e-commerce can be identified dynamic time-consuming process including initial trust formation and repeating test of transaction until customer royalty toward company is appeared. Siau and Shen (2003) explains initial trust formation to construct customer trust in e-commerce, evaluation on satisfaction, repeat transaction, and customer royalty formation in company as a life cycle (see Figure 1).

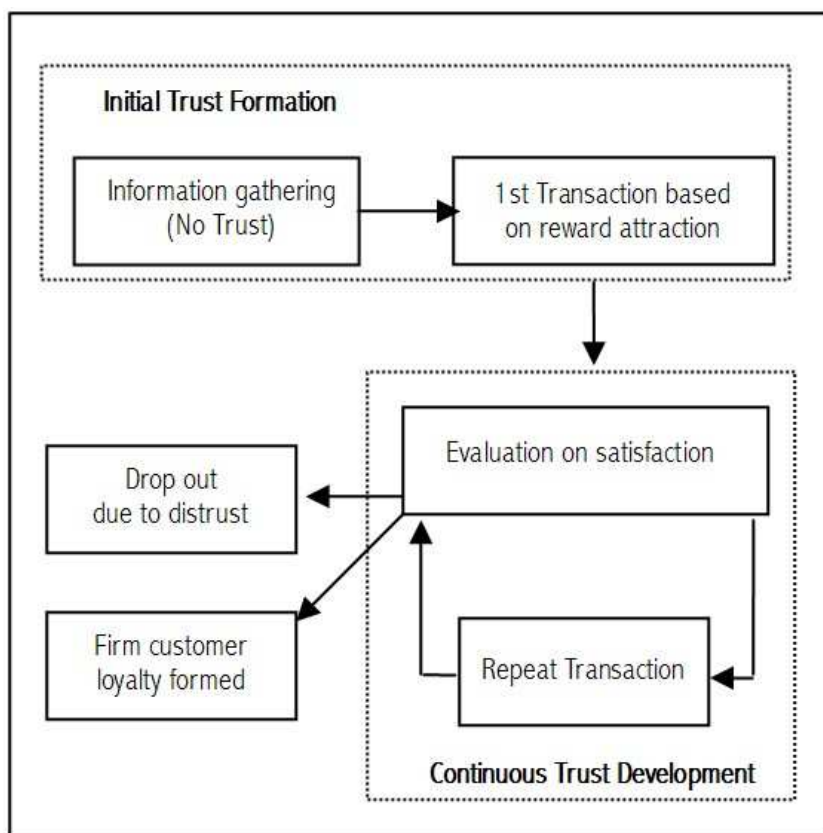


FIG. 1: E-COMMERCE TRUST LIFE CYCLE

### Customer Trust in M-Commerce

Reliability and security is important to construct online trust as much as technology in mobile commerce [7]. There are limit to follow diverse internet contents both in quantity and quality as mobile technology and vendor, the core factors in mobile commerce are technologically dependent in contents formation and the limit in LCD (liquid crystal display) of mobile phone and PDA is raised as an important task in m-commerce growth.

As a traditional concept of city, most crucial factor has been within physical range. However current cities overcome physical limit through development of information technology, enlarged function and scale of new city and evolve it into new conceptual cities that are information cities. Information city fulfills real life into virtual

reality through diverse contents development on industry, market, medical, 119 emergency, transportation, culture and tourism.

Ferguson et al. (2004) suggest construction of information cities at the side of system and web service at the side of open service architecture [8]. For designing and building information cities, they suggest service oriented model of web service. This service-oriented model is based on middleware system and service structure suggests formation of portal information cities.

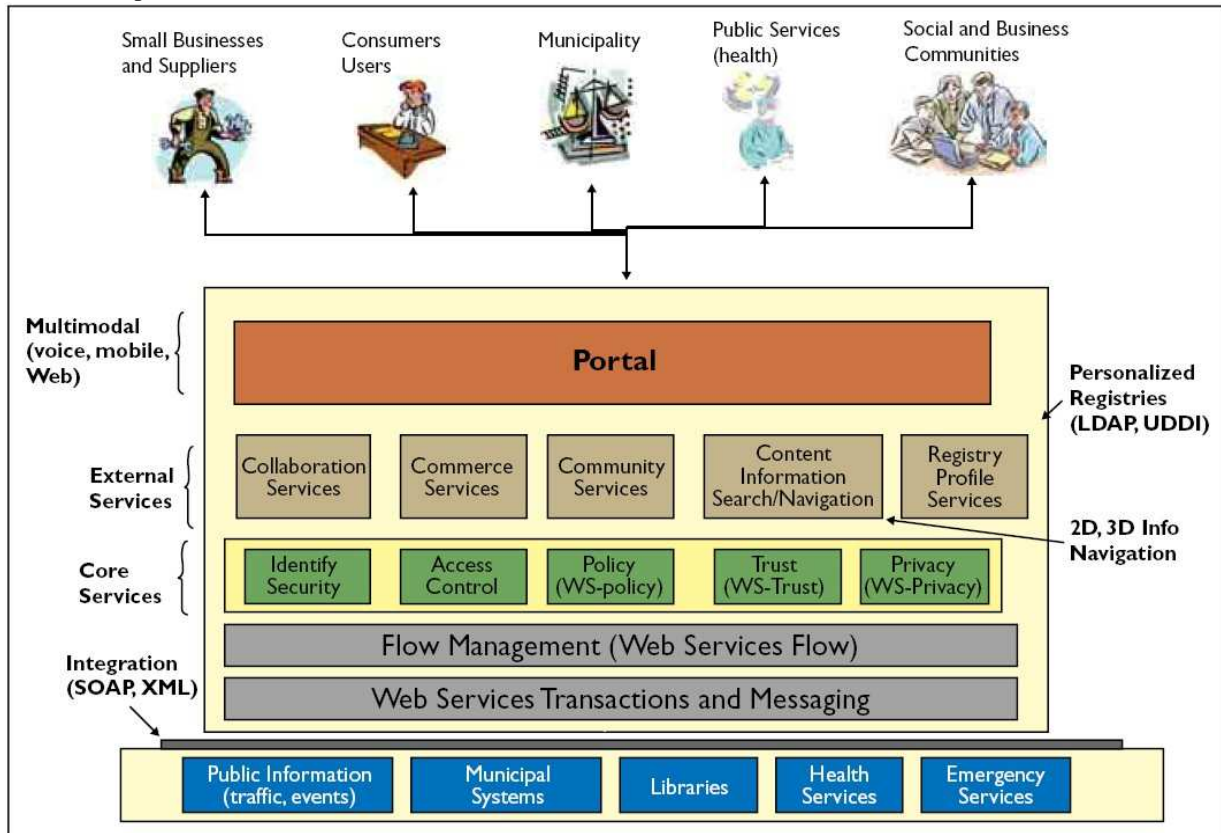


FIG. 2: OPEN SERVICE ARCHITECTURE

Most of domestic mobile service providers provide information service focused on transportation and time however mobile tourist portal service lately is more driven to be verified and expanded such as the case of 'mobile service for outbound travel guide book' by SKT or 'mobile tourist information service' by KNTO.

Customer trust of M-TTC in m-commerce is required to retain diverse and reliable information, and there should be no limit on sharing its information. It is necessary to develop continuous management of information quality and the structure which can secure economical efficiency.

It is not too much say that modern movement of e-commerce has evolved from the travel industry. Travel industry overcame physical limit to handle their business in the market, introduced global distribution systems (GDS), the capable reservation system for flight tickets, hotel and rental reservation services. Mainly GDS such following system, Sabre, Galileo, Amadeus, and Worldspan lead the travel and tourism industry in sharing information and net working of industry. However GDS is mainly focused on large scale of chains, and it is threaten by rapid growth of internet and it accelerates enlargement of 'region-oriented travel and tourism information system'.

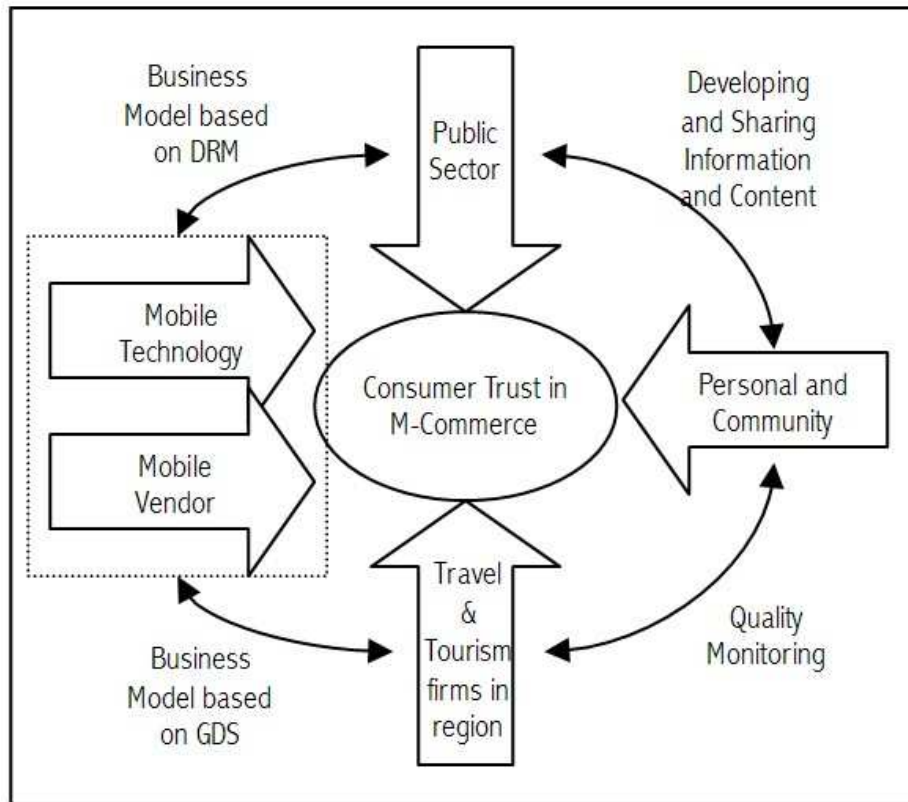


FIG 3: STRUCTURE AND FLOW OF MTTC CONSUMER TRUST IN M-COMMERCE

Figure 3 shows scale of participants to construct continuous customer trust for the region-oriented information of M-TTC and suggests a direction with aspect of mutual interests that contracting parties should pursue. This model is able to aim connectional meaning of M-TTC which improves customer trust in m-commerce based on mutual trust between diverse participants. Public sectors which retain many digital contents of local tourism, should secure the digital copyrights. Provider should search for developing digital contents into products, business model of local reservation system by cooperation with small-and-medium sized tourism firm which adapt technology slowly, enlarge range of information public ownership and develop digital information and contents through locals and community. And locals and community should be able to provide guarantee of product quality to mobile customer which concerns tourist characteristic by monitoring of local tourism products.

## Study model and methodology

### M-TTC Customer Trust Frame Work

According to Siau and Shen (2003), with the aspect of mobile technology, it is important to maintain feasibility at the level of initial trust formation, reliability and consistency during the continuous trust development [4, 16]. And at the side of mobile provider, they suggested familiarity, reputation, information quality, recognition by third-party and attractive awards at the initial trust formation and for the continuous trust development, web-site quality, competence, integrity, privacy policy, security controls, community building, open communication, accessibility, external auditing were suggested as a framework.





FIG. 4: FRAMEWORK FOR BUILDING FOR M-TTC

The M-TTC customer trust framework is an extended version of participants range and their role. Portal local tourism information system has a structure division of public and private sectors [4]. It organizes different sectors on-offline throughout cooperation between central government, local government, national tourism organization as a public sector, tourism firm, mobile service vendor, IT Company as a private sector, and locals and community as a third party. Particularly it has infrastructural characteristic which constructs corporative structure in m-commerce and provides new online contents constantly with internet. This research is to perceive development of M-TTC from the perspective of continuous customer trust development. Continuous customer trust frame work of M-commerce is a model applied with technology, role of provider and time flow. This study attempts to suggest duties of interest parties and technology side applying mobile customer trust development frame work introduced by Siau and Shen (2003) with tourism contents.

**Methodology**

M-TTC model is an integrated model from existing one that are merged with IT, public sector, tourism firm, personal/community, and mobile technology, this study suggests each role of model by focus group interview. Focus group can be used at the preliminary or exploratory stages of a study or during a study, perhaps to evaluate or develop a particular programme of activities or after a programme has been completed, to assess its impact or to generate further avenues of research [9, 10]. A focus group is defined as a group of individuals selected and assembled by researchers to discuss and comment on at the same time, from personal experience, the topic that is the subject of the research [11]. Focus groups are a form of group interviewing but it is important to distinguish between the two. Group interviewing involves interviewing a number of people at the same time, the emphasis being on questions and responses between the researcher and participants. Focus groups however rely on interaction within the group based on topics that are supplied by the researcher [12].

The process of focus group is progress of discussion, data preparation, analysis and reporting utilizing; selection of subject, definition and education of moderator, forming and correcting interview, developing frame, collecting participants, preparation of meeting, interview recording, or systematic recording method and the recommended number of people per group is usually six to ten [13]. Focus group consists of participants already performed regional-oriented tourism information construction business as a demonstration region of Korean MCT in

2004 and business experts and specialists who have experienced mobile contents development project. After introduction of the model by Siau and Shen (2003), participants discussed further about possible components of interest parties in the perspective of initial and continuous level to construct continuous customer trust frame work in M-TTC. Greenbaum (1998) suggested the method for the group and scale for research guideline; full group (8 to 10 persons), minigroup (4 to 6 persons), and telephone group (30 minutes to 2 hours), 10-point likert scale. This applied the minigroup of 6 persons and 10-point likert scale [14]. The subject of discussion was about successful development of M-TTC focused on region-oriented tourism and each responsibility of tourism firm, mobile vendor, mobile technology and local from an aspect of policy to construct continuous customer trust development.

## Results

We were suggested discussed policy issues and further direction to reinforce continuous customer trust for successful management of M-TTC as below. At the initial and continuous level of mobile technology aspect, necessity of developing initial design, network, LBS (location based service), Initial management and operation budgeting, booking/payment service, language pattern and pictogram regarding tourist decision making process are proved and suggested. A policy issue on technology application with aggressive promotion and marketing activities was strongly recommended particularly, due to uncertain visiting period and amount of expenditure from many and unspecified tourists. However technological investments as well as budgeting for initial management and operation (during opening or normalization period) have risen as a very crucial component for the aspect of policy budget support.

TABLE 1: IMPORTANCE BY INITIAL AND CONTINUOUS MOBILE TECHNOLOGY STAGE

Classification	Detail	Mean	Std. deviation
Feasibility	● Mobile user environment similar to user environment of local government tour website (FS1)	8.50	1.61
	● Accessibility of search service by diverse tourist information and itinerary and push massaging service related tourist products(FS2)	8.00	1.73
	● Standard Positioning Service(FS3)	4.83	2.91
Reliability	● Extra cable apart from administrative cable and resources for the opening of initial service and secure mobile service(RL1)	8.33	1.89
	● Confirm message and reservation code by mobile service and reservation /payment notice message from tourism firm based on GDS(RL2)	5.67	1.80
Consistency	● Recognizing limit of Hardware in mobile device and integrating it with appropriate language pattern and tourism information process(CS1)	6.17	2.79
	● Defining information system by mobile tourism pictogram(CS2)	6.67	1.89

Secondly, policy regulation regarding tourism firms (tourism firm authentication), visiting the site, compensation system related M-TTC was risen as important task to develop initial customer trust, logo of local brand and promote M-TTC service before service provide. Especially ensuring human resource in local government is raised as difficult task for managing public sector, technology education although it is more important resources before technology and business plan to maintain customer trust development constantly.

TABLE 2: IMPORTANCE BY INITIAL CONSUMER TRUST FORMATION

Classification	Detail	Mean	Std. deviation
Familiarity	● Local brand development (logo, product, natural scene, human etc.)(FM1)	7.67	2.05
	● Promotion and advertisement on diverse M-TTC information services(FM2)	6.50	1.89
Reputation	● Information provider (RP1)	7.17	2.27
	● Technology provider(RP2)	5.50	2.87
	● Tourism firms(RP3)	3.83	2.19
	● Small-and-medium sized local tourism firm authentication(RP4)	8.67	1.49
Information Quality	● Diverse local news and Tourist information by season (News, Event and festivals) – suited for local characteristic and time(IQ1)	6.67	1.70
	● Story telling service such as e-book, catalogue(IQ2)	5.67	1.11
Third-Party Recognition	● Developing performance evaluation system of M-TTC(TPR1)	7.50	2.22
	● Digital intellectual copyrights(TPR2)	6.33	1.97
	● Information certificates, payment certificates, participating firm certificates(TPR3)	8.17	1.77
Attractive Rewards	● Local tour site certificate services(AR1)	7.50	1.98
	● Developing Mobile seal/ signature(AR2)	5.83	1.86
	● 3+1 credit (bundle of services system) – visit 3 local tourist places a day, issue free mobile coupon for F&B or entrance ticket(AR3)	5.67	2.81
	● Free festival or event card(AR4)	5.33	2.62

Thirdly, for the stage of continuous trust development, function and design oriented mobile service, constant development of locally customized M-TTC based on 3 party-experiences, service publicity maintenance, quality monitoring, cooperation and integration with existing policy, developing evaluation standard of performance and performing system have been emphasized as a core issue to maintain M-TTC business further. Particularly to justify policy security of the business run by public sector, and to visualize business impact under policy, both qualitative and quantitative development (number of visitors, satisfaction rate) is required.

Additionally, each of the stages shows the difference of importance in Figure 5. In detail, mobile technology (MT-Mean 7.11) is more important than participant role (PR\_Mean 6.59) in the initial stage. But, after developing the systems, participant role (PR\_Mean 6.92) is more important than mobile technology (MT-Mean 6.71) in continuous stage. And more, the initial stage (IS\_Mean 6.85) is more important than the continuous stage (CS\_Mean 6.81). But, statistically, this result need more research.

TABLE 3: IMPORTANCE BY CONTINUOUS CONSUMER TRUST DEVELOPMENT

Classification	Detail	Mean	Std. deviation
Site Quality	● Transform into a skill valued quality of site (skills of education, experience, culture and historical facts etc)(SQ1)	6.33	1.37
	● Local brand and design preferred website(SQ2)	5.83	1.21
Competence	● Providing local Top 5 or 10 tourism contents(CP1)	7.17	2.27
	● Constant development and new M-TTC service provide(CP2)	7.17	2.27
	● Accumulation of experimental information based on story telling(CP3)	5.17	2.41
	● Enlargement of referential information such as book, news based on promotion materials(CP4)	5.00	-
Integrity	● Value highly the role and image of public service(IT1)	9.17	1.21
	● Monitoring system of M-TTC(IT2)	8.17	1.67
	● Maximizing participant rate of technology experts at the stage of initial trust formation(IT3)	7.00	3.16
Privacy Policy	● E-commerce standard(PP1)	6.67	1.89
	● M-TTC intellectual copyrights(PP2)	6.50	2.14
Security Controls	● Digital signature, codification, and certificates management(SC1)	6.00	3.61
	● Money transaction based on GDS operation (per tourism firm)(SC2)	7.50	2.50
Open Communication	● Customized travel information (golf course, fishing, pension holiday house etc)(OC1)	6.67	2.49
	● Internet kiosk, 1330 telephone travel information service, mobile service in local tourist information center(OC2)	7.17	2.41
Community Building	● Local community of internet mobile(CB1)	4.83	1.77
	● Local communities and leader training by technology experts and local governments(CB2)	7.67	1.89
External Auditing	● Transparency of Certificate system for excellent tourism firm(EA1)	9.17	0.90
	● Internal, External auditing policy transparency(EA2)	8.83	1.46
	● Business effect (visitor number per day, system performance evaluation etc)(EA3)	7.50	1.71

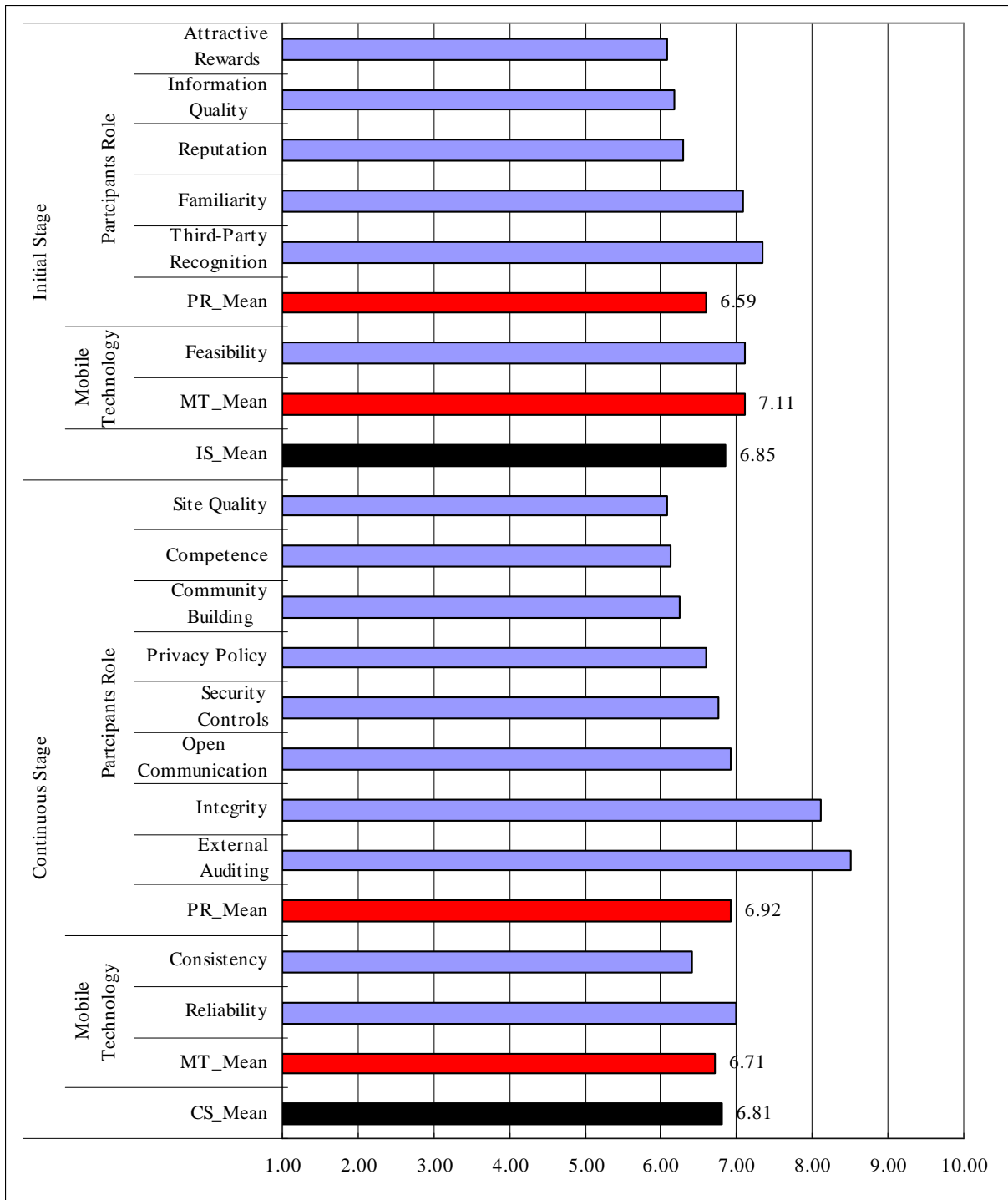


FIG. 5: TASK IMPORTANCE OF BUILDING CONSUMER TRUST FOR M-TTC

### Conclusions and Future Assignment

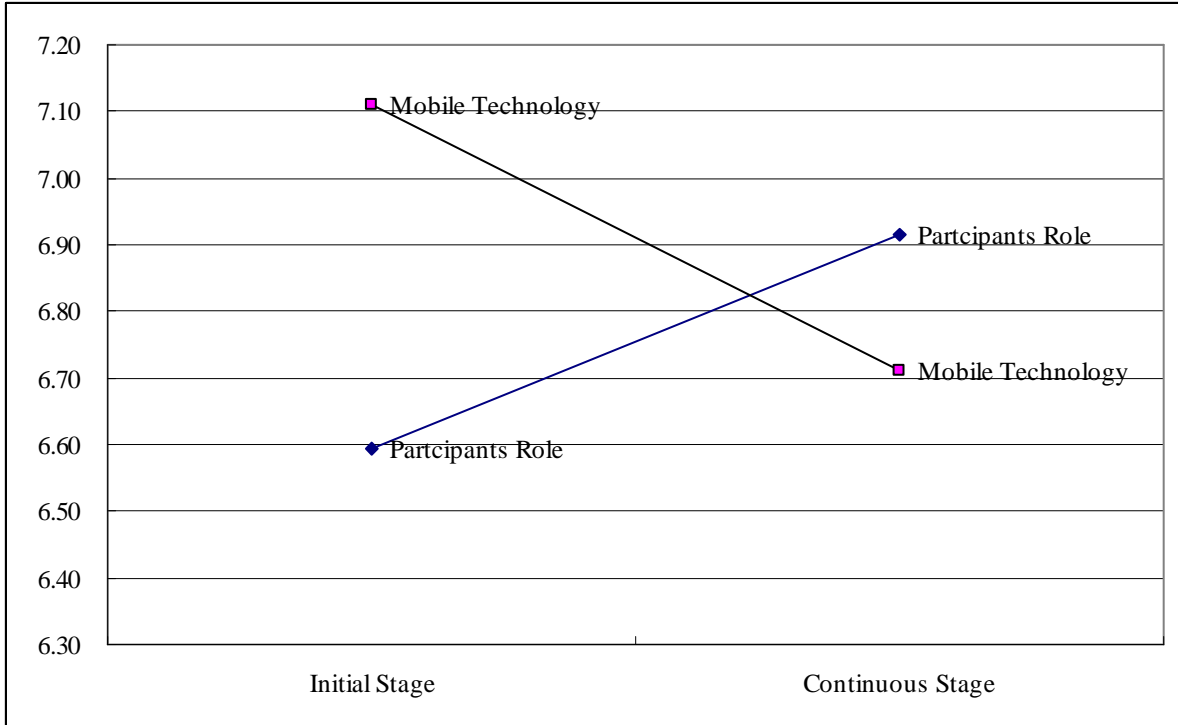


FIG. 6: SHIFTING THE ROLE OF IMPACT IN BUILDING CONSUMER TRUST

Shown in figure 6, the importance of role between human and technology shifted according to the time line of developing the mobile tourism information services. This result has shown the importance of maintenance and contents service after developing the initial stage.

M-TTC for the trust should provide harmonized participation and chance to public sector, personals and local communities, business vendor (technology, tourism) and IT. Immature policy for contents management produces uncertainty of tourist information, economical inefficiency as well as low customer satisfaction of tourist and local although local government retains abundant amount of tourism contents of culture, history, event and personal.

Therefore customer trust formation is an important policy indicator to expand aggressive participation of local tourism and promotion from personal to local. However aggressive evaluation about open site of policy in public sector is still insufficient. That is why it is time to develop an integrated M-TTC applying with existing tourist facility and support continuous customer trust development. And the target of continuous customer trust should be virtual citizen and actual tourist who live in attraction of virtual space. And tourism policy should be dealt with actual visitors who visit local area. Targeting on them, developing local tourism contents of game and competition is on demand to create new customer and its trust. Henceforward this is needed to continuous customer trust development of M-TTC, effect of investigation, logical structure of policy affairs, performance barometer such as language pattern, diverse contents, 3D geographical information service of study.

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# **Multi-market Contact and Competition Action: A Case Study on China's Domestic Air Flight Market**

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## **Abstract**

Multi-market contact competition has become one of the most discussed topics during the recent few decades. Many authors have shown that multi-market contact could impact the competition between corporations, or even lead to mutual forbearance result. By following Evans and Kesside (1994) and Singal (1996), this paper firstly calculates the multi-market contact competition (MCC) indices in China's domestic airline market. Using the cross-section data from 244 China's domestic trunk airline routes, the paper does a multi-market regression of route market characteristics measures on the average yield of each airline. The results show that the mutual forbearance hypothesis cannot be rejected significantly by using this sample. Important internal market factors including the price regulation frame and the production technology are also identified. Due to the existence of price regulation and certain barrier on entry, however, concentration cannot be proved as relevant factor in China's domestic airline market, which is contrary to general expectations.

## **Introduction**

One of the most significant institutional developments affecting the organization of the global economy in recent decades has been the trend toward diversification. Many important industries have been restructured as single product firms have been replaced by large conglomerates producing scores of diverse products. A situation where the firms compete against each other simultaneously in several markets (multiple market competition or multiple point competition) is getting ubiquitous. Traditional industrial behavior analyses say that the presence of conglomerate firms in a market will have no impact on competitive rivalry. Since competition in a market is determined solely by internal features such as demand conditions, concentration. Nevertheless, many economists have concerned the external factors such as the potential effects of multiple market contact between firms also play an important role in determining the degree of competitiveness in many industries. Corwin Edwards (1964) firstly raised that the multi-market competition character between conglomerated enterprises might have a unique effect on competition. He stated:

When one large conglomerate enterprise competes with another, the two are likely to encounter each other in a considerable number of markets. The multiplicity of their contacts may blunt the edge of their competition. A prospect of advantage from vigorous competition in one market may be weighted against the danger of retaliatory forays by the competition in other markets. Each conglomerate may develop a live-and-let-live policy designed to stabilize the whole structure of the competitive relationship.<sup>1</sup>

This "mutual forbearance hypothesis" did not receive intensive attention until the late 1970's. On the theoretical aspect, Karnani (1985) developed a conceptual framework for analyzing situations involving multiple point competition and shown that the most frequently observed outcome should be so called mutual foothold (mutual forbearance) equilibrium. Using a repeated Bertrand competition model, Bernheim and Whinston (1990) pointed out that multiple market contact releases the incentive constraints governing the implicit agreements between firms and is likely to improve firms' abilities to sustain collusive outcomes. Phillips and Mason (1992) conducted a series of economic experiments to gauge the level of cooperation between conglomerate rivals, and the results strongly supported Bernheim and Whinston's propositions.

At the same time, "mutual forbearance hypothesis" has been tested statistically by extensive researches. As we can see from TABLE 1, most of these researches show positive proof for the "mutual forbearance hypothesis" (Heggstad and Rhoades, 1978; Evans and Kesside, 1994; Singal, 1996; Gimeno and Woo, 1999; Gimeno, 1999) apart from the result of Scott (1982). Basically, these empirical studies have used the same method which is called



multi-market contact regression. That is, using the company's average fare level or profit/margin level as the dependent variable, and doing regression on both internal market features such as concentration and external market features such as multi-market contact. However, the calculation of multi-market contact index is highly diversified. In general, more influential factors are taken into considerations in the calculation of more recent researches.

While the mutual forbearance hypothesis is relevant to industry in general, many authors have established that the airline industry is rendered as an ideal candidate for empirical test of multi-market competition effects (Evans and Kesside, 1994; Singal, 1996). Airline industry is characterized by relatively well defined local market. Each airline company typically operates on several flight routes which are geographically different from each other. Theoretically, under the condition that the production cost and the demand growth rate differs across the route markets of each competitor, or so-called Bernheim and Whinston condition, the multi-market can impact firms' competitive behaviors by discouraging the competition between the competitors. Since the airline route markets naturally satisfy the above condition, most of the studies (5 researches out of 9 researches in TABLE 1) have used data from airline industry as the sample, particularly from US airlines.

China's airline industry was not commercialized until the middle 1980's. With an annual average growth rate of 18% since the year of 1978, the total output of China's airline industry has increased 85 times to 26.13 billion tonkm in 2005. Although regulation is still strict comparing to that in US, the last two decades has witnessed a gradual evolution of the release of the regulation regime in China's airline industry. In the few studies on the competition in China's airline industry, however, neither internal market factors such as regulation policy and concentration nor external market factors such as multi-market contact are included into the consideration (Cao, 2002; Yang, 2004). Moreover, studies on external influential feature of industrial behavior in any particular industry in China are still left blank. By using the data from 244 domestic airline route markets in China, this paper attempts to reveal a big picture of both the internal market influential factors and the external market influential factors of China's airlines market performance.

The results of this paper show that the external market factor (multi-market contact) can be an important influential factor in China's airline industry. The mutual forbearance hypothesis cannot be rejected significantly by using the sample of China's domestic airline route market. This paper also identifies the important internal market factors including the price regulation frame and the production technology. Whereas, the market concentration cannot be proved as relevant factor in China's domestic airline market, which is contrary to general expectations. This is largely due to the existence of price regulation and certain barrier on entry in China's airline industry.

TABLE 1: RECENT EMPIRICAL STUDIES ON MULTI-MARKET CONTACT AND MUTUAL FORBEARANCE

Author	Sample	Dependent variable	Key independent variable	Key findings	Mutual forbearance hypothesis
Heggestad and Rhoades (1978)	US banking	Interfirm rivalry	Market concentration, multimarket links	Existence of multimarket link is sufficient to reduce rivalry.	support
Scott (1982)	US large manufacturer	Company's profit	Probabilistic multimarket contact measure, market concentration	High multimarket contact alone is associated overall with lower profits.	not support
Hughes and Oughton (1993)	UK Manufacture industries	Price-cost margin and the rate of return to capital	multimarket contact, Berry index of diversification	Multimarket contact has a consistent positive effect on profitability and rate of return on capital	support
Evans and Kessides (1994)	US airline industry	Route fare	multimarket contact, market concentration	External contact has a significant and important effect on price	support
Smith and Wilson (1995)	US airline industry	Firm's response	Sustainable capacity, barriers to entry, market dependency	Market dependency increases the probability of counterattack strategy	
Singal (1996)	US airline industry	Route fare	Multimarket contact, market concentration	For long-distance route, multimarket contact has significantly positive effect on fare	Support for long-distance route
Gimeno and Woo (1999)	US airline industry	Cost efficiency, intensity of rivalry (yield) and profitability	Multimarket contact, interaction effects	Multimarket contact had a significant and positive effect on yield and hence, a negative relationship to rivalry	support
Gimeno (1999)	US airline industry	Yield and market share	Multimarket contact,	Reciprocal multimarket contacts have significantly higher forbearance effects than non-reciprocal contacts	Support for reciprocal MMC
Fuentelsaz and Gomez (2006)	Spanish savings bank industry	Market entry (probability of entry into the market)	Multimarket contact, strategy similarity	Multimarket contact has a U inverted influence on entry rates	Support when MMC is high

Source: edited by author.

The rest of the paper is organized as follows: Section II presents the basic model of the regression and the computation methods of related variables. As mentioned above, although the past researches have taken highly diverse methods in the multi-market contact index, more and more market features are tend to be taken into account. Thus section II highlight the computation of multi-market contact index, where the features including the number of firms in the market, the magnitude of presence, the relative market share, and the size of market are captured. Section III introduces the source and descriptive statistics of the sample. The sample mean of multi-market contact is even higher than that in US airline industry calculated by Singal (1996)<sup>2</sup>. This probably implies that the extent of multi-market contact competition in China's airline industry is even higher. Section IV discusses the regression results and primary findings of this study. Section V concludes and suggests the public policy implications of this study.

## Methodology

### Basic Model

Following Evans and Kessides (1994), this study considers the form expression as below.

$$yield_i = X_i\beta' + Z_i\gamma' + v_i \quad (1)$$

$$\ln(yield_i) = X_i\beta' + \ln(Z_i)\gamma' + \mu_i \quad (2)$$

where  $yield_i$  is the average revenue per passenger-kilometer for all airlines operating schedule passenger service in route market  $i$ , it is the market performance measurement.  $X_i$  is a vector of market characteristics, including the number of competitors, the number of potential competitors, market concentration, and multimarket contact in route market  $i$ .  $Z_i$  is a vector of route technical feature (distance of route, average load factor, average traffic density, annual passenger traffic) and policy factor (guided price, whether or not applies to released pricing policy) in route market  $i$ .  $\beta$  and  $\gamma$  are vectors of coefficients of variables.

### Computation of Variables

#### Dependent Variable: Average Yield

To get the average revenue per passenger-kilometer in route market  $i$ , firstly, we need to calculate the weighted average ticket price in city-pair route market  $i$ , using the price expression (3).

$$P_i = \frac{\sum_{j=1}^{n_i} p_{ij} \times \frac{F_{ij}}{\sum_{j=1}^{n_i} F_{ij}}}{\sum_{j=1}^{n_i} F_{ij}} = \sum_{j=1}^{n_i} p_{ij} \times s_{ij} \quad (3)$$

where  $P_i$  is the average ticket price in route market  $i$  weighted by the market share of each airlines.  $p_{ij}$  is airlines  $j$ 's average ticket price in route market  $i$ .  $F_{ij}$  is airlines  $j$ 's scheduled passenger flights in route market  $i$ , and  $s_{ij}$  is airlines  $j$ 's frequency share in route market  $i$ .  $n_i$  is the number of airlines operating schedules passenger flights in route market  $i$ .

Then the average yield of in route market  $i$ , can be calculated using expression (4).

$$yield_i = \frac{P_i \times lf_i}{Dis_i} \quad (4)$$

where  $yield_i$  is the average revenue per passenger-kilometer in route market  $i$ .  $lf_i$  is the average passenger load factor of all the airlines operating scheduled passenger flights in route market  $i$ .  $Dis_i$  is the distance of route  $i$ .

#### Independent Variables:

**Number of active competitors**  $n_i$  is the number of active airlines in route market  $i$ . Active competitor refer to the company are currently operating scheduled passenger flight on a route market, is also known as incumbent airline.

**Number of potential competitors**  $n_{ip}$  is the number of airlines who are potential entrants of route market  $i$ . Following Morrison and Winston (1990), we define the potential competitor as the airlines that are operating scheduled passenger flight in the origin city, the end point city, or both cities, but not flying the route between the two cities.

Assume that route  $i$  links the city pair  $o$  and  $d$ , and the number of routes between city  $o$  and all other cities and city  $d$  between and all other cities is  $m_o$  and  $m_d$  respectively. Let  $D_{xj}$  be a dummy variable that equals to 1 if airlines  $j$  is operating scheduled passenger flight in route market  $x$ , equals to 0 otherwise. Let  $D_{xyj}$  be a dummy that equals to 1 if airlines  $j$  is operating scheduled passenger flight on both route market  $x$  and route market  $y$ , equals to 0 otherwise. Thus, the number of potential competitors can be calculated using expression (5).

$$n_{ip} = \sum_{x=1}^{m_o+m_d} \sum_{j=1}^{n_x} D_{xj} - \sum_{j=1}^N \sum_{x,y=1}^{m_o+m_d} D_{xyj} - n_i \quad (5)$$

where  $N = \sum_{x=1}^{m_o+m_d} n_x$ ,  $n_{ip}$  is the number of potential competitors in route market  $i$ .  $n_i$  is the number of active competitors in route market  $i$ . On the right side of expression (5), the first term is the total number of airlines operating scheduled passenger flights in city  $o$  and city  $d$  (include repeated calculation), the second term is the number of airlines operating on both route market  $x$  and route market  $y$ . By reducing this term, we delete the repeated calculation and get the number of airlines who are operating on all routes linking city  $o$  and city  $d$ . Reducing the former result by the number of active competitors, we finally get the number of potential competitors in route market  $i$ .

**Market concentration** is Herfindahl-Hirschman Index (HHI) on a route market. Because the route-level output/revenue data of individual airline are not available, we use the weekly frequency of scheduled flights data. Thus HHI can be calculated following expression (6).

$$HHI_i = \sum_{j=1}^{n_i} \left( \frac{F_{ij}}{\sum_{j=1}^{n_i} F_{ij}} \right)^2 \times 10000 = \sum_{j=1}^{n_i} (s_{ij} \times 100)^2 \quad (6)$$

where  $HHI_i$  is HHI in route market  $i$ .  $F_{ij}$  is the weekly frequency of scheduled passenger flights operated by airline  $j$  in route market  $i$ .  $n_i$  is the number of active competitors in route market  $i$ .  $s_{ij}$  is airlines  $j$ 's frequency share in route market  $i$ .

### Multimarket contact (MMC)

Combining the dummy variable presented by Evans and Kessides(1994) and the influential factors presented by Singal (1996), we construct a MMC taking account both company characteristics and route features.

Before the start of calculation, it is worthy to define the market condition and market contact dummy variable for multimarket contact study. Assuming that there are  $n$  individual route markets where  $m$  airlines are operating scheduled passenger flight service. In route market  $i$ , there are  $m_i$  airlines supplying scheduled passenger flight service. However, since most of the airlines operating in more than one route markets, it is easy to know that  $\sum m_i \neq m$ .

Let  $D_{xjk}$  be a dummy variable that equals to 1 if both airline  $j$  and airline  $k$  are operating in route market  $x$ , equals to 0 otherwise. And let  $D_{ijk} = D_{ij} * D_{ik}$ , where  $D_{ij}$  is a dummy variable that equals to 1 if airline  $j$  is operating in route market  $i$ , equals to 0 otherwise.  $D_{ik}$  is a dummy variable that equals to 1 if airline  $k$  is operating in route market  $i$ , equals to 0 otherwise. Thus,  $D_{ijk} = 1$  only if both  $D_{ik}$  and  $D_{ij}$  equals to 1.

Having defined the market condition and contact variable, the multimarket contact index used in this study can be calculated by following three steps:

Firstly, calculate the inter-firm multimarket contact between airline  $j$  and airline  $k$  in route market  $i$  using expression (7).

$$MMC_{ijk} = \frac{D_{ijk}(s_{ij} + s_{ik}) \sqrt{\frac{s_{ij}}{s_{ik}}}}{m_i(m_i - 1) / 2} \times \sqrt{\frac{RP_i \times 100}{RP_{total}}} \quad \text{if } m_i > 1 \quad (7)$$

$$MMC_{ijk} = 0, \quad \text{if } m_i = 1,$$

If  $m_i > 1$ , the contact between two companies in a market  $MMC_{ijk}$  is given by the above expression. On the right side of the expression,  $D_{ijk}$  is the dummy variable discussed earlier. If  $m_i = 1$ , that is, the market is a monopoly, then there

is no contact with another company and therefore multimarket contact  $MMC_{ijk} = 0$ .

In the above expression, this study assume that the importance of multimarket for a market is depend on the following factors presented firstly by Singal(1996): *The number of airlines competing in a route market.* As Singal(1996) mentioned, a contact between two firms in a market with fewer firms is more important than contact between two firms in a market with more firms. Thus, the multimarket contact in route market  $i$  is divided by the number of company-pair in route market  $i$  with  $m_i$  firms  $m_j(m_j - 1)/2$ . *The magnitude of presence of competing companies in a route market.* Since the market contact of two firms with 60% market share is more important than that of two firms with 30% market share, the sum of the two airlines' frequency shares  $(s_{ij} + s_{ik})$  is introduced to take account this effect. *The relative market share of competing airlines in the market.* Contact is more important when the market shares of firms are more dissimilar. This effect is introduced by the square root of the ratio of the frequency share  $\sqrt{\frac{s_{ij}}{s_{ik}}}$  (choose  $j$  and  $k$  such that  $\alpha_j > \alpha_k$ ). *Market size of the route.* Multimarket contact in large markets is likely to be more important to airline than contact in small market. This effect is taken into account by introducing the square root of the percent RPKMs for individual route market  $\sqrt{\frac{RP_i \times 100}{RP_{total}}}$ .

Secondly, by summing the market contact of airline pair  $j$  and  $k$  over all the market the two airlines contact, multimarket contact for an airlines pair, airline  $j$  and airlines  $k$ , is can be calculated. The expression is given by:

$$MMC_{\bullet jk} = \sum_{i=1}^n MMC_{ijk} \quad (8)$$

Thirdly, the multimarket contact of all competing airlines in route market  $i$  is given by:

$$MMC_i = \sum_{jk=1}^{m_i(m_i-1)/2} [MMC_{ijk} (MMC_{\bullet jk} - MMC_{ijk})] \quad (9)$$

The first term in expression (9) represents the multimarket contact between airline  $j$  and  $k$  in route market  $i$ . The second term, in the parentheses, represents the contact between those airlines in all other markets<sup>3</sup>. Summing the total multimarket contact between one airline pair over all airline pair, we get the weighted average airline multimarket contact on route market level.

#### Control Variables

This study concerns two category control variables, route-related control variables and policy-related control variables.

##### Route-Related Control Variables

**Route  $i$ 's distance**  $dis_i$  is introduced to capture the economies of distance in air flight service provision, which is also know as the principle of tapering cost structure.

**Average passenger load factor over route  $i$**   $lf_i$  is introduced to control the effect of plane utilization ratio. The formulation of average passenger load factor in route market  $i$  is given by:

$$lf_i = \frac{T_i}{AS_i} \times 100\% \quad (10)$$

where  $T_i$  is the annual passenger traffic on route  $i$ .  $AS_i$  is the number of total available seats supplied by all competing airlines in route market  $i$ .

**Average density of passenger on a scheduled flight**  $Des_i$  is introduced to capture the cost saving effect of increasing the enplane density of passenger. The formulation of average density is given by:

$$Des_i = \frac{T_i}{Flight_i} \quad (11)$$

where  $T_i$  is the annual passenger traffic on route  $i$ .  $Flight_i$  is the number of annual flights in route market  $i$ .

**Annual passenger traffic on route  $i$**   $T_i$  is introduced to capture the effect of route market size.

##### Policy-Related Control Variables

Currently, China's airlines are subject to a price-ceiling and price floor regulation frame. According to the latest issued price regulation Scheme (SCPC and CAAC, 2004), airlines are allowed to set their fare as low as 55% or as high as 125% of the baseline fare (0.76 per RPKm) set by Civil Aviation Administration of China (CAAC). Aiming at avoiding self-killing price-cut competition, the regulative authority sets and publishes a guided ticket price for the route subject to price limitation. Thus, airlines can set their ticket price in light of the guided price and the market competition.

Besides, the authority has released price regulation on various degrees over some route markets. The first degree is releasing the price floor regulation for 242 routes linking tourist cities and for 225 monopoly routes. The second degree is releasing all the price regulation for 94 regional short-haul routes.

As many researchers have shown that the price regulation in airlines industry can significantly impact the performance and efficiency of the industry (Keeler, 1972; De Vany, 1975; Graham, 1983; Findlay, 1985), this study considers the following regulative policy variable to capture both quantitative and qualitative effect of current regulation policy on China's airlines industry.

**Guided ticket price in route market  $i$**   $Basep_i$  is the price set and published by the regulative authority<sup>4</sup>. This variable is introduced to capture the quantitative effect of price regulation.

**Dummy variable for tourist routes without price floor limitation**  $D_{touri}$  is a dummy variable that equals to 1 if route  $i$  is included in the list of the route that tourists are primary passenger source and implementing released price floor limitation policy (CAAC, ), equals to 0 otherwise. This variable is introduced to capture the qualitative effect of released price floor limitation on tourist routes.

**Dummy variable for monopoly routes without price floor limitation**  $D_{monoi}$  is a dummy variable that equals to 1 if route  $i$  is included in the list of the monopoly routes implementing released price floor limitation policy (CAAC, ), equals to 0 otherwise. This variable is introduced to capture the qualitative effect of released price floor limitation on monopoly routes. Considering the wide differentiation in passenger source and demand pattern between tourist routes and monopoly routes, this study set dummy variable for these two categories of route respectively to capture different effect of released price regulation on different route.

**Dummy variable for regional routes without price limitation**  $D_{freei}$  is a dummy variable that equals to 1 if route  $i$  is included in the list of the route implementing complete market price policy (CAAC, ), equals to 0 otherwise. This variable is introduced to capture the qualitative effect of released price floor limitation on tourist routes.

## The Sample

### Sources of the Sample Data

The sample is obtained from the *Statistical Data on Civil Aviation of China* published by Civil Aviation Administration of China (CAAC) in 2005 (CAAC, 2005, pp59-73). This study chooses 244 routes out of the 248 routes with more than 100 thousands passenger traffic in 2004. 4 routes are excluded from the sample for lack of related fare information<sup>5</sup>.

The ticket price and flight frequency data are obtained from the online ticket inquiry system ([www.airtis.net](http://www.airtis.net)) authorized by CAAC. The ticket data are processed to exclude first-class and business-class ticket. Data used in computation of the dependent variable **average yield**  $yield_i$  and independent variable **Number of active competitors**  $n_i$ , **Number of potential competitors**  $n_{ip}$ , **Market concentration**  $HHI_i$ , **Multimarket contact**  $MMC_i$  are from this data source. The guided ticket price variable  $Basep_i$  is obtained from this data source.

The data used in computation of the control variable **Average passenger load factor over route  $i$**   $lf_i$ , **Annual passenger traffic on route  $i$**   $T_i$  and **Average density of passenger on a scheduled flight**  $Des_i$  are obtained from the *Statistical Data on Civil Aviation of China* published in 2006 (CAAC, 2006, pp59-73). The control variable **Route  $i$ 's distance**  $dis_i$  is obtained from the website of CAAC.

Three dummy variables are set in light of the price regulation policy documents published on CAAC' website ([www.caac.gov.cn](http://www.caac.gov.cn)).

### Descriptive Statistics of the Sample Data

To give an overview understanding of the multimarket contact, market structure and the airline route features, the

paper presents the primary descriptive statistics of the sample in TABLE 2. The sample mean of yield is 0.55CNY/RPKM. Multiplying CAAC's baseline fare (0.76 CNY/RPKM) with the sample mean of passenger load factor (74%) gives a result of 0.564 CNY/RPKM, which is surprisingly close to the sample mean of yield. This coincide author's guess that airlines set price following the guided price. In total, there are 13 airlines competing in the 244 sample route markets. TABLE 2 shows that the number of active competitors ranges from 1 to 6, the HHI ranges from 2229 to 10000. This implies the structure of China's domestics city-pair route market is close to oligopoly and monopoly.

The sample mean of multimarket contact index is 5.77, which is higher than the multi-market contact (ranged from 3.26 to 4.81) in US airline by Signal (1996). This probably implies that the extent of multi-market contact competition in China's airline industry is even more intensive than its counterpart in US. Moreover, among the 244 sample route markets, 226 route markets have non-zero multi-market contact index, which implies that the multimarket contact is exist extensively in China's domestic airline industry.

TABLE 2: THE DESCRIPTIVE STATISTICS OF SAMPLE DATA USED IN MMC REGRESSION

Variables	unit	Sample size	mean	S.D.	minimum	maximum
Average yield	cent/RPKM	244	54.54563	11.07409	35.23231	116.8064
Number of active competitor		244	2.963115	1.123391	1	6
Number of potential competitor		244	5.47541	2.378619	0	10
HHI		244	4724.268	1970.053	2229.081	10000
MMC		244	5.771702	5.714537	0	37.25425
Route distance	km	244	1140.414	594.6387	160	3836
Average load factor	%	244	73.93396	6.00566	47.34734	86.20014
Average traffic density	passenger/flight	244	109.3021	18.61677	39.14576	174.9603
Annual passenger traffic	10 thousand	244	43.27549	45.45944	8.065	434.7942
Guided ticket price	Yuan	244	107.7276	21.41637	43.96848	217.4222

## Results and Findings

Using the sample data, the regression models show in expression (1) and (2) give the results shown in TABLE 3. Model 1 and 2 are in pure linear form, model 3, 4, and 5 are in mixed log-linear form. The  $R^2$  of model 1 and 2 are in the range of 0.60-0.61, which implies about 60% of the effect on average market yield can be interpreted by the pure linear form. The mixed models has slightly better interpretation of 68% to 70%. In terms of the interpretation and F-statistics, all these models can be considered as statistically significant. However, both statistics in mixed log-linear models have higher value (more significant) than those in pure linear models, which might imply that mixed log-linear form interpret the relationship between average market yield and the influential factors better than pure linear form.

The results of the above regression show us the following important points:

### Market structure/concentration is not relevant to higher average market yield

Traditional competition theory presents that high market concentration inclines to foster the market power of firm therefore increase the market price. Many empirical studies also support this theoretical hypothesis (Heggstad and Rhoades, 1978; Scott, 1982; Singal, 1996). This study include 2 variables, the number of active competitors  $n_i$  and  $HHI_i$ , to capture the effect of market structure/concentration on average market yield. As the correlation matrix of sample data in TABLE 4 implies that  $n_i$  and  $HHI_i$  might be highly interdependent with each other<sup>6</sup>, thus should not be included in the regression model simultaneously. The coefficients of  $n_i$  in all models are positive<sup>7</sup>, while the coefficients of  $HHI_i$  are negative, which is contrary to the theoretical expectation. This probably implies that high concentration in China's airline industry do few help to firm's market power, especially under current regulation regime. For instance, airlines are not allowed to give up unprofitable route without the approval of regulative authority, thus some monopoly route market actually have very low average yield (due to low average passenger load factor on these route).

Empirical studies have shown that not only active competitor but also potential competitor can have impact on

market performance (Morrison and Winston, 1990). This study considers the effect of the number of potential competitors  $n_{ip}$ . The coefficients of  $n_{ip}$  are positive, which is also contrary to theoretical expectation, but not significantly in model 1, 2 and 4. This implies that the potential competitor might also be irrelevant currently in China's domestic airline market. As mentioned above, this is largely due to the violations of free market entry and exit assumption.

#### **Multimarket contact might lead to mutual forbearance**

As shown in TABLE 1, most multimarket contact studies have found a negative relationship between multimarket contact and competition rivalry or a positive relationship between MMC and market price or firm's profit. That is, mutual forbearance hypothesis is supported in most researches based on US airlines industry data (Evans and Kessides, 1994; Smith and Wilson, 1995; Singal, 1996; Gimeno and Woo, 1999; Gimeno, 1999). This study include a multimarket contact  $MMC_i$  of route market  $i$ , to capture the effect of multimarket contact. As shown in TABLE 3, the coefficients of  $MMC_i$  are positive and significant at 10% level. Thus, we conclude that multimarket contact can also lead to mutual forbearance in China's domestic airline market. This is also called the "golden rule" conformed by airlines<sup>8</sup>.

#### **Production technology affects average market yield**

As shown in TABLE 3, the route level technology variables are both statistically significant and quantitatively important. The coefficient of route distance  $dis_i$  is significantly negative, which implies that the pricing in China's domestic route market applies the tapering with distance principle. The coefficient of average load factor  $lf_i$  is significantly positive, which implies that increase of load factor does contribute to the increase of average yield. The coefficient of average traffic density  $Des_i$  is significantly positive, which implies that increase of traffic density can lead to increase of average yield. The coefficient of annual passenger traffic  $T_i$  is significantly negative. The annual passenger traffic can be consider as a measure of the demand in a route market, and the average market yield can be consider as a measure of market price, thus, these estimated models can be considered as reverse demand models. Therefore, the negative sign of the coefficient of total consumption quantity implies the air flight service is a "normal good".

It is worthy to mention that, in model 3, 4 and 5, the coefficients of  $ln dis_i$ ,  $ln lf_i$ ,  $ln Des_i$ ,  $ln T_i$  is actually the elasticity of average yield with respect to route distance, average load factor, average traffic density and annual passenger traffic respectively.

#### **Regulation affect average market yield significantly**

The coefficient of quantitative policy variable guided ticket price  $Basep_i$  is significantly positive. This implies that the guided price plays a role of tariff book of leading firm in market competition. Despite of the relatively small net effect in quantity, the published guided price policy did help to restrain sharply price cutting competitions between airlines.

The coefficient of dummy variable for tourist routes without price floor limitation  $D_{touri}$  is significantly negative. This implies that the 52 routes applying to this policy dummy in the sample have lower average yield comparing those route with price floor limitation. These routes are characterized by linking hot tourist city and creating high annual traffic. Released pricing regulation will encourage the airlines take more flexible price policy (more discounted ticket) and increase their revenue.

However, another dummy variable related to 8 monopoly routes applying to released price floor limitation  $D_{monoi}$  is not significant. This implies that released price floor policy hardly impact the monopoly route markets as the monopolist has little motive to cut price, thus this variable is not included in the final regressions.

The coefficient of dummy variable for regional routes without price limitation  $D_{freei}$  is significantly positive. This implies that the 17 routes applying to this policy dummy in the sample have fairly higher average yield comparing those routes with price (ceiling and floor) limitation. Considering that the routes applying to free market policy are characterized by short distance, regional operating, monopoly or few suppliers, it is reasonable that airlines in these route markets generally can increase their revenue by increasing price. Therefore, the effect of totally releasing price regulation (both price floor and price ceiling) increases the average market yield significantly and largely in regional route markets.

The above findings related to the price regulation and deregulation policy in China's domestic airline markets surprisingly coincide with the case in US airline industry. Despite many studies show that deregulation in US airline



have led to fare decrease in trunk routes (Hurdle et al., 1989; Kim and Singal, 1993; Liu and Lynk, 1999), researcher finds that price increased in some small regional routes after the deregulation (Morrison and Winston, 1990).

## **Conclusions and Policy Implications**

By using data from China airlines industry, this paper includes both external market features (multi-market contact) and internal market features such as concentration, production technology factors, and regulation policy factor in the regression models. The results show that mutual forbearance hypothesis can be supported by China's domestic trunk airline route sample. The internal market factors are also identified and found to be consistent with the theoretical expectations. The only exclusion is that the theoretical expectation of concentration can not be supported by this sample.

Based on the above analyses, the paper concludes the following policy implications:

Firstly, as shown in this study, there are observable positive relationship between multimarket contact and higher average yield, though the net effect is relatively low. In real economy, the case that incumbent firms can restrain the price-cutting action by threatening to retaliate in challenger's key market is general. As diversification becoming one of the most significant factors restructuring the global economy, multi-market contact is universal in market competition. Economists have appealed to attention from the antitrust policy authorities (Singal, 1996). Currently, Chinese government is drafting the country's first antitrust law, the study suggest that the multi-market contact effect should be taken into consideration in evaluating effect of firm's competition action (consolidation). However, the negative relationship between the price level and concentration in this study suggests that the concentration (market share) should not be considered as the only measurement in anti-trust practice.

Secondly, this study suggests that regulation have significant and important effect on airlines competition action in China domestic airline route market. The guided price policy is helpful in restraining sharp price cutting competitions between airlines. The net effects of releasing price regulation and totally releasing price regulation will depend on route market characteristics involving supply structure, demand pattern and operating features. For non-monopoly tourist route market, the market average yield can be reduced and consumer welfare can be improved by releasing price floor regulation policy. For monopoly "small route" market, since the average market yield will increase by releasing price ceiling distinctly and might be harmful to the consumer welfare.

TABLE 3: MULTI-MARKET CONTACT REGRESSION RESULTS ON CHINA'S AIRLINE INDUSTRY DATA

Pure linear model			Mixed log-linear model			
variables	Estimated coefficients (t-Statistics)		variables	Estimated coefficients (t-Statistics)		
	Model 1	Model 2		Model 3	Model 4	Model 5
$n_i$	0.8709205 (1.62)		$n_i$	0.0209893** (2.32)		
$n_{ip}$	0.3729816 (1.56)	0.3407108 (1.46)	$n_{ip}$	0.0066669* (1.82)	0.0055473 (1.59)	0.0063583* (1.86)
$HHI_i$		-0.0004866* (-1.65)	$\ln HHI_i$		-0.0541967** (-2.23)	-0.0446779* (1.92)
$MMC_i$	0.1690707* (1.79)	0.1628862* (1.73)	$MMC_i$	0.0022269* (1.67)	0.0022557* (1.69)	0.0012422 (1.01)
$dis_i$	-0.0105849*** (-10.09)	-0.0104824*** (-10.05)	$\ln dis_i$	-0.2558712*** (-14.60)	-0.2537184*** (-14.56)	-0.231197*** (-14.05)
$lf_i$	0.7125797*** (6.70)	0.6990559*** (6.53)	$\ln lf_i$	1.08704*** (10.67)	1.065646*** (10.47)	1.040177*** (10.55)
$Des_i$	0.1389985*** (3.45)	0.1367044*** (3.40)	$\ln Des_i$	0.2353008*** (4.32)	0.2287372*** (4.23)	0.2238509*** (4.17)
$T_i$	-0.0359201** (-2.56)	-0.0317901** (-2.47)	$\ln T_i$	-0.0403664*** (-2.74)	-0.0322882** (-2.54)	-0.0256268** (-2.07)
$Basep_i$	0.0031722** (2.15)	0.0033291** (2.26)	$\ln Basep_i$	0.0604616*** (3.07)	0.0620973*** (3.14)	
$D_{tour_i}$	-3.11044** (-2.31)	-3.085173** (-2.29)	$D_{tour_i}$	-0.42867** (- 2.31)	-0.0422288** (-2.27)	-0.0323891* (-1.81)
$D_{free_i}$	23.10285*** (10.47)	23.65476*** (10.32)	$D_{free_i}$	0.2341698*** (6.93)	0.2406389*** (6.95)	0.2460916*** (7.39)
Constant	-8.865861 (-1.13)	-3.00901 (-0.38)	Constant	-0.4106184 (-0.93)	-0.1804311 (-0.38)	0.469186 (1.02)
Size of sample	227	227	Size of sample	227	227	244
R <sup>2</sup>	0.6029	0.6031	R <sup>2</sup>	0.7047	0.7042	0.6810
F-statistics	32.79	32.82	F-statistics	51.55	51.42	55.51

Notes:\*\*\* represents that the coefficient is statistically significant at 1% level, \*\* represents that the coefficient is statistically significant at 5% level, \* represents that the coefficient is statistically significant at 10% level.

TABLE 4: CORELATION MATRIX OF MULTI-MARKET CONTACT REGRESSION RESULTS ON CHINA'S AIRLINE INDUSTRY DATA

	<i>yield</i>	$n_i$	$n_{ip}$	<i>HHI</i>	<i>MMCi</i>	<i>dis</i>	$lf_i$	$Des_i$	$T_i$	<i>Basep</i>	$D_{touri}$	$D_{freei}$	$D_{monoi}$
<i>Yield</i>	1.000 0												
$n_i$	- 0.056 4	1.000 0											
$n_{ip}$	- 0.110 6	- 0.171 3	1.000 0										
<i>HHI</i>	0.078 2	- 0.808 2	0.180 3	1.000 0									
<i>MMCi</i>	0.060 4	0.043 4	0.135 2	- 0.048 7	1.000 0								
<i>Dis</i>	- 0.529 3	0.114 5	0.106 7	- 0.111 5	0.014 0	1.000 0							
$lf_i$	0.209 8	0.117 6	- 0.349 9	-0.210	- 0.042 5	0.159 2	1.000 0						
$Des_i$	- 0.099 3	0.168 0	- 0.013 2	- 0.191 3	0.139 2	0.515 2	0.494 6	1.000 0					
$T_i$	- 0.022 7	0.466 7	0.202 0	- 0.312 2	0.198 9	0.073 5	0.034 0	0.358 5	1.000 0				
<i>Basep</i>	- 0.105 4	0.046 8	0.159 8	0.011 2	0.044 2	0.353 3	0.041 7	0.212 0	0.102 0	1.000 0			
$D_{touri}$	- 0.031 8	- 0.116 5	- 0.050 3	0.074 9	0.133 4	0.115 4	0.317 4	0.345 7	- 0.041 5	0.141 7	1.000 0		
$D_{freei}$	0.519 3	- 0.196 5	0.030 6	0.342 3	- 0.005 7	- 0.349 5	- 0.255 4	- 0.353 2	- 0.031 6	- 0.121 0	- 0.137 7	1.000 0	
$D_{monoi}$	- 0.084 6	- 0.334 6	0.047 9	0.514 5	- 0.198 5	0.035 0	0.000 5	- 0.054 2	- 0.123 2	0.013 8	- 0.099 0	- 0.050 8	1.000 0

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## End Notes

<sup>1</sup> as quoted in Heggstad and Rhoades (1978), pp524.

<sup>2</sup> Since this paper takes a similar method in multi-market contact calculation to that of Singal (1996), the comparison of multi-market contact indices between two country can be meaningful.

<sup>3</sup> Only if both terms are non-zero, does this pair of airlines contact contribute to multimarket contact for the route market  $i$ .

<sup>4</sup> Civil Aviation Administration of China is currently the primary regulation authority of China's airlines. The regulation is in two folds, price and market entry. In terms of price regulation, the published guided ticket price is an important measure. The ticket price on a route is calculated according to a generalized formula: Price = minimum price + fare\*distance. The minimum price is currently set at 80 yuan for all scheduled routes. Thus the real ticket price will be decided by the fare and discount applied. For example, the economic class ticket price from Beijing to Shanghai can be calculated from:  $1178(\text{distance}) * 0.76(\text{fare}) + 80(\text{minimum price})$ , that is 975.28. When passenger go to the ticket office, he/she will get a ticket at discounted price plus tax and oil adjust charge.

<sup>5</sup> Those four routes are excluded from the study are Urmuqi-Korla, Chengdu-Panzhihua, Urmuqi-Altay and Kunming-Diqing.

<sup>6</sup> In some case, the number of average firms can be calculated from the HHI, by the equation  $n = \frac{100}{\sqrt{HHI}}$ . where n represents the number of average firms. Thus these two measures are inversely interdependent.

<sup>7</sup> In model 1, we can't reject the coefficient equal to zero significantly.

<sup>8</sup> According to Evans and Kessides (1994), there is a claim that airlines live by the "golden rule", i.e., that airlines refrain from initiating aggressive pricing actions in a given route for fear of what their competitors might do in other jointly contested routes.

# Crisis Risk Management in Transportation Sector: Trends and Framework

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## Abstract

As the business environment in the transportation sector gets more complex, crises risks faced by management are far more frequent, and potentially, more devastating. Globalization, new technologies and economic growth have produced time-space compression: as distances shrink, people and goods travel faster and farther, communication networks become more complex and indispensable, and technological advances spill over from one domain into another almost effortlessly. These developments come at an obvious price tag. Complexity runs amuck and couplings between system components become tighter and tighter, turning the world into error-inducing systems. Not only are the risks of mishaps increasing, they are more likely to become crises and even escalate into full-fledged disasters. In this paper, we investigate risks leading to crises in the transportation sector. We specifically review the trends in the transportation sector around the globe and develop a framework for addressing crises risk in a systematic manner.

## Introduction

As the business environment in travel and transportation industry gets more complex, risks of crises faced by management are far more frequent, and potentially, more devastating. Globalization, new technologies and economic growth have produced time-space compression: as distances shrink, people and goods travel faster and farther, communication networks become more complex and indispensable, and technological advances spill over from one domain into another almost effortlessly. These developments come at an obvious price tag. Complexity runs amuck and couplings between system components become tighter and tighter, turning the world into error-inducing systems. Not only are the risks of mishaps increasing, they are more likely to become crises and even escalate into full-fledged disasters

Much like the marked change the species undergo as posited in the theory of punctuated equilibria, organizational crises have the potential to knock organizations away from their equilibria. This shift can either be attributed to abrupt crises that strike suddenly and catch management off-guard or cumulative crises that accumulate stressors and eventually erupt. Either way, crises are manifested risks with impending negative consequences for the organizations. Over the past several decades, crisis risk management has been gaining recognition as a critical business practice in governments and industries across the globe. In the transportation sector, the overarching objective risk management is to mitigate (or even prevent) accident likelihood and severity. In contrast, the goal of crisis management is the containment of such accidents, disaster recovery, subsequent learning from crises, and business continuation.

Risks in general are idiosyncratic—they can have either a cancelling effect (a risk to one group may present an opportunity to another) or a compounding effect (a risk to one group may lead to a risk to another). The qualification of global risks lies in their systemic nature: their impacts challenge the integrity of the system. The consequences of these risks are harder to predict, frequently disproportionate, difficult to contain and present challenges to us all.

Overall, the Global Risk Network identified 23 core global risks to the international community over the next 10 years in the recently published Global Risks 2007 Report (World Economic Forum, 2007). These core global risks are presented in Table 1. Although it is quite conceivable that some of these risk categories may have cancelling effect with other categories, most of the core risks identified in the report generally have a compounding effect when it comes to impact on transportation sector-related crises risks. For this reason, review of transportation sector related risks that have the potential for becoming full-fledged crises is critical to the long term success of the sector in general and the survival of most of the companies in the transportation industry in particular.

TABLE 1: CORE GLOBAL RISKS OVER THE NEXT 10 YEARS

<p>Economic</p> <ul style="list-style-type: none"> <li>• Oil price shock/energy supply interruptions</li> <li>• US current account deficit/fall in US\$</li> <li>• Chinese economic hard landing</li> <li>• Fiscal crises caused by demographic shift</li> <li>• Blow up in asset prices/excessive indebtedness</li> </ul>	<p>Environmental</p> <ul style="list-style-type: none"> <li>• Climate change</li> <li>• Loss of freshwater services</li> <li>• Natural catastrophe: Tropical storms</li> <li>• Natural catastrophe: Earthquakes</li> <li>• Natural catastrophe: Inland flooding</li> </ul>
<p>Geopolitical</p> <ul style="list-style-type: none"> <li>• International terrorism</li> <li>• Proliferation of weapons of mass destruction (WMD)</li> <li>• Interstate and civil wars</li> <li>• Failed and failing states</li> <li>• Transnational crime and corruption</li> <li>• Retrenchment from globalization</li> <li>• Middle East instability</li> </ul>	<p>Societal</p> <ul style="list-style-type: none"> <li>• Pandemics</li> <li>• Infectious diseases in the developing world</li> <li>• Chronic disease in the developed world</li> <li>• Liability regimes</li> </ul>
<p>Technological</p> <ul style="list-style-type: none"> <li>• Breakdown of critical information infrastructure (CII)</li> <li>• Emergence of risks associated with nanotechnology</li> </ul>	

Modern realities of transportation sector usually are quite complex, with many parallel physical and information flows occurring in order to ensure that products are delivered in the right quantities, to the right place in a cost effective manner. Recent business trends like outsourcing, globalization and business fragmentation created the need for tackling the issue from the point of view of the entire transportation industry rather than the limited view of an individual company. On the other hand, advances in information technology have encouraged real time information sharing, coordination and collaborative decision making among companies. Today an emerging and challenging research area, given the importance of crises risk management in practice, focuses on disruptions to transportation from various directions. Transportation crises can arise from many sources, often without warning, exposing the whole transportation network to various types of risks. For example:

- Natural disasters (e.g., the Kobe earthquake in 1995 and, more recently, Hurricane Katrina in 2005 had supply chain impact of global proportions);
- Terrorist incidents (e.g., events of September 11, 2001 in the US);
- Industrial or direct action (e.g., the west coast port strike by ILWU workers in 2002, which severely impacted literally every US supply chain);
- Accidents (e.g., a fire in a component’s sole supplier in Aisin, Japan had a serious impact on Toyota’s operations and supply chain in 1997);
- Operational difficulties (e.g., US flu vaccine shortage in late 2004 due to Chiron, a vaccine maker, that was unable to produce half of U.S. supply of vaccine doses due to problems at its British plant);
- Informational difficulties (e.g., the Cisco failure to process information from its supply chain about the severity and abruptness of the sales slowdown that led to the \$2.5 billion excess inventory charge in 2001);
- Macro-level Transformation in Industry and Competition (e.g., the recent wave of offshoring jobs to China and India, gaining worldwide attention in early 2000, and its resulting changes in organizational supply chain that ensued).

Owing to the close interrelationships between entities operating within a transportation network, the impact of such disruptions can be far reaching.

## **An Ecological View of Transportation-related Crisis Risk**

The fundamental tenet of the theory of punctuated equilibria in biology is that punctuated changes dominating the evolution of life typically come about through shocks that are spontaneous or that occur at the threshold-limit of slowly evolving changes Gould and Eldredge (1977). The risk of breakdown of equilibrium has two specific sources—catastrophic events that appear suddenly and breaks with the past that result from the steady accumulation of stressors. The punctuated equilibrium model has wide implications across disciplines as evidenced by the largely independent emergence of punctuated equilibrium models in biology (Gould, 1989), sociology (Kuhn, 1970) and psychology (Levinson, 1986), and at several levels of organizational theory analysis, such as groups (Gersick, 1991) and organizations (Miller and Friesen, 1984; Tushman and Romanelli, 1985). In the literature of organizational transformation, for example, it emerged as a prominent theoretical explanation for characterizing and investigating fundamental organizational change (Miller and Friesen, 1984; Tushman and Romanelli, 1985; Gersick, 1991).

Much like the marked change the species undergo as posited in the punctuated equilibrium model in biology, transportation sector-related crises risks have the potential to shift industries and transportation networks away from their equilibria. These shifts can either be attributed to risks of abrupt crises that strike suddenly and catch management off-guard or of cumulative crises that accumulate stressors and eventually erupt. Two sources of transportation sector-related crises risks can be identified—abrupt crises that strike suddenly and catch management off-guard versus cumulative crises that accumulate stressors and eventually erupt. For example, a crisis may result from an abrupt event necessitating a corresponding response from the organization (examples: Hurricane Katrina in 2005, the west coast port strike in 2002, the fire at one of the Toyota's sole supplier in 1997, etc.). Alternatively, a crisis may be the consequence of slow changes with little or no response evoked from the organization (examples: US flu vaccine shortage in late 2004, Cisco inventory debacle in 2001; offshoring jobs to China and India, starting in early 2000). Either way, crises are manifested risks with impending negative consequences for transportation networks. Over the past several decades, crisis risk management has been gaining recognition as critical transportation best practices in industries across the globe.

Risk can be viewed as the product of frequency multiplied by consequence. That means a high-frequency/low-consequence event, such as the regular fluctuation of currency exchange rates, can be viewed as similar to a low-frequency/high-consequence event, such as the September 11<sup>th</sup> terrorist attack. A scientific definition of risk was provided by the Royal Society (1992): "The probability that a particular adverse event occurs during a stated period of time, or results from a particular challenge. As a probability in the sense of statistical theory, risk obeys all the formal laws of combining probabilities." Another consideration is the nature of risk mitigation itself, which is illustrated in Figure 1 (Crisis Comprehensive Risk Analysis and Management Network, 2007).



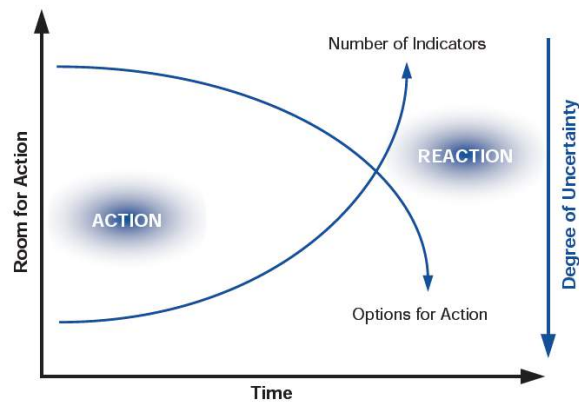


FIG. 1: RISK MITIGATION  
 (Source: Comprehensive Risk Analysis and Management Network)

It is interesting to note that as time progresses, the information surrounding a given risk event may increase. But as it does, the options available for effective mitigation are bound to reduce. Risk mitigation—as with risk itself—involves certain degrees of uncertainty. As illustrated in Figure 1, taking proactive mitigation policies implies operating under considerable uncertainty, with incomplete indicators.

In the transportation sector context, failing to understand the potential vulnerabilities can compromise the transportation networks' ability to handle unexpected and sudden crises. Indeed, it can be argued that transportation sector-related risk is currently greater than ever. A key source of risk is the increasingly turbulent business environment. A further reason for this increased risk has come, paradoxically, from the focus on efficiency and cost reduction, which have been the predominant managerial tendency of recent years. Of course, not all transportation networks are exposed to the same types and magnitude of risks. This is largely dependent on a number of factors, which include industry specific factors (i.e. volatility of demand, product variety etc), as well as characteristics of individual transportation networks (i.e. number of nodes, local vs. global operations, etc).

In order to be able to manage and even take advantage, of internal and external uncertainty, today's firms should understand and quantify transportation sector-related risks. Therefore, there is a need for developing risk management framework that will assess and managing transportation sector-related risks. This is a necessary task before formulating and implementing risk prevention and learning strategies in transportation sector for the future.

The rest of the paper is organized as follows: first, a detailed literature review on best practices on transportation sector-related (and, generally speaking, supply chain) risk assessment and management is presented. Then, a framework for managing transportation sector-related risk is offered. Finally, conclusions and further research issues are mentioned. The purpose of this paper is to introduce this framework and initiate a discussion of several research initiatives among transportation community in an effort to operate recommendations of the risk management framework in organizational strategy making.

## Literature Review

When reviewing the literature on transportation sector-related risk management, it is apparent that two major research streams are dominant. One contains conceptual exploratory research and the other is mathematical modeling. The following literature review is based on that distinction, as well as on the type of risk each research attempts to deal with.

### Sources and Types of Supply Chain Risks: Managerial Tools for Risk Management

A number of articles as well as scientific papers deal with the appropriate identification of supply chain risks, the main sources of uncertainty that lead to risk exposure and the business processes or management tools that can be

used for mitigating those risks. Landeghema and Vanmaele (2002) study the impact of uncertainty on demand and supply chain planning and list a number of potential sources of supply chains/transportation-related risks. This provides the basis for introducing a new tactical planning paradigm, called robust planning.

Chopra and Sodhi (2004) stress the importance of proactively managing supply chain and transportation sector-related risk, taking into account the fact the related difficulty due to the interconnection of individual risks. Companies may mitigate risk by building various forms of reserves including inventory, capacity, extra suppliers transportation contingency planning, and responsiveness.

Hallikas et al. (2004) identify challenges that transportation network cooperation brings to risk management. When the dependency between companies in a transportation network increases, they become more exposed to the risks of other companies. The paper also outlines the general structure of risk management process and presents methods for risk management in a complex transportation network environment. Harland et al. (2002) provide a review of definitions and classifications of types of risk in transportation/supply chain networks and offer a holistic view of risk assessment and management. They also describe a tool to help identify, assess and manage that risk. Finally, Zsidisin et al. (2004) focus on inbound transportation risk. The purpose of their study was to explore, analyze and derive common themes on transportation-related risk assessment techniques in supply chain environment.

#### **Case Studies and Surveys**

Another class of papers / articles uses case studies or surveys from particular industry sectors to analyze risk in supply chains. Wang et al. (2004) use data from the U.S. bicycle industry to examine the relation among product variety, supply chain structure, transportation networks, and firm performance. Johnson (2001) takes the example of toys industry to contribute to risk management in supply chains and transportation networks. Constant product innovation, short life cycles and high cannibalization rates are typical in the toys industry. Based on those types of risks, he proposes strategies to mitigate both demand and transportation-related risks.

#### **Models Dealing with Supply Side Risk in Transportation**

As the degree of reliance on the suppliers is accelerating and the physical supply/transportation cost can easily account for 30% of the total cost of goods sold, efficient management of the supply-side risks may contribute significantly to ultimate supply chain success. Bergera et al. (2004) present a useful way to think about the number of suppliers needed in the presence of risks. They model the decision-making process using a decision tree approach and consider catastrophic, “super-events,” which affect many/all suppliers, as well as “unique events” that affect only a single supplier. Wang et al. (2004) propose a product-driven supply chain selection process using integrated multi-criteria decision-making methodology.

Kamrad and Siddique (2004) use a real options approach to analyze and value supply contracts in a setting characterized by exchange rate uncertainty, supplier-switching options, order quantity flexibility, profit sharing and supplier reaction-options. Finally, Babich (2004) presents a valuation of inventory-reorder options in a competitive environment with suppliers that may default.

#### **Models Dealing with Flexibility in Operations and Processes**

One field of research that is connected to risk management and increased responsiveness to demand side changes/disruptions is the implementation of commonality and postponement in transportation networks. In a manufacturing–distribution system, a considerable portion of the risk and uncertainty costs is due to differentiation in form, place and time. Postponement of the point of differentiation is an important means to reducing or eliminating this risk and uncertainty. Alderson (1950) was the first to analyze the concept of postponement in marketing literature while Dogramaci (1979) provided an early study of component commonality from a risk pooling perspective. Both concepts are now attracting renewed attention as companies are compelled to provide and manage an increasing product variety and to compete in organizational excellence in a global market. Zinn (1990) draws attention to the principle of risk pooling. He states that the number of modules may be smaller than the number of finished products due to commonality, reducing in this way the inventory holding risk. This has interesting implications to transportation networks in terms of cost savings by improved routings.

In that respect, Van Hoek (2001) provides an interesting literature review on postponement research and suggests directions for future research. He identifies postponement opportunities in operations as a respond to uncertainty and as a tool to reduce risk of volume and variety mix by delaying finalization of products. Ma, Wang

and Liu (2002) studied commonality and postponement in multistage assembly systems. They demonstrate analytically whether introducing commonality at a particular stage or delaying the point of differentiation by one more stage can be justified. Finally, Ernst and Kamrad (2000) introduce a conceptual framework for evaluating different supply chain/transportation structures in the context of modularization and postponement.

**Supply Chain Network Models (taking risk into account)**

It is interesting to mention two supply chain/transportation network models that deal with risk management. Nagurney et al. (2004) develop a transportation network model in which both physical and electronic transactions are allowed and in which supply side risk as well as demand side risk are included in the formulation. Blackhurst et al. (2004) propose a network-based methodology to model and analyze transportation systems in supply chains. The methodology represents the operation of a supply chain as an abstracted transportation network. The approach allows for the inclusion of stochastic variables so that uncertainty in transportation networks can be modeled.

**Supply Chain Risk Management Framework**

Based on the transportation sector-related risks classification provided earlier, strategies to manage these risks can be laid out. One way is to company strategies across two dimensions: (i) System Instability and (ii) Network Option Variety.

Instability is the extent to which a supply chain faces rapid, uncontrollable changes or unpredictable conditions that threaten performance and customer fulfillment reliability, i.e., that threaten the task of balancing demand and supply. A clear example of high instability are the times for which a large part of the forecasted demand had not been scheduled in advance, which means that actual supply chain flows are unpredictable and transportation bottlenecks will have to be dealt with at the last minute. Additionally, any loss of transportation capacity can introduce instability into the system.

Options variety is the amount of transportation resources, including strategies, available to the decision makers in the transportation sector to respond to events in the system in order to keep demand and supply balanced at any specific period in time. It includes the available operating reserves and other transportation capacity, and the degree to which the system is capacity constrained. High option variety means, for instance, that the transportation network has available to it a range of resources and can operate well within its control. Low options variety means the resources are outside its control and, ultimately, that very few resources are left and the transportation network must operate close to, or even in violation of its constraints.

These two dimensions together set the conditions under which a transportation network has to pursue its high performance and customer fulfillment reliability. We posit four different performance modes for managing risks and achieving high performance in transportation network, which are termed: just-in-case, just-in-time, just-for-now, and just-this-way. Based on this the proposed transportation-related risk management framework is present in Figure 2. ‘Low’ and ‘high’ are obviously imprecise terms, though they are the terms used and commonly recognized by transportation practitioners. In practice, the system instability and options variety dimensions should be better thought of as continuum without rigid high/low cut-off points.

**Four Performance Modes**

We now provide a brief description of each transportation-related crisis risk management modes that are presented in framework in Figure 2. Similar frameworks have been applied in other industry area such as electrical utility systems (Lawrence Berkeley National Laboratory, 2006).

		<i>System Instability</i>	
		<i>High</i>	<i>Low</i>
<i>Network Option</i>	<i>High</i>	<i>Just-in-Time Performance</i>	<i>Just-in-Case Performance</i>

<i>Variety</i>	<i>Low</i>	<i>Just-for-Now Performance</i>	<i>Just-this-Way Performance</i>
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FIGURE 2: PROPOSED CRISES RISK MANAGEMENT FRAMEWORK

**Just-in-Case Performance**

When options are high and instability low, just-in-case risk management approach in transportation networks is dominant in the form of high redundancy. Reserves available to the transportation practitioners are large, excess capacity exists at all levels: transportation options are abound throughout the supply chain, and the consumer demand can be as much as forecasted with little or no unpredictability and/or uncontrollability. More formally, redundancy is a state where the number of different but effective options to balance demand and supply is high, relative to the market and technology requirements for balancing demand and supply. There are, in other words, a number of different options and strategies to achieve the same balance. The state of high redundancy is best summed up as one of maximum equifinality, i.e., a multitude of means exist to meet the reliability requirement.

**Just-in-Time Performance**

When options and instability are both high, just-in-time risk management approach in transportation networks is dominant. Option variety to maintain demand and supply remains high, but so is the instability of system variables, in both markets (e.g., rapid product/service price fluctuations leading to unexpected strategic behavior by market entities—refer ‘bullwhip’ effect in supply chain) and technology (e.g., limitations of transportation, and information-related tools).

This risk management approach demands ‘real-time’ flexibility, that is, the ability to utilize and develop different options and strategies quickly in order to balance demand and supply. Since decision makers in transportation networks are in constant communication with each other and others in the supply chain, options are reviewed and updated continually, and informal communications are much more frequent. Flexibility in real-time is the state where the managers are so focused on meeting transportation system performance and customer service reliability requirements and the options to do so that more often than not they customize the match between them, i.e., the transportation network options are just enough and just-in-time. The fact that the instability is high focuses manager’s attention on exactly what needs to be addressed and clarifies the search for adequate transportation network options and strategies. What needs to get done gets done with what is at hand as it is needed.

More formally, the state of real-time flexibility is best summed up as adaptive equifinality: There are effective alternative options, many of which are developed or assembled as required to meet the performance and reliability criteria. The increased instability in system behavior is matched by the flexibility in the focal organization in using network options and strategies for keeping performance within reliability tolerances and bandwidths. An important point to note is that substitutability of options and strategies is high for just-in-time performance.

**Just-for-Now Performance**

When option variety is low but instability is high, just-for-now risk management approach in transportation networks is dominant. Options to maintain demand and supply have become visibly fewer and potentially insufficient relative to what is needed in order to balance demand and supply. This state could result from various reasons related to the behavior of the open transportation network system.

Risks of unexpected shortages can occur, demand may increase to the physical limits of supply capacity; and the use of some options can preclude or exhaust other options, e.g., work overtime to supply chain fulfillment through the transportation network. In this case, unpredictability or uncontrollability has increased while the variety of effective options and strategies is diminished. Here, ‘transportation-related crisis risk management’ begins to come into play, e.g., the transportation network crisis may compel an manager to go outside official channels and call his counterpart at a vendor or a warehouse, who agrees to keep the deliver production unit, just-for-now.

More formally, just-for-now performance is a state summed up as one of maximum potential for ‘deviance amplification’: Even small deviations in elements of the market, technology or other factors in the system can have ramifications throughout the system. Marginal changes can have maximum impact in threatening the transportation networks performance and customer service reliability requirements. From the standpoint of reliability, this state is untenable. Here transportation entities have no delusions that they are in control. They understand how vulnerable

the transportation networks is, how limited the options are and how precarious the balance; they are keeping communication lines open to monitor the state of heightened crisis in the transportation networks; and they are busily engaged in developing options and strategies to move out of this state. They are not panicking and, indeed, by prior design, they still retain the crucial option to reconfigure the transportation networks system itself.

Just-for-now performance is also very fast paced and best summed up as ‘firefighting.’ When options become few and room for maneuverability boxed in (e.g., when demand continues to rise while new supply become much less assured and predictable), transportation managers become even more focused on the big threats to balancing demand and supply. As options become depleted, wraparound managers in the transportation networks come to pitch in and there is less need for lateral, informal relations across the transportation networks.

#### **Just-this-Way Performance**

In this last performance mode for balancing demand and supply, system instability is lowered to match low options variety and just-this-way risk management approach in transportation networks will be dominant. This risk management state occurs as a short-term ‘emergency’ solution. In a critical transportation crisis, the option is to tap down instability directly with the hammer of risk management crisis controls and forced network reconfigurations. The ultimate instrument of crisis management strategy is the declaration of heightened transportation crisis, which requires interruption of firm future orders and capacity allocations in order to bring back the balance of demand and supply from the brink of just-for-now state. The effect of heightened transportation crisis recognition is to reconfigure the transportation networks into a system under command and control management, as much as possible. Options to offset demand can be explored by checking with vendors and competitors, offering rain checks to customers or even turning them away.

More formally, just-this-way performance is a state best summed up as one of zero equifinality: Whatever flexibility could be squeezed through the remaining option and strategies is forgone on behalf of maximum control of a single system variable, in this case load. The effect of heightened transportation crisis recognition has become both a necessary and sufficient condition for balancing demand and supply, again by offsetting the demand directly through alternative supply sources. This contrasts significantly with the other three risk management approaches. There the options and strategies are sufficient, without being necessary. Under “just-this-way” risk management approach, the decision to offset demand has been taken and now information is centered on immediate survival. The vertical relations and hierarchy of an organization are expected to extend across the transportation network—like a *keiretsu*—even to the customer fulfillment entities in form of product shortages, if needed. Formal rules and procedure move centre stage, including the recognition of critical transportation crisis by all entities. Here the entire transportation network ought to perform as one organization.

## **Conclusions and Directions for Future Research**

Today an emerging and challenging research area, given the importance of transportation in practice, focuses on disruptions to transportation networks from various directions. Indeed, it can be argued that transportation-related risk is greater now than ever. Therefore, there is a need for developing standard risk dimensions that will enable a simple and useful process for identifying risks. This is a necessary task before formulating and implementing strategies and developing analytical models for risk management in transportation networks.

After having understood, assessed, and categorized risks in transportation networks, the next research issue emerges from the need to explore how risks are identified and managed in practice and whether flexibility, as proposed by the analytical models presented in the literature review, is the appropriate way to deal with it. Will the framework for transportation-related risk management proposed in this paper be applicable to real-life industry/transportation networks-related environment? It would be interesting as a second step to test and verify the developed framework in practice by conducting an appropriate empirical study. As far as modeling transportation network uncertainty is concerned, deterministic planning models, which do not recognize the uncertainty in the future demand, supply or production yield, can be expected to result in inferior planning decisions as compared to models that explicitly account for this uncertainty. Probability considerations are inherent to risk by definition. Therefore, the majority of analytical models related to transportation risk take into the stochastic nature of the

included variables. Techniques such as multi-criteria optimization or stochastic programming are applicable here. We have also come across stochastic dynamic programming models and use of techniques of stochastic control theory. Decision trees as well as Simulation, such as Scenario Techniques (Comprehensive Risk Analysis and Management Network, 2003), have also been used to model risk in the transportation networks context.

Given the large number of real options associated with transportation networks, quantitative techniques could be used to arrive at optimal exercise (operating) decisions, as well as to assess the overall impact of the option portfolio on the value and risk exposure of the company. Real options can be created and the value of existing options enhanced, by redesigning investment and operating strategies along two dimensions: timing and scope. On the temporal dimension, options are created by postponing investment or operating decisions in order to make them in a more “informed” manner. The scope dimension involves introducing an array of choices, such as different product configurations or suppliers, which creates an option to choose what turns out to be the value-maximizing alternative in the future and in each case<sup>1</sup>.

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## End Notes

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# HRM Practices and Service Quality in the Hospitality Industry

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## Abstract

Globalization is preoccupying industry practitioners and scholars in interrelated fields of the tourism and hospitality industry, particularly the hotel sector. Consequently, a number of printed texts that focusing on human resources management (HRM) in the international context of the industry appears growing steadily. The nature of HRM and the extent as to which it is adopted by the industry is examined. The literature concerning HRM and performance in the hotel sector is reviewed and its connection to in the hotel sector is discussed. This paper reviewed a study conducted by Haynes and Fryer (2000) in identifying elements of the HRM practices which best meets the demands of, particularly, the hotel sector operators, which provides more a customized service offer. Further, the paper was using secondary data to explore the application of HRM in the hotel sector. The need for further research is suggested.

## Introduction

People are believed to be one of the greatest costs and also the main assets of many organisations particularly in the hospitality industry. The extent of an organisation' success in terms of its survival and competitive position is determined by employees' qualities, attitudes and behaviour in the workplace. For example, the hospitality industry can no longer gain competitive advantage through technologies, companies' brand image, and physical facilities, but instead must focus on the quality of service provision to customers. It is for this reason, managing of people has become critical and imperative for the hospitality industry as more emphasise has been placed on service quality. As Alleyne, Doherty and Geenidge (2006) pointed out the hospitality industry (e.g., the hotel sector) is labour intensive and this makes it particularly important that it develops effective human resource practices and policies to achieve competitive success.

The hospitality industry particularly the hotel sector is expected to expand rapidly (Foroohar, 2002). For example, between 1991 and 1995, the hospitality industry, particularly, international tourism grew from 450 million international tourists to 567 million (Weaver, 1998 cited in Black, Ham, and Weiler, 2000) and it is estimated that international tourist arrivals will double between 1990 and 2010 (Black et al. 2000). Growing tourist arrivals can assist many nations to develop their economy (Cetron, 2001; Ramirez and Hartel, 2001). The hospitality industry generated US \$445 billion dollars in 1999 (WTO, 1999 cited in Ramirez and Hartel, 2001) and has also enabled many countries to improve their national economy. Consequently, it has become the most important legally conducted business in the world (Ramirez and Hartel, 2001). Indeed, the tourism and the hospitality industry is one of the most important job creators in the world (Cetron, 2001; Ramirez and Hartel, 2001; Affolter, 2001). In addition, the rapid development and widespread international adoption of information technologies has resulted in competition in the hospitality industry particularly the hotel sector being focused on the effectiveness and efficiency of systems and processes (Lazarevic and Terziovski, 2000). Thus, the effective of managing of people in the hospitality industry is imperative to consistently delivery of excellent service. This paper seeks to understand the extent of the adoption of Human Resource Management (HRM) applications and the need of the development of HR functions in order to provide service quality in the hospitality industry.

### Literature Review of HRM

As According to Nankervis, Compton and McCarthy (1999: 4) "early employee specialists were called personnel managers (or personnel administrators) and their main tasks are comprised of a set of activities such as recruitment, selection, training, salary administration and industrial relations". Kelliher and Johnson (1987 cited in Worsfold, 1999), in their original survey of all UK hotels found that in small hotels the responsibility of personnel management



was to recruit and select staff, whereas in larger hotels the situation was expanded to also include wider responsibilities, such as using written contracts, disciplinary procedures and equal opportunity policies.

There has been considerable debate as to whether HRM differs significantly from personnel management (Worsfold: 1999). As Nankervis et al. (1999: 4 - 5) argue personnel management activities (e.g., recruitment, selection, training, salary administration, and industrial relations) are “often performed effectively but with little relationship between the various activities, or with overall organisational objectives”. More recently, the concept of HRM has influenced professional practice which assumes that all personnel management activities are integrated with each other, and strategically with organisational objectives (Nankervis et al., 1999; Nankervis, Compton, and Baird 2002). Nankervis et al. (2002) argue that, in essence, HRM differs from earlier personnel management activities in relation to its focus, its principles, and its applications. Thus, as Nankervis et al (2002: 14) argue “the focus of HRM today is on the effective overall management of an organisation’s workforce in order to contribute to the achievement of desired objectives and goals, thus, all HR functions (e.g., recruitment, HRD, performance appraisal, and remuneration) are seen to be integrated components of overall HRM strategies”. This view is extended by Alleyne *et al* (2006) that HR practices consist of selective hiring, extensive training, employment security, diffusion of information, team working, reduction of status differences, performance related and incentive pay. In recent times, Alleyne *et al* (2006) argue there has been a debate about the differences between Industrial Relations / Personnel Management (IR / PM) and HRM as distinctive approaches to the management of people. Even further, Alleyne *et al* (2006) using the term of “unitarist frame of reference” (closely linked to individual as opposed to collective forms of management), alignment between organisational strategy and the way people are managed, a belief that people are key to competitive advantage which emphasise on flexibility and the utilisation of HR techniques which are intended to engender employee commitment. In addition, Alleyne *et al* (2006) coin the term of “best practice” that tends to be individualistic in terms of national culture, resistance to trade unions, the importance of building employee ability through good recruitment and training, strong role of financial incentives, and the value of enabling the employees to contribute their ideas through work design and employee participation; and “best fit” which seeks to have some *fit* between an organisation’s HRM policies and practices and its overall competitive strategy or position. Furthermore, Schuler and Jackson (1987 cited in Alleyne *et al*, 2006) expanded the term of external fit which is defined as situations where there is an integration of the HR systems with business strategy and the proposition that aligned HR system will perform best. On the contrary, Hoque (1999b cited in Alleyne *et al*, 2006) use the term of internal fit which refers to the synergistic benefits resulting from the introduction of HRM the introduction of HRM as an institutionally supported package of practice that cohere with and mutually reinforce each other. A study conducted by Huselid (1995 cited in Alleyne *et al*, 2006) in the US found a significant relationship between internal fit and employee turnover, productivity and organisational performance but insignificant relationship between external fit and the same performance measures.

#### **HRM in the Hotel Sector**

Increased competition in both national and global arenas has forced managers to reconsider the management of all resources within the organization, paying specific attention to the effective management of the human resource, leading to declarations such as ‘people are our most valuable asset’ (Biswas and Cassell,1996). The shift from traditional personnel management towards a more sophisticated human resource management has been reported extensively in recent years (Storey, 1989; Legge, 1989; Guest, 1989). Guest (1989) identifies the central levers for HRM as selection, training and rewards. As Goss (1994) considers, however, that the main features of a human resource management network include additional features such as welfare, trade unions, assessment, employee involvement and equal opportunities. A further and essential feature of the HR practices is that it is intended to be strategic in nature. Sophisticated human resource management practice stipulates that in order to be effective the HR activities of an organisation must be linked to an overall corporate strategy (Nankervis et al., 1999 and Nankervis et al., 2002) and that the business direction of the organisation must be reflected and supported by the HRM techniques adopted (Biswas and Cassell,1996).

Before discussing human resource strategies in the hotel sector it is useful to offer an insight into the unique characteristics shared by service industries. Sasser, Olsen, Wyckoff (1978 cited in Biswas and Cassell, 1996: 19) describe four main characteristics which render the sector as fundamentally different from manufacturing industries, namely “simultaneity; heterogeneity; intangibility; and perishability”. According to Sasser et al., (1978

cited in Biswas and Cassell, 1996: 19) simultaneity refers to “production and consumption of services; clearly these occur simultaneously”; for example, a meal in a restaurant is consumed as part of the process of the whole event, immediately after it has been prepared and while the consumer and producer are in close proximity, unlike manufacturing where the producer may be thousands of miles from the consumer. As said by Sasser et al., (1978 cited in Biswas and Cassell, 1996: 19) heterogeneity describes “the way in which the hotel sector and restaurants aim to reproduce the same quality of service each time but in actual fact this can vary substantially from establishment to establishment and from day to day because of the variables, e.g. staff attitude, mood, and work atmosphere”. Sasser et al., (1978 cited in Biswas and Cassell, 1996); Hall (1995, 1998); Rowe (1998) argue that services are intangible; therefore the quality of the service is indefinable and will vary from consumer to consumer depending on their experiences, perceptions and expectations. As stated by Sasser et al., (1978 cited in Biswas and Cassell, 1996: 19) perishability indicates that “services have a definite lifespan and cannot be stored”. They gave an example whereby if a hotel has 100 bedrooms and on any given night sells only 90 rooms, those ten bedrooms that remain unsold are ‘lost sales’ as they can never be sold again at a later date. According to Biswas and Cassell (1996), taking these four factors into consideration it becomes clear that the role of the employee in the service process is vital. The employee is the service provider; therefore “the HR strategy is clearly of great importance in terms of securing the operational success of the organisation” (Biswas and Cassell, 1996: 19).

The labour market features of the hotel sector are also significant (Riley, 1991). In addition, Riley (1991: 15) describes such features include “a fairly large proportion of unskilled labour; the transferability of skills between broad ranges of hotel and catering establishments; high levels of labour turnover; absenteeism; and low levels of pay”. Clearly any human resource management strategy must focus on the here and now because of the transient nature of the labour force and indeed the added unpredictability of business within the service sector. As Riley (1991); Whittington (1993); and Legge (1995) identify, the hotel sector relies on employing ‘types’ of associates to ‘fit in’ with the organisation.

As stated earlier, service in the hotel sector can be tangible and intangible. The relationship between tangibles and intangibles as sources of customer satisfaction is an influential factor in determining the employment strategies which a firm uses and the form which HRM takes. As the significance of the intangible element increases, the need to gain employee commitment in ‘delighting the customer’ as a result of training program increases, and the amount of discretion accorded to the employee also increases (Lashley, 1998). Lashley (1998); Storey, Ackers, Bacon, Buchanan, Coates and Preston (1994 cited in Worsfold, 1999); and Worsfold (1999) state that HRM in hospitality organisations stresses the broad choices open to management as being between concerns for controlling labour as a resource (hard) and gaining greater commitment from associates in increasingly competitive situations (soft). The importance of HRM in the hotel sector is thus concerned with control and commitment; for examples, given the nature of most service encounters within hospitality organisations, employee commitment to successful encounters that stress the importance of ‘delighting the customer’ and maintaining the integrity of a branded concept, associates need to provide customer service within controls set by the organisation (Lashley, 1998). In order to ‘delight the customer’ thus HRM persons need to use the skills required of front-line associates provided through training that is in line with organisational business objectives (Kelliher and Johnson, 1997).

An important role of HRM (in the area of service quality) is that HR practices in the hotel sector are integrated with its business strategy (Worsfold, 1999). It is self evident, that in terms of service quality the behaviour of the service provider is of paramount importance (Samenfink, 1994; Sparks, 1994; Mohr and Bitner, 1995) and customer perceptions of satisfactory service have been shown to be directly influenced by the behaviour of service providers which, in turn, appear to be influenced by HRM (Worsfold, 1999). A study by Peccei and Rosenthal (1998: 66 – 86) supports the importance of the HRM role in the hotel sector and states “there is a clear link between commitment to customer service (the hotel sector) and the employee capacity variables of employee knowledge and competence (the behaviour of service provider, e.g. front line staff), thereby suggesting the importance of recruitment, selection, induction, socialisation, and training (HRM function)”. It can said therefore, that given the importance of the customer and employee interaction to the service encounter, HRM has a key role to play in providing service quality where customers engage in a subtle and complex experience which is personal and psychological.

However, It can be argued that regardless of the importance of the HRM role in the hotel sector, particularly in the area of recruiting and training, the hotel sector appears to invest huge amounts of money in training. As Melia (1992: 38) stated, “training for front line associates is necessary in the hospitality industry”, however, questions have been raised as to whether the money is being spent wisely.

It is possible to differentiate customer orientation or service operational types within the service sector (e.g., the hotel sector) in order to identify appropriate management approaches (see Bowen and Basch, 1992 cited in Haynes and Fryer, 2000; Heskett, Sasser and Hart, 1990 cited in Haynes and Fryer, 2000). Reviewing Lashley’s (1998) work in Haynes and Fryer (2000) classifies the most suitable HRM approaches for service operations according to the degree of customization of the service offer and form and the locus of management control of employee performance in which the latter refers to the extent to which control is exercised by management externally (e.g., monitoring, performance pay) as opposed to control strategies reliant on employees internalising organisational objectives. He argues there are four ideal types to ensure service quality such as involvement, professional, participative, command and control. Indeed, he further explains the importance and nature of personalized “service offer” which is at the same time constrained by financial and marketing factors primarily cost considerations and the requirements to maintain brand consistency. Additionally, Lashley (1998 cited in Haynes and Fryer, 2000) argues a new shift of HRM towards service quality from “command and control style” to a more customized in the intangible element of the service offer which reflected in the renewed emphasis on delighting customers as well as standardized in tangible element which reflecting the strong branding of an international hotel chain. Moreover, he emphasizes greater reliance on internal control mechanism that fits involvement style. Studies conducted by Kanji and Asher (1993) stressed the expansion of role of employee to that internal customer and found it is necessary to achieve successful internal working relations in order to be able to satisfy external customers. Johnson (1993) supported this view by saying service quality is driven by the realization that every person in the organisation has internal customers who must be satisfied. It appears that providing service quality to customers depends upon the quality of internal service given to employees. It is expected therefore, the challenge in delivering service to internal customers will be delineated including the culture of organizations (see Cannon, 2002). As explained by Lashley (1998 cited in cited in Haynes and Fryer, 2000) the importance of having management policies and practices in a quality focused hospitality industry strategy is described in FIG. 1 below.

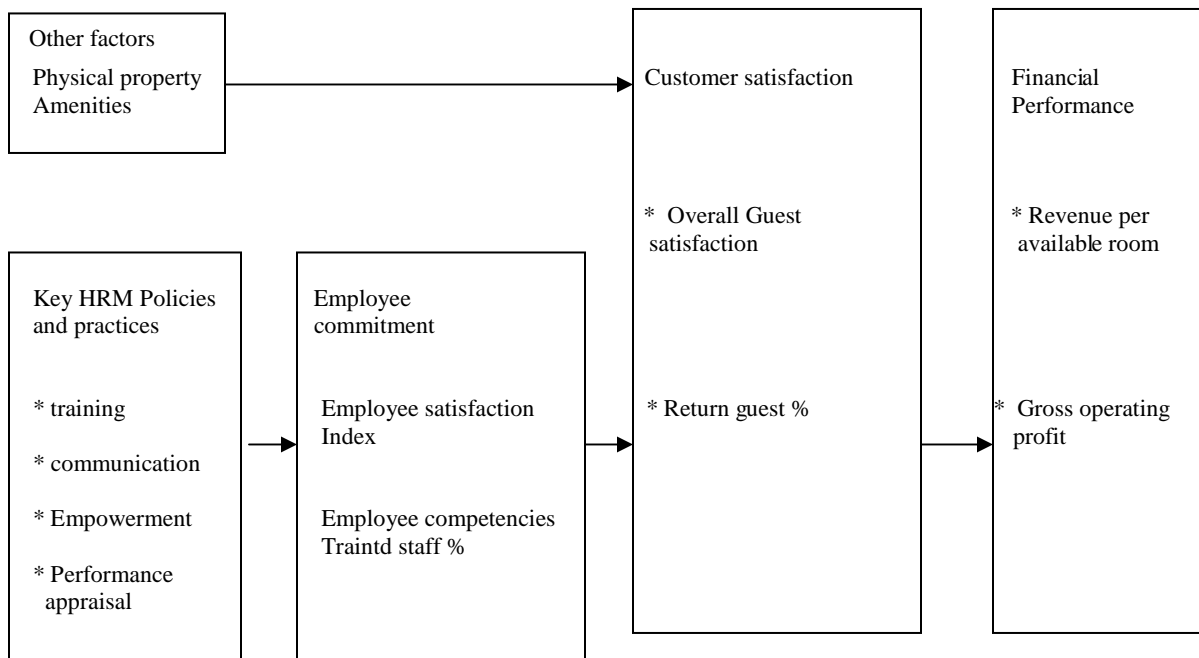


FIGURE 1: MANAGEMENT POLICIES AND PRACTICES IN A QUALITY FOCUSED HOSPITALITY INDUSTRY STRATEGY

Source: Haynes and Fryer (2000) case study in a luxury hotel in Auckland, New Zealand

In order to sustain excellence in customer service thereby increasing customer satisfaction and financial performance is considered necessary to engage employees to provide them with competencies required. The HRM policies and practices are seen critical to the success of the strategy which is referred to Key Performance Indicator. Changes to HRM policies and practices are as follows :

**Training and Career Development**

Given the variety of training types in the hotel sector, however, most organisations appear to be using a ‘traditional approach’ to training activities which consists of the assessment of training needs, the use of training methods to deliver content based on needs, and finally a comprehensive evaluation of the program using several different evaluation criteria and strategies (Tracey and Tews, 1995). The concept of a ‘traditional approach’ to training has now been refined particularly in the area of the assessment of training needs (Putra, 2002b); for example, Nankervis et al., (1999) and Nankervis et al., (2002) state that in order to approach training needs more systematically, three different analyses are required. These are organisational analysis, task analysis, and person analysis. From a thorough needs analysis, then, managers can develop the learning objectives of such programs. After this, managers can select and design the most appropriate methods to deliver training. Once the needs assessment has been completed, the next step is to conduct the training programs and establish criteria which can be achieved via a needs assessment. A thorough assessment also identifies non-training issues that should be addressed before one evaluating the program. After the training program is completed, evaluation is undertaken to determine its effectiveness. This view is supported by Machles (2002) who stated that to ensure success with training, the need for training must be clearly identified and this can be achieved via a needs assessment. A thorough assessment also identifies non-training issues that should be addressed before training is initiated. Once needs are identified, clear objectives must be developed which describe what the learner will do, state the conditions under which they will do it, and establish criteria by which successful performance will be judged.

Smith and Cooper (2000) state that it is now time to shift from concern with the elements of the training programs, i.e., needs assessment, training methods and evaluation, to more concerned with a focus on the delivery of

the training, particularly on relating the training to the program objectives, and closely matching training situations to work situations. They emphasize the interactive relationships between these aspects of training programs.

Haynes and Fryer (2000) found the career structure for operational and managerial staff is linked to employee performance and development review. From Haynes and Fryer study, it was discovered that management training has been emphasised leadership skills (giving power to managers to involve staff and lead changes).

#### **Communication**

Haynes and Fryer (2000) revealed importance of having regular meeting (monthly basis) with staff and HR Director and HR Managers as well as with the General Managers to reinforce the vision and values underpinning the new strategy. In addition, meeting with departmental level which focuses on performance targets for each unit.

#### **Performance Level**

It focuses on employee development and review process and concentrates to job success factors, key performance indicators and competencies.

#### **Job Redesign and Empowerment**

Haynes and Fryer (2000) noticed the worth of redesign the job to allow greater discretion in solving guest's problems. Indeed, staff are empowered to strive for excellence in the service .

Furthermore, Haynes and Fryer (2000) found out positive outcomes such as increasing employee satisfaction, work improvement, reduced labour turn over. In terms of financial performance also improved quite fairly.

## **Conclusion and Managerial Implication**

Even though the paper was a conceptual study, this study provided a useful theoretical approach and demonstrated how HRM can possibly have a link to organisational performance, in this case, to provide the quality of service to people.

For many travellers, what separates one hotel from another is the quality of service. Unfortunately, good service is so intangible a concept that it is difficult to say what the hotel sector can do to improve things. This is one of the toughest challenges for the hotel sector because a guest always has the potential to interact with so many different front line associates at so many times of the day. To accommodate a guest's high expectations of good service, front line associates must be given the tools to do their jobs, and one of these tools is training. As the professional practice of hospitality becomes more widespread, professional hotel managements are likely to play a central role in co-ordinating organisational tasks, structures, people, conducting training and introducing new technology.

The experience of the study done by Haynes and Fryer is expected to assist the hospitality industry scholars and practitioners in identifying elements of the HRM practices which best meets the demands of, particularly, the hotel sector operators, which provides more a customized service offer. The model proposed by Haynes and Fryer depicted a possibility a linkage between HRM and organisational performance.

A research needs to be undertaken to find out whether the model can be applied in hotels in Indonesia to determine the relationship between HRM strategies and organisational performance. Further study also needs to be carried out to find out, if any, other factors which may contribute to organisational performance.

Despite the limitation of this study, a model developed by Haynes and Fryer may be adequate for others who demand a simple which they can understand.

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# Key Factors of Internet e-Retailing in the Metropolitan Environment

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## Abstract

This paper explores consumer behavior associated with Internet e-retailing in the metropolitan environment of Hong Kong. It incorporates local market background and social influences to examine the key factors of Internet e-retailing. The empirical results show that consumers might consider Internet e-retail services if the social members in the community have similar interests. However, the easily accessible local retail outlets and individual concern about the risk of virtual business significantly affect consumer behavioral intention to use Internet retail services. The findings have managerial implications for developing Internet-based retail business in mature metropolitan environment.

## Introduction

The Internet together with the implementation of innovative business practices plays a fundamental role in the development of e-commerce. However, it is not uncommon that many virtual business models can not achieve expected outcomes due to the misunderstanding of consumer behavior in a particular market environment and social context. At the early stage, service providers intensively promoted the benefits of e-commerce services, because they assumed that individual consumers might be willing to use the services. Existing studies show that e-commerce would be influenced by many variables in different market environments and social contexts, while individual consumers would rationally explore innovative services (Vijayasathy 2004).

The traditional retail market environment in Hong Kong is characterized by its convenience and a variety of different goods and services. In general, many consumers enjoy shopping individually or with friends and relatives. Individual taste, style, and shopping behavior are influenced by fashion, in-group opinions and shared assumption in such a collective society. Thus, subjective norm might influence consumer perception and shopping behavior. The issue of social context being involved in the process of psychological adoption of technological innovation should not be overlooked in certain circumstances (e.g. Hasan & Ditsa 1999; Venkatesh & Morris 2000). Therefore, it is meaningful to explore the social context associated with consumer perceptions on e-retail storefronts. This paper aims to examine consumer perceptions on e-retailing in the metropolitan environment of Hong Kong. It begins with the descriptions of our research model and hypotheses followed by research methods. It then presents the empirical results and discusses the impact of several factors on consumer attitude towards e-retailing and behavioral intention to use e-retailing. Finally, it highlights the managerial implications and the direction for future research.

## Model and Hypotheses

The theory of reasoned action (TRA) suggests that the immediate antecedent of a behavior is the intention to perform the behavior in question (Fishbein & Ajzen 1975). It specifies two conceptually independent determinants of intention. The first predictor is a personal factor termed attitude towards behavior, it refers to the degree to which an individual has a perception of a particular behavior. The second predictor of intention is subjective norm, which is a social factor referring to the perceived social pressure to perform or not to perform the behavior (Ajzen & Madden 1986). On the basis of the TRA, the technology acceptance model (TAM) was suggested for modeling the end user acceptance of computer-based information systems (Davis 1989; Davis et al. 1989). The TAM is capable of explaining user behavior across a broad range of end-user computing technologies. It asserts that the influence of external variables upon user behavior is mediated through user beliefs and attitude. Perceived usefulness and

perceived ease of use are two major constructs. Numerous studies have sought to expand the TAM by incorporating additional constructs. For example, Taylor and Todd (1995) suggest additional antecedent constructs that underlie the decision of technology adoption. In addition, Szajna (1996) systematically examines the measures of actual system acceptance instead of intended usage. Venkatesh and Davis (1996) test a theoretical extension of the TAM, which explores perceived usefulness and usage intentions in terms of social influence and cognitive instrumental processes using the data regarding four different systems at four organizations. Furthermore, the TAM has been used to examine individual acceptance and usage of websites (van der Heijden 2003). Recently, the TAM has been applied to examine electronic commerce in different contexts (e.g. Gefen et al. 2003; Eriksson et al. 2005). This study applies the TAM and incorporates social constructs to explore consumer behavior in relation to e-retailing in the metropolitan environment of Hong Kong.

#### **Perceived Usefulness**

Perceived usefulness is defined as the prospective user's subjective probability that using a specific application system could enhance job performance within an organizational context (Davis et al. 1989). It refers to the degree to which an individual believes whether the use of a particular information system could enhance a particular performance. It also captures the extent to which a potential user views the innovation as offering value over alternative ways of performing the task (Agarwal & Prasad 1999). In terms of the usefulness of an e-storefront, it is desirable if it has such features as availability, accessibility and personalization. The availability refers to that a website is available so that individual consumers can virtually access information and carry out business transactions with a particular service provider (Liao & Cheung 2001; Liao & Cheung 2002). In addition, individuals should be enabled to customize their personal data, send in requests for services, and purchase product beyond normal opening hours of retail stores. Therefore, Hypothesis 1 is proposed:

H1: Perceived usefulness is positively related to consumer attitude towards e-retailing.

#### **Perceived Ease of Use**

Perceived ease of use refers to the degree to which the prospective user expects the target system to be free of effort (Davis et al. 1989). Existing studies suggest that the perceived ease of use is a determinant for the adoption of innovative services or products. For instance, Cooper (1997) discovers that ease of adoption as an important characteristic for considering innovative services from the consumer's perspective. In terms of virtual storefronts, a website should enable favorable and compelling individual experience (Schenkman & Jonsson 2000). It should also allow easy browsing with a search function dedicated to quickly lead users to the required information (Huizingh 2000). Consumers of technology-based self-services might be concerned about the effort required to use such options and the complexity of the process of service delivery (Dabholkar 1996). Perceived ease of use is generally regarded as an attribute associated with computer-based information systems, because it makes individuals feel enjoyable (Davis 1989). Similarly, Internet-enabled purchase is performed on the screen of a computer-based device, while user-friendly interface should help search information. In particular, perceived ease of use may include intuitive search engine for acquiring information and simple procedure for performing transactions. Therefore, Hypothesis is proposed.

H2: Perceived ease of use is positively related to consumer attitude towards e-retailing.

#### **Perceived Risk**

It seems not uncommon that consumers are concerned about the risk associated with an emerging service. In terms of e-commerce, perceived transactions risk has been shown to strongly influence the business over the Internet (Lee & Clark 1996). It has also been empirically proved that perceived risk is a significant factor affecting consumer behavior (Cunningham et al. 2005). It is essential to ensure security by ensuring that transaction data is kept confidential and that it is not misused (Kiely 1997). The systems must be designed to minimize unauthorized use of e-payments and to maximize the safety of financial information. Privacy over Internet is an issue of increasing concern, with individuals being reluctant to e-business for the fear of unauthorized or illegal duplication and circulation of information (Keeney 1999). To alleviate perceived anxiety, digital platforms must effectively protect users by implementing serious security procedures and systems. Provisions of this nature would help enhance the credibility of service providers (Kienan 2000). Therefore, Hypothesis 3 is proposed:

H3: Perceived risk considerably affects consumer attitude towards e-retailing.



### **Local Retail Environment**

Hong Kong has a highly accessible urban environment around which there are many retail stores and shops. Consumers can easily purchase whatever they need within a reasonable time and travel distance. In addition, due to the limited outdoor facilities, even window-shopping with friends becomes a habit of many residents, especially at weekend. Many local consumers have traditionally adapted the local retail market environments. They might not easily change their shopping habit and purchasing behavior, because individual values and beliefs of individuals that usually develop from childhood and reinforce throughout life might affect individual behavior (Hasan & Ditsa 1999). Moreover, consumers can easily feel, touch and try on fashionable goods in brick-and-mortar stores, which is not available in the virtual environment at this stage. Therefore, Hypothesis 4 is proposed as follows:

H4: The easily accessible local retail market considerably affects consumer attitude towards e-retailing.

### **Consumer Attitude and Intention**

Individual behavioral intention to use a system is determined by one's attitude towards the system, while attitude is a learned response that refers to an individual's evaluation of a concept (Fishbein & Ajzen 1975). In general, attitude towards behavior refers to the degree to which a person has a favorable or unfavorable evaluation of the behavior in question (Ajzen & Madden 1986). The TAM postulates that individual attitude together with perceived usefulness and ease of use is determinants of behavioral intention. Existing studies discover that the impact of attitude on intention to use is significant, while behavioral intention to use a system is directly determined by an individual attitude towards the system (e.g., Agarwal & Prasad 1999; Moon & Kim 2001). Therefore, it should be meaningful to examine the following hypothesis:

H5: Consumer attitude is positively related to behavioral intention to use e-retailing.

### **Social Influence**

The influence of an individual's social group should not be ignored, because perceived social surroundings influence individual to perform an activity in a collective society (e.g. Ajzen & Madden 1986, Hasan & Ditsa 1999, Venkatesh & Morris 2000). Such influences come from parents, family, friends, classmates and relatives and co-workers. Work environment might also affect individual behavior intention of adopting innovative means to accomplish tasks (Morris & Venkatesh 2000). The influence of social groups should be examined, because it is not uncommon that members of a social group usually observe subtle or implicit commitments with the group identity such as fashion, style, taste and consumption behavior, information and even opinion spreading among group members. One might attempt to try if peer friends often use e-retailing. In other words, if the members within a group generally accept e-retailing, an individual associated with the group might be motivated to do so. Therefore, Hypothesis 6 is proposed.

H6: Social group has a positive impact on consumer behavioral intention to use e-retailing.

## **Research Methods**

Our research methods include literature review, questionnaire design, survey and data analysis. The availability of the measures of individual attitude in the existing literatures suggests the importance of empirical analysis. Hence, a questionnaire was design to consist of thirty five questions in relation to perceived usefulness, perceived ease of use, perceived risk, local retail market environment, social influence, consumer attitude and behavioral intention. It was aimed to elucidate the individual perceptions on various variables associated with the concerns mentioned in the previous section and to measure the likelihood of respondents in making purchase decisions through e-retailers. Consumers were requested to indicate perceived importance of different variables and their intention to use e-retailing, based on a seven-point Likert-scale, with "1" scoring the lowest point, not important or strongly disagree, to "7" scoring the highest point, very important or strongly agree. Five hundred questionnaires were randomly circulated to individual consumers. As a result, one hundred and ninety five useful responses were received for data analysis. The response rate is thirty nine percent. The demographics include one hundred and two females and ninety three males, while age ranges from eighteen to over sixty years old.

The Statistical Package for Social Science (SPSS) has been employed to test the data collected. In particular, the following multiple regression models have been used to examine the hypotheses proposed in the previous section. Model I explores whether individual attitude towards e-retailing is attributed to perceived usefulness, perceived ease of use, perceived risk and local retail market environment.

$$\text{Model I: } y_1 = b_0 + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + \varepsilon_1$$

where,  $y_1$ : Attitude towards e-retailing  
 $x_1$ : Perceived usefulness  
 $x_2$ : Perceived ease of use  
 $x_3$ : Perceived risk  
 $x_4$ : Local retail market environment  
 $\varepsilon_1$ : Error term

Model II explores whether consumer behavioral intention to use e-retailing is significantly influenced by individual attitude and social groups.

$$\text{Model II: } y_2 = b_0' + b_1' y_1 + b_2' x_5 + \varepsilon_2$$

where,  $y_2$ : Intention to use e-retailing  
 $y_1$ : Attitude towards e-retailing  
 $x_5$ : Social influence  
 $\varepsilon_2$ : Error term

## Results

The empirical data collected from our survey have been examined using reliability test and regression analysis. Reliability test suggests that the values of Cronbach Alpha are greater than 0.7 (TABLE 1). The results show that the items associated with a particular factor are relatively consistent: perceived usefulness (0.817), perceived ease of use (0.803), perceived risk (0.828), local retail market environment (0.892), social influence (0.902), consumer attitude (0.860), and behavior intention (0.728).

Multiple regression analysis is conducted to articulate the impacts of several factors on consumer attitude towards e-retailing. As shown in TABLE 2, the result of Model I ( $F = 41.038$ ,  $d.f. = 4, 190$ ,  $p < 0.001$ ) together with the adjusted  $R^2$  (0.452) indicates that 45.2% of the variation of the endogenous variable ( $y_1$ ) has been significantly explained by the exogenous variables. It also suggests that H1 is strongly supported, because the perceived usefulness is positively related to consumer attitude towards e-retailing ( $\beta_1 = 0.474$ ,  $t = 8.778$ ,  $p < 0.001$ ). In addition, H2 is supported, because perceived ease of use has a positive impact on consumer attitude ( $\beta_2 = 0.332$ ,  $t = 5.833$ ,  $p < 0.001$ ). H3 is supported, because the perceived risk is negatively related to consumer attitude ( $\beta_3 = -0.110$ ,  $t = -1.987$ ,  $p < 0.05$ ). Moreover, H4 is supported, because the result shows that the highly accessible retail environment is negatively related to consumer attitude ( $\beta_4 = -0.123$ ,  $t = -2.200$ ,  $p < 0.05$ ). Hence, it has a significant effect on individual attitude towards e-retailing.

The result of Model II ( $F = 96.280$ ,  $d.f. = 2, 192$ ,  $p < 0.001$ ) also shows that Model II has a significant explanatory power. The adjusted  $R^2$  (0.497) indicates that 49.7% of the variation of the endogenous variable ( $y_2$ ) can be explained by the exogenous variables. H5 is supported, because consumer attitude is positively related to their behavioral intention ( $\beta_1' = 0.675$ ,  $t = 12.993$ ,  $p < 0.001$ ). Therefore, individual attitude significantly affects individual behavioral intention. Finally, H6 is supported, because social influence is positively related to behavioral intention ( $\beta_2' = 0.118$ ,  $t = 2.263$ ,  $p < 0.05$ ). Therefore, the opinions and behaviors of different social groups significantly affect individual behavioral intention to use e-retailing.

TABLE 1: RELIABILITY TEST

Construct	Number of Items	Cronbach's $\alpha$
Perceived usefulness ( $x_1$ ): competitive price, product variety, special goods, anytime, anywhere, fast delivery, efficiency, customer relationship, personalized service	9	.817
Perceived ease of use ( $x_2$ ): ease of search, product directory, clear classification, presentation, simple procedure, helpful instruction	6	.803
Perceived risk ( $x_3$ ): unauthorized use of credit card, release of private data, inaccurate information, inconsistent product delivered, unpredicted quality, difficult to get refunded, limited maintenance, poor after sale service	8	.828
Local retail market environment ( $x_4$ ): convenient and attractive retail facilities	2	.892
Social influence ( $x_5$ ): suggestions and behaviors of friends, colleagues and relatives	6	.902
Attitude towards e-retailing ( $y_1$ ): positive to e-retailing, interested in e-retailing	2	.860
Intention to use e-retailing ( $y_2$ ): wish to use e-retailing, plan to use e-retailing	2	.728

TABLE 2: MULTIPLE REGRESSION ANALYSIS

		Standardized Coefficients ( $\beta$ )	$t$	Sig.
Model I	Constant		1.335	.183
	$x_1$	.474	8.778	.000
	$x_2$	.332	5.833	.000
	$x_3$	-.110	-1.987	.048
	$x_4$	-.123	-2.200	.029
Model II	Constant		1.408	.161
	$y_1$	.675	12.993	.000
	$x_5$	.118	2.263	.025

## Discussion

The empirical results suggest that perceived usefulness and perceived ease of use significantly influence consumer attitude towards e-retailing. If virtual storefronts can enable individual consumers to purchase products by clicking and selecting various choices on the websites, they are interested in using e-retailing apart from visiting brick-and-mortar stores. As a result, consumers might considerably save time and efforts. In addition, e-retailing might have a cost advantage, because it could eliminate intermediaries through direct sales to individual consumers. If an individual would perceive a cost advantage compared with other retailers, he might be willing to shop in a virtual storefront. In order to compete with traditional brick-and-mortar stores, companies being involved in e-retailing should provide consumers with incentives by promoting products and services at competitive prices. They should also develop competitive marketing strategies to encourage consumers to purchase products, which might not be available in traditional retail outlets. Individual consumers might have unconventional demand and personal preference in different circumstances. Therefore, e-retailers should develop websites enabling tailor-made services for customers.

Perceived risk possesses a relatively negative impact on consumer attitude towards e-retailing, because individuals might worry about the unpredictable risks in the virtual environment. In particular, they are not able to touch and feel the products in the virtual environments. The risk to order a low quality product should be a concern. Therefore, consumers would usually not purchase such goods as clothes and shoes without trying, even if they were

interested in e-retailing. In order to reduce consumer concerns about risk, the explanation of online security should be provided. Detailed information on products and services should also be available. Moreover, consumers should be acknowledged that serious procedures have been implemented to assure the security of credit card payments and to protect personal information and privacy associated with online transactions.

The highly concentrated retail environment significantly discourages consumers to consider e-retailing in Hong Kong. Those who have a habit to purchase in brick-and-mortar stores are unlikely to go for e-retailing, because their habit might not be easily changed for the time being. Actually, the traditional retailing continuously evolves in Hong Kong, although Internet-enabled e-retail business has been developed over the last few years. Therefore, we believe that it would be beneficial if companies could simultaneously operate virtual storefronts in addition to their existing retail business. It would also be beneficial if they could provide consumers with useful information, and match virtual sales with quality products and excellent logistics services based on advanced information and communications technology.

Social groups have a significant impact on consumer behavioral intention to use e-retailing. It is likely a popular phenomenon in a collective society in which one tends to follow if friends, relatives, co-workers, and classmates have a positive attitude to e-retail business. Our empirical findings justify that there is a contextual reality, i.e. social group or so-called word of mouth is important for spreading the image of an e-retailer's brand together with its products and services. Considering the local retail market environment together with the local social context, retailers are suggested to concurrently operate retail business in dual tracks of brick-and-mortar and virtual stores, because the availability of Internet enables individuals to conveniently carry out online services. In particular, if the consumers have extensive computer knowledge and Internet skills, they can easily browse the websites of different e-retailing to search products and services without a request for assistance from others. At this stage, it seems practical if e-retailing focuses on providing information and selling standardized products to encourage repetitive purchases. Therefore, companies should utilize the Internet to facilitate their traditional retail businesses. For instance, it would be useful to use e-advertising to promote products and services and provide consumers with online acknowledgement, order confirmation and other after-sale services.

## **Conclusion**

The empirical examination of consumer perceptions of several factors associated with the existing e-retail services in the context of Hong Kong results in theoretically and practically useful implications. The present work extends the general approaches of technology diffusion (Rogers, 1995), since it explores consumer behavioral intention to adopt e-retailing and explains individual's autonomous intention to adopt the innovative services. It suggests a cross-disciplinary integration of e-commerce and service marketing with strong explanation power.

The present findings reveal that social group has strong impact on one's intention to use e-retailing. Our finding is consistent with information cascading and herding behavior among later users of innovative products and services (Bikhchandani et al. 1992). It seems meaningful to trigger off consumer information cascading and herding behavior and achieve a critical mass of customer base to roll the e-business tide against brick-and-mortar retail rivals, because herding behavior of those later users can be triggered off by early users' action, information spreading, especially word-of-mouth from popular public figures to youth (Ellison, 1995). In addition, the early users usually benefit from being proud of being opinion leaders and their wise selection. They might be more than willing to pass the information to later users and result in asymmetric information cascade. Therefore, in order to encourage more consumers to use e-retailing, incentives can be provided to the existing users for passing on information to different social groups.

It might be assumed that consumers may take reasoned actions in a planned way of purchasing, if they perceive the e-retailing useful and easy to use. However, purchasing decisions can be instantly influenced by emotion and feeling at the buying stage, especially for those fashionable products or services for female consumers, because these products and services can enhance individual visibility and image, and satisfy their psychological desire of success. To offset the consequences of a concentrated local retail market, retailers might consider providing consumers with particular merchandises that are not easily available at the present brick-and-mortar

stores. They are also suggested to capture the concerns and expectations of different consumers, provide information to facilitate them to make purchase decisions, and utilize the Internet to promote high value-added products and services.

Furthermore, the present findings can be practically applicable to other social settings although the present information is derived from a collective social context. In Hong Kong, many consumers are knowledgeable in selection of products and services, because they receive information from different promotions. In order to compete with virtual retailing, many existing brick-and-mortar retailers in Hong Kong concurrently develop both physical and virtual storefronts to accommodate the needs of different consumers. Such experience might be useful for retailers in other regions when operating virtual storefronts and promoting products and services.

The repetitive use of e-retail services by consumers is critical to the sustainable development of e-retailing. As far as this is concerned, though the building of a user friendly and secure service platform is essential, the delivery of quality products and the provision of excellent services are important to generate positive customers' impression and experience. In general, rational consumers might be willing to take certain risk to gain expected benefits, because they understand that nothing is risk free in the world. Therefore, e-retail companies need to guide and accommodate customers, develop their experience and habits in using virtual storefront facilities. It is also the foundation to develop consumers' confidence and enhance their trust in e-retail services. Future research can be carried out along similar venues of contextual dimensions to compare consumer behavior associated with e-retailing across different contexts. It should also be meaningful to incorporate different theories, constructs and variables to explore consumers' attitudes and behavioral intentions to use e-retailing in different market and social environments.

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# Internationalization of Retailing: Strategic Overview of Retail Industry in Japan

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## Abstract

Japan has become a major destination for foreign retail investment with some of the largest global retailers entering in the last seven years. However, many are finding the Japanese market extremely difficult. Carrefour abandoned its 'go it alone' strategy in 2005 whilst Wal-Mart has operated in deficit since entry in 2002. The relative 'failure' of these global giants is a stark wake up call to retailers planning to internationalise, and an illustration of the unique challenges the Japanese retail sector presents. This paper provides a strategic overview of this recent internationalisation phenomenon. It reviews recent retail change in Japan, the extent of recent foreign entry, and examines the key drivers behind these developments. It goes on to discuss the key challenges facing foreign retailers in this market, and sets out a number of critical success factors to minimise risk. It argues that given the difficulties faced by retailers in Japan, and the unique challenges these present, that these rules for success are perhaps more important in the Japanese market than any other.

## Introduction

Retailing is increasingly an international industry. Although foreign retail expansion dates back to the end of the nineteenth century, in the last ten years the pace and scale of internationalisation has increased dramatically.

A major destination for recent foreign retail investment is Japan. Although the level of internationalisation remains low, recent economic recovery, progressive de-regulation, and its continued position as the world's second largest retail market makes Japan an increasingly attractive proposition for retailers striving to maintain and grow profits.

However, although Japan provides undoubted opportunities for expansion, high operating costs, a complex distribution system, a few remaining regulatory barriers, and the notoriously demanding Japanese consumer present foreign retailers with huge challenges and potential risks.

To maximise the chances of success it is critical that retailers understand the characteristics of this rapidly changing market, and are aware of potential challenges and risks. This paper aims to provide this understanding by presenting a strategic overview of the retail internationalisation phenomenon in Japan. Covering each area in turn, the paper will:

1. Briefly review current trends and processes in retail internationalisation;
2. Review recent consumer and retail market trends in the Japanese market, the extent of internationalisation, and the implications of this foreign investment;
3. Examine the key drives behind this increased foreign entry;
4. Discuss the key opportunities and challenges/risks facing foreign retailers, and;
5. Set out the critical success factors to exploit Japanese retail investment opportunities and minimise risk.

## Retail Internationalisation: Evolution, Drivers & Modes of Entry

To set the context to foreign retail investment in Japan, we first briefly review the broader process and trends in retail internationalisation.

### Current Trends

Retail internationalisation is not a new phenomenon. Alexandra (1997) describes six distinct phases, dating back from the 1880-1945 ‘genesis’ period, characterised by limited expansion of US and European speciality and department stores to select major foreign cities, through to the 1989-2000 ‘regionalisation’ phase, characterised by regional expansion<sup>1</sup> of US and European retailers and initial forays into new eastern European and Asian markets.

Recently however, from the mid to late 1990s, there has been a dramatic increase retail internationalisation and the birth of a new ‘globalisation’ phase (Coe and Lee, 2006). This current globalisation phase - characterised by the rapid global expansion of a small group of large grocery retailers – is distinguished from previous phases in a number of ways (GPN, 2003).

First, after initial forays into Eastern European and Asian markets, these are now the dominant destinations for foreign retail investment. Second, the pace of internationalisation is unprecedented. For example, in 1990, Tesco and Wal-Mart had yet to venture outside their home markets, Ahold was present in just the Netherlands and the US, and Carrefour was represented in five markets outside France. By 2002, Ahold was present in twenty eight countries, Carrefour thirty, Wal-Mart eleven, and Tesco in ten<sup>2</sup>. Third, the scale of investment is unparalleled. This is perhaps best illustrated by Tesco, who had no foreign presence in 1997, yet has planned to achieve fifteen million square feet of operating space by 2007 (GPN, 2003). Fourth, the unprecedented impact of foreign retail investment in the host countries. For example, the food retailing sector in the Czech Republic has been transformed after less than a decade of foreign investment, with all the top ten<sup>3</sup> grocery providers now originating from outside the host country<sup>4</sup>.

### Drivers of Internationalisation

The drivers behind this and past waves of internationalisation are numerous and varied, and are the subject of much debate in the literature (see Wrigley and Lowe 2002, GPN 2003, Coe and Lee, 2006, for critical reviews).

The majority of literature categorises the key drivers into a range of company specific and environmental ‘push’ and ‘pull’ factors. A useful summary is provided by GPN (2003) – set out in table 1. Ultimately, a range of these factors will combine to influence a specific location-investment decision, and, at the individual firm level, will be dependent on the financial/strategic objectives, capabilities and culture of a particular organisation.

TABLE 1: FACTORS INFLUENCING INTERNATIONALISATION

Push Factors	Pull Factors	Facilitating Factors
Perceived/imminent saturation in domestic markets	Unexploited markets	Use of surplus capital/access to cheaper sources of capital
Spreading of risk	Pre-emption of rivals	Entrepreneurial vision
Consolidation of buying power	Higher growth/profit potential	Inducements from suppliers to enter new markets
Public policy constraints	Consumer market segments not yet exploited	Removal of barriers to entry
Economic conditions	Access to new management	Information & communication technologies
Maturity of format	Reaction to manufacturer internationalisation	
Increasing competition	Following existing customers abroad	

Source: GPN (2003) pp18.

A useful explanation for the recent wave of international retail expansion is provided by Wrigley (2000). Wrigley argues that recent internationalisation has been driven, at the individual firm micro level, by the push of overdependence on the home market, and the need to sustain earnings growth and equity valuations. Whilst at the macro level, the social/economic/political characteristics of emerging markets – displaying characteristics such as rapid economic development, rising levels of affluence, rising consumer spending and retail sales, high small independent store retail sales share, and low penetration of western style retail formats – have provided the opportunistic pull (the potential opportunities to secure and grow earnings growth and equity valuation).



As we shall see, this account gives some explanation of the drivers behind recent internationalisation in Japan, though at the same time, the Japanese market is also extremely different (covered below).

#### **Methods and Forms of Internationalisation**

In terms of the 'how's' of foreign retail expansion, there are a number of well documented methods of internationalisation. These include entry through licensing, concessions, equity investments, strategic alliance, franchising, joint venture, merger and acquisition, and self-start/organic growth (see McGoldrick 1995 for a detailed review). These methods are differentiated by extent and time taken to achieve payback on foreign investment, the level of control an organisation has on its overseas interest, cost, and the degree of flexibility to change the investment decision in some way<sup>5</sup>.

The vast majority of recent retail expansion into the emerging markets of Latin America, Eastern Europe and Asia has been through acquisition and joint venture (see Wrigley 2000a, Wrigley and Currah 2003, for a detailed review). It is however, important to point out that the route to internationalisation varies considerably from company to company, market to market and even within the same company in the same market.

It is also important to point out that the internationalisation route is not a static concept of just entry, but a dynamic process of entry and expansion (or rationalisation and/or withdrawal). For example, and as described by GPN (2003), it is common for a foreign retailer to initially enter a market through some kind of joint venture with a local retailer, to then increase its ownership share over time to a controlling interest or complete ownership (acquisition), whilst at the same time pursuing a strategy of new-store openings (organic growth)<sup>6</sup>.

In terms of the form of retail internationalisation, foreign retailers have adopted a number of organisation styles – ranging from the global to the multi-national model. The global operating model (preferred by companies such as Benetton and Gap) is characterised by format standardisation, the pursuit of economies of scale, and the least local market responsiveness. The multi-national model is characterised by multiple formats across international markets and high local responsiveness, but achieves lower benefits/scale economies from integration.

A middle course is usually termed 'transnational' in which organisations attempt to achieve scale economies and respond to local market needs, opportunities and constraints. Developments by companies like Marks & Spencer, Toys 'R' Us, and more recently, Tesco and Carrefour, suggest a trend towards the transnational model, indicating the recognition that even the most successful retail formats within the home market require adaptation to suit the local market needs of the host country.

Ultimately however, the particular form of operation and mode of entry is much dependent on the nature of the market destination. With this in mind, we now turn to the main focus of this paper – the international expansion of retail operations to Japan.

### **Retailing in Japan: Retail Change & Increased Foreign Investment**

Whilst the Japanese manufacturing system has long been characterised as the most efficient in the world, the retail system is often described as inefficient, traditional, and outmoded. It not difficult to see the reasoning behind this unflattering portrayal. For example:

The Japanese retail market is extremely fragmented with the top five retailers accounting for only 10% of total retail sales (value – IDG 2007). Although there are a large number of regional players<sup>7</sup> - particularly in the convenience sector, the market is dominated in numeric terms by small specialist independent retailers. As recently as 2001, Aoyama (2006) estimated that there were over 500,000 independent outlets – more than three times the number in the US, and five times the number in the UK. Indeed, the same report highlights that retailer density is by far the highest of any comparable developed economy<sup>8</sup> (4,232 food, and 6,592 non-food outlets per million inhabitants). Many of these retailers, even some of the largest chains, have been described as technically insolvent - being kept afloat by the banks eager to hold on to their real estate value (Deloitte, 2004).

Another feature of the market is the notoriously complex supply chain system. Unlike in other comparable developed economies, direct supply is limited. Instead, the system is characterised by a large number of multi-layered wholesalers – national, regional and local. These wholesalers, who are heavily influenced by the 'Sogo Shosha' (Trading Houses such as Mitsubishi and Itochu), provide a range of value added services such as financing,

logistics, warehousing, procurement, IT, shipping and consultancy services. Manufacturers hold significant power in these arrangements, including demanding retailers stick to manufacturer recommended retail prices. Although this structure supports the fragmented nature of the market, and many Japanese retailers benefit from the value-added services described above (most notably the fact that many do not own the merchandise they sell, and are protected by 'sale or return' arrangements), on-balance, it is an extremely inefficient, high cost system – for both retailer and consumer.

The Japanese retail market is however something of a paradox. Whilst the above is true, at the same time Japan is home to some of the most successful international retailers in the world. For example, Ito-Yokado (part of the recently formed Seven & I Group) is the largest foreign retailer in the US by number of stores (sixth by turnover), and there are no fewer than 21 Japanese retailers currently operating in China (Larke, 2004). The Japanese retail market is also one of the largest in the world – home to the second largest grocery sector (behind the US), and enjoying the largest sales per capita of clothing and footwear in Asia (Aoyama 2006).

Furthermore, the retail market is currently changing fast. On the demand side, rapidly changing consumer lifestyles have instigated deep changes in consumer behaviour. Most notably, increased working hours and female employment are fuelling increased demand for convenience, whilst recent economic uncertainty has increased the value consciousness of the Japanese consumer. Whilst the latter has not dampened Japan's desire for expensive brand-name goods, consumers are now reacting much more positively to discount formats, and low price products are no longer automatically assumed to be of inferior quality.

On the supply side, the retail sector is undergoing a revolution in structure, dominant formats, merchandising techniques and distribution. The General Merchandising (GMS) and department store formats (and retailers) are in decline, whilst the supercentre/hypermarket formats remain unproven. In contrast, convenience stores (and retailers) are expanding rapidly in response to changing lifestyles, and now account for 32% of total Japanese food sales (value – Euromonitor, 2007). The major beneficiary of this trend has been the 7-Eleven convenience chain, which recently overtook the GMS retailer Daiei to become the leading Japanese retailer with 7% market share (sales value – Euromonitor 2007).

The sector is also undergoing a slow drive towards consolidation, with banks finally releasing previously inaccessible retail assets as property values decline. Distribution and logistical networks are being slowly combined to improve efficiency, and many leading chains are expanding by acquiring smaller regional players. Most notable recent activity includes the merger of Seven-Eleven Japan and Ito-Yokado to create Seven & I Holdings – a new international mixed merchandising 'power house', and the aggressive expansion of Aeon through the recent acquisition of Carrefour's Japanese operations (March 2005), Joy Co supermarkets (June 2004), and the Saty and Posful mass merchandising chains (November 2003)<sup>9</sup>.

Another feature of supply side change is increased investment in new retail concepts, formats, channels and services. Internet retailing and home shopping have shown strong recent growth (total sales values up 512% and 23% respectively between 2000 and 2005 – Euromonitor, 2007) – benefiting from the proliferation in broadband internet services, third generation mobile phones, and satellite and cable TV. Most recently, Japan has seen the development of range of new hybrid formats - including Yen100 convenience stores (combining features of convenience and discount stores), convenience-drugstores, and supermarket-convenience outlets (e.g. Daiei's *Foodium* – launched in 2006). The net result is an increasingly price sensitive, competitive market – as new business models blur the boundaries between different retail formats, and a rapidly modernising retail system.

A key feature and major catalyst behind current consumer and retail market change in Japan is the emergence and recent rise in foreign retail investment. Although foreign retail investment in Japan dates back to the early 1980's with the entrance of luxury brands Louis Vuitton (1981), and Hermes (1983), the last seven years has seen the arrival of the large international grocery chains - Wal-Mart (2002), Costco (1999), Tesco (2003), Carrefour (2000), and Metro (2002). Wal-Mart, with its acquisition of a 34% stake in the Seiyu mass merchandising chain has the largest presence (443 stores), followed by Tesco – the most recent entrant with 116 (80 branded C Two-Network, 18 Frec's, and 19 Tesco).

Many of these entrants have found/are finding the Japanese market extremely difficult. A recent study estimates that 38% of all foreign retailers attempting market entry since between 1981 and 2003 eventually retreated (Toyo Keizai, 2003). High profile withdrawals include Boots from the UK (entered 1999, withdrew 2001), and

OfficeMax from the US (entered 1997, withdrew 2001). More recently, Carrefour abandoned its 'go it alone' strategy in 2005<sup>10</sup>, Costco has failed to meet initial sales targets for five years running, whilst Wal-Mart has operated in deficit since entry in 2002.

There are a number of reasons cited for these failures – depending on the retailer involved. For example JETRO (2003) report that Boots made the strategic blunder of choosing locations that didn't fit its store concept and failed to market its private brands effectively. A common theme amongst all however, is the difficulties in satisfying the 'unique' Japanese consumer. This is particularly relevant to the difficulties encountered by the large foreign grocers who have entered with large store/hypermarket discount formats. Given Japanese consumers have historically displayed three broad characteristics – a preference for quality, an expectation of high levels of customer service and extremely frequent shopping frequency, it is no surprise that they have found it difficult to accept large store formats and discount concepts with minimal service.

As outlined above however, this is slowly changing. Recent economic uncertainty and consumer lifestyle changes are driving a more positive reaction to discount formats, and low price products are no longer automatically assumed to be of inferior quality (though a high level of customer service is still expected in all circumstances). Some retailers are responding to this more positive reaction. For example, Tesco have begun expanding its supermarket-convenience concept. It opened its first store under its own Tesco Express banner in April 2007, and plans to roll-out a further 35 new stores before April 2008.

As Tesco and other foreign retailers expand, they will further drive change in the Japanese retail sector. Indeed, the recent increase in merger and acquisition activity (described above) is partly in response to the recent arrival of these powerful and efficient grocers. They are introducing new ways of doing things (e.g. new retail operational practices, technological systems, formats, etc). As these are absorbed into domestic market (through imitation and innovation/further modernisation), and adapted to the particular needs of the local market, a new hybrid or even more modern retail system will emerge, that is different from both the domestic home market of the foreign retailers, and the original system in the host market.

## **Drivers behind Increased Foreign Investment in Japan**

There are a range of political, economic, social, technological, legal and cultural factors driving foreign retail investment in Japan. Many of these have already been covered or are self-evident given the review above. For example:

- The Japanese retail market is one of the largest in the world by value, and so is an attractive proposition for any retailer planning international expansion. As described above, Japan is home to the second largest grocery sector (behind the US), and enjoys the largest sales per capita of clothing and footwear in Asia (double that of Singapore, the next largest - Aoyama (2006)).
- The current nature of the Japanese distribution system provides opportunities to improve supply chain efficiency (and ultimately price competitiveness) through exporting supply chain expertise and systems.
- The current fragmented nature of the market – particularly the large number of small independent chains, the recent property market downturn (which makes these chains more affordable), and the apparent growing willingness of banks to release their retail assets, provides opportunities to achieve significant presence and penetration relatively quickly through acquisition.
- Finally, Japanese consumers appear to be increasingly willing to accept new/foreign retail formats, practices, and merchandise – particularly discounting concepts given increased consumer price consciousness.

There are however a number of other drivers that require attention. These include:

- The size and recent growth of the Japanese economy which provides the broader backdrop for retail growth and positive investment conditions. For example, despite almost a decade of economic stagnation, Japan remains the second largest GDP in the world. Recent GDP growth – 2.8% in 2005 – also surpassed that achieved in both the US and the European Union.

- The wealthy Japanese consumer. Although average disposable income fell slightly between 2000 and 2005 (by 0.6% - Euromonitor 2007) Japanese consumers remain some of the richest in the world. In addition, mean disposable income is forecast to rise by 12% over the next five years (2005 to 2010 – Euromonitor 2007).
- Progressive legislation which has levelled the playing field between foreign and domestic companies – and has made it easier to enter. Most notably, the recent revision of Japan’s commercial code (June 2005), makes it easier for foreign retailers to enter through merger and acquisition. As well as removing payment restrictions, the new code created provisions whereby a foreign company can set up a Japanese subsidiary, let the subsidiary have its shares, and then use the arrangement to gain leverage in merging with a separate Japanese firm.
- The proliferation of communication channels that raise awareness of foreign retailers and brands. That is, the increasing number, openness and sophistication of business-to-consumer and consumer-to-consumer channels increasingly allows real-time awareness of different retailers, their brands, and changing product fashions on a global scale.
- Finally, internationalisation itself is key driver behind further foreign investment as leading domestic retailers fear being left behind. That is, any retailer with global aspirations may feel it has to be present in one of the key global retail markets.

## **Issues, Challenges and Risks Facing Foreign Retailers in Japan**

The Japanese market provides undoubted opportunities to foreign retailers. As we can deduce from the above analysis, the market displays some of opportunistic pull factors (and key facilitators) that characterise the ‘new’ global phase of retail internationalisation. For example, it is characterised by a high number of small independent retailers with high market shares (combined shares), and benefits from both the recent removal of entry barriers, and a modern information and communications technology infrastructure.

However, Japan is also quite different from other markets in this new internationalisation phase. Most obviously, it is a developed, as opposed to an emerging market, and as such, does not present the same level of consumer spending and retail growth potential as other less developed retail economies (recall the review of Wrigley 2000, GPN 2003, and Coe and Lee 2006, above). At the same time, the market also presents foreign retailers with the same kinds of challenges and potential risks present in other markets. Given these two facets – lower levels of spending and sales growth than in emerging markets, yet the same level of risk, the Japanese market perhaps one of the most difficult markets for foreign retailers to succeed. Indeed, as outlined above, there have been a number of recent high profile failures/withdrawals.

Many of the challenges/risks/issues have been covered above. For example:

- Despite recent economic recovery, overall consumer spending and total retail sales value growth remains relatively low (the latter grew by just 1% in the financial year 2005-2006 (Euromonitor 2007));
- The notoriously demanding nature of the Japanese consumer and their slow acceptance of foreign retail formats and practices – particularly the one-stop shopping concept and hypermarket format (although as described above, this is changing slowly), and;
- Increasingly strong domestic competition – particularly the recent trend towards consolidation of large domestic operators. Given the amendments to the Japanese commercial code (described above), we can expect more acquisition activity, and thus the emergence of even larger/stronger domestic players.

Again however, there are a number of other key issues that require further attention:

### **The Distribution System**

Although eventually, the distribution system described above will consolidate, and larger wholesalers will offer integrated logistical services, this will take time. In the mean time, foreign retailers will be forced to use the current extremely costly systems, and/or develop their own. Modernising the system will however prove extremely difficult as many of the existing contracts are based on long-standing historical business as well as personal relationships. As such, in the short-term at least, foreign retailers will be faced with extremely high operating costs.

### **Recent Legislative Changes**

Despite recent progressive legislation, the Japanese government is reportedly considering new legislation that would make it harder for large retailers to set up in the country. The Ministry of the Economy, Trade and Industry (METI) and the Ministry of Land are discussing regulations to discourage large retailers from building on agricultural land close to the outskirts of cities. This is in addition to the Large Store Location Law, introduced in 2000 to replace the existing Large Retail Store Law. The law aims to enforce environmental, noise pollution, and traffic control standards on new retail developments. Note however, the proposed new legislation will also affect domestic operators - limiting the ability to expand both existing and new operations.

### **Changing demographics – Particularly a Shrinking, Ageing Population**

Japan is expected to suffer a population decline of over 10 million people between 2005 and 2020. Furthermore, the population is aging fast – with the number of people in the 15 to 64 age groups declining continuously between 1996 and 2005. As such, in volume terms, foreign (and domestic) retailers will be faced with a reduced level of demand and a shift in the nature of that demand. Boosting per-capita purchases and/or developing new market niches will therefore become more important.

### **Critical Success Factors**

There is no such thing as a guaranteed formula for success in the Japanese market. We believe however, that there are a number of critical factors to consider in order to maximise the chances of success and minimise risk. The most important are:

1. Establish whether sufficient demand exists in the target market – now and in the future – for your products/services/formats to create a viable business.
2. Carry out entry/trading cost evaluation to identify “true” costs, key cost drivers and likely returns.
3. Review competitive conditions; what is the competition, how does it operate and how is it changing?
4. Learn from partners and competitors who have done it well.
5. Determine the method of entry; what is the preferred and/or most appropriate method? Carry out cost/benefit/control analysis.
6. Where entry involves partnerships and/or company combinations focus very carefully on management of cultural integration.
7. Establish “realistic” sales/profit/growth targets over, say, a five year time-line.
8. Decide operational requirements.
9. Think carefully about supply chain and logistics issues.
10. Adapt to local market conditions – strategic localisation versus general localisation.
11. Focus on product lines strategically – select items to match home market culture.
12. Establish/nurture local links with local governments and communities.
13. Determine the “cost of doing business the local way.”
14. Think carefully about two variables: (a) market position of the retail offer in the host country – which can be very different from the home country; and (b) the format of the retailing offer – particularly given the recent experiences of foreign entrants in Japan (recall the trend towards hybrid formats).
15. Draw up a comprehensive plan but also remember that too much analysis can bring paralysis. You must learn when to “freeze” the frame and then go – cautiously, carefully. Remember, retailing of goods and services is as much an art as a science. You can only minimise the uncertainty, not eliminate it. Whatever you do, do it professionally. Do not be afraid to ask for deals.
16. Start now – start the international culture in your organisation before you actually go overseas.

## Summary & Conclusions

Japan is somewhat of a paradox for international retailers. On the one hand, it is characterised by high operating costs, a complex distribution system, and thousands of inaccessible, technically insolvent retailers. On top of this, the notoriously demanding Japanese consumer presents a huge challenge to foreign retailers.

On the other hand, the wind of change is blowing through the Japanese retail market. Recent economic recovery, progressive deregulation, increasingly value conscious consumers appearing willing to accept change, and its continued position as the world's second largest retail market makes Japan a more attractive proposition for foreign retailers.

This attractiveness has persuaded many of the largest foreign retailers to begin to invest in Japan. Although the level of overseas retail investment is still relatively low by international standards (particularly given the size of the market), Wal-Mart, Costco, Tesco, Carrefour, and Metro have all taken the plunge in the last seven years, to join a host of niche and luxury brands that entered throughout the 1980's and 1990's. Through their attempts to introduce efficient supply chain management, new merchandising practices and discounting concepts, they are providing the catalyst for consumer and retail market change.

However, many are finding the Japanese market extremely difficult. Carrefour abandoned its 'go it alone' strategy in 2005, whilst Wal-mart has operated in deficit since entry in 2002. Major reasons cited for these difficulties include strong domestic competition and the difficulty in satisfying the Japanese consumer. The relative 'failure' of these global giants is perhaps a stark wake up call to retailers planning to internationalise, and a graphic illustration of the unique challenges and risks the Japanese retail sector presents.

We have set out a number of critical rules to address these challenges – to maximise the chances of success and minimise risk. These success factors emphasise the importance of understanding the unique demand, supply, and competitive characteristics of the host market at the local scale, and finely tuning the retail offer to reflect these. Given the difficulties/challenges set out above, these are perhaps more important in the Japanese market than others.

Finally, a prophesy; given the positive consumer and retail market changes set out above, combined with recent falls in property prices (and consequently the abundance of relatively cheap retail assets), we expect many more foreign retailers to follow. We believe the tipping point will occur when the country resolves its banking crisis. Then many existing retail assets will become available to foreigners and the floodgates will open. It is then however, that the critical success factors set out in this paper will become more important than ever.

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### End Notes

<sup>1</sup> Further expansion into foreign regions they had already entered.

<sup>2</sup> Tesco is now (2006) present in twelve countries.

<sup>3</sup> Ranked by sales value (GPN, 2003).

<sup>4</sup> There are many other examples of this unprecedented structural impact. For example, in Thailand, where Tesco has become the clear grocery market leader after just nine years, since entry in 1997 (see GNS 2003 for other examples).

<sup>5</sup> Note the above list of market entry methods is ordered according to the relative cost and control of each strategy. For example, the first in the list – licensing, offers the least capital investment and risk, but the least control, whereas the last in the list – acquisition and self start, offer the most control but are the most costly strategies.

<sup>6</sup> GNS (2003), pp16.

<sup>7</sup> There is currently no 'true' national chain in Japan – with a major urban and rural presence in all 47 prefectures (IDG 2007).

<sup>8</sup> France, Germany, United Kingdom and United States.

<sup>9</sup> Aeon is also in the process of acquiring a 15% stake in Daiei with the aim of combining sourcing, NPD, and sharing information and distribution. At the time of writing this deal is yet to be finalised (June 2007).

<sup>10</sup> In March 2005 Carrefour announced a strategic partnership with Aeon. Carrefour sold its 8 Japanese hypermarkets to Aeon, whilst Aeon will use the Carrefour brand in Japan and sell Carrefour private label products.

# The Role of the Cash and Carry Wholesaler in the South African Distribution Channel

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## Abstract

The traditional South African cash and carry wholesaler has survived for more than twenty years in its present form but is showing signs of being influenced by a strong innovative process. Factors such as smaller packaging, credit, delivery and consumer marketing, which go against the principles of the traditional cash and carry wholesaler, are taking root. Innovation is being spurred on by changes in the target market, specifically as a result of the inclusion of the spaza shop target market. The research shows that the spaza shop is a vital future market of the cash and carry wholesaler. Intensive competition forces the cash and carry wholesaler to modify its marketing functions. It can be concluded that the cash and carry wholesaler definitely fulfils a vital role in the South African distribution channel.

## Introduction

The wholesale sector of the economy is often known as the invisible industry because the final consumer<sup>1</sup> does not usually purchase directly from the wholesaler and therefore has little contact with it. The cash and carry wholesaler is a typical wholesaler that performs essential marketing functions between the manufacturer and the retailer, and therefore provides a link between the two. The retailer, in turn, is the link between the cash and carry wholesaler and the consumer in the distribution channel. Therefore, the retailer can be regarded as the cash and carry wholesaler's primary target market.

This article aims to determine the role of the cash and carry wholesaler in the South African distribution channel. The cash and carry wholesaler's place in the South African distribution channel will now be outlined under the following headings: definition, origin, development, future, competitive position, right of existence and target markets.

## Definition of the Cash and Carry Wholesaler

A cash and carry wholesaler is a typical wholesaler that sells a limited range of products, and according to Skinner (2005:405), does not perform all the wholesale functions. The clients of cash and carry wholesalers must themselves perform specific marketing functions such as delivery and provision of credit in exchange for cheaper products.

Kotler and Armstrong (2005:372) and Etzel, Walker and Stanton (2004:363) emphasise the fact that the cash and carry wholesaler markets a limited range of products with a fast turnover. It concentrates primarily on a limited range of products in order to obtain the competitive advantages of purchasing in bulk. These advantages give the cash and carry wholesaler the edge as far as price competition is concerned and ensure its survival in the distribution channel.

Schoell and Guiltinan (2004:342) define the cash and carry wholesaler as "... a limited-service wholesaler whose customers are willing to give up services such as credit and delivery for lower wholesale prices. These wholesalers usually stock a limited line of products, mostly staples and fast-turnover items. Their customers tend to buy frequently and in small quantities." This definition emphasises the fact that retailers who tend to purchase from the cash and carry wholesaler are small and purchase products on a regular basis.

These definitions show that the cash and carry wholesaler's existence in the distribution channel is definitely justified because the retailer is willing to perform the particular market functions usually carried out by the full-service wholesaler in an effort to save costs. The retailer is thus prepared to perform specific wholesale functions



itself which has led to the development of the cash and carry wholesaler. The rise of the cash and carry wholesaler will now be briefly outlined.

## **The Rise of the Cash and Carry Wholesaler**

The cash and carry wholesaler developed in the 1950s and in spite of an impressive start, initially did not make a great contribution to the wholesale sector. In the USA, where the concept originated, in 1954 there were only 922 cash and carry wholesalers with joint annual sales of \$300 million. According to Beckman, Engle and Buzzell (2004:169) at that stage, the US cash and carry wholesaler sold mainly food products. However, the scope of the cash and carry wholesaler market grew dramatically over the years (Makro's method 1991:31).

In South Africa, the cash and carry wholesaler concept, only developed about 20 years later (in 1971), with the establishment of Makro in the then Pretoria/Witwatersrand/Vereeniging (PWV) area. During the 20th century, the wholesale sector was ravaged by increasing competition from the manufacturers and retailers. The manufacturers contended that the cash and carry wholesalers unnecessarily increased distribution costs in the distribution channel, and attempted to perform the wholesale function themselves. The upshot was that the manufacturers eliminated the cash and carry wholesaler from the distribution channel and began marketing directly to the retailer.

However, the rise of the large retailer further reduced the involvement of the wholesaler in the distribution channel. The larger retailers were in a position to perform the wholesale functions themselves. Consequently, the manufacturers own marketing endeavours and the development of retail led to intense competition. This competition resulted in the cash and carry wholesaler's removal from the distribution channel.

Besides the competition between the larger retail and the cash and carry wholesaler, competition between the larger retail and independent retailers also developed (*The Cape Times* 1995:19). Because the large retailer was in a position to market products more cheaply, it posed a threat to the retailer (Pride & Ferrell, 2005:377).

The cash and carry wholesaler gradually began to realise that its survival was linked to that of the smaller retailer because the latter was compelled to support the cash and carry wholesaler. Owing to the fact that the retailer purchases smaller quantities, it is unable to buy from the traditional full-service wholesaler. The cash and carry wholesaler and its involvement with the retailer is the focus of this chapter, but it first necessary to outline the development of the cash and carry wholesaler in the distribution channel.

## **The Development of the Cash and Carry Wholesaler**

The development of the cash and carry wholesaler in the South African distribution channel from 1960 to 1997 will now be highlighted.

### **The Period, 1960 to 1970**

During this period, there were no cash and carry wholesalers in South Africa. According to secondary sources consulted, the cash and carry wholesaler concept was unknown in the distribution channel in this country. During this period, the full-service wholesaler was primarily responsible for distributing products to retailers.

### **The Period, 1971 to 1985**

It was during this period that the cash and carry wholesaler was introduced in South Africa. Makro was one of the first cash and carry wholesalers in the country, and in 1971, the Dutch group Nederlandse Steenkolen Handelsvereniging (NSHV) (Makro's method 1991:31) established the first Makro in the then PWV area. In 1987, owing to anti-apartheid pressure on the Dutch enterprise, Makro was taken over by the Wooltru Group.

The second cash and carry wholesaler to be established in South Africa was Metro. According to a report in *The Citizen* (1990:11), Metro came into being in 1979 when the former Kliptown Wholesalers started taking over competitive wholesale groups such as Leiserowitz Brothers, Savex and Kirsh. Metro grew so rapidly that in the same year, it was listed on the Johannesburg Securities Exchange. In the period from 1971 to 1984, only Makro and Metro developed from the cash and carry wholesalers.

### **The Period, 1986 to 1990**

The period from 1986 to 1990 was characterised mainly by the growth of Makro and Metro as well as the establishment of new cash and carry wholesalers in the country. The latter development increased intratype competition between Makro, Metro and the other smaller cash and carry wholesalers in South Africa. Increased competition resulted in further takeovers, which resulted in the race to acquire a greater share of the cash and carry wholesale market.

In 1987, Makro changed owners because the Dutch Group was compelled by political pressure to withdraw from South Africa. The group sold its interests to the Wooltru Group. Makro went from strength to strength over the years, and in 1987 already boasted five outlets in the densely populated urban areas of South Africa. Makro's unprecedented growth emphasised the importance of the cash and carry wholesaler in the distribution channel. If there had been no room for the cash and carry wholesaler in the distribution channel, this market would not have grown so rapidly. Makro is pursuing even higher growth as expressed in the following objective: "Our objective is to be considered by retailers as the most desirable alternative to purchasing direct from a manufacturer or importer" (Wooltru 1996:23). Makro's existence in the distribution channel is possibly justified by the fact that it renders a specific and unique service to the retailer. The retailer contends that this service can only be rendered by the cash and carry wholesaler --- hence its right of existence (*Financial Mail* 1993:21).

Metro also expanded its interests and by 1987 already had more than 250 wholesale outlets. It concentrated on the specific needs of builders as well as the formal retailers and spaza shops in the black residential areas. In March 1987, Metro took over the Frasers Group, comprising mainly 41 cash and carry wholesale outlets in Lesotho, for R21 million. The upshot of this new takeover was that the Metro group had become a formidable competitor, and in 1987 was already the largest group in the country.

During this period, the Metro group operated three different kinds of cash and carry wholesalers, namely Metro, Bingo and Trade Centre. A report in *Finansies en Tegniek* (Stryd om verskaffing aan spaza's 1994:27) explained the difference as follows: "Trade Centre has a wider product composition than the other wholesale groups and sells groceries, building products and household fittings, while Bingo markets household fittings only and Metro groceries only" (my translation). Through the retailer, Metro concentrates on the consumer who comprises mainly the C and D income groups. This means that Metro is in direct competition with the large retailer Pick 'n Pay (*Finance Week* 1991:10).

Owing to this competition between the cash and carry wholesaler and the large retailer, Pick 'n Pay established its own cash and carry wholesale outlet, Price Club. According to a report in *The Cape Times* (Wooltru R173,4 m Capex 1990:18), the first Price Club was opened in October 1986 and concentrates on the black retail market which purchases products on a cash and carry basis.

In 1983, another cash and carry wholesaler, Success was established by the Shield Trading Corporation. Success grew rapidly, and five years later already had seven outlets. In July 1987, the Shield Trading Corporation established another cash and carry wholesaler, namely Shield Cash and Carry. The Shield Trading Corporation now had 150 cash and carry wholesale outlets and marketed to approximately 22 000 retailers. During this period, the cash and carry wholesaler was therefore meeting the needs of the retailer, thus justifying its existence in the distribution channel.

### **The Period, 1991 to 1997**

During this period, the cash and carry wholesale industry was characterised by a large number of cash and carry wholesalers such as Metro and Makro, which were all subsidiaries of large listed groups. During this period, the Wooltru Group controlled the cash and carry wholesalers, Makro and Shield, while die Premier group, controlled, Trador, Bingo and Trade Centre. Furthermore, Pick 'n Pay, had its own cash and carry wholesaler outlets, namely Price Club.

According to the McGregor list, an additional 25 smaller cash and carry wholesalers were established in South Africa during these years. However, in the secondary sources consulted, the starting dates of these smaller cash and carry wholesalers could not be determined. They were relatively unknown --- hence the lack of information on them. In this study, an effort will be made to acquire more information on the establishment of the smaller cash and carry wholesalers.

The merger of Metro and Score Foods under the Premier Group in 1991 gave rise to the largest cash and carry wholesale industry in South Africa. This group owns about 28 percent of the cash and carry wholesale market with a turnover of approximately R6 billion per annum (Premier Groep 1996:3 According to a report in *Finance Week* (1991:6-12), Metro, Trador and Trade Centre follow a niche marketing strategy<sup>2</sup>. These cash and carry wholesalers are enjoying exceptional success in implementing a niche marketing strategy. This possibly shows that the marketing strategies of these cash and carry wholesalers have been altered --- hence another reason to justify the continued existence of the cash and carry wholesaler in the distribution channel.

Owing to stiff competition between Metro and Makro, in 1992, the latter in collaboration with Makroffice, Shield and Drop Inn, formed a new wholesale group known as Massmart. Massmart is a competitive cash and carry wholesale group that owns approximately 18 percent of the cash and carry wholesale market in South Africa (*Finansies & Tegniek* 1993:26). This study focuses mainly on the development of cash and carry wholesaler in the South African distribution channel during the 10-year period from 1987 to 1997. The classification system of the cash and carry wholesaler will now be briefly discussed.

## **Competitive Position of the Cash and Carry Wholesaler**

The origin and development of the cash and carry wholesaler increased competition in the South African distribution channel. The cash and carry wholesaler experiences competition primarily from the following distribution channel members:

- the large retailer
- the manufacturer

The competitive position between the cash and carry wholesaler and the above-mentioned members of the distribution channel will now be discussed.

### **The Large Retailer**

In South Africa, the three main groups of large retailers, OK Bazaars/Shoprite & Checkers, Spar and Pick 'n Pay are responsible for 63 percent of all food purchases in retail (*Insig* 1988:21). According to Schoell and Gultinan (1993:316), this type of retailer is a large enterprise that purchases directly from the manufacturer and is therefore in direct competition with the cash and carry wholesaler. According to McCarthy and Perreault (1995:318), increased growth in the retail sector exacerbates this competitive situation.

From the definition of a wholesaler --- an enterprise that obtains 50 percent or of its gross sales from wholesale sales --- one can deduce that wholesalers, like retailers, also market to consumers. Their target markets thus overlap and they are involved in a competitive struggle.

According a report in *Marketing Mix* (Pick 'n Pay's tills ring the changes 1995:63), the spaza shops also buy products from the large retailers --- hence the cash and carry wholesaler cannot lay claim to the total spaza shop target market. The spaza shop market increases the competitive situation between the large retailer and the cash and carry wholesaler even further.

Kotler and Armstrong (2005:376) contend that the distinction between the large retailer and the cash and carry wholesaler is in the process of blurring, and they go on to say that, some retailers are being operated as wholesale clubs and hypermarkets that perform wholesale functions. This is possibly another reason why the target markets of the cash and carry wholesaler and the large retailer overlap and cause stiff competition.

Another reason for the increasing competition is the establishment of larger cash and carry wholesale groups such as the Premier Group, which is increasingly encroaching on the target market of the large retailer. However, the latter is also not innocent and endeavours to take over part of the cash and carry wholesale market by sending large trucks with low-priced products into black residential areas (*Weekly Mail & Guardian* 1995:3). This new trend is not only causing competition for the cash and carry wholesaler but also threatening the very survival of the spaza shop. One of the secondary aims of this study is to determine the exact position of the competition between the cash and carry wholesaler and the large retailer. According to Boyd, Walker and Larreche (1995:321), the ever-growing retailer poses a fundamental and relatively serious threat to the continued existence of the cash and carry wholesaler.

### **The Manufacturer**

McCarthy and Perreault (2005:336) maintain that the large retailer and the cooperative retailer purchase directly from the manufacturer. The negotiating power of these types of retailers is seemingly so strong that the cash and carry wholesaler is being eliminated from the distribution channel.

The manufacturer further strengthens the competitive position of the cash and carry wholesaler with the formation of depots (forward vertical integration) in the black residential areas (*Financial Mail* 1993:21). These depots supply products directly to the spaza shops and are possibly also eliminating the cash and carry wholesaler from the distribution channel.

### **The Cash and Carry Wholesaler's Right of Existence**

According to Morris (2004:79), justification for the existence of the cash and carry wholesaler in the distribution channel is twofold. On the one hand, the manufacturer is confronted with increased distribution costs such as delivery costs and the high risk of supplying credit. As a result, the manufacturer tends to pass these marketing functions on to the cash and carry wholesaler, which can perform them more cheaply. The smaller retailers, on the other hand, experience problems purchasing products from the full-service wholesalers because the latter do not sell small consignments.

The cash and carry wholesaler's right of existence can be partly ascribed to the fact that it supplies small amounts of products to the retail sector. Hence, the cash and carry wholesaler meets the needs of the manufacturer as well as the retailer and so fills a gap in the distribution channel. The cash and carry wholesaler's existence in the distribution channel is thus justified because the manufacturer and the retailer need it in the distribution channel.

Justification for the cash and carry's existence in the distribution channel can possibly also be attributed to the rise of the spaza shop, which in fact constitutes one of its target markets. The rise in the number of spaza shops because of increased population growth, low levels of economic growth and unemployment, has possibly led to a shift in emphasis in the cash and carry wholesaler's target market (*Weekly Mail & Guardian* 1995:3). The increased growth of the spaza shop encourages the cash and carry wholesaler to exploit this target market.

The history of cash and carry wholesalers in South Africa indicates that they definitely have a right to exist in the South African distribution channel but need to adapt timeously to changes in the target market. The target markets of the cash and carry wholesaler will be briefly discussed below.

### **The Cash and Carry Wholesaler's Target Markets**

The place of the cash and carry wholesaler in the South African distribution channel is determined by its target markets, which, because of developments in the target market, are undergoing changes. From the literature sources consulted, it would appear that the cash and carry wholesaler can select a target market according to three different requirements --- the size, type and geographical location of retailers. However, little research has been conducted into the target markets of the cash and carry wholesaler --- hence the aim of this study to try and determine its precise target markets.

The target market of the cash and carry wholesaler can be defined as a specific group or a potential retailer served by a cash and carry wholesaler. Kotler and Armstrong (2005:374) explain the cash and carry wholesaler's choice of a suitable target market as follows "The cash and carry wholesaler can choose a target group by size of customer, type of customer or need for service." The execution of marketing functions is central to this definition and suggests that the cash and carry wholesaler is prepared to change its marketing functions if so required by the target market.

Schoell and Gultinan (2004:342) define the target market of the cash and carry wholesaler as follows: "Small grocers and small building contractors are their customers who tend to buy frequently and in small quantities." It is essential for the cash and carry wholesaler to harmonise its abilities and resources with the needs of its target markets in order to identify suitable target markets. By carefully determining its target markets, the cash and carry wholesaler can use its resources optimally so that it can position itself more effectively in the market. It can thus gain a differentiated advantage over its competitors.

According to Morris (2005:79), the cash and carry wholesaler's target market comprises retailers from the informal sector such as spaza shops and hawkers. He puts it as follows: "Hawkers, spaza shops and unlicensed or illegal traders from the informal sector have utilised the cash and carry concept to the maximum effect." This definition confirms that because of its limited functions (no deliveries or credit) the cash and carry wholesaler is an ideal position to meet the specific needs of the spaza shop. It therefore forms a vital link in the distribution of the products to spaza shops (Van Scheers 1992:154). From the above definitions, the following target markets of the cash and carry wholesaler can be identified:

- formal retailers
- spaza shops
- quasi-retailers

Each of these will now be outlined.

#### **Retailers in the Formal Sector**

Kotler and Armstrong (2005:355) define the retailers in the formal sector as retailers that are managed independently, own a relatively small share of the total market and are operated independently of other enterprises. According to Etzel et al (2004:374), there are about 53 644 retailers in the South African formal sector. Retailers form a stable market and are the cornerstone of the continued existence of the cash and carry wholesaler.

The formal retailer is the retail institution that is most prevalent in South Africa. Initially this type of retailer traded in the coastal towns, but it was only in the densely populated Witwatersrand area where it increased in both size and power, that it became independent of the wholesaler in certain areas. The upshot was that the formal retailer became a strong competitive factor in the distribution channel. The growth of the large independent retailer was the cornerstone of the retail revolution in South Africa.

The retail revolution as the emancipation of the retailer, the wholesaler and the manufacturer. There was unprecedented growth in the retail sector during the 1960s, which surprised the manufacturers and the larger retailers (currently the large retailers) and caught the smaller retailers on the back foot. The smaller formal retailers had difficulty adjusting to the rapid and radical changes in the distribution structure. It is this group of retailers that currently constitute the target market of the cash and carry wholesaler. During the period 1971 to 1989, the number of formal retailers rose by an average of 4,9 percent per annum, which consequently increased the marketing potential of the cash and carry wholesaler substantially.

Ntsika Enterprise Promotion Agency (1997:1) defines the formal retailer as "... a business with a turnover of less than the value added tax registration limit of R150 000, and which employs no more than five people".

Skinner (1994:243) adds an additional characteristic to the above definition, namely that the operating area is centred locally. The retailer as an enterprise that obtains more than 50 percent of its gross sales revenue from sales to the general public (the consumer) for personal and domestic use. Pride and Ferrell (2005:398) emphasise the fact that some retailers also sell to other retailers.

Dalrymple and Parsons (2005:559) state the following: "Retailers perform a variety of useful functions for the producer, including the carrying of inventory, advertising, promotion, credit, delivery and shopping convenience." One can infer from this definition that the retailer also supplies credit and delivers products, which are usually regarded as typical full-service functions. It would appear from the definitions that the formal retailer undoubtedly plays a role in the cash and carry wholesaler's target market. The latter's involvement with formal retailers will now be cursorily discussed.

Retailers in the formal retail community are an important segment of the South African free-market system. Formal retailers contribute approximately 29 percent to South Africa's gross national product and form a vital target market of the cash and carry wholesaler (Etzel et al 2004:374).

Economic trends such as unemployment and limited job opportunities in the formal sector generate increasingly more retailers. Although the formal retailer generally showed a small increase during the period from 1988 to 1994, the urban retailer grew by 34 percent (Pick 'n Pay's tills ring the changes 1995:63-64). This explains why the cash and carry wholesaler endeavours to be situated in close geographic proximity to these retailers.

A study undertaken by *Die Transvaler* (KSOK help smouse 1992:14), found that the active promotion of retailers is one of the most effective methods of solving South Africa's unemployment problem since 95 percent of all new job opportunities in the world are created by small and medium retailers.

In South Africa, retailers in the formal sector are responsible for about 75 percent of new job opportunities (Southern Africa 1992:16). The Reconstruction and Development Programme (1994:76) encourage the development of retailers in South Africa, and the stimulation thereof is seen as a possible solution to the unemployment problem. The formal retailer is an key target market of the cash and carry wholesaler and justifies its existence in the distribution channel. On the other hand, the retailers (spaza shops) in the informal sector constitute only a small part of the cash and carry wholesaler's target market, but because of the tremendous growth opportunities, this target market will also be elucidated.

#### **The Spaza Shops in the Informal Sector**

The spaza shop or informal retailer is part of the informal sector. The latter can be defined as the sector in which enterprises are not regulated according to the normal, conventional prescribed methods. The term "informal sector" is used to define an economic phenomenon that is widespread in the rural and urban areas of Third World countries (Pick 'n Pays tills ring the changes 1995:63-64).

The right of existence and feasibility of the spaza concept can be ascribed to the convenience-shopping trend of black consumers (Black Enterprise 1989:15-70). It is important for the cash and carry wholesaler to determine precisely how large the spaza shop target market is in order to justify its own existence in this distribution channel.

However, it is impossible to establish the exact size of the spaza shop market. According to an estimate by Black Enterprise (1989:32), on the East Rand alone, there are about 4,000 to 20,000 spaza shops. Scott-Wilson and Mailoane (1990:10) estimate that there are approximately 20,000 spaza shops in the whole of South Africa. These estimates are probably too conservative. Van Zuydam-Reynolds (Pick 'n Pay tills ring the changes 2005:63-64) painted a more realistic picture in his estimate of about 66,000 spaza shops in 1995. These estimates are further complicated by the fact that new spaza shops are continually entering the market, while others again are going under almost daily.

The joint spaza shop purchasing power of about 16 billion per annum is indeed extremely high and therefore constitutes a promising market for the cash and carry wholesaler (Black Market Report 1991:2-3). The joint retail purchasing power of motivates the cash and carry wholesaler to exploit the spaza shop target market. According to a report in *Finansies en Tegniek* (Stryd om die verskaffing aan spaza's 1994:27), the cash and carry wholesaler regards this target market as an important outlet for marketing to the black consumer. Preston-Whyte (Pick 'n Pay's tills ring the changes 1995:63-64) is of the opinion that through the spaza shop, the cash and carry wholesaler can market a part of the black consumer market, which was previously not possible.

#### **The Involvement of Spaza Shops**

According to an article in *Marketing Mix* (Pick 'n Pay's tills ring the changes 1995:63-64), the cash and carry wholesaler is a significant supplier of products to spaza shops. The spaza shop concept is a promising new concept, and Mantle, Harrod and Nel (1992:19) contend that the spaza shop market is growing by about 10 percent per annum. If this growth trend is linked to the cash and carry wholesaler, its existence in the distribution channel is possibly justified (Stryd om verskaffing aan spaza's 1994:27).

Themba (Pick 'n Pay's tills ring the changes 1995:63-64), however, holds that too much emphasis is being placed on the spaza shop market and that this concept does not have a future. He goes on to say that, it is not a solution to South Africa's unemployment problems and merely offers a temporary solution. Sithole (1989:34) concurs with Themba and poses the following question: "Are home-based enterprises (spaza shops) worthwhile?" He is convinced that they are not the solution to the country's long-term economic problems.

The chances of survival of the smaller spaza shops that are not strategically located are slim. A possible reason for this is too little client traffic. However, according to Rogerson (Pick 'n Pay's tills ring the changes 1995:63-64), the larger spaza shops situated near to the highways, definitely have a better chance of survival. New urban areas are continually being developed, and in places where there are no formal retailers, new spaza shops that will purchase from the cash and carry wholesaler, will undoubtedly develop.

According to an article in *The Cape Times* (Wooltru R173,4 m capex 1990:18), the growth of the spaza shop definitely confirms Makro's right of existence in the distribution channel. *The Star* (1997:1) also underlines the importance of the spaza shop and indicates that this industry realises a joint turnover of R107 million per annum. If one considers the incredible growth of the spaza shop target market and the fact that the cash and carry wholesaler

supplies most of the products to this target market, the spaza shop can undoubtedly be regarded as a factor that justifies the existence of the cash and carry wholesaler in the distribution channel.

It is also important to note that the spaza shop target market alone cannot possibly justify the existence of the cash and carry wholesaler in the distribution channel. This could be because the spaza shop market is still too small. However, there is a possibility that the increase in unemployment in South Africa, and the resultant growth of the informal sector will in the future create a greater marketing potential for the cash and carry wholesaler. However, retailers also buy from the cash and carry wholesaler for their own use, these purchases being known as quasi-retail. Quasi-retail as a target market will now be discussed.

#### **Quasi-Retail**

Quasi-retail is also a target market of the cash and carry wholesaler because the formal retailers and the spaza shops purchase for their own private use. However, it is important to note that the primary target market of the cash and carry wholesaler is the formal retailer and the spaza shop. Hence quasi-retail actually constitutes a random as opposed to a primary target market of the cash and carry wholesaler. Makro, however, contends that 25 percent of its turnover comprises quasi-retail (Strydom *verskaffing aan spaza's* 1994:27).

Most cash and carry wholesalers do not appear to have any objections when clients who satisfy the criteria for resellers, purchase products for their own use. However, no special provision is made for consumers who purchase small amounts at a time.

Lamberti from Makro (*Finansies & Tegniek*, Augustus 1991:9) explains that their price and product mix is determined on a wholesale basis, which as a rule, does not satisfy the specific needs of quasi-retail. Trador and Price Club's product mix, however, does not make any provision for quasi-retail, because pressure from their retail client forbids this (Makro's method 1991:31). There appear to be different opinions about the importance of the quasi-retail market and one of the aims of this study is to clarify this matter.

### **Changes in the Target Market**

The target markets of the cash and carry wholesaler really seem to be in a state of flux. The inclusion of the spaza shop target market could be advanced as a reason for this. There was strong sentiment among the respondents that the continued existence of the cash and carry lies in the further exploitation of the spaza shop target market. It is recommended that this target market should be exploited more rapidly to enable the cash and carry wholesaler to obtain a competitive advantage over the large retailer.

### **Future Trends for Cash and Carry Wholesalers**

Greater involvement in spaza shops, marketing aimed at the consumer and adjustments to the credit and delivery functions appear to be the future trends that can be expected in the wholesale sector. The cash and carry wholesaler is currently undergoing structural changes, is performing increasingly more retail functions of the large retailer and is marketing to the consumer to a greater degree, all of which are impacting on the basic characteristics of the cash and carry wholesaler.

The cash and carry wholesaler itself is also even willing to give credit and deliver products, and is thus increasingly impinging on the terrain of the full-service wholesaler. Innovation is unavoidable. Fortunately, a new kind of wholesaler is being formed, that can optimally satisfy the needs of the target market. In the process, cooperation with the full-service wholesaler will be of inestimable value. The function of the cash and carry wholesaler in the South African distribution channel will be briefly highlighted below.

### **The Function of the Cash and Carry Wholesaler**

Traditionally, the cash and carry wholesaler operates between the manufacturer and retailer to supply products to the consumer. The transfer of products generates marketing functions that are performed by the cash and carry

wholesaler. The latter should carry out these functions in such a way that there is a saving for both the manufacturer and the retailer. The efficient performance of marketing functions justifies the cash and carry wholesaler's existence in the distribution channel. The marketing functions of the cash and carry wholesaler will be touched on in the next section.

#### **The Marketing Functions of the Cash and Carry Wholesaler**

According to Schoell (2005:338), the primary marketing function of the cash and carry wholesaler is to organise the market for the manufacturer. The cash and carry wholesaler renders a specialised, indispensable and essential service to the manufacturer and the retailer and therefore forms a vital link in the distribution channel.

Restructuring and repackaging are additional marketing functions performed by the cash and carry wholesaler for the manufacturer and the retailer. The cash and carry wholesaler purchases products in bulk, which enables the manufacturer to produce in bulk so that economies of scale, can be utilised (Kotler & Armstrong 2005:370). The cash and carry wholesaler is also in a position to combine small orders from retailers into one large order. These wholesale functions save both the manufacturer and the retailer distribution costs and therefore justify the cash and carry wholesaler's existence.

Furthermore, the cash and carry wholesaler provides the manufacturer with inventory-holding facilities so that it can carry less stock. The upshot is that the manufacturer requires less capital that is used unproductively. The cash and carry wholesaler therefore bears the risks of fire damage, price fluctuations and changes in fashion or damaged goods (Skinner 2005:400).

However, cash and carry wholesalers give no credit to retailers. The latter are also compelled to make their own delivery arrangements because the cash and carry wholesaler does not deliver products. The retailer is prepared to perform these functions itself in an effort to keep costs low. The wholesale functions are therefore passed on to the retailer (Schoell & Guiltinan 2005:342).

#### **Changes in Specific Marketing Functions**

As indicated earlier, changes to the marketing functions because of the inclusion of the spaza shop target market impact on the role of cash and carry wholesaler in the distribution channel. It would appear that some of the respondents have already made changes to their packaging, sales representatives, credit and delivery functions. Each marketing function will now be discussed in turn.

#### **Changes in the Packaging Functions**

As indicated earlier, the spaza shop purchases products mainly in small quantities. According to Van Scheers (1998:279), it would seem that 77,8 percent of the cash and carry wholesalers have already adjusted their packaging functions to accommodate the spaza shop. This response is regarded as significant because it shows that most cash and carry wholesalers already regard the spaza shop as an vital target market and have therefore made changes to accommodate the specific target market.

#### **Changes in the Function of Sales Representatives**

Traditionally, the cash and carry wholesaler does not employ sales representatives to visit retailers. The study shows that one-third of the respondents in fact send out sales representatives (Van Scheers 1998:279). Further changes are also anticipated since retailers would welcome contact that is more personal with the cash and carry wholesalers, which would give them a competitive advantage.

#### **Changes in the Credit Functions**

Granting credit is traditionally regarded as a full-service function and definitely not one of the functions of the cash and carry wholesaler. If the respondents do in fact grant credit to their clients, this could be a sign that the cash and carry wholesaler's marketing functions are indeed changing drastically. The study shows that 27,8 percent of the respondents have already changed their credit function (Van Scheers 1998:279). The respondents concurred that the purpose of the changes they have made to their credit functions are to improve their service to better meet the needs of the spaza shop, and that further changes are anticipated. This opinion ties in with the discussion in section 1.3 which indicated that the cash and carry wholesaler does not traditionally grant credit, but that in the interests of new target market development, is willing to consider doing so.

#### **Changes in the Delivery Function**

Traditionally the cash and carry wholesaler does not deliver products. This marketing function is regarded as a typical function of the full-service wholesaler. Changes in the delivery functions can be regarded as further evidence



of the fact that there is innovation. The study by (Scheers 1998:279) shows that 22.2 percent of the cash and carry wholesalers are already delivering products. This implies that although most cash and carry wholesalers do not deliver products some are already adapting their delivery functions to meet the needs of the spaza shop target market. Changes have been introduced because of stiff competition in the target market.

## **Conclusion**

In conclusion, there is no doubt that the cash and carry wholesaler is playing a vital and active role in the South African distribution channel, but that there also are signs of drastic innovations. The inclusion of the spaza shop as target market guarantees the cash and carry wholesaler a definite place in the distribution channel. However, structural changes and innovation have resulted which goes against the basic principles of the industry. The driving force behind innovation has been changed in the target market. The cash and carry wholesaler is in the process of changing into a new type of wholesaler that manifests characteristics of the larger retailer and the full-service wholesaler, and is better able to satisfy the needs of the target market. The successes that have already been achieved and will be achieved in time will depend largely on the cash and carry wholesaler's ability to make timely adjustments to its marketing functions.

## **Recommendations**

According to the discussion of the main findings regarding the place and function of the cash and carry wholesaler, it is clear that the latter does in fact deserve a place in the distribution channel. However, the findings show that the cash and carry wholesaler is going to be eliminated from the distribution channel if it does not make timely adjustments to its target markets. To assist the cash and carry wholesaler with these adjustments, the following recommendations are made:

- The main recommendation is that the cash and carry wholesaler needs to make additional drastic changes to the spaza shop as target market to increase its own chances of survival.
- This study shows that the large retailer is the cash and carry wholesaler's main competitor. The large retailer also has a competitive advantage because it is already firmly entrenched in the consumer target market. It is recommended that the cash and carry wholesaler position itself in such a way that the consumer target market can be optimally marketed.
- It is further recommended that the cash and carry wholesaler should pursue an intensive price competition strategy in an effort to be more competitive towards the large retailers.
- Intratype competition was also identified as a problem in the industry and the South African cash and carry wholesaler has been labelled as over-concentrated. From this perspective, it is recommended that a mechanism be developed in collaboration with government to ensure orderly competition. A possibility that could be investigated is the Robinson-Patman legislation used in the USA to control the power position of the distribution channel members.
- It is also recommended that the smaller cash and carry wholesalers join forces or conclude agreements to be more competitive in the distribution channel.
- The target markets of the cash and carry wholesaler are extremely sensitive to price changes --- hence direct competition with the large retailer is inevitable. It is recommended that the cash and carry wholesaler compete directly for price in so doing to capture a greater part of the target market.
- It is also recommended that the cash and carry wholesaler become actively involved in the consumer target market so that it is less vulnerable to changes in the distribution channel.
- It is generally accepted that innovation in the cash and carry wholesale sector has occurred in response to the changing needs of the target market. Because of these changes, the cash and carry wholesaler began marketing to the spaza shop. However, the inclusion of the spaza shop as target market effected drastic changes in the credit

function. Adjustments were made to the credit function in particular. It is recommended that the cash and carry wholesaler introduce a credit card system to give spaza shops easier access to credit.

- Further changes need to be made to the delivery function. It is recommended that the cash and carry wholesaler acquire delivery vehicles so that it can deliver more efficiently to spaza shops. It is also recommended that the cash and carry send trucks with products into black residential areas to ensure that they and the spaza shops are not forced out of the distribution channel.

## Conclusion

In conclusion, there is no doubt that the cash and carry wholesaler is playing a vital and active role in the South African distribution channel, but that there are also signs of drastic innovations. The inclusion of the spaza shop as target market guarantees the cash and carry wholesaler a definite place in the distribution channel. However, structural changes and innovation have resulted which goes against the basic principles of the industry. The driving force behind innovation has been changed in the target market. The cash and carry wholesaler is in the process of changing into a new type of wholesaler that manifests characteristics of the larger retailer and the full-service wholesaler, and is better able to satisfy the needs of the target market. The successes that have already been achieved and will be achieved in time, will depend

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Note: Contact authors for the full list of references

## End Notes

<sup>1</sup> In this study, the final consumer or consumer refers to the general public who purchase products for personal or domestic use.

<sup>2</sup> The niche marketing strategy involves specialization in a limited or unique product range (Bowersox & Cooper 1992:45)

# Comparative Advantages of China's Ocean Shipping Industry

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## Abstract

Logistics is always considered as a derived demand for trade. As economic globalization becomes a very important feature of the 21<sup>st</sup> century, international logistics is increasingly drawing more and more attention. Meanwhile, China's booming export and ever growing fleet seems to be a quite good footnote for the above theory. However, this research studied market performance of China's ocean shipping industry (especially container transport sector) and found out that China's ocean shipping industry is lack of advantages over its foreign competitors.

## Introduction<sup>1</sup>

The past twenty years has been the best years for Chinese exporters. Since 1990s, average increase rate for Chinese exports has always been over 20%. Except for the unusual years, balance of payment for commodity trade has always been enjoying surplus. China's access to WTO in the year 2001 encouraged the nation to apply even more open policies, thus Chinese companies' fastened their already hasty steps toward the global market. From the year 2002-2005, annual increase rate of commodity export was about 30%, which is much higher than average level. At the meantime, service export, which was playing an ever important role in the global market, suffered constant deficit. In the year 2005, surplus of commodity export was \$134 billion, while deficit in service trade was \$ 9.4 billion.

As a supporting power of China's export-oriented economy, the ocean shipping industry developed dramatically during the last 20 years. In 2005, the scale of China's fleet in terms of deadweight tonnage accounted for 6.8% of the world's total quantity and ranked 4<sup>th</sup> among maritime powers. Moreover, China's main ports such as Hong Kong, Shanghai, Shenzhen, Qingdao, Ningbo, Tianjin and Guangzhou are among the top 20 container ports around the world. Two leading players, COSCO (China Ocean Shipping Company) and China Shipping are ranked as 7<sup>th</sup> and 8<sup>th</sup> biggest container carriers in freight market. In the meantime, the national railway and highroad, which served as links to hub ports, also developed very fast. In a word, logistics infrastructure, which is supporting import & export business, has made full growth.

## Literature Review

Quantifying international difference in comparative advantage has always been a significant task. The reason behind it is not difficult to understand: economic conditions in various trading countries determined their international comparative advantages and trading patterns. Trading patterns, in turn, determined each nation's patterns of production and consumption which may affect it's future economic condition as well. Thus, economists are eager to appraisal international comparative advantage to study its impacts on economic development. Li and Guisinger (1992) used international comparative advantage to explain MNC's strategic location decisions. Siew-Yean (2001) assessed comparative advantage of China manufacturing industry over Malaysia and predicted that China's impending accession in WTO would enhance her competitiveness while affecting negatively on her competitors' exports. Kalafsky (2001) measured comparative advantage of US machine tool companies and held that despite of steady decline of US MT industry, it would experience commercial recovery in the long term.

However, due to the complexity and variety of service industry, few studies have been made on comparative advantages of service trade, even less focusing on the competitiveness' of transportation sector. Nevertheless, due to its significant role in service import & export, most studies on service trade have included discussions on transportation service trade. Zheng (2000) held the opinion that while China's service sector was lagging behind in export, labor intensive sectors as travel service and ocean shipping industry possessed factor

endowment and enjoyed comparative advantage. Ding (2000) pointed out that development of China's service sector is quite unbalanced. Yet, he concluded that ocean shipping industry and travel service industry did have certain competitiveness. Yang (1999) further illustrated that China's ocean and air transport sector had tremendous potential for development. Meanwhile, Zhang (2004) concluded even in labor-intensive industry, such as ocean shipping industry, China did not have comparative advantage. Chen and Yang (2001) argued though China's shipping service export had made some progress, it didn't enjoy international comparative advantages yet. Wan (2005) assessed China's ocean shipping industry, travel service and banking sector and drew quite negative conclusion of their competitive advantage.

It is quite clear that there's no consensus on market performance of China's ocean shipping industry. On the contrary, existing findings are quite contradicting. The objective of this research is to make a thorough study on China ocean shipping industry and decide its international competitiveness.

Methodology is quite important to economic study as it has always been. Balassa (1965) defined Revealed Comparative Advantage index 30 years ago. Peterson and Barras (1987) studies measurements available for judging international comparative advantage and concluded that RCA index is a reliable indicator of trade performance. Till now, RCA index has been widely used in similar studies. Li and Guisinger (1992), Ling(1996), Siew-Yean (2001), Kalafsky, (2001) used RCA index to provide insights into export performance of selected exporting products in global markets. Wang etc. uses RCA index as an explanatory variable representing importing country's comparative advantage to model effect of logistics on trade of agriculture products. Malley and Moutos (2002) developed an import demand function which involved RCA index to indicate comparative advantage of the products. Though researchers such as Li and Guisinger (1992) developed new index (International Competitiveness Index) as an alternative tool to measure international specialization, it makes no substantially distinction between the new one and RCA index.

As a result, NTB and RCA index will be used as important measurements to reveal China's international comparative advantage in this sector. To compare, the researcher selects top 39 nations and regions which are ranked as top 30 exporters in either goods or services trade. Among them, mainland China, Hong Kong and Macao are considered as 3 regions.

## **Comparative Advantage of China Ocean Shipping Industry**

### **Current status**

In 2005, commodity trade kept playing a key role in global import & export market. Among the 39 nations and regions selected, commodity exports accounted for 79.9% of the total exports (sum of service export and commodity export) whereas the service export was about one fifth of the total. With regard to service trade, transport service export made up only 4.3% of total exports, which was lower than that of the travel service export (5.1%). Except the nations and regions which failed to provide complete data, ocean and air service export held 31.4% and 24.4% of total transport service exports respectively.

As to mainland China, it is the 3<sup>rd</sup> largest commodity exporter, 12<sup>th</sup> largest transport service exporter. Its commodity exports amounted to \$762, 484 in 2005, accounting for 91.1% of the total exports while transport service exports represented only 1.8% of the total. Among transport service exports, ocean and air service exports occupied 57% and 25% respectively whereas cargo, passenger and auxiliary service trade accounted for 69%, 17% and 14% of transport service exports. Hence, it is no doubt that commodity export is crucial for China exports while ocean transport service constitutes the main part of transport service sector.

### **Analysis with NTB index**

NTB Index is quite commonly used for measuring international comparative advantage. It is defined as the ratio of the difference between the exports and imports and the total amount of the two, i.e.

$$NTB = \frac{\text{Exports of transport service} - \text{Imports of transport service}}{\text{Exports of transport service} + \text{Imports of transport service}}$$

The NTB Index is between -1 and 1. As a nation's NTB Index approaches 1, its trade comparative advantage is regarded as stronger.

Table 1 shows that in 2005 except for the slender advantage, which commodity exports had taken on, China suffered negative NTB Index of service export, transport service export as well as ocean shipping and air service export. Although ocean shipping service held a largest share of the transport service export, its NTB Indexes presented apparent disadvantages over the other nations. All at once, NTB index shows that Greece, Sweden and Russia possessed highest trade advantages in the global market.

However, NTB Index can only contrast balance of imports and exports. Negative NTB index can only mean that a nation is a net importer in the global market. It gives no clue on competitive position of China ocean shipping industry in the world market. Next RCA Index will offer a good supplement.

TABLE 1: NTB INDEX OF THE TOP 15 TRANSPORT SERVICE EXPORTERS

	Transport Service	Ocean Shipping	Air Service	Other Services	Comodity	Service Trade
USA	-0.17	-0.74	-0.03	0.14	-0.30	0.09
Germany	-0.07	0.11	0.15	-0.09	0.11	-0.13
Japan	-0.06	-0.01	-0.16	-1.00	0.09	-0.10
UK	-0.06	0.11	-0.20	-0.14	-0.14	0.12
France	-0.03	n.a.	n.a.	n.a.	-0.04	0.04
Korea,	0.09	n.a.	n.a.	n.a.	0.06	-0.13
Netherlands	0.19	n.a.	n.a.	n.a.	0.07	0.05
Singapore	-0.05	n.a.	n.a.	n.a.	0.09	-0.03
Greece	0.38	0.47	0.26	-0.61	-0.49	0.40
Italy	-0.17	-0.19	-0.09	-0.25	-0.04	0.13
Norway	0.26	0.26	-0.29	0.43	0.32	0.02
China PR	-0.30	-0.42	-0.10	0.17	0.01	0.05
Spain	-0.07	-0.38	0.19	-0.23	-0.18	0.18
Belgium	0.06	0.09	-0.25	0.22	0.01	0.04
Austria	0.19	n.a.	n.a.	n.a.	-0.06	-0.02

#### Analysis with RCA index

RCA is defined as export specialization in terms of country j's share of group exports of product i relative to its corresponding share of group exports of all products and services, i.e.

$$RCA_{ij} = \frac{\text{Export of Country } j\text{'s Service } i}{\text{Country } j\text{'s Total Export}} / \frac{\text{World Export of Service } i}{\text{World Total Export}}$$

Since developed, RCA Index has been widely used to measure competitiveness of a nation's tradeable goods and services. With higher RCA Index, a nation or region is regarded as more competitive in the sector compared with the world's average level.

TABLE 2: RCA INDEX OF THE 15 TOP TRANSPORT SERVICE EXPORTERS

	Transport Service	Ocean Shipping	Air Service	Other Services	Comodity	Service Trade
USA	3.22	2.77	25.45	47.20	2.21	10.10
Germany	1.94	9.04	12.07	10.83	2.39	4.15
Japan	1.82	13.18	8.77	0.00	1.40	2.96
UK	1.67	8.83	11.07	4.45	0.94	5.42
France	1.38	n.a.	n.a.	n.a.	1.08	3.11
Korea,	1.22	n.a.	n.a.	n.a.	0.71	1.22
Netherlands	1.08	n.a.	n.a.	n.a.	0.85	2.11
Singapore	0.91	n.a.	n.a.	n.a.	0.57	1.38
Greece	0.88	8.34	0.66	0.62	0.04	0.92
Italy	0.80	3.31	5.16	5.41	0.92	2.41
Norway	0.79	6.21	0.39	5.18	0.26	0.77
China PR	0.79	4.58	3.32	4.51	1.88	2.00
Spain	0.78	1.08	7.52	7.50	0.48	2.51
Belgium	0.71	3.68	1.69	8.04	0.65	1.49
Austria	0.54	n.a.	n.a.	n.a.	0.29	1.45

As Table 2 indicates, mainland China exhibited comparative advantages to a certain extent in both commodity and service trade. China's RCA Index for commodity exports ranked the 3<sup>rd</sup>, falling behind US and Germany only. But, China merely ranked 8<sup>th</sup> for service trade, 12<sup>th</sup> for transport service export and 6<sup>th</sup> for ocean shipping export. Particularly, RCA index demonstrates that China ocean shipping industry was far behind that of Japan, Germany, UK, Italy etc<sup>2</sup>. Besides, disadvantages of other transport service sector were much more apparent. Thus, RCA analysis supports findings we have got with NTB analysis.

To sum up, NTB and RCA indexes indicate that China's ocean shipping sector is still in disadvantage compared with those of strong trading powers. The result is different from the understandings formed during the early years (Zheng 2000; Ding, 2000; Yang, 1999), whereas similar to the results of more recent studies (Zhang , 2004; Wan , 2005).

### Discussion on Competitiveness of China's Ocean Shipping Industry

It is generally agreed that transport service (especially cargo transport service) is derivative demand. Subsequently, it is predicted that expansion of commodity trade will motivate growth of transport service export. Regression result in Table 3<sup>3</sup> supports the above conclusion and confirms that transport service export is closely related to either commodity trade volume (import plus export) or export volume. Furthermore, as more than 2/3 of commodity trade will use sea transport service to support overseas market, it is likely that ocean shipping sector might expand together with China's dramatic increased exports. Surprisingly, while China's commodity trade is booming, relative scale and market share of China ocean shipping sector are declining. Not only that, China is one of most competitive commodity exporters around the world. But the competitiveness of China's ocean shipping industry in terms of NTB and RCA indexes lags far behind theoretical expectations. The above observation seems contrasting against

economic theory. Further studies on China shipping industry exposed that following reasons may answer for the paradox.

TABLE3: RELATIONSHIP BETWEEN TRANSPORT SERVICE EXPORTS AND COMMODITY EXPORTS

	Export of Transport Service	Export Of Shipping Service	Export Of Air Service
Commodity Export	0.852* ( 77%** )	0.906* ( 59%** )	0.849* ( 64%** )
Sum of Commodity Import and Export	0.978* ( 81%** )	1.012* ( 61%** )	0.949* ( 68%** )

\*Be significant at the level of 0.5%      \*\* Adjusted R<sup>2</sup>

As a whole, mainland China is taken as a transitional economy while her shipping market is a one of the most open market in the world. Its shipping market was open to the outside world as early as 1980s. Since then, China required no cargo reservation for domestic carriers. Foreign companies can easily start their business in China and serve local import & export market. As a result, the grown cargo volume are shared by both Chinese and foreign carriers.

Competition is fierce. Around the world, ocean shipping industry, especially liner industry is traditionally regarded as a highly international and oligopoly market. Shipping companies used to form cartel (for example shipping conference or a certain kind of alliances) to deal with cargo owners. Consequently, independent carriers do not have too much room to rival. Evidence from Li's research (2006) proved that Shipping Conferences or Shipping Alliances are decisive players in the market (see Table 4). Although US applied New Shipping Act (1998) and EU committee declared to exempt Shipping Conference of any rights for anti-cartel regulations, Shipping Conference or Strategic Allies such as New World or Asia Australia Discussion Agreement still keeps significant market share. Meanwhile, with more mergers and acquisitions independent carriers like Maesk successfully take about 21% of world's container shipping capacity<sup>4</sup>. Unfortunately, leading goats among China shipping companies such as COSCO and China Shipping are definitely one of the few independent carriers within the industry. Even though they started certain co-operations with other shipping companies these years, they are not famous for being involved in any coalitions or cartels. In consequence, though the two companies have developed rapidly in the past decade, they are still not strong enough in the market resulting in unsatisfied market performance of China shipping industry.

TABLE 4: MARKET CONCENTRATION OF CONTAINER SHIPPING INDUSTRY

	Market Share (Herfindahl-Hirschman Index)		
	Shipping Conference	Strategic Alliances	Independent Carrier
Far east – North Europe	77.8% (6187.0)	69.9% (1447.1)	30.1%
Around Pacific Ocean	67.8% (4736.2)	72.7% (1363.5)	17.4%
Far east – Mediterranean	74.1% (5722.9)	47.7% (1278.9)	52.3%
Far east - Australia	96.1% (9246.1)	96.1% (1653.0)	3.3%

Source: Na Li etc. “Empirical Study on Market Concentration in Global Container Line Industry”, *Shipping Management*, 2006.12, 10-13

Last but not least important, productivity of China’s ocean shipping industry is still quite low. Productivity of an industry is closely related to its international competitiveness. In ocean shipping industry, up-to-date facility and high level service (including Customs Clearance, Cargo Handling, and Warehousing Service etc) will surely impact its efficiency or productivity. However, facility infrastructure and service are still not satisfactory in China even now (Wang 2006). Table 5 shows that there is big gap between productivity of China shipping industry and that of the other countries’.

TABLE 5: PRODUCTIVITY OF TRANSPORTATION SECTOR IN VARIOUS COUNTRIES<sup>5</sup>

	China	Israel	Japan	Korea	Singapore	Thailand	US	Germany	UK
Home Currency	293	2253	79021	290480	759	4044	793	569	350
SDR*	28.7	409.2	477.5	174.3	326.3	72.8	631.6	399.4	403.4

## Conclusion

All in all, dramatically increasing commodity trade offers great potential for the development of China shipping industry. However, as productivity of the industry is rather low compared to its foreign counterpart, its international competitiveness in terms of NTB and RCA index is not satisfactory. In the meantime, China’ open market encourages more foreign carriers to come in for a share who compete more severely against local players. With more production capacity concentrated to few giant market powers like Maesk or MSC, Chinese shipping industry will inevitably encounter more challenging environment in the future.

Fortunate enough, we see certain improvement already shown in the industry. As Figure1 presented, despite huge commodity exports, the RCA Indexes of both the commodity and service trades have exhibited great fluctuation since late 1990s. Good news is though RCA index for China shipping sector fell during 1996 to 1999, it increased steadily and gradually since 1999. The trend may not guarantee a promising future for Chinese carriers. Still it is encouraging enough for more progress.



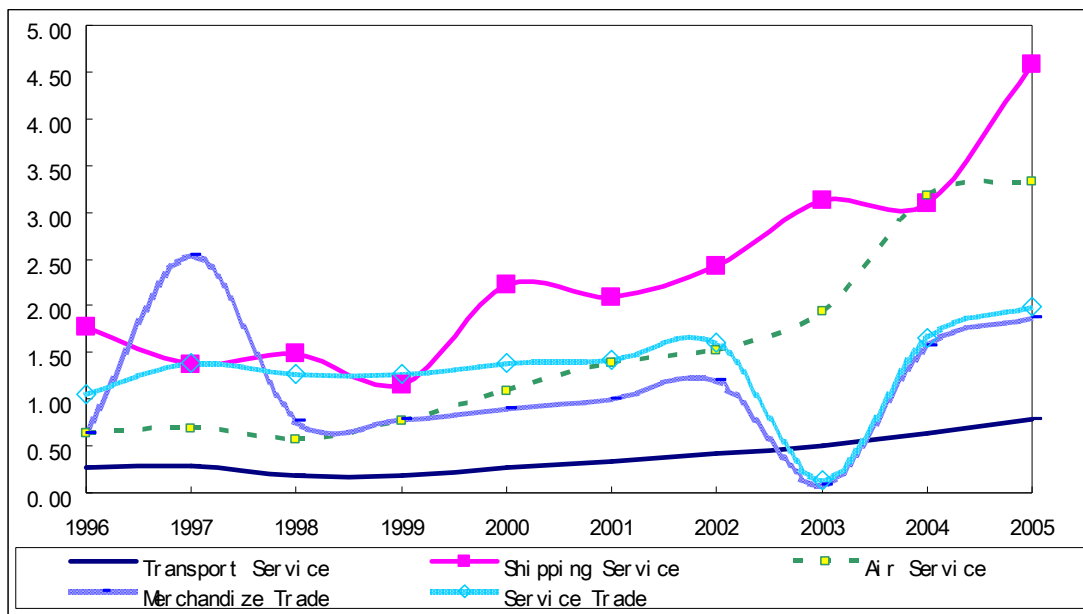


FIGURE 1: RCA INDEX FOR CHINA'S EXPORT DURING 1996-2005

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### End Notes

<sup>1</sup> Except for sources mentioned, data in this research are from or calculated based on data provided by *IMF Balance of Payment Statistics: (2002-2005)*.

<sup>2</sup> Information from ocean shipping market showed that Korea, France and Singapore are also famous for their fleets and ocean shipping carriers. Then, though detailed data is not available, we still take them as comparatively competitive players...

<sup>3</sup> The model is expressed as:

$\ln(\text{exports of transport service}) = a + b \ln(\text{exports of commodity trade})$

in which the coefficient tells the elasticity of transport service export to commodity exports. Export volume data are from Balance of Payment of 165 nations.

<sup>4</sup> *The 2005 Report on China's Shipping Development*, China Communications Press, 2006

<sup>5</sup> Productivity is defined as total GDP of shipping industry divided by number of employees. The two groups of data are from "Statistical Yearbook of World Economy", Figure 4-13 and 6-4. Exchange rate is provided by IMF.

# The Transitions of Clustering Centers in Ship Breaking / Recycling Industry, Present Situation and Potential Development

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## Abstract

The research objective of this paper is to seek the suitable way to solve the problems of environmental and labor protection, based on the analyses the phenomenon that the ship breaking / recycling industry transferred globally in the past 50 years. The paper also analyzes the uneven social responsibilities among the shipping, ship building and shipbreaking industries, based on the fact of production values of them. The paper discusses the situation and problems faced by IMO, ILO and Basel Convention Regulation that are currently discussed for solving the environmental and labor protection problems and dealing with the transition of wastes across boundaries internationally, and the concerning points of related parties. Paper finally discusses the future trends of dismantling obsolete ships and prices, suggests the topic that shipping and ship building sectors should undertake more social responsibilities to environment and labor protection, appreciates the solution model developed by Holland and China companies in this field, and predicts the potential development trend of the shipbreaking clustering.

## Literature Review

### Shipbreaking is part of the underbelly of globalization

Shipbreaking industry is part of global industry set, which has been the hot topic in international media. After the reporting team won a Pulitzer Prize, the story gained additional momentum due to European interest. In 1998, Greenpeace published its own report on Alang (India), making the explosive claim that there were approximately 365 deaths a year from shipbreaking accidents, resulting in the slogan: "Every day one ship, everyday one dead."<sup>1</sup>

Based on the view of some experts in the world, such as Rune Larsen, he pointed that, in the early 1970s ship breaking was a highly mechanized industrial operation carried out in the shipyards of Great Britain, Taiwan, Mexico, Spain and Brazil. As the cost of upholding environmental, health and safety standards in developed countries has risen, ship breaking has increasingly shifted to poorer Asian states.<sup>2</sup> To maximum profits, ship owners send their vessels to the scrap yards of those relative poor countries.

From the research done by Commission of the European Communities, each year between 200 and 600 sea-going ships of over 2,000 dead weight tons (dwt) are dismantled worldwide. A peak is expected in 2010 when around 800 single-hull tankers will have to be phased out.<sup>3</sup> Nowadays, two thirds or more of these ships are dismantled on beaches and river banks on the Indian sub-continent, with Bangladesh currently holding the largest share of the market.<sup>4</sup> At present there is "green" ship recycling capacity, i.e. conforming to environmental and safety standards, to handle at most 2 million LDT/year worldwide, which is around 30% of predicted total scrapping

demand in normal years. Most of these facilities are in China, but and in some EU Member States, which find it is difficult to operate, as they cannot offer the same scrap prices and have much higher costs than their competitors in South Asia.<sup>5</sup>

Ship breaking industry's development do need the research from technical and economical fields, Mr. Yan Hemin, the chairman of China National Ship Breaking Association, remarked that as one part of economic chain cycle set, to develop ship breaking is indispensable. Meanwhile he pointed that ship breaking can reduce the pollution to environment as the scrapped steel is much better than row ores to produce steel, concerning the energy consumption. In this case, ship breaking is beneficial to the development of economy, especially for developing countries.<sup>6</sup>

#### **Problems Faced by International Communities**

Last year (2006), international media reported the news of le Clemenceau, the French Aircraft Carrier first navigating to Alang, India, to be scrapped, but on December 31, 2005, Indian Administrative Court cleared the way for the redundant aircraft carrier to depart for the scrap yards in Alang, India via the Suez Canal.<sup>7</sup> The members of an NGO Platform for Clean Ship-breaking believed that French efforts to side-step international protocols and global agreements preventing countries from exporting hazardous waste have been frustrated by the campaigning efforts of Ban Asbestos France and Greenpeace. They blamed that some ship owners of advanced countries violated the Basel Convention, which prohibits the transition of wastes internationally.<sup>8</sup> The similar story was also presented about the SS Norway in international medias.

Some environmental protection experts even regarded the ship breaking industry as one of the world's dirtiest industries. The 1998 Pulitzer Prizes winner's pictures showed the poor situations regarding to environmental and labor protection in ship breaking yard in a south Asian country. The title of the pictures is as "A Third World Dump for America's Ships?"<sup>9</sup> The pictures reflect that the working condition in ship breaking industry in some Asian countries seems to be the situation in 18<sup>th</sup> century. Whereas at present ship building industry is developed very quickly and technologies in this industry have been developed as very modern. The shipping industry in the world is also developed very rapidly. Concerning whole economic chain of ship building, shipping and ship breaking, it is obvious that ship breaking industry is developed far behind other two industries in the technological fields in the chain.

The issue of ship recycling was first brought to the attention of the IMO (international Maritime Organization) Marine Environment Protection Committee at its forty-second session (MEPC 42) in 1998 and at the following sessions of the Committee it was generally agreed that IMO had an important role to play in ship recycling, including preparation of a ship before recycling commences, and a coordinating role towards the ILO and the Basel Convention in recycling matters.<sup>10</sup>

Expert Roy Watkinson developed a list of key international activities taken by IMO, ILO, Basel Convention and so on, which is listed in the Table 1

TABLE1 KEY INTERNATIONAL ACTIVITIES ( 1998-2008 )

Basel Convention COP-5	December 1999
Industry Ship Recycling Code of Practice	2001
Guidelines published	BC-2003, IMO-2003, ILO-2004
Basel Convention Decision VII/26	October 2004
1st ILO/IMO/BC Joint Working Group	February 2005
EU Council Conclusions	June 2005
IMO MEPC53	July 2005
IMO General Assembly Resolution A981	November 2005
2nd IMO/ILO/BC JWG	December 2005
IMO MEPC54	March 2006
Basel Convention OEWG5	April 2006
IMO MEPC55	October 2006
Basel Convention COP-8	November 2006
3rd IMO/ILO/BC-JWG	(No date set)
IMO MEPC56	July 2007
IMO General Assembly	November 2007
IMO Diplomatic Conference	2008
Entry into force and legally binding	Enforcement time has not decided yet.

Source: Roy Watkinson. ENVIRONMENTALLY SOUND MANAGEMENT OF SHIP RECYCLING WASTES. The presentation in the IMO Regional Seminar of Ship Recycling, Zhuhai, China, February 7, 2007.

From the table1 above, it is apparently that IMO has devoted a lot of efforts to hold seminars to discuss the IMO Guidelines on Ship Recycling, which hopes to issue an accepted international regulation in 2008 or 2009 and be implemented in 2010.<sup>11</sup> About the guidelines, Japanese scholar Koichi Kato, Class NK, pointed that IMO guidelines should take gradual phase-in approach. If the facility standard were set too high, there would be little ratification. Support from recycling states is essential. Avoid regional regulation that will distort competitive conditions of the industries.<sup>12</sup> IMO is facing the challenge to find the balance to the interests of various types of countries, ship breaking yard's countries and ship owners' countries and to balance economic development and environmental protection. Meanwhile, Basel Convention faced the challenge to the avoidance of responsibility of transferring waste crossing country's bound carried by ship owners, which sold their ships in the last life period as used ships to some companies and than passed to ship breaking companies that mostly are located in South Asian countries, where environmental and safety issues are really tough.

## The Transitions of Clustering Centers of Shipbreaking

### Phenomenon of transition of ship breaking clustering centers in past decades globally

In past 50 years, the clustering center of ship breaking industry in Asia transferred from Japan, Korea, and Taiwan region to Mainland China, India, Pakistan and Bangladesh. The times that indicate the peak stages of the ship breaking clustering in those countries are summarized in Table 2.

TABLE2: THE TRANSITION OF CLUSTERING CENTERS OF SHIP BREAKING (1953-2006)

Year	1953	1964-	1969-	1989	1992-	1994	1995	2003	2004-
	-	1987	1988	-	1993		-		2005

	1963			1991			2002		
Clustering Centers	Japan	Japan Taiwan Region	Taiwan Region	India	Mainland China	Mainland China India	India	Mainland China India	Bangladesh

Note: above presentation is based on the reference [13] to [18].

During 1953 to 1963, Japan was in the most prosperous period and the quantity of ship breaking took 70%<sup>13</sup> of the world shares. In 1976, owing to the recession of ship building industry, Japanese government set the funds to set up the Ship Breaking Promoting Association. But the result of the funding was not positive, Japanese shipbreaking industry lost its leading position as the economy grew to high level, the costs of labor of shipbreaking and environmental protection were too high to survive for those shipbreaking firms. So, the transition of the industry is the necessity.

Taiwan and Korea accepted the clustering transition from Japan in 1960s. Taiwan enjoyed the largest share in 20 years from 1969 to 1988 which led to the name as “Ship Breaking Realm”, and the number of shipbreaking companies reached to 202.<sup>14</sup> The technology of shipbreaking in Taiwan was also developed soundly, especially in its clustering center, Kaohsiung.

India was the later star in shipbreaking industry in world, the government of which loosened control power for purchasing obsolete ships that led to the booming of ship breaking industry. In 1990, while the world’s ship breaking industry began to decline, India’s ship breaking quantity still had 1,091,590DWT per year<sup>15</sup> and became the first in the world.

Shipbreaking in mainland China started in 1950s and occupied as the leading position first time in 1992 which took about 50% of the world shares, which only lasted for two years. From 1994 to 2002, India took placement as the world’s largest shareholder of shipbreaking. With the quick development of Chinese economy, China returned to the leading position again as the largest shareholder of shipbreaking in the world.

Since 2004, Bangladesh’s shipbreaking has jumped to the first position in the world. Furthermore, according to the report published by the IMO in 1999, the largest ship breaking countries in proper order are: India, Bangladesh, Pakistan and China. Their total dismantling ton takes the 90% of the world.

**Reason for transition of ship breaking clustering centers**

The reasons for transition of ship breaking clustering centers are complex. Following analyses may serve as the references for digging the reasons for further research.

To begin with, it is highly related to the GDP per year of ship breaking countries. From Table3 it can be found that the clustering center of ship breaking industry has transferred clearly from the countries with higher per capita GDP to the countries with lower one.

TABLE3: THE GDP PER CAPITA OF SEVRAL SHIP BREAKING COUNTRIES IN THE PAST DECADES (UNIT: USD)

Region Years	Japan	Taiwan, Region	Korea	Turkey	China	Bangladesh	India	Pakistan
1950s	1555★	170						
1960s	2949★	★	★					
1970s	4080★	1127★	279.9	363	32.8	97.8	106.8	
1980s	5699	4813★	1670★	1281★	305.5★	146.2★	259.7	330
1990s	24604	11355	5917.2	2686★	339.2★	207.1★	357.7★	450★
2000-04		13434		2700★	1008★	388★	502★	508★
2005	34316	15215	16305		1709★			

2006	38533	15361	15731	5087★	2003★		727★	748★
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Source: China statistics bureau, <http://www.stats.gov.cn>

Note: “★” = the clustering centers of ship breaking industries.

It can be learned from the above table that when the GDP per capita of Japan reached to USD5, 699, ship breaking clustering centers was difficult to survival. As same, Taiwan Region, when the GDP per capita reached to USD4, 813, ship breaking clustering centers remained existing. But with the further economical development, the industry phased out. It seemed to be that ship breaking industry in Japan, Taiwan Region, and Korea boomed when GDP per capital of these country are lower than USD5, 000, its ship breaking industry can still exists. Now, the GDP per capita of China, India, and Pakistan are, respectively, USD2, 003, USD727, USD748 in 2006, all of which are far less than USD5, 000, so there is still large space for these countries to develop their ship breaking industries.

Secondly, the tax rates of ship breaking countries play an important role in this industry. Generally speaking, when the tax rate increases, the total volume of ships dismantled trends to decline, whereas, when the tax rate decreases, that volume will ascend again. Take China for example, the relationship between the whole tax rate and LDT of the shipbreaking during the period of 1993 to 2006 is described in the Figure 1. It is apparent that the tax rate is the key inference to the fluctuations of ship breaking industry in China.

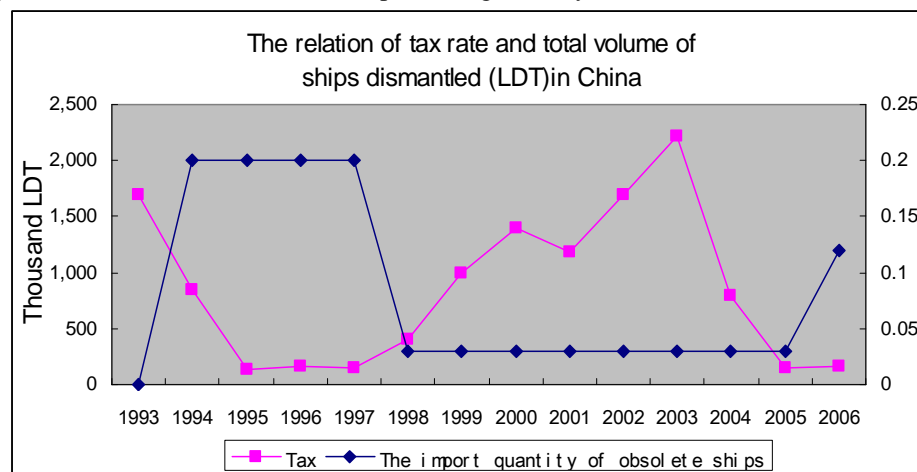


FIGURE1: THE RELATIONSHIP BETWEEN TAX RATE AND TOTAL VOLUME OF SHIPS DISMANTLED IN CHINA

Source: 1. China National Ship breaking Association.

2. Feasibility research of setting up green ship breaking yard in China, the web of metal recycling in China.

Thirdly, steel requirements of ship breaking countries are also an important factor in affecting transitions of ship breaking clustering centers. As the “Green Paper on Better Ship Dismantling” conducted by Commission of The European Communities reported, ship scrapping is an important source of raw materials in South Asia. Bangladesh derives 80-90% of its steel from end-of-life ships. The prices paid for them by ship-breaking companies are now well in excess of \$400 per light displacement ton (LDT) in Bangladesh and thus considerably higher than in other countries. And another paper of ‘the ship breaking industry in Turkey: environmental, safety and health issues’ also pointed that, according to 2005 figures. The steel industry of Turkey is mainly dependent on scrap iron.

Finally, but not the least, the difference in economy and labor costs between different countries is another critical factor for the transitions. In South Asia, some countries are still suffering from hungry, cold, and out of work, so labor costs in these countries are extremely low workers earn 1-2 USD/day and employer’s expenses for safety and health are negligible. So in these countries, ship breaking is welcomed with job position.

#### The environmental and safety issues with the transition

The environmental and safety issues are critical resulted from the transitions. In the process of shipbreaking industry transitions, the technologies and management know how for dealing with environmental, safety and health did not

accompany. As the firms in new clusters of shipbreaking usually lacked of capitals to investment, few heavy machines are used in the breaking processes; therefore, these firms are truly labor-intensive. For the reason, the hazardous waste can not be disposed in shipbreaking properly, which pollutes the environment. Meanwhile, because of this reason, there is a high risk of dangerous accidents. According to a 2004 government report in India, there were 434 incidents at the Alang yards between 1996 and 2003, killing 209 laborers. In Bangladesh, according to media reports, more than 400 workers have been killed and 6,000 seriously injured over the last 20 years. While faced with the problem of the environmental and safety, the treatment of waste rarely conforms to even minimum environmental standards. The transitions of shipbreaking clusters are only for location changes, pollution is moved from previous center to new ones without bring advancement technologies accompanied. This issue should be solved by international communities in the future.

## Present situation of shipbreaking and the problems

### Abnormal high prices of obsolete ships

During the past decades, the prices of obsolete ship increased greatly. From the data of MSR-Consult, Clarkson Research Services & LR-Fair Play, in the period 1977 to 1997, the average price of obsolete ships was approximately USD111.9 per LDT. From the IMO second ship breaking seminar held Zhuhai, February 7, 2007, Bangladesh ship breaking yards offered USD 490, which is the highest price in the world. The Asian shipbreaking amount and prices are presented in Table 4.

TABLE4: THE ASIAN SHIP BREAKING AMOUNT AND PRICES (2006.9-2007.3)

Country	The amount of scrap ship (LDT)	The highest price (US\$/LDT)	The lowest price (US\$/LDT)	Average price (US\$/LDT)
Bangladesh	369,787	490	380	444
India	115,209	459	139	392
Pakistan	75,215	465	375	433
China	20,735	296.5	269	286

Sources: China Ship Technology Research and Economy Development Institute

- Note:
1. this statistics does not contain the scrapped ships which be soled with high value metals such as stainless steel and so on.
  2. This statistics does not contain the scrapped ships which the data such as scrap country name, price and weight were not specified clearly.

In above Figure 1, the data of 2005-2007(April) is collected by us. It is very clearly that the price of obsolete ship has been the increasing tendency since 1970s.

It is also clearly that the highest price to purchase obsolete ships is all appeared in South Asian countries. The average purchase price of obsolete ship in South Asian is about USD 390 to 440 per LDT, which is about USD 130 difference higher than the price in China. In this case, most ship owners sold their obsolete ships to the ship breaking yards in South Asian Region, this is why the booming of ship breaking appeared in there. It reflected the abnormal competition in ship breaking industry, which reduced the margin of those yards. Why such situation existed? That competition only focused in price is main reason. Concerning market mechanism this situation is fare, but only care of price without thinking of environmental and safety issues is remaining for the challenges to international communities.

TABLE5: NUMBER OF RECYCLERS OF 5 MAIN SHIPBREAKING COUNTRIES

Countries	INDIA	CHINA	BANGLADESH	PAKISTAN	TURKEY
Number of recyclers	173 plots	Approx. 10	32 plots	Approx. 30	20
Locations	Alang, Gujarat, WC India	Shanghai and Xinhui areas	Chittagong, Bay of Bengal	Gadani Beach, near Karachi	Aliaga, north of Izmir

Source: Presentation of Carsten Melchior, Secretary General, CPM of BIMCO, IMO Tokyo Seminar of Ship Breaking,



September 2006.

**Advanced vs. laggard**

According to the report of European communities, there are about dismantling capacity of 780,000 LDT that are identified as green recyclers in the world. As obsolete ships usually are sold in international bidding, at present, most ships flew to South Asian countries, where the highest bid often appeared. In this case there is such situation that advanced ship breaking yards with sound facilities of environmental and labor protections have very few shares of ship breaking in the markets, whereas that laggard ship breaking yards with poor measures to care of environment and labors get most shares in the markets.

In the year of 2006, Bangladesh became the number one in the global ship breaking industry, totally 1,181,160 LDT of ships were dismantled in this country. India, Bangladesh and Pakistan, from 1994 to 2002, the ship breaking yards in these countries took part of 77 percents of world total. In these countries, usually ship breaking firms are small size, which have few capabilities to treat with the hazardous materials from ship breaking processes, therefore just these many small ship breaking firms are blamed as the reason of the pollution.

**The concerns and attitudes of related parties of shipbreaking**

There are at least four categories of shipbreaking related parties, shipbreaking firms, ship owners, governments and international organizations such as IMO, ILO and Basel Convention and so on. Their concerning points and behaviors are put into the Table6.

TABLE6 THE CONCERNING POINTS AND TYPICAL ATTITUDES OF RELATED PARTIES OF SHIPBREAKING

Related parties	Concerning points	The category with typical attitudes
Ship breaking firms	The profits. The price of ships. Sustainable channel to get ships. More recyclable materials with high value from ships. Technology innovation. Environmental and labor protection standards.	<ol style="list-style-type: none"> <li>1. Pay attention only to profits, less or even no attention to environmental and safety issues.</li> <li>2. Pay short term efforts to investment in environmental and labor protection, less modern equipments used in the processes of breaking.</li> <li>3. Regarded that safety and environmental protection are more important than economic benefits, pursue long term success in the industry, to invest in advanced equipments and dock facilities.</li> </ol>
Ship owners	Higher bidding and cash flow. Legislation and international convention. Reputation in the society. Safety and capacity and efficiency of fleets, repair costs. Decision of buying new ships or repairing old one. Decision of timely sell its old ships with good prices. Decision of maintaining crew or reducing the numbers.	<ol style="list-style-type: none"> <li>1. Only care about the highest bidding, regardless of environmental reputation of shipbreaking firms.</li> <li>2. Dependent on the enforcement of regulations, make the decision of balance to see the benefits, say some shipbreaking firm pay much higher prices, then sell their ship, say the difference of prices not being very high, so may decide to sell their ships to firms with advanced facilities of environmental and labor protection.</li> <li>3. Pay more attention to environmental and labor protection, even get lower payment for selling their ships</li> </ol>

Governments	<p>Tax income.  Economic development.  Employment.  Environmental and labor protection.  Political relationship with other countries and international communities.</p>	<ol style="list-style-type: none"> <li>1. Developed countries, pay more attention to environmental and labor protection, pay allowance to shipbreaking firms.</li> <li>2. Some developed countries encourage international cooperation to dismantling, pay positive attitudes to develop new convention of shipbreaking.</li> <li>3. Some developing countries, pay little attention to environment and labor protection, and pay more attention to economic development and employment, encourage developing shipbreaking industry and charge less custom duty to import ships.</li> <li>4. Some developing countries, pay common attention to environmental and labor protection, and sometimes regarding shipbreaking industry as pollution one, and sometimes regarding it as sustainable one, so the custom duty and tax rates fluctuating.</li> </ol>
International organizations	<p>Ship safety.  Environmental protection.  Labor's working condition and health.  International cooperation to favor economic development and harmonious relationship.</p>	<ol style="list-style-type: none"> <li>1. IMO: Ship safety, environmental protection.</li> <li>2. ILO: Labor condition and health, employment and the lowest wages.</li> <li>3. Basel Convention: Transition of hazardous waste materials across boundary.</li> <li>4. Green Peace Organization: Environmental protection.</li> </ol>

## Discussions of potential development of ship breaking

### The demand of ship breaking will increase globally in future.

Now, approx 50,000 ocean ships are running in the world. The ship's average life is approx 25 years. World total commercial ships are about 850 Million tons of weight loading of displacement, each year retires 30 million tons of weight loading of displacement, and about 6 million of light displacement tons need to be dismantled each year. The ship recycling market is a certain growth market. At the end of this decade (2010) some 4,000 ships with an aggregate gross tonnage of 24 million should be recycled. As the shipping has been the most economic means of transportation, in the expectable future, shipping will exist without any doubt. Therefore, it is obviously that ship breaking is an ever existing industry in the international economy. The following Figure 2 illustrates the amount of ships breaking in the past 30 years in the world, the data of 2005 is only one thirds of the period of 2001 to 2003, the reason of which is ship owners postponing the ship retiring because of the huge demand of international transportation with global economic growing in that period. As the regulation of IMO urges that all ship should be out of work no longer than 30 years, international ship breaking industry will see the huge demand for dismantling those ships that enlarged their life in near coming years. Therefore, the environmental and labor protection will be even tougher than ever before.

### The future price trend of obsolete ships

In order to predict future trend of world prices of obsolete ships, the price data are collected from extensive sources. The following figure2 indicates scrapped ship prices globally in recent three decades, and the regressive analyses are carried out for deep probing.

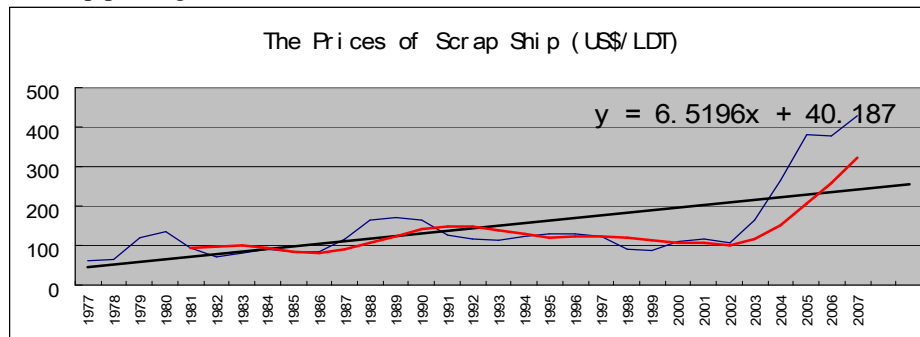


FIGURE2: THE WORLD PRICES OF SCRAPPED SHIPS FROM 1977-2007

Note: The latest data in the above table is from April 4, 2007.

Sources: 1.Clarkson Research Services (1970s to 2004)

2. <http://www.cotzias.gr/>

3. Zhu Rujing, Bao Zhangjing. "The international ships market review". SHIP ECONOMY & TRADE, 2006.4, P3-8.

4. China Ship Technology Research and Economy Development Institute

From the figure2, the blue curve is the data line standing for the fluctuation of each year prices of scrapped ships, and the black curve is the linear regression line.

Regressive formula is  $Y=6.5196X+40.187$  (US\$/LDT).

And the red curve is average movement line standing for the tendency every five years during last 31 years.

The finding is that the prices of scrapped ships are steady during the period of 1977 to 2001. While from 2002 to 2007, the obsolete ships' prices were keeping sharply rising globally. The price of scrapped ships increases highly since 2002, whose climax is \$430 in 2007 and the major price-acceptable region was South Asian area such as Bangladesh and so on.

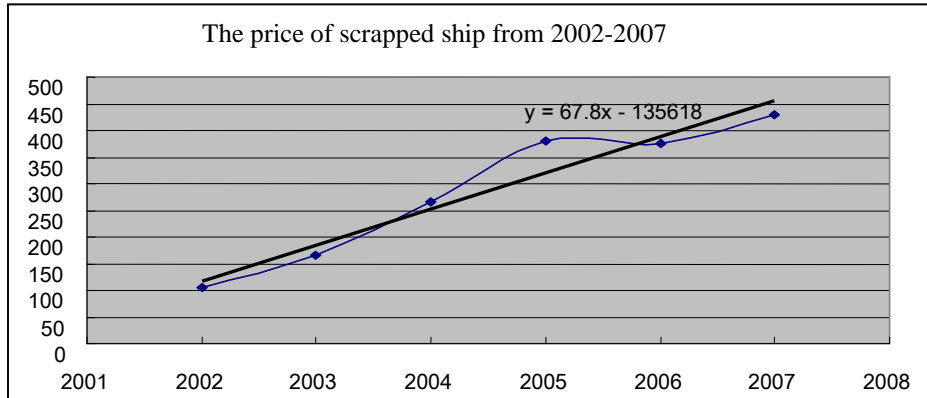


FIGURE3: THE PRICE (USD PER LDT) FLUCTUATION OF THE OBSOLETE SHIPS IN THE WORLD 2002-2007

TABLE7: STATISTIC THE PRICES OF OBSOLETE SHIPS WORLDWIDE (1977-2007)

Prices and slope ratio	1977-2001	2002-2007
The average price USD/LDT	110.34	286.8
Slope ratio	1.3423	67.8
The highest price USD/LDT	172.5 ( 1989 )	430 ( 2007 )

On the whole, the prices of the scrapped ships in the world were kept in a steady state generally from 1977 to 2001, the regression slope of which is only 1.3 degrees. In the last 31 years, the most sudden change has happened during 2002 to 2007, the regression slope of which is high as 68 degrees, much higher than previous 24 years, which is extremely abnormal. As the prices of obsolete ships have been reaching to those of new steel products, for example, the price of ship plates made in China is only USD 480 per ton, the profits of shipbreaking in normal situation are rare, and such high prices could be the historical peak of obsolete ships. As large quantity of single hull oil tankers will be soon phased out shipping markets, the prices of obsolete ships could be predicted in dropping case in near future.

**Which industry sectors should take main responsibilities for the environmental and labor protection issues of ship breaking?**

Clearly, the turnovers of shipping industry and ship building industry are far exceeding that of ship breaking industry, following Figure4 indicates globally the production values of these three industry sectors along the whole chain of ship life in 2006.

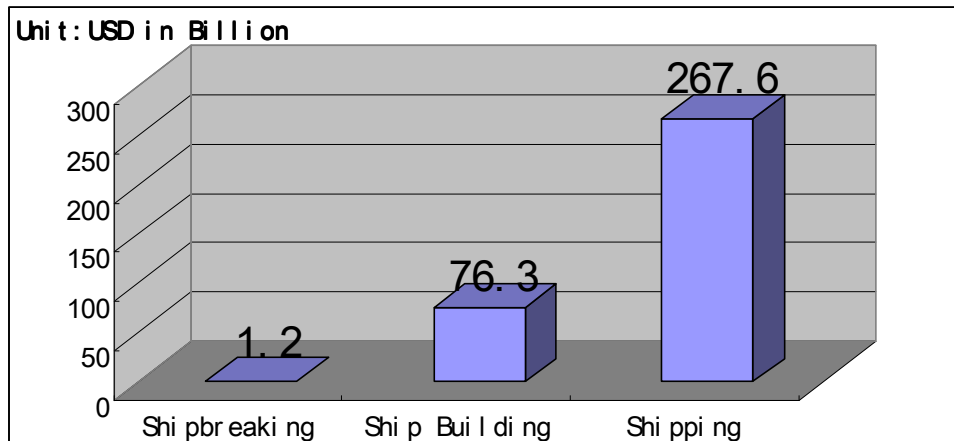


FIGURE 4: THE PRODUCTION VALUE OF GLOBAL SHIPBREAKING, SHIPBUILDING AND SHIPPING INDUSTRY (2006)

- Source: 1. <http://www.cotzias.gr/index1.htm>  
 2. The report of the national shipping industry economy in 2005 and in 2006, China Association of the National Ship building Industry.  
 3. The development of marine in China, Shipping transaction paper , 2006-8  
 4. China National Ship breaking Association  
 5. Clarkson Research Studies

According to Figure4 above, shipping and shipbuilding got huge product value, especially the shipping industry. However, ship breaking occupies only a minor figure, the ratio of which is 100: 28.5: 0.45 and the profits should be in similar situation for these three sectors. So reasonably shipping and ship building industries should undertake more social responsibilities than ship breaking industry do. But nowadays, it seems that ship breaking industry in the world undertake the main blames from international society, meanwhile ship owners of shipping industry sold their ships to those yards with poor environmental and labor protection facilities, instead of those with sound environmental facilities at lower prices. If those ship owners undertake more social responsibilities, the environmental and labor protection situation would be greatly improved. As the ship building industry, how to reduce hazardous materials and consider advanced in designing and manufacturing stages are extremely appreciated for favoring the shipbreaking industry as well.

#### **The solution model to meet the requirement of sustainable development**

The cooperation between Holland P&O Nedlloyd and Chinese Changjiang Ship Breaking Yard is the model solution to resolve the issues raised from shipbreaking. This cooperation began in the year of 2000. Before the cooperation, P&O Nedlloyd broke ships in the yards of Netherlands with tough problems concerning to deal with pollutions, and the costs to dismantle those ships were very high. So P&O Nedlloyd started in 1997 to search for some capable ship breaking service providers in the world, which should have sound capabilities of environmental protection and with high intentions to take care workers health. In the 2000, P&O Nedlloyd signed letter of intent (L.O.I.) with Jiangyin Changjiang Ship Breaking Yard in China. P&O Nedlloyd offered also the ship breaking service provider with advanced equipments and the trainings. In the late of 2000, the first ship MV “Texas” of P&O Nedlloyd was broken in the Changjiang Ship Breaking Yard. After that, from 2000 to 2006, there are totally 21 retired ships from P&O Nedlloyd were broken in the yard in the green manner, the level of pollution is greatly reduced and the workers were in the good working conditions. During the cooperation, the two parties do their best to improve the environmental and healthy technology, in order to support the investment in upgrading the technologies, P&O Nedlloyd returned some portion of the purchasing revenues to Jiangyin Changjiang Ship Breaking Yard. Both Chinese authority and Netherland authority appreciated very much for this kind of cooperation. Mr. Tom Peter Blankestijn, one of the managers of Dutch Shipowners’ Association, remarked that “Is this still a challenge to ship owners? In our opinion not. They just need to do it.” If main international ship owners can follow the model created by the P&O Nedlloyd,

which is now a part of MAERSK, the largest container shipping company in the world, the tough problems of environmental and labor protection faced by international communities could be solved quite soundly.

#### **Further transition of ship breaking clustering**

In past 50 years, the clustering center of ship breaking industry in Asia transferred from the developed regions to the developing regions, followed in direction from East to West, and now the clustering centers are in South Asian region. Where will be the further transition for the clustering in the future? Based on the Table 2, the transition of clustering centers of shipbreaking, it could be predicted that China will get more shares of shipbreaking after the dropping (2003 -2006). Coincidentally, 2013 could be the year China return the position as it took as the largest share of ship breaking in the world both in 1993 and 2003 previously. Because firstly, compare with the five main ship breaking industries, shipbreaking firms in China are mostly carried out strictly measures to reduce hazards to environment and occupational safety and health. With more international regulations and legislations of environmental protection and labor protection are issued, Chinese companies could get more chances of shipbreaking. Secondly, with the development of Chinese economy, China has built a lot of new ships. In 2003, the sea transportation increases 92 million ton, China increases 74 million ton, which is nearly 80% of the world total. If Chinese government issues the legislations to forbid the behavior of Chinese ship owners just to get cash flow regardless of environmental protection, more Chinese ships will be dismantled in China, therefore it will be favor for the booming of Chinese shipbreaking again.

## **Conclusions**

Based on above analyses, the following conclusions could be raised for favoring ship breaking industry.

Firstly, advanced technology and management did not transfer with the transitions of cluster centers of shipbreaking. The global transitions of clustering centers of shipbreaking is with the direction from East to West, from Japan to Taiwan Region and Korea, then to mainland China, and finally to India and Bangladesh. The transitions did not bring the technology and management for dealing with environmental and labor protection issues, so it is only the location changes and pollution transformation from previous centers to new ones. As obsolete ship will be increased with huge quantity in near future, environmental and labor protection will be even tougher than ever before.

Secondly, USD 5,000 GDP par capita is the deciding line of transition of shipbreaking industry center. Shipping industry is indispensable part of international economy, as the ship breaking is the final chain of the shipping, therefore ship breaking industry will be ever existing in the world. As the labor costs increase, shipbreaking industry in developed regions tend to transfer into other region, usually USD 5,000 GDP par capita is the transition line illustrated by Japan in 1960s and Taiwan in 1970s. According to the analysis about GDP above, the current GDP of China, India, Bangladesh are far lower than those of Japan in 1960s and Taiwan in 1970s, therefore, the ship breaking industry in those countries will develop further without doubt.

Thirdly, at present, total capacities of green ship recyclers in the world is far less than need, even though is the problem that these advance facilities are in vain, as their environmental and labor protection costs are much higher than those competitors in South Asian countries, where they took the main shares of international obsolete ships. Just as these laggard shipbreaking firms offering the highest bidding, their low level operations of shipbreaking caused seriously pollution and labor protection problems. The deep reason of this situation is some shipping firms pursuing cash flows, without taking the social responsibilities of environmental and labor protection. It is still a hot topic for international communities and researchers to optimize the collocation of resources in world wide in order to guide the industry transition on healthy way.

Fourthly, shipping and shipbuilding industries took much larger production values than shipbreaking, which is only the 0.5% of shipping industry. So reasonably shipping and ship building industries should undertake more social responsibilities than ship breaking industry do. However, currently concerning environmental and labor protection, ship breaking yards in the world undertake the main blames from international communities, meanwhile the ship owners seems less responsible, which is unfair.

Finally, at present, the cooperation between shipping and shipbreaking in company level is practically the

best solution to reduce pollution and take care of labor's safety and health. Since it will be a long time before current new convention being enforced, the pollution is the continuous problems existing, which should not be waited too much time to be solved. To better protect the environment and labors' safety and health, the cooperation case of P&O Nedlloyd (now belonged to MAERSK) and the Jiangyin Changjiang Ship Breaking Yard China should be greatly appreciated, which deserves to duplicated by other responsible firms both in shipping and ship breaking industry. How to enhance this model internationally? The further research is waiting for us.

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# Factors of Success in Network Industries: The Case of Videogames.

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## Abstract

In the group of sectors that develop and use advanced technologies, the videogame sector has emerged in the last thirty years as one of the most interesting. The objective of the task herewith introduced consists in analysing the peculiarities and the perspectives of the videogames sector within the network industries. The task examines the factors that lead to the creation of a market winner-take-all following the affirmation of a dominant standard, the effects of the net, the importance of the dimension of the installed base and the factors that influence its constitution (pricing policy, promotional policy, switching costs and connected lock-in effects, economies of scale in the production and in the demand). Finally, the supply chains in the home video game industry and the external relations of Nintendo have been analysed.

## Introduction

The origin of network industries is wide and variable, comprising a multitude of enterprises operating in different sectors (one thinks of, for instance, the telecommunications sector, the producers of hardware and software for computers, the music industry, that of video players or video movies, of videogames, etc.)<sup>1</sup>.

The characteristics that define businesses that offer “network products” are complementarity, compatibility and standards, switching costs and lock in, significant economy of scale in production, network externalities. The latest peculiarity assumes an exceptional importance for the competitiveness of enterprises herewith analysed because the value (and thus the purchasing motivation) that the single customer gives to the product utilized increases with the number of users of the very same product. The consumer’s main benefit in using a product that generates the network effects, apart from deriving from the “physical” affiliation of the consumer towards the network (direct network effects, typical of the telecommunications market), can also be generated from the *market-mediated effect*, that is, it can be expressed as a major product low-pricing, major speed in its recruitment (even in secondary markets), availability of a major selection of complementary products, better maintenance services and more. The indirect network effects usually appear in network industries characterized by the hardware/software paradigm where the decision of a single consumer to adopt a specific type of technology is reflected on the future availability or future prices of the complementary products compatible with the very same above-mentioned decision. The need to generate the network externalities and to take an economic advantage over its effects calls for, therefore, the creation and consolidation of a vast and well-spread customer base from enterprises operating in such sectors, more than in others. It is however obvious how the relationship enterprise-customer in this business model is characterized by the existence of switching costs and lock-ins that, in actual fact, stabilize the above-mentioned relationship, making the admission of new potential customers particularly difficult.

## The Nature of the Videogame Product

High-tech products are generally characterized by a series of factors that contribute towards increasing difficulties in management of these products. Amongst these difficulties, the unpredictability of the market, the high level of technological insecurity, the high level of volatile competition, high investments in research and development, the rapid obsolescence of products, the presence of network externalisation, need to be considered.

The above-mentioned factors, typical of high-tech products, are also present in videogames which, not only are classical examples of composite products, because, in order to use them, two complementary elements are needed, hardware and software, but they also display particularly interesting network externalities. Moreover,



videogames include, in hardware as well as in software, technologies that require continuous investment in R&D so as to pursue a continuous improvement of the product that the market evolution, from the position of offer and demand, may impose for the survival of the sector within the enterprise<sup>2</sup>. This involves a progressive reduction of the life cycle of the product and, in many cases, the adoption of a strategy of planned obsolescence as a means of defence of personal market shares<sup>3</sup>.

In the course of time, it is important to remember, amongst the main reasons contributing to the expulsion of numerous enterprises from the market, their incapacity to innovate their product portfolio as well as errors in the choice of introduction periods of innovation in the market, and the adoption of incorrect distribution policies that have not allowed for the creation of an adequate customer base. This shows that in videogames, traditional elements of competition (quality of the product and his price) aren't sufficient to guide the choice of acquisition of the consumer because other different factors of evaluation intervene that represent a link between the features of real economy and that of information economy (Gallagher and Park, 2002).

Within this context, different studies have shown that in order to create a dominant position, innovating continuously is not enough nor is the first mover necessary, although the important role assumed by these support elements that allow for the attainment of a leadership cannot be denied. In each console generation, the strategy that has allowed for the predominance over competitors has been the creation of a vast customer base and a network of complementary products that have allowed each enterprise to establish switching costs. The possibility that an enterprise may be expelled from the market (Schilling, 2000) highly exists if it does not possess a sufficiently vast customer base and if it cannot rely on a high number of complementary products (such conditions are linked to each other), if an error takes place in the choice of entrance in the market (either too early or too late), if it doesn't invest sufficiently in uninterrupted learning processes.

In a "resource based" vision, the realization of a new generation of consoles, thus innovated technology, establishes its origins in typical enterprise capacity and in its learning process. The introduction of new technology in the market is subsequently adjusted by the choices relative to the launching period, to the presence of obstacles when introduced, to the pricing policy and to the plausibility of the brand. After the introduction in the market, the elements of competition move from the innovation of technology to the creation of an adequate customer base and a vast network of complementary products; when these elements, in actual fact, increase the value that each consumer gives to the product, they grant the cut of switching costs that the potential customer may sustain for the abandonment of the technology used and the adoption of his own technology. Taken from another point of view, the vast customer base and the availability of a consistent number of complementary products can allow for the creation of transition costs that keep the customer tied to the use of his product avoiding the adoption of a technological competitor; this provokes an ulterior expansion of the customer base and of the number of complementary products that, as mentioned beforehand, are the true elements of competition in a network market.

Some typical features of the above-mentioned network industries will be further analysed and the means through which such factors are introduced in the videogame sector will be identified, as well as the effects of each one on the competitiveness of the enterprises operating there.

## **The Hardware-Software Paradigm and the Formation of a Winner-Take-All Market**

The so-called hardware-software paradigm (Katz and Shapiro, 1994) is typically found in the markets of complementary products and establishes its characteristics, other than on the concept of complementarity (the need for the consumer to use both products in order to gain a benefit from their use), also on that of compatibility/incompatibility within technological standards. Generally, it is stated that two machines are compatible if they can work together (Shy, 2001). There are many different reasons leading to compatibility; amongst these reasons, two machines can operate according to the same standard (that is using the same operational system) or using the same software; besides, reverse-compatibility is the possibility of a machine being compatible with a preceding model.

Irrespective of the numerous options available, it seems that a single technology emerges as a dominant one. This comes as a result of pressure towards the adoption of one single standard technology that then becomes the

dominant one (notwithstanding the fact that in many cases it is not the more technologically advanced). This is motivated by the benefits that producers, distributors and clients derive from the compatibility. The lifecycle of technology tends to be extremely *path-dependent* and for this reason, random events that occur in the first phases of the cycle are able to provoke enormous impact on the final outcome (Williamson, 1998). One observes, however, that the factors on which the aforementioned “unpredictable outcomes” exert their influence (that they claim that their design is the dominant one) can, at the same time, submit enormous pressure caused from the strategies adopted by businesses. As such they can take control of a certain level of the process involved in the adoption of technologies (in this way it would not be considered a mere coincidence).

The principle motivations originating from the convergence of enterprises towards a unique technological option, especially in high-tech sectors that consequently lead to the establishment of a dominant layout are herewith picked out (Suarez and Utterback, 1995)<sup>4</sup>.

The main reason that leads to the spread of a technological standard is made up of a growing performance in its adoption which represents associated benefits in terms of the spread and use of a technological product enjoyed by both the creator of the product as well as its consumers. From the point of view of the producers, the growing performance is seen from the learning process, whereas from the point of view of the consumers, such benefits are picked out through the so-called network externalisation which will be analysed further on.

The learning effects are brought about from a greater knowledge in the use of technology that improves it as well as its devices. A direct relationship exists between the spread of a given technology and its development, its effectiveness and efficiency. Such a relationship is defined by the so-called experience curve where the cumulated volume of production is placed together with cost and productivity. Such an effect is represented by the following formula (Schilling, 2005):

$$Y = ax - b \quad (1)$$

Where  $y$  = average unitary production cost,  $a$  = average unitary production cost of the first unit,  $x$  = cumulated value of the units produced,  $b$  = learning process.

The preceding formula which tends to be standard, differs from one enterprise to another and from one sector to another in its  $b$  parameter, which, in actual fact, is the benefit obtained by the enterprise in terms of average unitary cost reduction when the growth of cumulative production takes place.

The growing performance of adoption, together with the introduction of market innovation and the promotion policies chosen to sustain this adoption, can lead to the creation of a *winner-take-all* market. In such markets there can be one or very few enterprises that, by acknowledging the technology previously defined or acknowledging the control over an essential component (for example the operational system) (Gilbert and Riordan, 2003), can potentially enjoy the short-term monopoly, and, besides can manage to establish development features of the entire sector in which they belong.

## The Videogame Sector as a Winner-Take-All Market

The videogame sector is a classical example of a winner-take-all market because with the passing of time and during the console generations there has been a dominant technology which has become a market leader reducing competitors to becoming marginal operators (see the following chart).

It can be seen that the first mover enterprise does not necessarily coincide with the enterprise owning the major widespread plant in the market and with the one possessing dominant technology. It is possible to see, for example what happened in the first generation of consoles where Fairchild entered before anyone else in the Channel F market (the first console with interchangeable cartridges) but it was then the Atari VCS to become the dominant feature conquering the largest market share. A similar situation took place in the second and fifth generations of consoles where Mattel and the 3DO had to render their leadership respectively to Coleco and Sony<sup>5</sup> (Williams, 1992). Such a phenomenon shows how the introduction period is only one of the variables that determines the dimension of the customer base and confirms the importance of elements like the availability of complementary products, compatibility choices and patent relationships, more generally, the characteristics of the technological environment.

TABLE 1: CONSOLE GENERATION AND DOMINANT DESIGNS

Generation (Time Period)	Rival Platforms (Manufacturers)	Introduction Date	Operating Performance		
			CPU	Bit	ROM
1st (1976-1982)	Channel FDD (Fairchild)*	Aug. 1976	2 MHz	8	
	VCS** <sup>DD</sup> (Atari)	Oct. 1977	1.19MHz	8	4K
	RCA (Studio)	Jan. 1977		8	2K
	Odyssey <sup>2</sup> (Magnavox)	1978	1.78	8	
	Gamevision (Texas Instruments) Home Arcade (Bally)	Feb. 1978	3.58MHz	8	
2nd (1980-1984)	Intellivision (Mattel)*	1980	.5MHz	16	16K
	Atari 5200 (Atari)	1982	1.79MHz	8	
	Colecovision** (Coleco)	Sep. 1982	3.58MHz	8	8-32K
	Arcadia 2001 (Emerson)	1982	3.58MHz	8	8K
3rd (1986-1990)	NES** (Nintendo)*	Oct. 1985	1.79MHz	8	24-32K
	Master System (Sega)	Jun. 1986	3.6MHz	8	32-131K
	Atari 7800 (Atari)	Jun. 1986	1.79MHz	8	52K
4th (1989-1996)	Sega Genesis** (Sega)*	Aug. 1989	7.6MHz	16	64K
	Turbo Grafix16 (NEC)	Sep. 1991	3.6MHz	8/16	250K
	Super NES (Nintendo)	Sep. 1991	3.58MHz	16	
5th (1995-present)	Interactive Multiplayer (3DO)*	Oct. 1993	12.5MHz	32	660Mb
	Jaguar (Atari)	Oct. 1993	26.6MHz	32	660Mb
	Saturn (Sega)	May 1995	28MHz	32	660Mb
	Playstation** <sup>DD</sup> (Sony)	Sep. 1995	33.9MHz	32	660Mb
	Nintendo 64 (Nintendo)	Oct. 1996	93.75MHz	64	100Mb
6th (1999-present)	Dreamcast (Sega)	Sep. 1999	200MHz	128	1.1Gb
	Playstation 2 (Sony)	Oct. 2000	294MHz	128	5.6Gb
	GameCube (Nintendo)	Nov. 2001	485MHz	128	1.5Gb
	Xbox (Microsoft)	Nov. 2001	733MHz	128	5.6Gb

\* first mover \*\* most popular platform <sup>DD</sup> dominant design

Source: Gallagher, S., & Park, S.O. (2002). Innovation and competition in standard-based industries: a historical analysis of the U.S. video game market. *IEEE Transactions on engineering management*, 49, 1, pag. 71.

## The Hardware-Software Paradigm and the Network Externalities in Videogames

As previously mentioned, a videogame is a product composed of a main element, a console and accessories, a device and, they are all used together.

Establishing which element is more important to achieve total sales, is not at all easy because the demand for both components are strongly linked to each other. Besides, videogames enjoy the network effects that are a consequence of the demand-side economies of scale. This phenomenon is based on the idea that the value that the consumer gains from the utilization of a specific technology grows according to the number of its users<sup>6</sup> (Downes and Mui, 1998). In particular, the network effects in the videogame sector can be classified as *market mediated effect* because the demand for consoles (main component) is influenced by the availability of complementary products, mainly games (accessories).

Therefore, video players gain major utility from using a game in a growing market where such a game becomes compatible; this is because the widespread use of the video machine amongst the consumers guarantees a greater range in terms of amplitude and intensity of games available for that machine, or, generally speaking, a higher quality of the product and a major availability of the services connected to it (for example, maintenance, after sales services, etc). Besides, it can be seen that once a specific degree of the diffusion of the main product in the market is reached, that is the hardware platform, its ulterior spread is made easier owing to major quality and the numerical availability of compatible games with that machine, therefore the presence of a great number of attractive games in the market that are compatible with a specific technology will entice the consumer to buy that very same machine and not a rival machine with fewer perks. Consequently, video players particularly appreciate a hardware platform with a higher availability of compatible games. It is important to note however that the availability and the quality of compatible games with a console in a market depend on the diffusion that the very same console manages

to have amongst the public; however, even the availability of complementary products depends on how vast the customer based console is. A circuit of self-supply is created in such a way so as to involve hardware producers, the creators of software and the consumers. Such an effect is represented in the following figure where the elements determining the amplitude of the customer base is summed up<sup>7</sup> (Gandal, Kende and Rob, 2000), highlighting the strong link that exists between the hardware and the software component in a videogame:

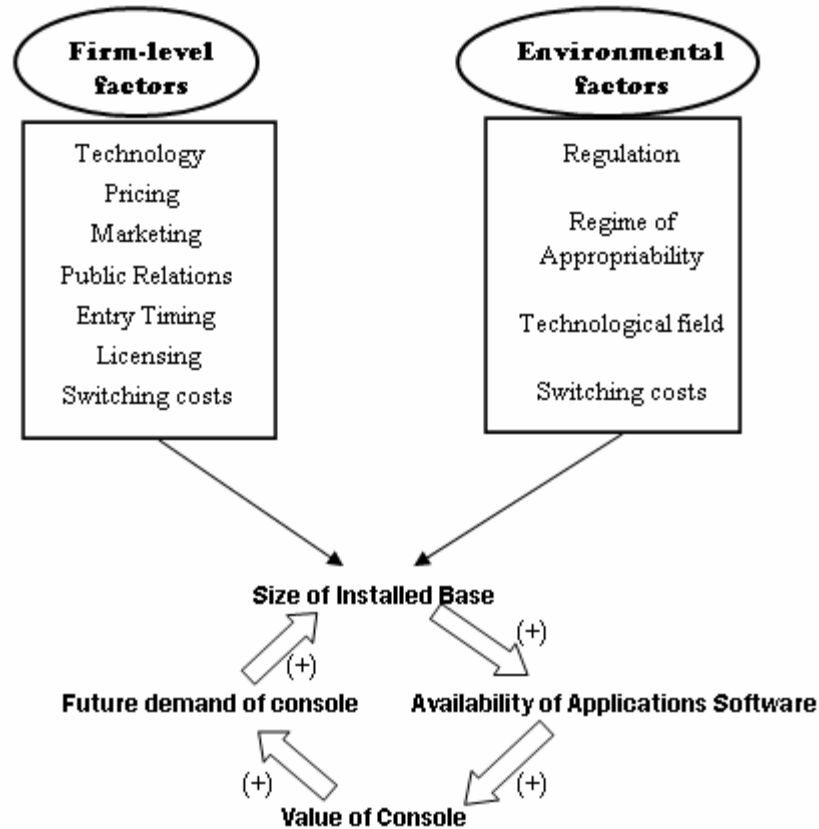


FIG. 1: THE VIDEOGAME VIRTUOUS CIRCLE

Source: our adaptation from Hill, C.H. (1987). Establishing a standard: competitive strategy and technological standards in winner-take-all industries. *Academy of Management Executive*, 11, 2, pag. 9 and from Suarez, F.F. (2004). Battles for technological dominance: an integrative framework. *Research Policy*, 33, pag. 275.

Obviously, the main aim of an enterprise that operates in a market characterized by the network externalisation is to create a sufficiently high range of consumers (critical mass) that allow it to create a network. When this takes place, the enterprise is able to trigger off the economies of scale in production and demand which will allow it to gain adoption cost benefits and start off the virtuous circle of network self-supply.

We confirm in fact that the main motivation is that it pushes upgrades them consumer to adopt one determined technology is proportional to the usefulness that attends to gain from its uses. The quantification of such advantage is based on the historical sales of the good (therefore on the base of customers already constituted) and on the expectations approximately the future adoption of the same technology (therefore on upgrades them widening of the installed base).The dimension of the base installed hardware is influenced from numerous variable, some of which depend on the strategic choices operated from the enterprise, others, instead, like already said, they derive from taken place accidental events in first is made of the cycle of life of the technology that are demonstrated in a

position to provoking of the remarkable impacts on its final performance (*path dependency* and *lock-in*) (Arthur, 1989) and that then they lead to the birth of a “dominant design”.

In this paper, the variables that the enterprise may influence in trying to build up its customer base will be analysed.

## Promotion Policies

A relevant variable in the process of creating a network of consumers is the policy of promotions adopted by business that gives weight, above all, to first stages in the lifecycle of a new technology. Such an assertion is derived, beyond the observations previously made with respect to the probability of adoption of a new technology (that does not depend exclusively on its technical potential, but mainly from the numbers of customers that have already made a choice and the expectations of adoption by most of the users), also from the analysis of current theories in the literature in respect to the path of growth (or depth of diffusion) of a new technology. Graphically it can be described by a sigmoid curve with a base axis of time against the number of acquired customers. Such a curve is symmetrical when the technology attains its maximum speed of spread exactly in the middle of its path of growth, and it is asymmetric when the maximum speed of spread is attained before the middle of the same process (Malerba, 2000).

Generally the introductory step, quite long, is followed by a faster growth encouraged by the increasing number of users. One of the causes accounting for slowing down the process of adopting a new technology by the users is contained in the ‘critical mass’ models of diffusion based on the assumption that a new technology is always able to bring about for those who adopt it, a number of benefits superior to the existing technological expectations. If the adoption occurs slowly this is due to the lack of information about the new technology both in terms of its existence and of its performance. According to this model, the necessary and sufficient condition for adopting the technological innovation is thus the diffusion, among the potential adopters, of the information related to it.

In the videogame sector the development of innovation can be brought back to the mixed model because in the introduction phase, the spread of information on new technology is triggered off by sources external to the potential adoptive community, that is, it comes from the very same producers or from promotional agencies commissioned by production firms; at a later stage, when the new technology was adopted by a minimum threshold of customers, the circulation process of information amongst consumers that had already adopted the new videogame and the group of potential users, is supplied as an effect of the network externalities. For all that, all the actions aiming at influencing the expectations of the potential adopters about the technical characteristics of the new technology and especially about its range of diffusion among the users will probably lead the product to be successful as dominant standard; moreover, such process will be much faster as more optimistic are these expectations (Loch and Huberman, 1999). Therefore, a common attitude adopted in high-tech sectors subject to network externalisation consists in the imminent commercialisation of a new product (that in many cases is far from being introduced in the market) in order to influence the consumers’ perception on the dimension of the actual customer base (*vaporware*) (Dranove and Gandal, 2000); this takes place in order to hamper rivals thus building the buyers’ hopes (Shapiro and Varian, 1999). The above-mentioned statement generates two types of effects in favour of new technology (Farrell and Saloner, 1986):

1) If some consumers decide to wait for the previously-announced introduction of new technology in the market, the moment it really gets introduced and, even more so, adopted by such consumers, the network will gain greater advantages in contrast to the hypothesis whereby no consumer may opt to wait;

2) The customer base of the old technology will be reduced to the number of consumers that wait for the launching of the new one.

It is however important to note the possible negative effect deriving from the adoption of such a strategy that is represented by the “cannibalization” of products that the very same enterprise announces.

## The Availability of Complementary Products

One of the two essential elements of a videogame (besides the hardware) is thus the software, which represents a strong competitive element for enterprises in this sector not only because it directly influences the dimension of the customer base but also because the profit margin obtained from the sale of devices is greater than the sale of the material element of the videogame<sup>8</sup> (Gallagher and Park, 2002). This phenomenon is due to the typical cost structure of enterprises in this sector that permit the pursuance of economies of scale in the production process. What practically happens is that the creators of software products acknowledge that platform producers possess a royalty for each compatible game sold, obviously, with the very same platform (Coughlan, 2004). Seeing that different games can be used on the same console, as a consequence, the producer of hard components obtains an important business opportunity in the sales of these devices<sup>9</sup> (Consoli, 2004).

It is important, however, not to disregard that the number of games compatible with a specific hardware platform derives from the diffusion that the very same product has reached the people that, on their behalf, rely on their personal technical performance and sale price. Consequently, one of the main reasons why the producers of machines encourage the spread of their technology amongst the people, aim at obtaining the market standard and thus managing to attract the top creators of software. But the existence of attractive software, compatible with a specific machine, will encourage consumers to buy the very same machine, triggering off a viscous circle and the beneficial effects will reach the individuals involved, that is, the hardware producer, the software creator and the final consumer (indirect network externalities<sup>10</sup>). In the meantime, the enterprises, through the pursuance of a suitable growth strategy, will try to reach the critical mass of clients that will allow them to cooperate, perhaps exclusively, with the best game creators. Such strategies plunge into the analysis of pricing leadership as well as into product differentiation. Once they have reached the minimum number of clients necessary to be able to cooperate with competent creators, the enterprises will also try to act on the consumer's degree of addiction through the so-called *lock-in* that generates *switching costs* for the consumer.

## Choices of Compatibility and Switching Costs

The switching costs or transition costs create burdens<sup>11</sup> for the individual (or a business) that should be able to be sustained by abandoning the technology in use and taking up a new one. The costs involved measure the degree of dependency the supplier of the technology has on the consumer, thus constituting a barrier to the release of the product and slowing take-up where the competitor's technology is not compatible. For the owners of new technology start-ups, the transition costs, instead, represent a hurdle when the release of their product incorporates an incompatible technology compared to one already available in the market, even if it is more technically advanced. The customers, in fact, often remain "stuck" with the network from their current company for the sake of the switching costs<sup>12</sup> (Farrell and Saloner, 1986). For this reason, one of the instruments of defence against the appearance of new competitors that manufacturers of old technology more frequently use, are with the various typologies of *lock-in*<sup>13</sup> there is at least one associated typology of switching cost<sup>14</sup> (Shapiro and Varian, 1999). For their part, the suppliers of new technology, in order not to endure the presence of the transition costs and in order to render the own offer more attractive, would have to be in a position to guarantee a benefit that is greater than the costs that the customers would suffer for transferring. Such benefit could come from the technological superiority of the new machine<sup>15</sup> associated with an adequate promotional strategy and appropriating pricing policy. In particular, the switching costs can reflect on the pricing policies in two ways:

a) If the consumer is already locked-in on the network, the company can increase the price up to a limit represented by the transition cost,

b) If the consumer is not yet locked-in because there is no network in existence yet, the business will head for a policy of pricing for market penetration with the aim to create a critical mass of customers who, once it locked-in to the network, could be subjected to pay a higher price.

The aspects tied to compatibility and incompatibilities amongst different technological standards are particularly important in the production of consoles for games because from these choices, switching costs are

reached and the mutual lock-in effects. In particular, such an aspect is reflected on the use of devices so that it is difficult to find the same title for different consoles in that, usually, console producers try to have the exclusive product from the creators<sup>16</sup> (Brandenburger, 1995). A common transmission model of the lock-in sector of videogames exists, in fact, when the consumer, having bought the long lasting product (the console), is forced to buy the complementary products (software devices for games) in order to make use of the machine owned.

The profitability deriving from the technological standards goes, therefore, through the solution of the trade-off between two options: the *acceptability*, that is to facilitate the use of the new technology in order to make the number of the adopters grow, being content with a weaker control on the property rights (for example, IBM Personal Computer); the possibility to be *ownership*, that implies a careful control on the property rights, but it can also delay or impede the attainment of one critical mass of users of the same technology (for example, Apple Macintosh) (Grant, 1999). The choice between the two alternatives is conditioned, therefore, by the necessity of the marketers to constitute the network among the consumers that will be able to foster by itself.

## The “war” of Prices

A strategy often adopted by enterprises operating in high-tech sectors subject to network externalities consists in the establishment of price penetration in the launching phase of new technology so as to attract potential adopters and rapidly develop an adequate customer base in order to consequently enjoy the benefits deriving from the viscous circle of network supply. The analysis of the pricing strategy adopted by enterprises operating in the videogame sector has allowed for the analysis of how a pricing policy adopted by them does not correspond however to the theoretical rules to be respected. From a historical analysis, it was possible to see that, in actual fact, the enterprises operating in the videogame sector have a general tendency to enter the market with prices that tend to be high followed by a successive drop. This usually happens when a rival’s new console is about to enter the market and the enterprises concerned want to hamper the launch making their personal machine more accessible by reducing the price in favour of a specific sector of consumers. Further on, pricing strategies adopted by major competitors of the personal top console will be analysed:

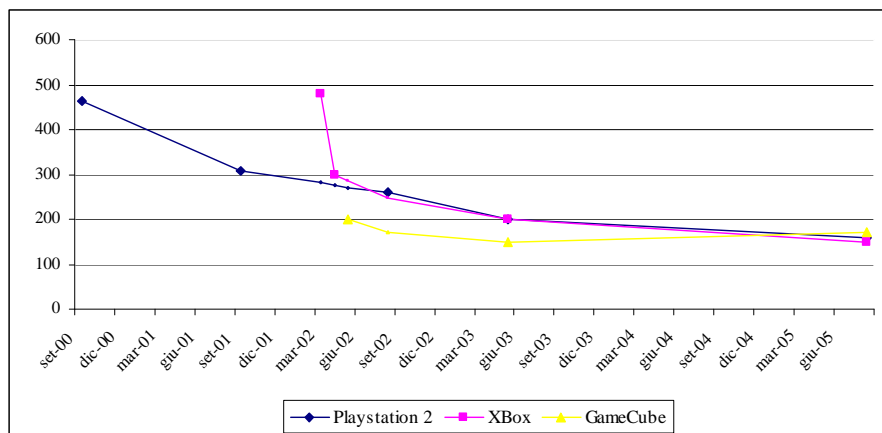


FIG. 2: PRICING ( EUROPE)

By analysing the pricing dynamic of the three major competitors in this sector a typical “strategic behaviour” comes to mind. It is referred to the hypothesis whereby an enterprise takes a decision based on the forecast of the competitors’ possible reaction (Tirole, 1991). Such a decisional process presupposes interdependence amongst enterprises that operate in a given sector because the strategic behaviour has reason to exist when the choices made by enterprises influence the decisions and, thus, have an effect on the profits of other enterprises. This happens mainly in markets as the one herewith examined with an oligopoly-type structure. From the

analysis in the graph it can be deduced that the various price reductions represent the reaction of the different competitors towards the action carried out by one of the enterprises and, in actual fact, it can be seen that the modification of prices take place with the approach of the launch of a new console from a competitor and besides, they appear to be concentrated in a restricted temporal span. Finally, it is important to note that at the end of the price fixing, all the enterprises converge towards a unique level therefore, at that point, the challenge (and it is important to remember that it is aimed at the creation of a vast customer base) moves towards other competitive elements previously highlighted (please see the graph on the circle).

## The Supply Chain in the Home Videogame Industry

In the supply chain of the home videogame industry, with reference to the hardware production as well as the software

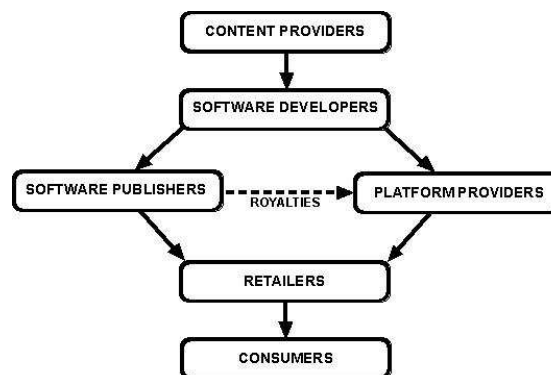


FIG. 3: THE SUPPLY CHAIN IN THE HOME VIDEO GAME INDUSTRY

Source: Coughlan, P.J. (2004, November 5). Note on home video game technology and industry structure (abridged). *Case n. 9-704-488 Harvard Business School*, pag. 7.

1) *Content Provider*: lead by the intellectual propriety of the game, that is, the idea, the names used, the characters, the plots and any other content linked to the game. The Content Providers require rewards for concessions for the utilization of the contents owned, generally in the form of *royalties* on the sale price of each software. The content providers in Italy are Electronic Arts (EA) and Ubisoft.

2) *Software House*: are those who develop videogames and can be classified as:

- *Software house* owned by the software editors (for example Activision, Ubisoft, Electronic Arts, Konami);
- *Software house* owned by *platform providers* (for example Sony Computer Entertainment, Microsoft, Nintendo);
- *Independent software house* (for example Milestone and Trecision).

With the growth of complexity of the systems and the technology associated with the console (as well as the growing expectations of the consumer), the development costs of a videogame has grown considerably with respect to the first generation console and can vary considerably from title to title<sup>17</sup> (Olhava, 2003).

From 1987 to 1997 the number of studios dedicated to the development of software has grown considerably. The aim is that of reducing this mechanism and consequently increasing those of major success. There are very few independent software houses able to self finance their own projects, therefore many resort to publishers or directly to the platform producers to obtain external funds in exchange for publishing and distribution copyrights. In the following table there are the software percentages developed directly by the hardware producer; it is clear that (apart from the games developed by Nintendo for N64 in 1996), the quotations are very much reduced with relationship to games available, all in all, for each console.



TABLE 2: GAMES DEVELOPED IN HOUSE (USA)

Platform	Platform Provider	% of software developed in house				
		1994	1996	1998	2000	2002
Playstation	Sony		19,04	20,45	18,2	15,08
N64 (Cartridge)	Nintendo		80	26,16	18,99	20,74
Genesis	Sega	28,63	29,88	34,94	26,56	19,4
Playstation2	Sony				2,22	8,37
Super Nintendo Entertainment System	Nintendo	11,16	10,36	16,67	25,44	17,46
Dreamcast	Sega				19,59	22,09
Saturn	Sega		31,45	30,07	35,64	0
Nintendo Entertainment System	Nintendo	11,5	25,6	35,29		

Source: our adaptation from Clements, M.T., & Ohashi, H. (2005). Indirect network effects and product cycle: video games in the U.S.. 1994-2002. *The journal of industrial economics*, 4.

3) *Publishers*: apart from financing the creation of videogames, they develop relationships with the *platform providers*, carry out market research, and negotiate with retailers or with distributors and, usually, they deal with the packaging and marketing of the games.

Already in the mid nineties, practically all the publishers had created or purchased their very own studios for the creation of entertainment software. In some cases, even if not often, the very same publishers saw to the creation of videogames. The more important publishers deal directly with the distribution of titles amongst retailers, others rely, totally or partially, on distributors.

One of the most important aspects of the publishing of a videogame activity is the management of relationships with the producers of this activity. The *platform provider* that chooses to control its own technology needs a *licensing* contract from the publishers before creating software for its platform. The publishers must thus pay a *royalty* to the console producer for each copy sold; they generally try to commercialise the same game for different rival platforms so as to soften the high prices for their creation but such a strategy is often in conflict with that of the console producers that, vice versa, try to have exclusive titles for their platform.

4) *Platform providers (or format owners)*: they carry out business activities in 3 main areas:

- The design, manufacturing and marketing of hardware,
- The creation and publishing of software for their system,
- The management of relationships with independent software houses.

The main distinction between a title developed directly by the console producer and that developed by an external creator is that the former is available exclusively for that platform, while the latter can act with rival platforms. The platform producers determine the related market and establish the norms: they decide, in actual fact, if a game for their platform can be published or not, they grant authorizations and development kits and they evaluate the standards of quality. Besides, at times, the production of games takes place at the platform providers; in the end, they establish the selling price zone for software according to their royalty level. The business model for console producers foresees three types of returns: those from the sales of the personal consoles, those from the sales of software created in house, royalties from sales of software created by external developers, compatible with their platform. The large console producers are Sony Computer Entertainment (PS1, PS2, and PSP), Nintendo (GBA, GC, and GBC), and Microsoft (XBOX).

5) *Retailers*: they try to optimise agreements taken with suppliers, whether publishers or distributors, so as to guarantee a vast and intense range of pc or console games that allow them to maximize their profits. Amongst the retailers' responsibilities, there is the setting of the final price of the game. The retailers choose or agree to place in evidence each game with the publisher/distributor and, as a consequence, there are key figures that determine the success of a game – the fundamental role of the consumer in the supply chain of the videogame has already been dealt with in detail in the previous chapters-. With the development process previously described, the software houses (also thanks to the contributions of programmers and independent technicians) ought to be able to prepare a game that publishers consider worthwhile to be published and that, with the help of distributors and different

accessible sale channels, may reach the final customer. Each actor involved in the different phases of the circuit has a turnover which is proportional to the contract power and can allow him to carry out potential investments in the original creation and the subsequent development/publication of a new game triggering off, in this way, a new value circuit. At times, therefore, it is in truth the lack of funds for innovation that impedes the growth in the videogame sector within some economic contexts and that force the creators in these countries, that have reduced contract power, to address foreign publishers or, at least, venture capitalists.

It is important to highlight, however, the crucial aspects of relationships amongst different individuals involved in the supply chain industry of domestic videogames for the success of the consoles and, consequently for the compatible complementary products. As already mentioned, such an importance comes from the need for hardware producers to rapidly create a sufficiently high customer base to allow for the self-supply of the network through the externalities generated. This brings about major returns for the hardware producer but also for the software creators compatible, creating, in this way, the potential development of ulterior investments in Research and Development, and, through these means, growth in this sector.

### External Relationships: the Nintendo Case

The market structure of the videogame sector is of an oligopoly-type nature because it is characterized by the presence of few large enterprises that control the market. In particular, this is referred to the winner-take-all market because the very few enterprises that possess a dominating technology (Sony, Microsoft and Nintendo) not only are in a condition of enjoying, in the short term, the returns of a monopoly but, even more so, they can define future developments in the sector herewith referred to. Within this context, please see the graph which represents the concentration discussed in this analysis with reference to the European market.

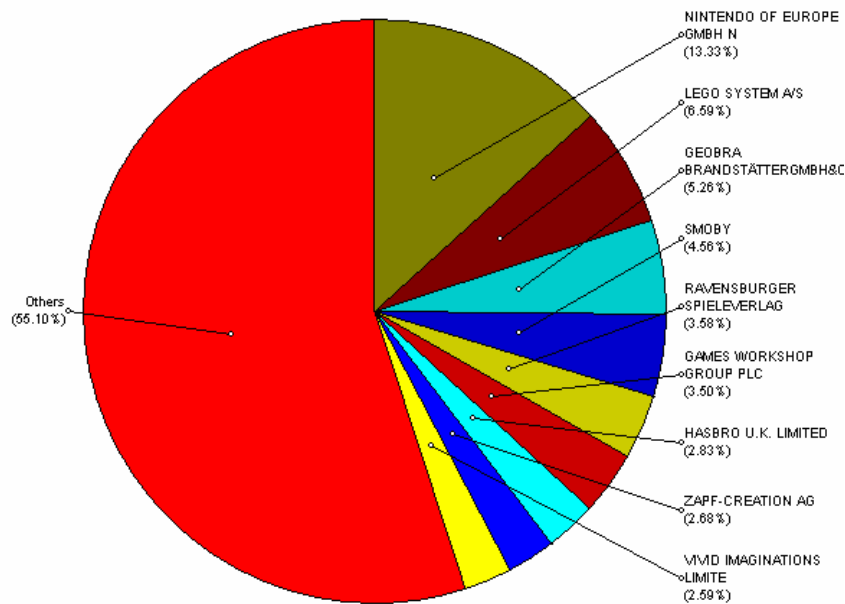


FIG. 4: THE CONCENTRATION OF THE SECTOR (EUROPE, 2004)  
Source: Banca dati Amadeus Bureau van Dijk

The major market shares concentrated in few enterprises are herewith highlighted; in particular, only 9 of these possess almost half of the European market's videogames. Amongst the world videogame market leaders there is the presence of Nintendo<sup>18</sup> who, amongst the major competitors in this sector, is the one that operates in the game

market since it originated; besides, Nintendo was the first to enter the world of electronic games and that, today, still has the more *traditional* vision of videogames that, according to Nintendo's philosophy, must primarily "entertain" (the use of domestic consoles for aims other than games, such as listening to music, watching films, etc. is a typical prerogative of other two leaders in this sector, that is, Sony and Microsoft while they are less important for Nintendo). The circumstance which gets Nintendo to deal with the production of videogames (hardware and software)<sup>19</sup> allows the enterprise to analyse its business choices knowing that they are geared only towards the videogame business. In this study, major attention has been given to the relationships that link Nintendo to external economic individuals through the analysis of the list of partner enterprises present on the official website of the company on the 31/12/2006<sup>20</sup>.

It is important to specify that in the above-mentioned list the legally authorized enterprises are included by Nintendo for the production of games and accessories compatible with its consoles as well as other merchandising products. A written text follows, taken from the Nintendo website regarding relationships with authorized partners: "**Licensee Game and Accessory Companies**"

*Below, you will find a list of companies that are licensed to create games, accessories, and other licensed merchandise for Nintendo systems and characters. ... Unlicensed games and accessories are not recommended for use with Nintendo systems. If the item appears to be licensed, but the company's name does not appear on this list, it is possible that the company is either no longer licensed or is no longer in business. If the product is no longer working, it may be appropriate to consider replacing the product."*

In order to avoid counterfeiting, Nintendo has also created brands that guarantee the quality and the originality of complementary products compatible with the consoles. A text referring to the above-mentioned guaranteed brands follows<sup>21</sup>:

#### **"LICENSED PRODUCTS & MERCHANDISE**

*All licensed merchandise, software, hardware and accessory packaging, worldwide, displays Nintendo's "Official Seal" (pictured below). This symbol is your assurance that the product has been approved by Nintendo, and is recommended for purchase.*



*Products that display this symbol have been approved by Nintendo, and are recommended for use with its systems. Licensed merchandise -- such as bed sheets, trading cards, or clothing for example -- will also display this symbol*



*Prior to the summer of 2003, these seals were found on the packaging of licensed products sold in North America. The seal on the left was used for licensed products such as software, hardware, and accessories. The seal on the right was used for licensed merchandise such as toys and clothing".*

In order to facilitate the interpretation and use of this research, of the information deduced from the above-mentioned list, it is important to elaborate statistically the data referred to the partner enterprises. The statistic analysis is based on the following hypothesis:

- A coincidence of the sample universe with the list of Nintendo's enterprise partners taken from the company's website;
- The creation of a non-casual samples made up of partner enterprises where their Internet website is also included<sup>22</sup>;

- The elimination of the sample of enterprises having an Internet website if inaccessible for technical reasons, although well-known the moment they were being consulted.

In the following scheme, there are briefly different numbers and types of relationships carried out by Nintendo with partner enterprises.

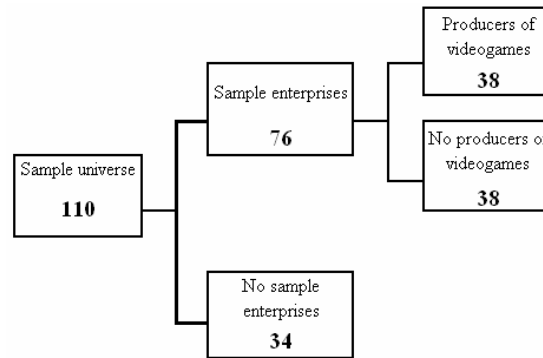


FIG 5: NINTENDO'S PARTNERS

The sample examined include 69% of the enterprises authorized by Nintendo to use the company brand on complementary products available because, such enterprises, as already stated beforehand, have an accessible Internet website at the moment it is consulted; as a consequence 31% of the enterprises at the start were excluded from the sample. 50% of the sample enterprises use the Nintendo brand to produce and commercialise products which are different from the core business of the parent company (that is games); the range of such products is vast and full of variety and it includes household linen (like sheets, duvets, curtains, etc), t-shirts, boxes of sweets and other. This shows the large diffusion reached in the years of the Nintendo brand and the positive contribution of this “non-core” business at the setting of the company’s economic standard through the royalties obtained.

Another interesting aspect is the geographic location of the partner enterprises<sup>23</sup>. From the respective websites 96% of the sample enterprises furnish an American mail; the other 4% of the sample enterprises publish a Canadian mail on their Internet website.

In almost all the cases studied the producers and/or distributors of videogames do not have an exclusive relationship with Nintendo because they also produce titles for other competing enterprises<sup>24</sup>. In actual fact, the technical characteristics, the 3D scenes and the settings are so different as to render each game unique. Finally, in this analysis the importance of the relationships in pursuing the competitive advantage of the enterprises studied has been highlighted; at the same time, it has been possible to observe how the traditional competitive elements in network industries (and therefore also videogames), also recognized by the quality and pricing of their products, are not sufficient to guide the consumer’s purchasing choice because other different evaluation factors intervene (the role of the dominating scheme, switching costs and innovated technology, entrance period, complementary products and customer base) that are the link between a true economy and that typical of an information economy.

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Contact author for the list of references.

## End Notes

<sup>1</sup> Shy, O. (2001). The economics of network industries. *Cambridge University Press*.

<sup>2</sup> Within this context, one must bear in mind how, in the first half of the Eighties, the entire American videogame industry disappeared due to the introduction of the personal computer on the market that was technologically more advanced than the console. More recently, one must remember Sega that in 2001 announced its abandonment of the hardware production (its last console was Dreamcast that, although technological competitive with its rivals at a 128 bit, didn't manage to express its potential due to commercial errors within the company) in order to dedicate itself exclusively to software production.

<sup>3</sup> About the rapid and endless innovation that characterizes the videogame sector in the more general high-tech environment, the Moore Law needs to be quoted according to which "the density" of the transistor in integrated circuits doubled every 18 months ; please see the article published by Gordon Moore in "Electronics" the 19 April 1965. Besides ' the number of game devices will increase from 215 million units today ( mainly Playstation, Playstation 2 and Gameboy) to over 2 billion 600 million devices in 2010! In addition to this frightening number, there will be 450 million people with a vast access to Internet that will nourish a market of downloads of games, new levels, music, etc. as never in the past...In less than ten years, the electronics game sector has developed into a small, powerfully global niche and this trend is expected to continue until at least 2010. Guided by the inexhaustible Moore law, the electronic games linked to high technology will generate intensive movements that will spread well beyond electronic games – not distinguishing divisions amongst different industries. Those who acted previously like Sony and Microsoft, have already been spending billions of dollars to position themselves as market leaders, and many others are getting ready to launch. It's risky, but the risk of not accomplishing is a lot higher – just as premium benefits are considered to be high'. Published on the website [www.playreview.it](http://www.playreview.it) 4 June 2004

<sup>4</sup> <<We think that the emergence of a dominant design is the result of a fortunate combination of technology, economic and organizational factors>>.

<sup>5</sup> For years Sony has been able to enjoy the advantages of being a *first mover* thanks to the Playstation even without being the first real console to be launched on the market possessing such specific characteristics. Naturally, the

possibility of sustaining this competitive acquisition advantage is reduced whenever the environment in which the enterprise is found is turbulent. For a classification of sector bases to the sustainability of competitive advantages please see Williams, J.R., (1992). How sustainable is your competitive advantage?. *California Management Review*, 34, 3.

<sup>6</sup> Such an effect can be measured with the Metcalfe Law according to which “the use that a network presents for a single consumer is equal to the square number of consumers in the very same network”.

<sup>7</sup> It is interesting to note how in the compact disk industry, characterized too by the network externalisation and hardware-software paradigm, the diffusion of CDs and the increase of CD shares have been caused by two factors: direct, that is the decrease of prices in CDs and the costs to increase their potency, and those defined as cross-breads, that is the increased tendency of consumers to buy CDs due to the increase of CD shares and vice versa.

<sup>8</sup> <<Profit margins on software, historically cartridges, but more recently CD-ROMs, have been higher than on the hardware, i.e., game consoles>>.

<sup>9</sup> In this regard, what comes to mind is that the Korean Game Park introduced the console GP32 in the market that, with respect to the other competitors present on the market, it possesses the absolutely innovative characteristic that gives everyone the opportunity to gain access to the development instruments with which software can be installed. Therefore the uncertainty linked to the availability of games created for the console, main factor on which the commercial appetite for any new product depends, is reduced owing to the possibility given to the community of fans and to enterprises to develop and adapt entertainment software (and not only) to the new video machine.

<sup>10</sup> Due to the existence of virtual networks of consumers of hardware/software systems based on partial technical standards or totally incompatible with other systems.

<sup>11</sup> Measured not only in economic terms, but also as loss of time and, more generally, uneasiness.

<sup>12</sup> The QWERTY keyboard is exemplary here; although once inferior in the market it has succeeded in preventing the adoption of faster and more ergonomic keyboard alternatives because of the habits already developed by numerous typists who ‘touch-type’ (“battitura alla cieca”). *Excess inertia* can be defined as <<a socially excessive reluctance to switch to a superior new standard when important network externalities are present in the current one>>.

<sup>13</sup> Situations of lock-in derive from contractual agreements; from the purchase of durable goods, from specific training, from the complementarity between hardware and software, from the established supply of specific goods, from the support of research costs, and from customer loyalty programs.

<sup>14</sup> “I ricavi provenienti dai clienti soggetti a lock-in altro non sono che il rendimento degli investimenti effettuati sui clienti”.

<sup>15</sup> The technological superiority of an enterprise can derive from the combined presence of a highly specialized field of work, of a particularly competent management and adequate financial resources.

<sup>16</sup> When Nintendo entered the videogame market in 1985 with NES it obtained from independent creators of software not only copyright payment but also exclusive rights for at least two years on the games created for NES.

<sup>17</sup> The estimated development cost of the new game is about 10 million dollars.

<sup>18</sup> Nintendo Europa with a 13,33% turnover is the European market leader in videogames.

<sup>19</sup> The brief description of Nintendo’s activity present in the budget is the following “Nintendo was originally a manufacturer of playing cards which early in 1980 started the manufacture of electronic games”. Taken from the website: <https://osiris.bvdep.com>.

<sup>20</sup> In this regard, please see : [http://www.nintendo.com/corp/licensees.jsp#accessory\\_network](http://www.nintendo.com/corp/licensees.jsp#accessory_network).

<sup>21</sup> Taken from the website: <http://www.nintendo.com/consumer/licensed.jsp>

<sup>22</sup> Such a choice was made necessary because of the lack of availability of information sources alternative to the internet network from where news is obtained regarding relationships between Nintendo and its partners.

<sup>23</sup> It is important to specify that not all the addresses regard central offices but at times Customer Care or Sales.

<sup>24</sup> Amongst the Nintendo partners only one enterprise, Blizzard Entertainment, has dealt with the creation of console games (in the past they created games for PCs) and works exclusively for the enterprise in the portable videogame sector (Game Boy).

## Old and New Paradigms for IT Services Offshoring

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### Abstract

This paper presents some new conceptual and interpretative paradigms concerning offshoring Information Technology services, in the light of the most recent market trends. In the current competitive scenario, IT structures are increasingly asked to “participate” in the development and innovation of business, rather than being merely a “support” for the value chain activities, managed merely on the basis of technical and economic efficiency. We start by confuting two traditional concepts: first, those only activities which are quite distinct from the core-business can be candidates for outsourcing, and secondly that the advantage to be derived from offshore outsourcing is above all a matter of costs. What is meant by “success” in this new perspective? We analyse the main critical factors in an offshoring contract enhancing value creation and business strategy. Particular attention is paid to analysis of the main drivers of solution design and ongoing management in IT offshoring strategies.

### IT Outsourcing

In the past, the decision to outsource information technology (IT) activities and processes responded above all to the need to call in specific competences, reduce management costs and free up financial and human resources to be concentrated in the core-business processes and reinforcement of distinctive skills (Quinn and Hilmer, 1994). Companies turned to IT outsourcing to take advantage of the competences of third parties, the investments they have made and the related scale economies provided by a multiclient offer.

In the competitive scenario of today, there is an increasing demand on IT structures to contribute to making management processes not only more efficient and economical but also flexible in both operative and strategic terms. In other words, the IT structures are proving crucial factors in the implementation of business plans. They affect the efficacy and efficiency of the firm’s value creation processes, rather than being merely supporting factors for the activities of the value chain. In this context they must show themselves to be amenable to the dynamics and requisites of business, provide tools to raise the quality level of both material and immaterial components of the company’s offer, and contribute to increasing the strategic and operative flexibility of the management processes.

Recent empirical analyses have highlighted some interesting phenomena. Dissatisfaction with the services offered by IT providers is increasing with the growing demand for quality and levels of innovation with respect to expectations of savings on costs; IT outsourcing is becoming increasingly selective, related to certain components of the information system, and no longer responds merely to full outsourcing, involving the entire IT system of the company; providers of IT services are specialising more and more, basing their pursuit of competitive advantage on differentiation rather than cost leadership relying on a standardization approach. These are all phenomena which show how the paradigm of outsourcing in the IT sector is changing, moving from motivations of economy and efficiency to strategic developmental business innovation. The company system is being opened up to the contribution of knowledge possessed by third parties, seen as owners of integrative and complementary resources with respect to those in-house.

On the basis of these brief considerations we investigate outsourcing in the IT sector, going beyond the axioms of a traditional approach to view it as the vector for developing the firm’s capacity for innovation and hence competitive edge. We respond by citing the principles and contents of *strategic outsourcing*, analysed with specific reference to IT offshoring.

## The Scenario for Decisions Regarding IT Services Offshoring

In the current global competitive scenario IT services offshoring represents a strategic choice, in constant expansion since the early 1990s, pursuing the optimal economic and organizational conditions for implementing activities or processes which had previously been taken care of in-house, and entrusted to specialised operators in foreign countries, by means of outsourcing contracts.

The development of high levels of IT competence globally has seen countries with emerging economies taking the lead in offering IT services, thanks to a considerable level of investment in research and development and in training human resources in the IT sector, as a deliberate strategy for developing their economies and increasing their competitive edge with respect to Europe and the USA (Leonard, 2006). The domain of IT is part of the industrial sector identified by many countries in Eastern Europe, India, Philippines, China, Canada, Brazil and Ireland for attracting foreign investments and increasing GNP<sup>1</sup>. They can base their competitive standing in the global arena on significant and objective cost advantages in productive factors, notably human resources<sup>2</sup>.

The increasing recourse to offshoring has also been due to the traditional approach to choices of *make or buy*. Outsourcing activities or processes was a valid option for companies seeking to increase their levels of efficiency and productivity, maintaining in-house the more strategic areas of activities ensuring their competitive advantage.

The considerations we have outlined are valid in general for any process of IT services outsourcing, including on-shoring and near-shoring. They are however all the more relevant to offshoring, on account of the significantly greater economic advantage obtainable and the extraordinary diffusion of knowledge and competence in the IT domain seen in recent years in the emerging countries.

In terms of the economic advantages, there is no doubt that for European and American companies these countries represent a significant opportunity for improving efficiency and productivity. One has only to think of the significant cost differentials of professional resources which still obtain between Europe and America and the emerging countries.

Considering the diffusion on the global scale of IT expertise, it must be noted that the emerging countries can now count on high levels of professionalism and specialization which, in several cases, are clearly superior to those to be found in the traditional European and American leader companies. To cite just a few examples, we can mention companies such as Tata Consultancy, Infosys, Wipro Technologies and HCL Technologies, all operating in the Electronics City<sup>3</sup> of Bangalore, India, Flextronics in Singapore, Celestina in Canada, all numbering among the leaders as highly qualified IT providers.

In fact these are companies which have established themselves in the global panorama with the requisites of international certification that can indeed fuel preoccupation in Europe and America as to the future evolution of the market in IT services (Garner, 2004). In particular the Indian companies can claim a position of excellence concerning one of the most important systems of international certification for the quality of IT services offered, namely the "CMMI - Capability Maturity Model Integration for Software". According to the five levels featured in the CMMI system<sup>4</sup>, 50-60% of companies to have obtained the certification at the highest levels (4th & 5th) are Indian.

The CMMI system starts from the assumption that mature organizations produce quality services or products efficiently and constantly; in a mature organization the managers monitor the quality of the software products and processes they produce. There is an objective quantitative base for assessing the quality of the product and analysing the problems related to the product itself and the productive process. The business plans and budgeting are based on past performance and are realistic; the expected results, in terms of cost, timing, functionality and quality of the products are generally achieved. In general, mature organizations follow a disciplined process in a consistent way since all the participants are aware of the importance of doing so, but there is also the necessary infrastructure in place for supporting this process.

In conclusion, what once constituted the undisputed domain of European and American companies is no longer theirs "by right". The new geography on a global scale of the leading competences in IT is at the basis not only of the widespread recourse to offshoring but also of a change in its nature, which today goes well beyond the



pursuit of mere cost advantage and includes vectors of development of the business system based on relations of partnership in the mid-long terms with IT services providers.

## **The Traditional Approach and Beyond**

The traditional paradigm for making decisions on outsourcing in the IT sector was based on the imperative of cost saving and the possibility of dedicating more organizational, financial and human resources to core-business activities.

In terms of the first vector, analysis of *make or buy* based on the comparative evaluation of alternative solutions viewed in economic terms led to large-scale processes of outsourcing of activities, processes and services towards specialised operators able to offer lower costs than the hierarchy. The theoretical framework guiding these decisions was that of *transaction-cost economics theory* formulated by Williamson (1986), which took up and developed the older propositions of Coase (1937), according to which the choice between market, hierarchy and intermediate solutions must be made so as to minimise the total costs due to production and transaction.

It is quite clear that the industrialization of processes which characterises the offer of the largest and most qualified providers makes it possible to obtain scale economies in terms of production and management which significantly reduce the cost of buying IT services on the market.

Such a choice was based on the dual premise of being able to maintain control, free of operative and financial risks, by means of a detailed specification of the levels of performance required, and at the same time maintaining an adequate monitoring of the activities being outsourced.

As for the second vector, the outsourcing of non-core activities, it makes it possible both to streamline the organizational structure and make it more flexible, and also facilitates the development of competences related to the core-business activities. These can then benefit from the transfer of whatever, in terms of financial, organizational and human resources, is saved by means of the outsourcing of the functions and activities in support of the core of the value chain.

In this context it should be borne in mind that virtually all the economic and business literature on the topic seemed for a long time to endorse the restriction of outsourcing to activities quite distinct from the core-business, with few dissenting voices (Accabi and Lopez, 1995; Hinterhuber and Stuhec, 1996; Quinn and Hilmer, 1994). It is only recently that different opinions have begun to emerge concerning the objectives, contents and nature (tactical or strategic) of outsourcing, attributing to the relative decisions considerable potential to contribute to business development and innovation. The new orthodoxy to emerge from the theories of the *resource-based view*, *knowledge management*, and *distinctive competences* and *networks*, take a strategic approach to the processes of outsourcing. They also extend the scope of outsourcing from simple commodities to processes which participate in value creation (*Business Process Outsourcing*<sup>5</sup> and *Transformational Outsourcing*<sup>6</sup>).

These are the two premises on which the traditional paradigm for outsourcing in the IT sector has been founded, dominating the scene from the beginning of the 1990s up until very recently. What is more, changes in the approach to outsourcing activities and processes in the domain of IT can also be ascribed to a significant number of failures and a growing incidence of in-house reintegration of activities and processes.

The main causes for failure in outsourcing in the IT domain are the following: unsatisfactory customer service, higher costs for outsourcing than forecast<sup>7</sup>, failure to understand the business implications on the part of the provider, limited adaptability and flexibility for the IT services on offer with respect to the company's requirements, greater difficulties with the technological changeover than forecast, failure on the part of the provider to honour the established service levels and, to a lesser degree, a loss on the part of the client company of competent and qualified human resources.

In order to map out the evolution of the decisions concerning outsourcing in the IT sector we can identify three main historical phases which correspond to changes in the objectives and contents of this strategic choice:

- I phase: IT *on-shore* and *near-shore* outsourcing for “*commodities*”;
- II phase: IT offshoring for “*cost saving*”;
- III phase: IT offshoring for “*value creation*”.

In the first phase, corresponding to the 1980s, companies resorted to IT outsourcing in order to improve their economic efficiency and productivity, calling on specialised operators first in their own countries (on-shoring) and then slightly further afield but still in countries with cultural and institutional affinities (near-shoring).

The second phase, typical of the 1990s, saw the emergence of *offshoring*, meaning the outsourcing of activities and informatic systems to companies operating in far distant countries, above all with emerging economies<sup>8</sup> (Mol, van Tulder and Beije, 2005). This phase featured the pursuit of cost advantages offered by countries known as *low cost*, as the basis for competitive differentials (Jilovec, 2005). Such countries were just beginning to reap the benefits of their investments in computer technology, setting up as providers of an ever increasing range of services and closing the gap with respect to American and European-based firms. In this phase the phenomenon of offshoring involved above all medium/large-sized companies which were more interested in internationalization processes, and for whom IT activities represented support for their value chain. The economic advantages of outsourcing IT functions and services, already put to the test in local (on-shoring) and nearby (near-shoring) markets, led companies to look further and further afield for offers which were satisfactory from the point of view of quality but offering considerable savings with respect to previous solutions. The imperative of “cost saving” still dominated the decisions concerning outsourcing, but in the light of a significant increase in efficiency and the related possibility of modifying cost structures by means of “variabilising” previously fixed costs.

In this second phase, outsourcing towards low cost countries became possible because it proved clients could count on the same level of quality for services, technology and professionalism available in Europe and America at considerably reduced costs. In terms of offer of outsourcing services, the providers developed business by relying above all on standardization, meeting the need for basic services which could be supplied even over a great distance without the need for face-to-face management processes, offering clients something which the latter merely considered as back-up to the processes and activities of their core-business.

The passage from the second to the third, current, phase involved the progressive erosion of cost advantages and the ensuing quest for higher levels of quality for services and greater participation on the part of providers in business development and innovation (Kotabe and Murray, 2004). The perceived advantages lay in the new competitive challenges brought about by globalization and the incessant technological progress in the IT domain, leading to the loss of a firm’s “self-sufficiency”. Once the Fordist paradigm and vertical integration had been superseded in a profoundly altered environment (in both general and competitive terms) (Di Bernardo and Rullani, 1990), merely internal control of material and immaterial resources proved inadequate and prompted the concept of their “availability” for business processes rather than their “propriety”. In this context, among the various approaches elaborated in the 1990s the *resource-based theory* and *core-competence theory* showed that the pursuit of competitive advantage must be based on possession of distinctive competences (Prahalad and Hamel, 1990) which are difficult for competitors to imitate (Teece, Pisano and Shuen, 1990), leading to competitive differentials. In the current economic context, distinctive competences are constructed with the contribution of knowledge and skills of third parties, and no longer merely drawing on what is available in-house.

At the same time the geographical dispersion of competences in the IT domain is beginning to show the limits of its qualitative growth, giving rise to a demand for planned knowledge development which not all countries have been able to ensure. Furthermore this development requires forms of coordination and finalization of investments in IT which some countries have promoted and deliberately pursued, creating networks of cognitive exchange and the organizational premises for the birth of true innovative “poles”.

This passage from expectations centred solely on cost to a higher quality of services and the request to the provider to participate in value creation also explains the growing phenomena of back-sourcing, of the interruption of contracts and selective outsourcing<sup>9</sup>. These failures are also the result of an over enthusiastic initial adoption of offshoring (to an even greater degree than was the case for near-shoring and on-shoring), not always supported by an adequate strategic appraisal, either beforehand, through a careful identification and evaluation of the global costs of outsourcing, or during, by correct management of relations with the provider (Brandes, Lilliecreutz and Brege, 1997). The latter aspect was still viewed above all as a contractual exchange rather than a partnership. Thus it comes as no surprise that many client companies experienced dissatisfaction with respect to the quality levels of the services obtained from their providers and the numerous problems of organizational and cultural coordination between client and provider (Ventricelli, 2004). Such problems of offshoring were frequently underestimated, and

led to greater expenses than had been forecast (“hidden costs”), to which one must add those deriving from geographical distance (difficulties of face-to-face interaction, problems of time zone) and environmental differences (language, varying regimes of labour jurisdiction, political stability).

Moreover, in the mid- to long-term perspective it must be borne in mind that globalization, acting in all directions, will lead in future to convergence also of salary levels, according to professional classes, which is bound to reduce the gaps that still characterise the global scenario. One factor which will contribute to this levelling off of salaries in the future relates to the growing expectations of all stakeholders concerning the ethical and moral aspects of the company’s activities. For behind the low salary levels there are all too often circumstances of dubious ethics and morality, and social control over these aspects is likely to assume more and more importance in the future. We are already seeing a drop in the salaries of IT professionals worldwide with respect to the boom years of the net-economy (Jilovec, 2005).

The third phase, which has got under way in the first years of the 21st century, features the diminishing importance of cost differentials as the source of competitive advantage, accompanied by the quest for differentiated IT services of high quality<sup>10</sup>, closely linked to the client company’s specific needs.

We also see in economic and business literature an increasing awareness that analyses carried out on the basis of *make or buy* involving transactional costs “ignore other possible variables which can lead to a more dynamic vision of the pros and cons of in-sourcing as against out-sourcing” (Calvelli, 1998: p. 251).

In the IT sector the increasing difficulty for firms to dominate the variability and variety of the technological and market environment makes it necessary to find partners able to offer integrative and complementary cognitive and technological resources with whom to enter into partnership and set up a *competence building strategy* (Cantone, 2003).

Thus nowadays even core-business activities are moved out on the basis of collaboration agreements and partnership relations (Sicca, 2003), in order to have access to technological knowhow and new competences, fostering innovation and value creation processes. Moreover the all-pervasive nature of IT in the value chain makes it difficult to distinguish between mere support activities and those involving participation in the processes of value creation (Venkatraman, 1997).

One other factor characterising this third phase of the evolution of IT services markets is the “polarization” of computer knowledge and competences. These have become increasingly specialised and able to propose a differentiated offer of IT services, offering client companies solutions of business development and not merely support at low cost based on standardization.

The emerging phenomenon of *selective outsourcing*<sup>11</sup> represents the concrete effect of the polarization of knowledge and the differentiation of specialised services for the solution of specific problems encountered by the companies. In fact selective outsourcing involves outsourcing parts of the informatic system or specific segments of the company’s activities. Whatever the specific focus of selective outsourcing, the primary aim is to gain direct access to particular resources (Aiea and Clusit, 2006): specific professional competences, tailor-made applicative solutions, or niche and particularly innovative technologies.

Moreover, the evolution of the market for “*utilities on demand*”<sup>12</sup> also responds to the logic of going to whoever can best meet the company’s needs, according to changing and real requisites, not necessarily available from a single provider. The request for “*managed services*” in a selective outsourcing approach is linked to the need for companies to be able to count on the latest technologies, increase their own ability to react to the surrounding context (greater flexibility), and have the highest level of security and calculus capacity for their computer systems. The differentiated and changing requisites of the companies, especially those operating on a global scale, make the choice of *full outsourcing* in many cases no longer adequate when it is a question of providing IT activities and processes *in toto*, with contracts which bind the company to the technological partner for a number of years.

In addition, the acquisition in offshoring of these competences can avoid having to transfer abroad parts of company activities to acquire specializations scattered worldwide (Al Najjari, 2003): in this sense this type of company model has been defined “meta-national” (Doz, Santos and Williamson, 2004).

## A New Approach to Business Development and Innovation

Building a new approach to offshore strategies must start from the realisation that cost advantages cannot always be obtained by moving IT functions and activities abroad. We noted above that management frequently underestimates a whole series of additional costs involved in the choice to offshore, which are ignored in the economic evaluations of “make or buy” that lead to opt for outsourcing. These “*hidden costs*” involve numerous factors which cannot always be accurately measured at the outset, since they may arise during the outsourcing process (Barthelemy, 2001). In practice they can be summed up as follows (Gilotto and Cali, 2004):

- cost of identifying partner and negotiations;
- cost of start-up inefficiency and reaching quality regime;
- cost of monitoring and coordinating;
- cost of accessory operations and modifications during the contract period;
- cost and risk of losing in-house competences.

There are also other factors to be taken into account as sources of additional costs in the choice to offshore. One is the political instability of some countries involved in offshore projects, a by no means secondary consideration. When some operations are transferred abroad, insurance premiums may well be higher on account of the greater risk factors.

A second aspect concerns the lesser degree of control exercised over the productive processes when interacting with people and structures at a great distance. To cope with the problems deriving from geographical distance there are bound to be higher management costs. For example, one or more management experts employed in the home country may be used as the link between internal and external operations. When one adds to such a resource the costs of special infrastructures and travel expenses, it is hardly surprising that the hourly cost is considerably higher than what had been budgeted at the outset.

It must also be taken into consideration that the agile methodologies of coordination based on physical proximity (face-to-face), such as stand-up meetings and sharing of the same workspace, are much more difficult to reproduce. This problem is affected by both geographical distance and time zones.

A third aspect concerns data protection, software piracy and intellectual property. National legislation is not applicable in other countries, and even when the contract stipulated with the provider includes relevant provisions, some contracts cannot be taken to court in foreign countries. In spite of the prominence given recently to questions of privacy and data protection, this continues to be a grey area subject to different interpretations in different countries. There is thus the need for a legal consultant expert in international law, and so costs deriving from legal activities may also prove higher than budgeted. The problem of the protection of intellectual property is particularly significant when one considers how efficient low cost countries are at assimilating new knowledge. The phenomenon of appropriation by foreign operators of knowledge and skills is critical not only in view of the different juridical regimes that regulate this subject but also because the confidentiality clauses inserted in contracts do not always ensure full protection of intellectual property (Renard, 2003).

Further elements to be considered in the choice of offshoring which generate additional costs, concern differences in culture, not least managerial culture, between the country of the client firm and that of the provider, as well as the language gap, which still constitutes a barrier to efficient communication at all operative levels.

Thus having seen the limits of offshoring based on cost advantage, we can turn to the contents and objectives of this strategic approach. The two premises for such an approach are the availability worldwide of resources of highly qualified competences and the difficulty for companies to dominate markets and technologies relying exclusively on their own efforts. The paradigm that dominated the choices of outsourcing in the past is becoming outdated, not least in view of the fact that the emerging distinctive capacity which nowadays may result in a competitive advantage is the ability to manage relations with other companies, with a view to sharing and reciprocally increasing knowledge (Quinn, 1999), setting up learning processes not only in-house, and embracing the innovative contribution of external partners, placing their specialistic competences at the service of the client company.

From this point of view we can say that the risks perceived by the companies, which often preclude choices of outsourcing, namely “loss of control over strategic activities”, “cognitive dependence on the provider”, and “impoverishment of internal innovative capacity”, actually represent merely the incapacity or reluctance to accept that one’s own business system and the sources of one’s competitive advantage lie outside the firm, out of the hierarchy’s control, and thus, almost by definition or ineluctable destiny, are bound to create dangerous conditions of dispersion of one’s own capacity for survival and the strategical impoverishment of the firm.

Moreover, according to a survey carried out in 2004 by Sirmi S.p.A., an Italian company responsible for research, market analysis and consultancy in ICT, in a cross-section of some 250 companies, the fears of “dependence on the provider” and “loss of technological knowhow” were real to companies which had never tried solutions of outsourcing but were practically non-existent among those which had (Fig. 1).

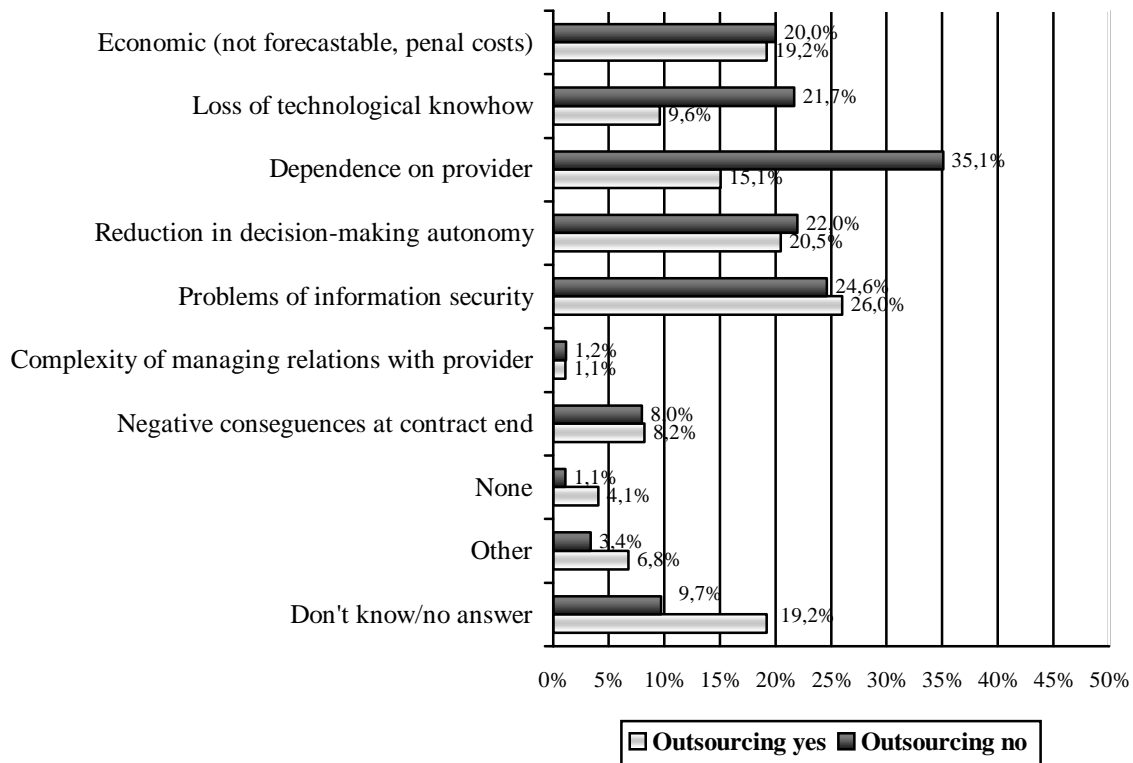


FIG.1: THE “FEARS TO BE OVERCOME”

As can be seen from the data in Fig. 1, the gap between companies which rely on outsourcing and those which do not is very significant. “Dependence on the provider” is feared by 35.1% of companies which do not use outsourcing, and only 15.1% of those which do; the “loss of technological knowhow” is feared by 21.7% of companies which do not use outsourcing and only 9.6% of those which do. We can also note that the “problems relating to information security” are the main source of preoccupation for those companies which use outsourcing (26%), exceeding those which do not (24.6%).

These empirical indications also go to confirm the fact that the emerging distinctive competence consisting in the capacity to coordinate and manage the “innovation network” presupposes acceptance of the fragmentation of one’s own business system, the participation of third parties in the development of one’s own innovative capacity, and hence competitiveness, meaning in practical terms an approach which seeks out the “best competences” available worldwide.

If one accepts the idea that the key new competence for achieving competitive advantage is the ability to manage and coordinate the network of relations which the firm is able to put in place, and which can become “distinctive” with respect to competitors, then one must also be prepared to go beyond the traditional distinction between core and non-core activities in deciding which activities can be outsourced.

In other words, limiting outsourcing to non-core activities or processes while maintaining the core counterparts in-house is based on two apparently axiomatic elements which must be called into question.

The first concerns the possibility of clearly separating what is “core” from what is not, and this is by no means always straightforward; the second concerns the restriction of distinctive competences, based on the traditional evaluation of *make or buy*, to the management of activities which are critical for the value chain, meaning those which generate the competitive differentials characterising the company.

Concerning the latter aspect, the identification of the distinctive capacities with reference to the management of the value chain, comprising in a functional perspective activities linked to one other in order to produce an output, does not include any consideration of the most important distinctive competence, meaning the management of the network of inter-organizational relations and, more concretely, the coordination and control of the cognitive and functional input of external operators specialised in certain activities or processes.

Thus the problem is not identifying possibilities of outsourcing according to the “degree of proximity to core-business” activities, but rather evaluating whether the competences possessed by a certain company are superior to those available on the market (Fig. 2).

		TECHNOLOGICAL AND INFORMATIC COMPETENCES	
		Inferior to market	Superior to market
QUALIFICATION OF ACTIVITY	“core”	OUTSOURCING	INSOURCING
	“non core”	OUTSOURCING	INSOURCING

FIG. 2: A CRITERION FOR IDENTIFYING WHAT TO OUTSOURCE

One factor that used to make outsourcing appear unsuitable for managing activities close to the core-business was the difficulty of finding qualified competences on the market capable of grasping the business requisites of the client company and coming up with appropriate informatic solutions which could be fully integrated in the specific processes involved in the competitive capacity of each firm.

This difficulty was also due to the standardization approach which characterised the provider’s traditional offer, the basis for the development of the business, so as to achieve scale economies and orient competitive strategies according to cost effectiveness.

Recently providers have realised that the requirements of the client firms are no longer connected merely with obtaining cost advantages, but are increasingly associated with improving the quality of performances and the acquisition of differentiated services, calibrated according to their needs. Thus also the competitive strategies of provider firms, from being predominantly based on cost leadership, have gradually switched to differentiation. This has become possible thanks to the extraordinary development of technological and informatic competences and an increasingly *marketing oriented* approach. For example, one of the striking aspects of the offer of many Indian

providers is the strong sense of *commitment* and the marked operative flexibility they display towards the business requirements of the client company, with a *client satisfaction* approach which in essence involves a great willingness to enter into long-term partnership relationships.

Thus the problem consists in the evaluation of the contribution which the external provider of IT services can make to the improvement of the company system in its entirety, and identifying “how” this potential contribution can be implemented reducing the risks (loss of control, impoverishment of resources and innovative capacities, strategic dependence on the provider, etc.) traditionally associated with outsourcing those activities which are strategic and/or close to the “core-business”. From this point of view there has to be a change of approach, going beyond the rationale of exchange or contract and ensuring the adoption of true “sharing” and “reciprocal integration” (Gubitta, 2005).

If the aim of the relationship is the co-generation of new common knowledge, it is no longer enough to define contractual rules to coordinate the action of the parties; it is necessary to create the organizational conditions for facilitating the sharing of knowledge and the integration of the respective value chains: of the client firm and of the provider firm. Thus we can say that at the basis of the new paradigm for offshoring there is the passage from the rationale of *transaction-based outsourcing* to that of *relationship-based or partnership-based outsourcing* (Lee, 2001).

The relational dimension of the outsourcing of activities or processes also modifies the parameters and criteria for selecting the provider. The latter’s value chain has to be evaluated in terms of structural and strategic compatibility with respect to the client company. There is also a change in the organizational tools for managing the relationship. They will no longer be based merely on contractual obligations but will involve coordination mechanisms, both formal and informal, to facilitate the joint undertaking of programming and operative activities. In practice the rationale of networking, which for some time could be seen as modifying exchanges between client and provider (Calvelli, 1998), in strategical decisions regarding offshoring reaches its full affirmation in a sector, like IT, in which the knowledge factor dominates the production processes.

## **Conditions for Successful Offshoring in a Value Creation Perspective**

We have shown how the broad and composite panorama of outsourcing is characterised by new tendencies, imposing new interpretations of the phenomenon in terms of both strategy and management. We pointed out that the traditional approach in which only those company activities and processes removed from the so-called “core business” could be considered for outsourcing is outdated. This is in fact due to several factors:

- the ever greater difficulty in identifying what can be considered “core business” in companies which are increasingly seen as unitary organisms;
- the growing centrality and specialisation of competences;
- the enormous, rapid evolution of many technologies;
- the globalization of the market.

To this list of factors, which is by no means complete, we can add the consideration that in many sectors of the market these elements are not only present but also highly inter-dependent. In the telecommunications market alone, the continuous introduction of new services based on the availability of broadband networks, the need for convergence between land and mobile systems involving service orchestration, the increasing importance of content management and digital asset management, and the recent launch of IP television services, are just some examples of areas representing challenges and requirements for operators that are quite new with respect to the past:

- the need for multi-layer competences, at various levels of technical expertise: management of the new generation of network infrastructures, personalisation of packages, system building, service assurance, network protocols, etc.;
- the problem of the rapid obsolescence of such skills and the corresponding need for new competences;
- the impossibility of finding all the requisite competences in a single partner/provider.

These new requirements have in fact already generated new relations of IT outsourcing aiming at guaranteeing essential market elements: availability of state-of-the-art technology skills, possibility of up-grading

resources at short notice, stability of operating costs (and not necessarily, it must be stressed, reduction of such costs). In these cases it is quite difficult to regard the activities featuring in such contracts as “non core”.

Moreover, the change in perspective we have illustrated does not simply refer to the objectives that companies are constantly extending and differentiating with respect to the past, but also to the growing awareness that sourcing strategy must be viewed as a whole – i.e. not limited to a single sector or project, but as a choice and integrated management of a system of trusted alliances and providers – and also as a dynamic feature, deriving from the evolution of the required skills, volumes of activity, change in the priority of goals, etc.

In other words, for outsourcing to be viewed as a strategic choice which conditions, and does not merely support, value creation processes, it must be grounded in a partnership between client company and provider company which goes well beyond the simple commercial supply agreement (partnership-based outsourcing).

Furthermore, outsourcing encompasses a variegated galaxy of relations which vary significantly in terms of context, modalities and objectives. This is reflected both in the strong growth characterising outsourcing over the last twenty years in all sectors, and in the significant number of failures (about 50% of contracts stipulated between 2000 and 2004 did not achieve their intended objectives in one way or another), often due precisely to the fact that this articulation was undervalued in one or more of its complexity factors (“compulsive outsourcing”).

The “compulsive” approach to offshore outsourcing involves the generation of risks concerning aspects which are crucial for the success of an initiative. Although many considerations have a general validity, offshoring IT services presents peculiar features which cannot be extended to other typologies of outsourcing.

An important starting-point is to clarify what the various parties consider as “success”. This may seem obvious, but in fact it is often actually spelt out only when the contract goes live. The main reason lies in the frequent gap between company strategy and choices of sourcing or, in other words, between top and middle management. This gap not only leads to a muddled definition of expectations in terms of final results but is often the main limitation that makes it extremely difficult to outsource activities considered as “core business”.

Defining and characterising the expected success of the outsourcing initiative in terms of business results is, on the contrary, indispensable for identifying the main critical factors of success. The traditional conceptual model which qualifies the success of an outsourcing contract in terms of the measurable achievement of predetermined levels of service is ineffectual in the current economic scenario, as well as being problematic within the traditional approach. However, this consideration does not hold only for the client company. As we said above in connection with the centrality of the contract, the partner/vendor is also a vector of needs and requisites which change over time concerning both the market and competitors and its own changes in strategy.

Keeping our focus on contracts concerning Information Technology which contemplate offshoring, it is clear how what we have just said takes on even greater importance, for two main reasons:

- the onus of governance and ongoing management in offshore contracts is significantly greater compared to onshore contracts: geographical dislocation, time zones, language, cultural and methodological differences, and greater need to formalise requisites, are some of the factors which can lead to greater management overheads and hidden costs;
- the multinational dimension introduces the problem of the various juridical systems regulating important aspects of an outsourcing contract: labour legislation, safeguarding of intellectual property, differences in financial regulation, etc.

A second point we feel to be fundamental is the central role that the contract should occupy, both while it is being negotiated and drawn up and during the phase of contract management. It must be said first of all that an outsourcing contract may take on different characteristics according to the combination of at least three dimensions – or classification criteria – which may in turn have differing degrees of inter-dependence:

- *Scope*: the typology of activity featured in the outsourcing contract. In this context the standard subdivision between BPO, Business Process Outsourcing, AO, Application Outsourcing, and ITO, Infrastructure Technology Outsourcing, can be maintained, although each typology has to be classified in greater detail. For example, in the context of Application Outsourcing alone there is a variety of services – here too variously classified – such as Application Maintenance, Application Development, Applicative Help Desk, Operation Services, etc.;



- *Operating Model*: the modality of provision of the services covered by outsourcing. In this context various classifications are possible, but here we shall merely point out the fundamental distinction between *onshore*, *near-shore* and *off-shore*;
- *Contract Framework*: the typology of contract stipulated with the partner/vendor. In this context the classification is even less standardised, in view of the fact that the juridical systems of each country often feature substantial differences in concept and instrument regulating the discipline. A possible classification valid above all in countries subject to common law consists in identifying certain standard contract schemes: a) *contract-out strategy*, b) *preferred contractor strategy*, c) *buy-in strategy*, d) *preferred supplier strategy*.

We do not intend here to go further into the classification profiles or list all the typologies occurring in the various dimensions. We merely wish to point out how even classifying outsourcing contracts shows up the need to view the phenomenon as comprising a vast and articulated universe of relations which cannot be encompassed in an excessively schematic approach. In the light of this, it emerges that the centrality of the contractual aspects can be essential for:

- ratifying the expectations of both parties;
- providing instruments able to guarantee operative flexibility.

Although it does respond to the concept of juridical negotiation, in practice the predominant approach sees the negotiating phase as the pursuit of an equilibrium between terms and conditions designed to safeguard and guarantee the two parties against negative events or the occurrence of antagonism.

In actual fact the business of defining and formalising the contract often only comes about after a business agreement is considered to have been entered into by buyer and vendor. Thus the phase of drawing up the contract becomes merely a negotiation concerning general terms and conditions which all too often introduce elements of extreme rigidity into the relationship.

The thesis we are advancing here is, on the contrary, to consider the given contractual framework as a critical factor in the success of any outsourcing contract, as a means of linking up company strategies.

There are several reasons for this:

- a) the contract has legal validity between the parties, which makes it not *a priori* adaptable to changes in scenario and requirements. Thus it is essential for it to envisage explicitly the possibility of modifications and integrations, as well as the procedures of change management enabling it to be modified while in course;
- b) it must envisage service level agreements which are genuinely linked to the company's business aims, avoiding the need to respect the numerous indicators which all too often involve rapidity and quality which not only are not required but which are not even useful. The definition of SLAs drawn up only on the basis of technical/operative criteria or parameters introduces not only the risk of an excessive rigidity for the provider but also the impossibility of being able to overcome this<sup>13</sup>;
- c) it is fairly clear that a contract should meet (or seek to meet) the needs and expectations of the client. It is less obvious or usual for the needs and expectations of the provider to be examined in detail. Making the contract central helps to focus attention on the provider's standpoint, laying the foundations for a genuine partnership rather than leaving this to be only a declaration of intent or a purely commercial matter.

Of course, as in any outsourcing contract, the choice of provider is an essential factor for success. Nowadays there are many competitors on the market who can claim a rich portfolio of services and aggressive pricing policies. What is more, many of the players from emerging countries – if this term makes sense any more – have opened branches in Europe, for not only commercial but also traditional on-site consulting purposes.

At the same time, the main players in the global market such as IT, Accenture, IBM, HP and EDS have long included in their offer *delivery centres of excellence* in countries such as India, Brazil, Russia, China and the Philippines, with highly qualified personnel dealing with all the most innovative platforms and technologies. In this way the major holdings can resist global competition since they are able to combine the best of their more traditional onsite activities with the need for industrialization and efficiency offered by the delivery centres of excellence.

This leads to a third factor important for success in offshore IT initiatives: the mix of on-shore/off-shore activities. For each service there are standard combinations, but it is important to resist the two compulsive

temptations: a) maximum outsourcing of activities to reduce costs as much as possible, b) minimum outsourcing for fear of losing control over activities.

Experience in the field shows that both temptations are in fact illusory, and that a careful evaluation of the mix must be carried out according to rational, measurable factors such as:

- the competences actually available from the outsourcee;
- the end-to-end productive process and the number of interlocutors involved (from end users to operation demand);
- real requisites of timing and quality for delivery;
- the structure and requirements of customer service and help desk.

We have highlighted some of the key factors in success, but there are many others that could be considered. Nonetheless we wish to end by focusing on one aspect which is all too often neglected or undervalued, and which on the contrary often proves decisive in practice: communications. It should be borne in mind that an outsourcing contract involves an operation which often seems to “invade” the organism of a company. If this awareness is patent in cases in which a branch of the company is to be ceded, above all in the light of the union impositions, the same does not hold for cases in which frequently innovative activities are taken away from the internal IT structures. We pointed out above that it is fundamental for strategic objectives to constitute the basis both for the definition of the contract and for ongoing management. Here we wish to recall this aspect in relation to communications to stress that an important premise for the success of the contract is awareness at all levels of objectives and goals. The absence of communication or a communication which is insufficient, leaving middle management on the sidelines, can be a pre-eminent negative factor, for there is no doubt that “hidden strategy yields hidden costs”. This risk derives not only, as can be imagined, from the operative structures operating without criteria for identifying risks and priorities, but also for what concerns the motivation of the staff in the internal IT structure, often leading to obstructionist attitudes or indeed the loss of the best resources, who cannot be retained.

In conclusion, we have sought to show how the outsourcing of IT applications constitutes a very powerful tool in the hands of companies, and how as time goes on this tool has become ever more sophisticated, thanks to the increasingly rich offering by the market players. However, power and sophistication have also led to increasing complexity of management which can only be properly matched by a model of governance featuring dynamism and flexibility (the systemic approach). In other words, the success of an outsourcing contract does not depend merely on a correct operative management by the business unit involved but, increasingly, by its efficient integration in the company strategies.

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*Note:* Contact authors for the full list of references.

## End Notes

Although this paper is the result of a joint effort, sections 2, 3 and 4 were written by Paolo Popoli, section 5 by Arturo Popoli, and section 1 by the two authors together.

<sup>1</sup> The services sector accounts for more than 50% of the GNP of India; in particular, in the decade 1991-2001 the exportation of IT services grew by 50%, reaching in 2002 the figure of 8 billion dollars, and by 2008 is forecast to rise to 50 billions.

<sup>2</sup> Average salaries are at much lower levels than in the developed countries, since labour supply in the IT sector is much higher than demand; in India more than a million people work in the IT domain, and this figure is expected to rise to about 2 million in the next two years.

<sup>3</sup> Electronic City, Bangalore, and other technological poles in India are often referred to as “cathedrals in the desert” since they are much more closely connected to the economic and technological centres of the developed countries benefiting from delocalisation of services (not least thanks to the presence of branches or joint ventures of large international groups such as IBM, Microsoft, General Electric) than with their local territory, which continue to be geographical areas characterised by great poverty and very low standards of living. It is not difficult to understand why the major technological firms delocalise and create branches in low cost countries in view of the fact that the cost of an Indian employee is approximately 1/9 that of an American or British counterpart.

<sup>4</sup> The CMMI, developed by the Software Engineering Institute (SEI) of Carnegie Mellon University, is a system of rigorous standards for the evaluation of the “degree of maturity” demonstrated by companies in the organization and management of their software processes. It gives the following description of organizational evolution:

Level 1: *Initial*. Software development processes are usually ad hoc and chaotic. Most often a stable environment does not exist. Success depends on the competence and heroics of individuals;

Level 2: *Managed*. Elementary management processes are adopted to monitor costs, programme activities and define functionality. The discipline is in some way available for repeating initial successes in similar projects;

Level 3: *Defined*. The process is characterised in terms of both managerial and technical activities. Moreover it is based on recognised standards. All projects use an approved and (where necessary) personalised version of the standard company model for developing and maintaining software;

Level 4: *Quantitatively Managed*. Detailed reports are captured on software process and product quality. Both elements (process and product) are evaluated and controlled in quantitative terms;

Level 5: *Optimizing*. Continually improving process performance is achieved using quantitative feedback from the evaluation applied to the process itself and initiatives of technological and process innovation associated with critical areas kept monitored.

<sup>5</sup> *Business Process Outsourcing* involves outsourcing management processes in their entirety, such as human resources, supply chain, logistics, training, financial services, and also R&D.

<sup>6</sup> *Transformational Outsourcing* involves engaging a provider to operate a radical transformation of the company’s whole informatic system, and manage the associated changeover both of organizational and managerial processes and of business characteristics and rationale.

<sup>7</sup> The leading exponent of the *transaction-cost economics theory* himself, Williamson (1996), was aware that an analysis of transactional costs was possible, *ex ante*, only for certain typologies of cost, while for others only forecasts could be made. In particular, these transaction costs *ex post* concerned monitoring the activities and performance of the provider, revising the contractual agreements in the light of unforeseen events, settling disagreements and dealing with opportunistic behaviour on the part of the provider.

<sup>8</sup> Offshore projects can be divided up into two main categories: “fixed-price projects”, in which the client does not participate in the developmental phase but merely outlines the requisite aims; “collaborative projects”, in which the offshore team participates in developing the project together with the insite team, in a *co-sourced* approach, requiring adequate processes of communication and interaction between client company and provider.

<sup>9</sup> The “2005 Global IT Outsourcing Study” carried out by the American agency Diamond Cluster shows that the number of clients which have broken off contracts of outsourcing in the last 12 months has more than doubled, arriving at 51 per cent today as against 21 per cent a year ago.

<sup>10</sup> A phenomenon which has contributed massively to offshoring has been the boom of Internet and the net-economy, on account of the limited availability of resources and specialised competences at home, available abroad at much reduced costs. These benefits became all the more significant in the subsequent period of recession in the net-economy.

<sup>11</sup> In *full outsourcing* the management and maintenance activities, including applications development, assigned to a specialised provider feature the *entire system* of the company’s IT facilities, while in *selective outsourcing* only one or more *components*. In the context of selective outsourcing there are various typologies (Aiea and Clusit, 2006): *Vertical outsourcing*, covering one or more functional areas of the company application portfolio; *System Management*, covering the area of elaboration and software systems; *Network Management*, covering communications infrastructure components; *Desktop Management*, covering work stations *End User Computing*, covering the management of elaborative and distributive areas; *Application Management*, covering the maintenance, implementation and development of the client’s software applications; *Outsourcing of IT functions*, such as quality or other specific services, including professional and consultancy.

<sup>12</sup> The added value which now characterises the offers of “outsourcing on demand” is flexibility, thanks to the ability of the provider to offer personalised solutions and increase or diminish the calculating capacity of computer systems according to the client’s business needs (e.g. for phenomena of seasonal variation or concerning new, specific initiatives), on the basis of “*sense and respond*”, feasible only in the presence of a strong partnership.

<sup>13</sup> It may be helpful to give an example. A standard indicator in services of bug fixing in the context of Application Outsourcing contracts is *resolution time*, meaning the time taken to solve an application error measured from when it was reported to its release in the operative environment. An SLA which required for all errors a very short resolution time would mean a continuous and onerous installation activity in production, with a consequent interruption in operative availability for end users. A more suitable solution, frequently adopted nowadays, can instead be to base the resolution time on a classification of errors according to severity and priority, leaving less serious errors to be dealt with in production and programmed “patches”.

# Knowledge & the Dynamic Evolution of Co-operative Alliance

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## Abstract

The number of international cooperative alliance has been increasing. Research in the field of cooperative alliance is also increasing. The major portion of this research is based on the traditional approaches of game theory and the transaction costs theory. Process based investigations are few. In this paper, alliances are investigated from a process perspective. It is argued that cooperative alliance result from a long period of interaction between firms. Based on two European cases, it is argued that it takes time to lean about the alliance counterpart. Based on this knowledge, commitments are made, and solidarity and flexibility between the alliance partners develop.

## Introduction

Research on inter-firm co-operative alliances is growing (Dollinger and Golden, 1992; Parkhe, 1993; Hamel, Doz & Prahalad, 1989; Nielsen, 1988; Gulati, 1995). Co-operative alliance have been studied under a variety of different headings, such as symbiotic marketing, strategic alliances, strategic partnerships, strategic networks, interorganizational linkages, interfirm cooperation, cooperative strategies, collective strategies, buyer-seller relationships, and corporate linkages etc. In this paper, *cooperative alliance* are defined as 'relatively enduring interfirm cooperative arrangements, involving flows and linkages that utilise resources and/or governance structures from autonomous organisations, for the joint accomplishment of individual goals linked to the corporate mission of each sponsoring firm'<sup>1</sup>. *Cooperative alliances* are forged with the aim of exchanging strategic resources between two or more firms, directed towards a given purpose with strategic significance. Alliances are 'a bilateral relationship characterized by the commitment of two or more partner firms to reach a common goal, and which entails the pooling of specialized assets and capabilities' (Jorde, and Teece, 1989).

In the literature much attention has been paid to initial design issues (Parkhe, 1993). This is, however, not enough as 'some adjustments in the alliance's governance structure may be necessary yet unanticipated for parent firms, perhaps due to inexperience with a particular collaborative task, mistakes made during the ex. ante design stage, or emerging opportunities' (Reuer, Zollo, and Singh, 2002). The need to study alliance as dynamic process is emphasized (Arino, and de la Torre, 1998; Doz and Hamel, 1998). Doz (1996) and Kumar and Nti (1998) proposed dynamic model in which initial conditions for alliance generate learning, and dynamic in the alliance. Arino and de la Torre (1998) added new aspects to the above model. Other process based studies have been produced by Gulati, Khanna, and Nohria (1994, 1998), Inkpen and Beamish (1997), Koza and Lewin (1998). Researchers have shown that inter-firm relations pass through phases (Dwyer, Schurr, and Oh, 1987; Van de Ven, 1994), and aspects of exchange may change over time (Koza and Lewin, 1998; Jap and Ganeshan, 2000; Zajac and Olsen, 1993; Bowman and Faulkner, 1997; Ring and Van de Van, 1994). Doz (1996) stated that strategic alliances pass through a cycle of learning, re-evaluation and readjustment stages.

Our knowledge on the process aspects of alliances and their dynamic evolution is still limited and deficient, as evident from the vast number of alliance failures. There is, thus, a need to improve our knowledge of dynamics of alliance. This is the purpose of this paper. I present a process based model for the dynamic evolution of alliances. It is argued that co-operative alliance are organic structures that evolving over time. They have a past, a present and a future. It is argued that alliances are not necessarily strategic from the very beginning. Indeed, some inter-firm relationships overtime evolve into strategic alliances. In this evolutionary process alliance partners accumulate knowledge and make commitment, and the governance structure is modified. I base my arguments on two interrelated theoretical schools, namely, knowledge literature and the relational view of marketing.

## **A Model for Dynamic in Co-operative Alliance**

Firms, in order to survive, require resources. These resources may be acquired either by market based arms-length transaction, or by non-market based domesticated exchange (Arndt, 1979). Market-based exchanges are characterized by non-idiosyncratic investments, the transaction costs are low, and information exchange between partners is minimal. Under these conditions, it is easy for companies to change partners. Cooperative alliances evolve as the environment in which companies operate is uncertain and involve dependence power relations between firms (Pfeffer and Salancik, 1978). The advantage of cooperative alliance lie in that (a) there is substantial knowledge exchange between the co-operating firms, (b) partners invest in relation-specific assets, (c) pooling of complementary, but scarce, resources and capabilities, and (d) lower transaction costs than competitor alliances, due to more effective governance mechanisms.

The argument made in this paper is depicted in figure 1. It is argued that at any point in time, based on the current and past operations, alliance partners possess specific stock of knowledge. This guides their resources commitment in an alliance. As resources are committed, firms accumulate more knowledge and their knowledge base is altered which effects influences their future resource commitment in the alliance. This is a dynamic, evolutionary process, a process in which there exists a temporal inter-connectedness among seemingly discrete events or episodes in alliance. This process may be non-linear, occasionally non-planned, and unfolding over time. This is a learning process in which even seemingly minor changes in the environment may produce significant, often unanticipated changes in the alliance. The model does not explicitly incorporate trust. I do not deny that alliance partners may develop trust, but dynamics in strategic alliance is not necessarily dependent upon trust (Zollo, Reuer, and Singh, 2000).

## **Knowledge & Absorptive Capacity of Firms**

Partners in a cooperative alliance trade resources based on their current stock of their own resources and knowledge of the resources of companies with whom they are co-operating. Although all knowledge is accumulated by individuals, in this paper we focus on organization knowledge. By knowledge is implied 'the process within the organization by which knowledge about action-outcome relationships and the effect of the environment on these relationships is developed' (Duncan and Weiss, 1979, p. 84). Knowledge is stored in the routines and standard operating procedures in firms. By routines is implied 'the way in which a firm typically addresses aspects of organizing its business activities' (Morsini, Shane, and Singh, 1998; p. 139). These routines and processes include procedures for scanning the environment, interacting with and managing customers and suppliers. Organizational routines and processes vary significantly between firms and nations (Lincoln, Hand, and Olson, 1981), evolve in interaction with a firm's history and institutional environment (Collis, 1991), and, consequently difficult to replicate by other firms (Barney, 1991). These define the context for new knowledge development and exchange within firms. Zahara and Georg (2002) conceptualise this as a 'dynamic capability pertaining to knowledge creation and utilization that enhance a firm's ability to gain and sustain a competitive advantage' (p. 185). These are unique, rare, valuable, and imperfectly imitable resources embedded in organizational processes and directed to-wards enabling organizational change and evolution. Routines and processes shape a firm's absorptive capacity (Cohen and Levinthal, 1990) or 'receptivity' (Hamel, 1999) to new knowledge, and define the repertoire of available alternatives that a company has in a decision- the experiential knowledge of firms. The absorptive capacity also defines a firm's ability to absorb new, related knowledge and the direction of its search and noticing activities. As firms operate in markets, they extract cues on cause-effect relations and learn. Over time, some of these cues are encoded and stocked in the routines and operating systems in firms. The absorptive capacity of firms defines a firm's capacity to (i) understand/learn new external knowledge. This includes what is learnt and the speed of the learning, (ii) codify and assimilate this new knowledge, and (iii) apply new knowledge to solve business problems (Lane and Lubatkin, 1998). These three dimensions are combinative in nature and build upon each other to offer a dynamic capability. We distinguish between technological knowledge and managerial, including marketing knowledge. An organizations capacity to learn is relative.

Routines and processes shape a firm's absorptive capacity (Cohen and Levinthal, 1990) and its receptivity (Hamel, 1999) to new knowledge. This, in turn, defines the repertoire of available alternatives that a company has in a decision making situation. The absorptive capacity of firms is bi-product of the actual experience of problem solving or learning a new external knowledge is made easy when two firms have similar knowledge base and possess similar cues in the routines and decision making processes in the firm. The absorptive capacity of firms defines the speed and reliability with which alliance partners learn about each other's actions. The current alliance partners receive early signals regarding what the other partner is doing, why, and when. As suggested by Gavetti (2005) distance from action reduces ability to interpret the experience. Also, the speed with which the signals travel from one alliance partner to the other is important, as the strength of the signals decay with the passing of time. The wider the differences between the decisions making routines, and consequently the encoded knowledge in the firm the more limited the understanding of the external knowledge. A number of factors seems to influence learning, including prior knowledge of the foreign partner, transparency of alliance partners (Hamel, 1991), cultural similarity between the alliance partners (Mowery, Oxley and Silverman, 1996), and difference in partners nationality (Parkhe, 1993). Codifying and assimilating new knowledge requires openness on the part of the alliance partners. Socialization is important (Nonaka, 1994). Through socialization individual in alliance partners interact, engage in face-to-face communications, and exchanging experiential knowledge. In international alliance this is important and the knowledge developed in one environment may not be applicable in other environments (Boyacigiller and Adler, 1991). Parts of this knowledge are deposited in the current routines. Finally, the acquired knowledge and the history of alliance partnership supply a firm with knowledge about a counterpart, its complex internal and external exchange relationships and social network. The use of knowledge is important, which reflects an organization's ability to employ and incorporate knowledge into its business operations. This depends upon the ability of firms to retrieve knowledge that exists in its routines and processes.

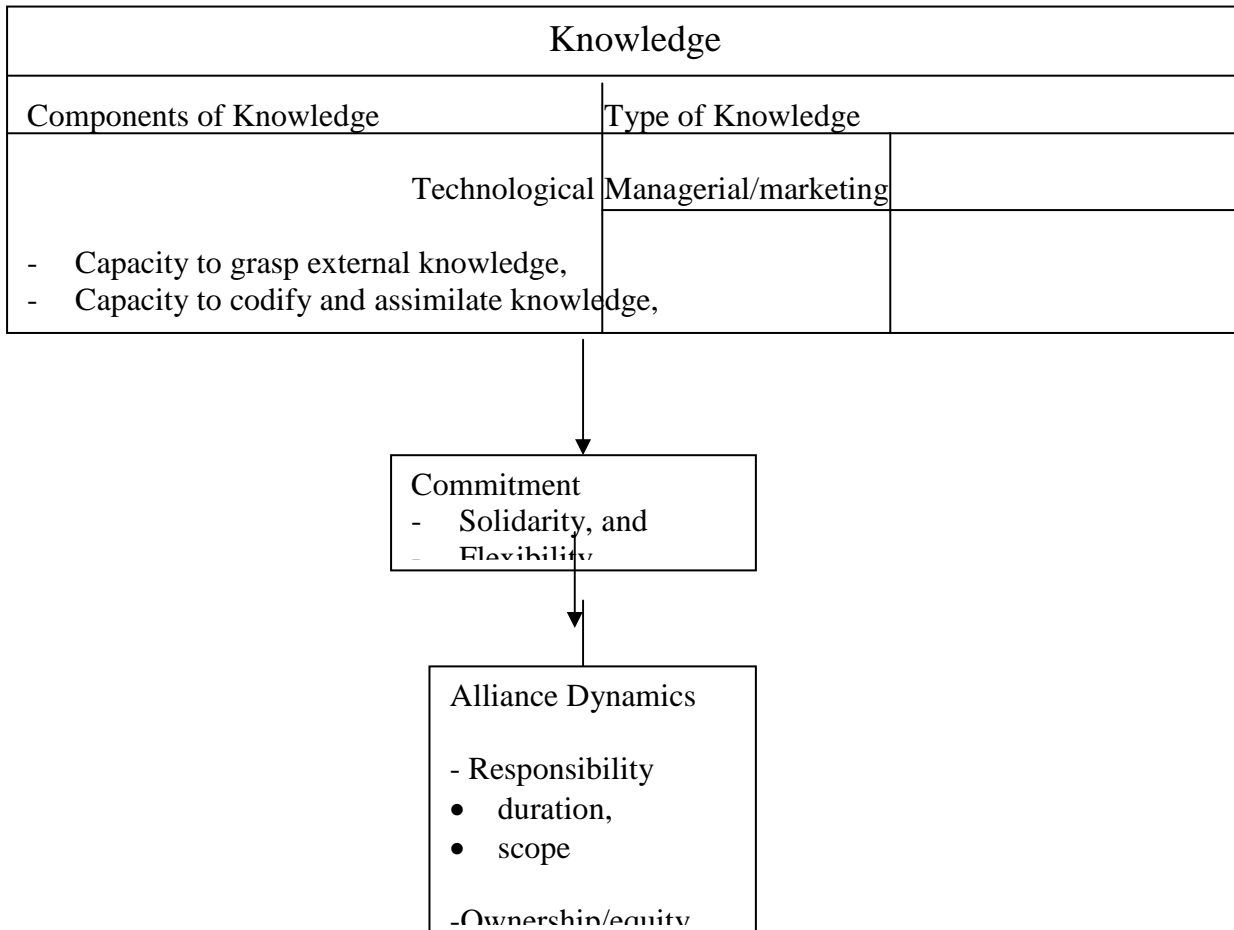


FIG. 1: DYNAMIC PROCESS OF CO-OPERATIVE ALLIANCE

Accumulating knowledge and resources is path dependent, and the absorptive capacity of firms is “partner specific”, that is, “the ability to recognize and assimilate valuable knowledge from particular alliance partners” (Dyer and Singh, 1998, p. 665). Partner specific absorptive capacity develops as partners repeatedly engage in exchange. The partner specific absorptive capacity may result in installation and refinement of routines, guides their future investment decisions. This may allow partners to develop specific capabilities to assess, combine, utilize, and exploit an specific counterparts knowledge resources. The partner specific abortive capacity is also important in order to properly and timely detect the feeling of dissatisfaction in the alliance counterpart. This is important as there are significant ambiguities in what the alliance partners do and why. The partner specific knowledge is helpful in differentiating between the causes why an alliance is (not) performing well. But, routines in firms are heterogenous. An important consequence is that this, and may isolate a firm from other potential co-operative partners. Also, knowledge extracted by each alliance partner may differ in quality and quantity. Firms are ‘locked out’ of certain types of knowledge. They ignore opportunities for initiating co-operation with new partners. This may be because, as pointed out by Leonard-Barton (1992, 1995), that a firm’s existing knowledge may also be a firms core rigidity.



The initial stock of knowledge and the absorptive capacity of the counterparts in an alliance are different, and consequently, what the counterparts learn and the speed with which they learn will be different. This may also happen as the alliance partners seek to learn different things and at different times (Makhija and Ganesh, 1997).

## **Commitment in Cooperative Alliance**

Based on their knowledge alliance partners make commitment. Commitment implies that, “an actor is committed to another actor in the network to the extent that choice of current exchange partner, can be predicted from previous partnership” (Cook and Emerson, 1978, p. 728)<sup>3</sup>. Commitment induces inertia due to (1) a lack of pressure for change, for example, to change the source of a particular resource, and (2) the pressure to change is blocked (Blau, 1964). Commitment is, consequently, a “binding force between exchange partners that can lead to the maintenance of an existing relationship to the exclusion of alternatives” (Seabright, Levinthal, & Fichman, 1992, p. 122). Extant research shows the importance of commitment in co-operative exchange. Macauley (1963) pointed out that businessmen often use non-contract mechanisms to govern their transaction. Ring (1997) detected that commitment-based, non-contractual governance improves exchange efficiency as well as results in a more equitable out-come for exchange partners.

Commitment is forward looking, and refers to a desire by the alliance partners to maintain the exchange. This is a willingness to make short term sacrifices, but it goes beyond a simple positive evaluation of a counterpart. Commitment implies ‘...adoption of a long term orientation towards the relationship’ (Anderson and Weitz, 1992, p. 19). Commitment is a willingness to be exposed to vulnerability and a degree of confidence in the counterpart and that the counterpart will refrain from exploiting the alliance and the vulnerability of the partner (Barney and Hansen, 1994). Commitment implies investing idiosyncratic tangible and intangible resources in an alliance. Idiosyncratic investments create credibility with the counterpart (Ganesan, 1994) and facilitate the formation and development of psychological contract between the alliance partners (Ring, and Ven, 1984). Commitment generates higher rents than the sum of those obtained from the individual endowments of each partner.

Commitment in alliances implies a willingness to show (a) solidarity, and (b) flexibility in attitude and in behaviour. Solidarity is a sense of unity among members of the network (Achrol, 1997). It is the ‘common conscience’, a norm of stability, preservation, some sacrifice, and to act for the joint solution and benefits. Solidarity shows a feeling of mutuality and an expectation that the counterpart will act to maintain the exchange between alliance partners. Flexibility is the bilateral expectations that the substance and terms of exchange are subject to good-faith modification and adaptation if environmental changes so require (Heidi & Johan, 1992). That is, opt for a change in the relationship as circumstances change, resulting in an atmosphere of co-operation. Solidarity stabilizes an alliance relationship, flexibility, at the same time, allow alliance partners to incorporate in their exchange future contingencies and future discoveries. These together allow alliance partners to share tacit and confidential information with respect to future goals and plans of firms. Co-operative alliance supported by a high degree of solidarity and flexibility are stable, and better performing. Alliances lacking solidarity and flexibility may compel partners to devise additional mechanisms, for example, third party arbitration, to monitor the counterpart. This is expensive and may reduce the value of the cooperation. As commitment increasing, exchange is evaluated within a long-term perspective and future casts a shadow on present behaviour of firms.

Developing commitment is a gradual process. Individuals that are in contacts with each other accumulate knowledge on the counterpart and their resources. They uncover potentials as well as problems in the alliance. This, in turn, may trigger idiosyncratic resources to benefit from the opportunities or remedy the problems. Idiosyncratic commitment can not be moved over from one alliance to another without a loss in value. The same resources are of little or no use in alternative alliances. The more specific resource commitments alliance partners accept the more difficult and costly it becomes to defect from the alliance. Heidi and Johan (1988), thus, found that idiosyncratic investments create exit barriers in exchange relations. Also, there is a positive co-relation between commitment in an exchange and joint action by parties (Zaheer, and Venkatraman, 1995). Kersi and Frazier (2001) found that commitment in exchange relations reduce contract enforcement severity. This may also reduce perceptions of conflict between partners. By conflict is implied a feeling by an alliance partner that its goals are being impeded or

opposed by the counterpart. Committed alliance partners focus on a positive behaviour and give each other the benefit of doubt and disregard negative behaviour. In such alliances negative outcome may be explained as temporary aberration or being caused by factors external, such as increased competition in the market, changing economic conditions in the market, or resulting from the inability of the partners to correctly forecast the market. Alternatively, the standard applied in assessing success in the alliance may be altered. An alliance may be assessed in comparison with (i) other alliance by the same firm, (ii) other alliances with the same counterpart, (iii) other alliances in the same industry etc.

### **Alliance Dynamics**

As partners accumulate knowledge the counterpart, norms of solidarity and flexibility evolve, the exchange may deepen. Alliance dynamic evolves as committed partners respond in kind (Emerson, 1962; Homan, 1961), and the attitude and behaviour of the alliance partners may change and alliance partners may reshape or modify the goals or its implementation. As new potentials are detected the framework within which knowledge is accumulated and assimilated are modified. A dynamic evolves. This implies an exploration based double-loop learning, that is, '.....search for and exploration of alternative routines, rules, technologies, goals, and purposes rather than merely learning how to perform current routines and more effectively, (Lant and Mezias, 1992, pp. 49). New aspects of cooperation are detected and incorporated into the alliance. This dynamics is seen in as the partners may alter (a) the distribution of responsibility in the alliance, and (b) the incentive structure (for example, equity/ownership structure) of the alliance. The former incorporate changing the scope or the functions covered by the alliance. The scope of an alliance may vary from being narrow to wide. Alliance between firms may include one or many function, such as, product development, manufacturing, marketing of products and services. Alliance scope may also vary in its geographical coverage. Alliances could be limited to a national market or could cover international market as well. Alternatively, the duration or the timing for which the alliance is valid may change. In this process a dynamics evolves as the alliance may incorporate new governance mechanisms to continue with the exchange. Many of these changes are un-planned, and may even be un-intentional. Thus, an alliance may enlarged or shrink.

### **Two Cases**

The arguments produced in the preceding pages are illustrated with the help of two case examples. The aim is not to produce a comprehensive analysis of the two cases, but only to illustrate the points argued on the preceding pages. However, the two cases are rather typical and do serve to illustrate the manner in which cooperative alliance evolve and grow. Over the years, the author has investigated in detail, more than a dozen cooperative alliances between companies. In each case the European partner in the alliance was interviewed a number of times. Structured questions were put to the executives in the European firms. In each company, a minimum of six hours of interviews was conducted. In one company, the interviews totalled over twenty hours. A minimum of three people was interviewed. Moreover, the interviews with each company were conducted at different occasions and scattered over time. In at least one case there was a gap of around seven years between the first and second series of interviews. In this manner, we covered a long lifetime of the alliances under study. Consequently, we interviewed a number of people in each company. We interviewed those executives who were directly responsible for, and engaged in, the implementation of the alliance. In five of the alliances, the author was allowed to read the legal, formal contract between the alliance partners. In two cases, the author was given a copy of the formal, legal contract between the alliance partners.

#### **The Fishing Company**

The European Entertainment Co. is a small, independent European Co. with sales of around 30 million dollars (1981-82). In the closing years of the 1970s its international operations were confined to exporting to the European nations and North America. These sales were managed with the help of foreign sales subsidiaries, but often through a network of foreign agents. The company did not own any production units abroad. The company was purchasing most of its input requirements from the other European countries. The company, thus, controlled a highly efficient production, marketing and purchasing organization.

The European Entertainment Company participated in a cooperative alliance in an African country. The venture started in the last years of the 1970s as an official aid project. The local company, The Fishing Company, was a part of the Ministry of Industry of the country. The country itself pursued a socialistic ideology and private investment was limited. Investment by foreign firms was strictly regulated, and the rules and regulation for foreign

investment were cumbersome. At this time, the company employed around 50-60 people. Its main product was fishing boats.

In the proceeding years the local company had not produced satisfactory results. Both maintenance and new investments were neglected and production had dropped. Its manufacturing process was out-dated. The company was incurring huge losses. In order to remedy the situation, The European Entertainment Company was hired as a technical consultant. An official aid agency agreed to finance the project. Two consultants from the European Entertainment Company studied the local firm and gave suggestions. It was pointed out that the local company lacked proper operations and maintenance routines. However, the local management, failed to implement the suggestions made by the consultants. The local company continued to languish and suffered heavy losses. Finally, the company's local owners offered a management contract, whereby all the managerial responsibilities of the local company were delegated to The European Entertainment Company. The goal was to develop a commercially successful company, managed by local staff. To this end, the formal contract between the firms stated that the foreign firm shall 'initiate and implement training programmes that will allow...counterpart staff to gradually take over responsibilities for management and operations. The objective of this transfer of skills should be that at the end of the two years assignment the factory will be to a large extent managed independently of expatriate technical assistance'. The European firm accepted to export a part of the output from the local firm.

In order to achieve the above goals, the European firm supplied three categories of experts, (i) long term personnel in executive and technical positions, (ii) short term personnel, and (iii) head-office personnel for general backstopping. The European firm deployed a number of expatriates in the local firms, these included, managing director, financial manager, production and planning managers, marketing manager, manager procurement and material handling, and quality control manager. These expatriate managers together spent 152 man months in the local firm. In order to transfer skills to local managers, to each of these managers was assigned a local (trainee) manager. In addition, a number of European technicians carried out short term assignments in the local firm. The European firms received extra, tax free payments for these services. The managing director of the firm was also a member of the board of directors.

The first such cooperative agreement lasted two years. It was realized that the current legal status for the local firm was hampering its commercial development. Expatriates suggested that the local firms should be converted into an independent company. This suggestion was accepted shortly thereafter, and the local company was converted into '...(a) government owned autonomous company for the main purpose of manufacturing boats and other products....'. A new Board of Directors took over.

The expatriate management installed various administrative, operational and technical routines in the local company. Throughout these years, The European Entertainment Company procured input resources on behalf of the local company. Most of these procurements were made from the international market. The Fishing Co. paid a commission to the European Co.. These include procurements to replace the rusting and out-dated production equipment, spares and components. The expatriate managers were also responsible for marketing operations of the firm, managing financial affairs (contacts with banks and other financial bodies, for example). In addition, expatriates introduced management tools for production planning, financial reporting, and procurement routines and inventory management. Earlier, lack of these routines was a permanent source of difficulty for the local firm. The expatriates supplied management training to locals. In the marketing side expatriates, for example, expatriate management identified and initiated contacts with potential customers, such as, the self-employed people and cooperative societies. They also contacted local banks and helped in arranging loans and financing for clients. Expatriate managers developed management tools to assess costs of operations and manufacturing boats, and repair requirements. They also developed tools to estimate the potential fish catch using these costs further assistance was also supplied in the technical fields.

The production record of the company improved. At the termination of the first contract, the parties agreed to prolong the contract for one more year. The management contract was thereafter repeatedly prolonged. However, during the extensions, no significant changes were introduced in the provisions of the formal written contract, the responsibilities carried out by the expatriate managers, and the modes of fee payments. Through out these years the local partners agreed not to distribute the profits earned by the local company and to seek consent from the The European Entertainment Company in the case of large investments (sums exceeding 200,000 SEK) etc.

The local company did well over these years and the production results were goods. In 1987, the company earned its first ever profit. In addition, the expatriate managers arranged for hard currency loans. In 1989, The Fishing Co. introduced larger boats into its production program (10-12 meters long).

The cooperative agreement worked well. In the final years of the 1980s, as the agreement was ending, The European Entertainment Company was offered an option to purchase equity shares in the local company. The European Entertainment Company acquired 25% of the equity shares in the local company. A further 25% of the equity shares were bought by another European organisation. However, in order to make this possible, the local industrial laws were amended. Previously, as stated earlier, the local laws did not allow for the equity participation of foreign companies in the local industries. By the end of the 1980s, this law was changed and foreign participation became possible.

#### **The European Housing & Cement Co**

The European Housing & Cement Co is a large diversified international company. In the beginning of the 1970s the company was earning more than half of its revenue from exports. The firm had production facilities in countries such as Australia, Denmark, Egypt, Mexico, and the US. The overwhelming share of its production are (was) sold on the international market. From the point of view of marketing and production, the domestic market was of limited importance to the company. In the African continent, the company was represented, but only to a limited extent. Moreover, the company could not export to these markets. The European Co. was interested in expanding their international operations, including selling its management and technological skills. To manage its operations, the firm had developed a highly efficient and geographically diversified marketing and procurement network of foreign sales subsidiaries and agents.

In the second half of the 1960s a cement factory was established in an African nation. This was an official assistance project and in the beginning years experts from the European aid donor country managed the plant. Gradually the plant, consisting of three production units of 100, 125, and 250 thousand tons a year, was handed over to the local managers. However, the production record of the local company, Africa Cement, started to deteriorate. In 1983, the production was down to around 120 thousand tons as the local managers did not pay proper attention to servicing and maintenance.

In the second half of the 1970s, an official aid agency contacted the European Housing & Cement Company. The purpose was to seek assistance on behalf of Africa Cement. The assignment was to seek technical assistance to improve the production record of Africa Cement and to modernise the cement factory. This was a period of high oil prices. The local firm wanted to replace its oil based production process with coal based production process. Coal was less expensive.

The European Housing & Cement Co was hired as a technical consultant to the African company. After investigations, the European Co. produced several recommendations. The local company did not implement these recommendations. Shortly after, the European Co. was hired to provide more technical assistance. The European Co. was also requested to deploy engineers in the local firm to implement the recommendations. The European firm obliged. After completing the assignment, the expatriates left the local firm. In 1983, the largest cement unit of the local company was damaged, and production stopped. Without a competitive bidding, the European Co. was hired to investigate and suggest measures to rehabilitate and modernise the unit. The European experts assessed the damage and planned the rehabilitation. A sum of around 2 million dollars was invested to rehabilitate the plant and a team of seven technical experts from the European Housing & Cement Co was deployed in the local company. The expatriates worked with the local staff and the local managers. To co-ordinate the rehabilitation program, a separate position was constituted at the head office of the European Co.. The European expatriates also suggested that a sum of around 2 million dollars a year be set aside for purchasing spares and components. This recommendation was accepted by the local firm. Hardly, any of these spare parts and components were available on the local market.

As the initial group of seven expatriates commenced the rehabilitation work, they realised that more expatriate technical personnel were required. More expatriates were deployed. Gradually, in the middle of 1984 a five year long cooperative agreement (a management contract) was signed through which the European Co. took over the entire responsibility to manage the technical operations of the local company. In so doing, the European Co. also supplied production guarantees. For example, the European Co. guaranteed that the capacity utilisation in the terminal year of the contract will be no less than 80% of the installed capacity. In case of a failure, the European Co.

agreed to pay a penalty. It was agreed that a short fall of more than 10% in production will result in a penalty of around 4 US dollars/ton. On the other hand, if the production exceeded more than 10% of the target, the European firm shall receive a bonus payment of around 3 dollars/ton. From the very first year of the agreement, the local company improved its production record.

The European firm deployed a group of seven technical experts in the local firm. But, this was not enough, and five more experts were deployed in the local firm. The position of a project coordinator was created. During their stay in the local company, the expatriates detected deficiencies in the managerial and administrative sides of the local company. The local company lacked proper and rational administrative structure and routines. For this reason, for example, the parts and components needed to keep the production process running were frequently in short supply. The expatriates informally made several suggestions to the local owners to improve the matter.

After several meetings and deliberations between the local government (who owned the local company) and the European Co., the recommendations produced by the expatriate team were accepted. It was proposed that to improve the management practices in the local company, the local team of managers should be exposed to the best managerial practices in the industry. Thereafter, the scope of the cooperative agreement was widened and the entire management responsibility in the local company was delegated to the European firm. In so doing, the local company did not look for alternative sources of management in the international market.

A team of 13 expatriates was permanently deployed in the local company, all in the top technical and managerial positions, for example, the managing director, operations managers, production manager, manager material supply, and manager finance. This agreement continued until 1989. In 1988-89, the terminal year of the management contract the production level of the local company had improved dramatically and exceeded 80% of the installed capacity. In addition, during these years, the expatriates suggested, planned and implemented a massive investment plan to modernise the local cement factory. The hard currency part of these investments was around half a billion SEK. To complete the modernisation program, additional technical personnel were deployed in the local company. These were not covered by the management contract. They supplied specialised technical skills.

As the management contract was approaching termination, the local owners initiated inquiries with the European Housing & Cement Co to investigate their interest in prolonging the management contract. The European Co. was willing. In 1989, the contract was prolonged for another two years. The team of European managers remained in the local company. During the period of the management contract, the local company continued to perform well. The company was very profitable.

As the second period of the management contract was approaching its end, the local owners were uncertain and felt the need for continued external managerial support. Indeed, they were impressed by the good performance of the local company. The local managers had improved their performance, but this was not considered enough. The local owners wanted a more permanent presence of the European Co.. They wanted to avoid a repetition of the past failures. The European Co. was willing to prolong its presence in the local company.

However, the European Co. taking a more permanent presence in the local company was problematic as the local laws prohibited the equity participation of foreign companies in local industries. At around the same time, the industrial regime of the country was changed and foreign participation in the local industries was welcomed. This opened new opportunities for the European Co.. In the deliberations that followed, the European company was offered equity participation in the local company. The European Co. accepted the offer.

Since the European Co. had managed the local company for some time, the expatriate managers were aware of the problems and opportunities the local company faced. They realised that the state ownership in the local company was problematic, and not in the best commercial interest of the local company. The European Co. suggested, in fact, insisted, that the state ownership in the local company be diluted to below 50%. In addition, to avoid future difficulties with the local bureaucracy and politicians, the European Co. decided only to invest in the local company if an official agency from European would also acquire a portion of the local company's equity shares. The European Co. was unwilling to go it alone.

Initially, the local owners were unwilling to accept either suggestion, but gradually, they agreed. In less than five years, the public sector ownership in Africa Cement would be reduced to below 50%. In the following months the equity base of the local company was enlarged. The European Co. acquired 13% of the equity shares in the local company. Another 13% of the equities shares went to an official Swedish agency. This cost the European

Co. four million dollars in hard currency. The European Co. and the official agency was both allotted one seat each in the Board of Directors.

In 1991, the cooperative agreement was extended for another five years. No major changes were introduced into the agreement. However, the need for expatriate managers was declining. In December 1992, the number of expatriate managers in the local company had declined to five (from 13 in the past). More locals were placed in the top-level managerial positions.

## **Discussion**

The two cases illustrate the dynamic process of how alliance evolve and change over time. For the two European firms, the alliances were a means of strengthening their positions in the international market. The local owners of the firms wanted to improve their management practices by introducing new and modern management techniques. The aims entertained by the respective parties in the alliances were non-conflicting.

The knowledge base and the absorptive capacity of the two European firms were vastly superior to the knowledge base and the absorptive capacity of the two local firms. But, the two European firms were also different from each other with respect to knowledge and their absorptive capacity. The boat firm was small with little experience of foreign production or international alliances. But, their knowledge of and routines for serving international clients, and managing international procurement was high. The building material firm was successfully operating in the competitive, international market. They developed and refined their production and management routines, had a huge pool of qualified and experiential technicians and managers, and had developed routines for international production, marketing, management, and procurement. The knowledge base of both the European firms was relevant for a modern competitive market economy. The absorptive capacity of the two firms was significant.

The two local firms were very different. Both were small, government owned, and inefficient. Their organizational structure, reporting and accounting systems were very underdeveloped. At the time signing the cooperative agreement, neither the local managers nor the local owners of the firms had a proper idea of the financial position of the firm, its staff, and its production record, or inventories. Indeed, these hardly existed. Their manpower pool was limited. Moreover, these were state owned monopolies, and their operations were restricted within the domestic market. On the whole, their knowledge base and absorptive capacity with regard to technological and managerial knowledge was very limited, and not very relevant for a competitive market economy.

Initially, the local partners viewed the association with the European companies as a temporary, isolated business transaction, of limited duration. The local companies viewed the association as a means to acquire some minor resources, for example, better technology. Gradually this changed. Neither of the firms had worked with each other. At the time of the initial formal contract their partner specific knowledge and absorptive capacity was more or less nil.

In both cases, the cooperative alliance evolved gradually over time. Both began as a discrete and limited (in time as well as scope) technical assignment, leading to the accumulation of experiential knowledge, and the alliance partners learned about the systems and procedures their partner companies. Commitments gradually deepened, and the scope as well as the duration of the alliance changed. Finally, the two European firms became co-owners of the local firms. The solidarity and flexibility shown by the European firms is indicated by their willingness to alter the scope of the cooperation to suit the needs of the local firm.

In both the cases the co-operation started with an assignment that was limited in duration and scope. The initial technical assignments rather unintentionally supplied the two European companies and their respective local partners, with a platform to accumulate knowledge. The two European firms detected the opportunities and deficiencies, as well as the resources available, in the two local companies. This happened, as two European firms deploy technical and other managerial personnel. They installed management routines and procedures in the local firms. The expatriate managers deployed in the local firms daily interacted with the local managers and employees. They accumulated knowledge on the local owners of the firms, their local counterpart, their network contacts, the local clients, and the local business climate. As the performance of the local companies improved, the European companies realised the commercial potential of the local partners. The presence of foreign expatriates in local firms

improved communication and the uncertainty concerning each other's motives, goals and resources was reduced. The European firms realized that the two local companies had good commercial potential, both enjoying a monopoly in the local market. If run efficiently, the two local companies were sound business investments. This cast a positive shadow on the behaviour of the two European firms.

The expatriates carried out the managerial and top level technical functions in the local companies, installed management, marketing and technical routines and systems. They had full insight into the resources of the local companies, the on-going investments and projects, the plans, clients, and government contacts. A partner specific knowledge developed. The local managers were exposed to their foreign partners. The European firms showed solidarity and flexibility in their exchange with the local counterparts. The European firms did what was needed to develop a commercially viable local firm. Over time, thus, the two European firms widened the scope of their engagement in the local firms. By agreeing to take over the management functions in the two local companies, for example, the two European companies showed solidarity as well as flexibility to the local firms. By agreeing to carry out the management responsibilities in the two local companies, the two European companies were able to prove their managerial and technical expertise to the local owners of the companies, who both happened to be national governments. The highly visible penalty clauses in the agreement, moreover, proved their credibility in the alliances. This demonstrated how the European companies command the resources to operate and manage the local ventures. For these reasons, the two local firms did not search for alternative sources of technology and management skills.

One member of the national government occupied a position on the board of directors of the local companies. Through these connections, the European companies were able to develop relationships and reputation in the concerned ministries of the host country. This happened, for three reasons, firstly, that during the period of the management contract the production recorded a marked improvement. This brought the local company, as well as the European managers into limelight of the local press, local media, and the local debate. Secondly, as stated earlier, the financial performance of the two local companies improved. The two local companies were no longer depending on the state's subsidy for their survival. The above success, and the improved performance of the local companies, was recognized and the European management could claim the credit for the success.

During these years a number of expatriates were deployed in the two local companies. They stayed in the respective local companies for years and daily met the local managers, the technical personnel and the local owners. They were not visible to out-siders, but these helped develop individual level contact and a means of strengthening the commitment to the local companies. Supplying technological knowledge was less problematic than supplying managerial and marketing knowledge. As long as the relationships were contract based, this was difficult and time consuming to achieve. But, the prevailing national laws made this impossible. Thus, discussions were initiated to seek equity participation by the two European firms. This too was highly visible to out-siders.

Once the local laws were amended, and a foreign participation in the local industry was allowed, the formal shape of the alliance changed, and the commitment made by the European companies escalated. The above transformation in the alliance occurred at a time when the requirement for the European managers in the respective local companies was on a decline. For example, as stated in the Africa Cement case, by 1992, the number of European managers had dropped from thirteen to five.

The two European companies deployed several experts and managers in the two local companies. The expatriates had full access to the information on the operations of their local partners, their client structure, and the local government. There was a large area of interaction between the locals and the expatriates. The interaction area and contact frequency was high. The presence of expatriates was a source of accurate, timely, and reliable information to the European companies regarding the local partner and their resources. This strengthened the alliance.

## **Final Remarks**

In this paper shows that co-operative alliance has a past, present, and a future. Two cases are presented. It is argued that some business exchanges evolve into long term business alliances. Our study illustrates that the evolutionary

process of alliances is based on learning and commitment in alliances. The process by which small and discrete exchanges evolve into cooperative alliance is discussed. The above transition from a more limited exchange to a cooperative alliance is incremental during which the responsibilities carried out by the alliance partners may change. Initially, due to the limited cognition, the alliance partners may hardly understand the strategic implication of their co-operation. As firms accumulate knowledge commitment is evolved, solidarity and flexibility in the relationship develops. This is a process of trial and error, only parts of which are planned and visible to the outsiders. The more visible aspects of the alliance (for example, changing the equity share holding in the local firms) change, but less frequently. Indeed, changes in the visible aspects of alliance may only manifest parts of the overall exchange between the alliance partners. The less visible parts of alliance change frequently. Indeed, each inter-face has an impact of the knowledge accumulated and commitment made by alliance partners. These aspects are less visible to out-siders. Our cases show that, in each case, the time gap between the first business exchange between the alliance partners and the acquisition of equity shares in the local firm was large. During this period the scope, as well as, the duration of the alliance changed. More and more aspects were covered in the exchange. The key to understanding alliances lie in uncovering the not so visible aspects of an alliance.

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## **End Notes**

1. For a synthesis and review see Varadarajan and Cunningham (1995), and Spekman, Forbes, Isabella, and MacAvoy (1998).
4. Other terms used to denote more or less the same phenomena are learning-by-doing, and tacit knowledge.

# Determining the Antecedents of Customer Loyalty in Banks for Managing Services in a Global Economy: A Case in South Thailand

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## Abstract

This study attempts to determine and validate the antecedents of customer loyalty in the banking sector in South Thailand. Customer loyalty is crucial in bringing long term profitability and managing services in tandem with the development of the global sector. From the literature, six antecedents of customer loyalty were identified. Each variable is measured using 7-point Likert-scale: perceived service quality (13 items), perceived value (11 items), trust (5 items), image (15 items), customer satisfaction (7 items) and commitment (6 items). Using survey method, 120 questionnaires were distributed to customers of four bank branches. The responses collected were 102 questionnaires representing 85 percent response rate. Confirmatory factor analysis using maximum likelihood and oblimin rotation method performed on the data produces six underlying components consisting of perceived service quality (10 items), perceived value (2 items), customer satisfaction (8 items), commitment (2 items), trust (3 items) and image (3 items). Thus, the antecedents of customer loyalty were substantiated and its construct validated in this study. The finding is discussed in the light of managing services in the global economy.

## Introduction

With the increasing importance of relationship marketing in recent years, particularly in the service industries, the emphasis now is on customer loyalty. Several authors emphasize the positive relationship existing between customer loyalty and business performance (Reichheld and Sasser, 1990; Reichheld, 1993; Sheth and Parvatiyar, 1995). Consumer loyalty is considered an important key to organizational success and profit (Oliver, 1997). Selin et al. (1987) stated that, "those consumers that demonstrate the greatest levels of loyalty toward the product, or service activity, tend to repurchase more often, and spend more money". As a result, a great deal of research attention has focused on the identification of effective methods of actively enhancing loyalty, including loyalty programs such as point reward schemes (Lach, 2000). Loyalty programs "create a reluctance to defect" by rewarding the customer for repurchasing from the organization (Duffy, 1998). Loyal customers not only increase the value of the business, but also enable it to maintain costs lower than those associated with attracting new customers (Basky 1994, Barroso and Martin, 1999). Moreover, loyalty rather than satisfaction is becoming the number one strategic goal in today's competitive business environment (Oliver, 1999).

With a growing focus on offering excellent services and meeting the needs of customer, banks need to have a good understanding of their customer behavior so that appropriate marketing strategies directed towards relationship building and retention can be developed. Past research on loyalty in the banking sector has been limited, and has tended to focus on retail banking, with an emphasis on the positive effects of customer satisfaction (Colgate and Hedge, 2001; Loveman, 1998; Jamal and Naser, 2002).

Much of the original work on loyalty defined it in behavioral terms (repurchase or purchase frequency), and then later admitted an attitudinal component (Jacoby and Chestnut, 1978). Ganesh et al. (2000) found two factors in their loyalty items, active loyalty (word – of mouth and intention to use) and passive loyalty (not switching even under less positive conditions). Other authors have considered loyalty as a process rather than an outcome. Oliver (1997a), for example, distinguishes among four stages of loyalty: cognitive, affective, cognitive, and action loyalty. Clearly, loyalty is a rich concept with many possible definitions.

A common approach is to distinguish between a consumer's attitudinal loyalty and behavioral loyalty (Dick and Basu, 1994; Zeithaml, 2000; Chaudhuri and Holbrook, 2001). Behavioral loyalty is repeated transactions (or

percentage of total transactions in the category, or total expenditures in the category) and can sometimes be measured quite simply with observational techniques. Attitudinal loyalty is sometime defined equivalently with relationship commitment (Morgan and Hunt, 1994).

Behavioral loyalty is highly prized, because it means sales. Attitudinal loyalty is also highly prized, because as Oliver, (1997a and 1999) argues, behavioral and attitudinal loyalty are highly intertwined, repeated purchases lead to positive affect which leads to cognitive loyalty, high levels of involvement and intention to continue repurchase. We may consider both affective and cognitive loyalty to be kinds of attitudinal loyalty. Strong attitudinal loyalty makes customers more resistant to attempts by other marketers to steal them away (Gundlach et al., 1995) and more resistant to counter – persuasion and search for alternatives (Dick and Basu, 1994). However, the extent to which these findings explain business customer behavior in banking is unclear.

Thus, the objective of this study is to identify the antecedents of customer loyalty in the context of retail banking in South Thailand and to validate the internal consistency of each antecedent construct. This paper is structured as follows. First, we review the marketing literature on the antecedents of customer loyalty: customer satisfaction, commitment, trust, image, perceived service quality and perceived value. Next, we present the research framework, methods, measures and findings. Finally, the results were discussed in terms of its contribution to global banking business and recommendations for future research.

## **Literature Review: Antecedents of Customer Loyalty**

Bank customers could become loyal due to a myriad of reasons. From our readings we have identified six main antecedents vis-à-vis customer satisfaction (Oliver, 1997, 1999; Kotler and Clarke, 1987; Ehrenberg and Scriven, 1999; Bloemer et al. 1998; Berrli et al. 2004, Hallowell, 1996; Strauss and Neuhaus, 1997; Cassel and Eklof, 2001), commitment (Oliver, 1997; Beatty et al. 1988; Luarn and Lin, 2003), trust (Moorman et al., 1993; Morgan and Hunt, 1994; Deutsch, 1960; Luarn and Lin, 2003; Ball et al, 2004), image (Keller, 1993; Fornell, 1992; Sirgy and Samli, 1985; Bloemer et al, 1998; Kandampully and Suhartanto, 2000; Heung et al, 1996), perceived service quality (Zeithaml, 1988; Juran, 1988); Bloemer, 1998), and perceived value (Zeithaml, 1988; Roig et al., 2006; Luarn and Lin, 2003; Parasuraman and Grewal, 2000; Dodds et al., 1991; Grewal et al., 1998; Reichheld, 1996; Dodds et al., 1991; Buzzel and Gale, 1987; Patterson and Spreng, 1997; Rokeach, 1973; Sheth et al., 1991a & 1991b; Bolton and Drew, 1991).

### **Customer Satisfaction and Loyalty**

Oliver (1999) points out that satisfaction and loyalty are related. Customer satisfaction is defined as a judgment that a product or service feature, or the product or service itself, provides a pleasurable level of consumption related fulfillment including the level of under or over fulfillment (Oliver, 1997). Satisfaction is thus a function of relative level of expectation and perceived performance. Expectations are formed on the basis of past experience with the same or similar situations, statements made by friends or other associates (Kotler and Clarke, 1987). Ehrenberg and Scriven (1999) define loyalty as “an ongoing propensity to buy the brand, usually as one of several”. A customer is said to be loyal to a brand that provides a satisfactory experience. Hence, satisfaction has been shown to have its influence on customer loyalty in past studies (Bloemer et al 1998; Berrli et al., 2004, Hallowell, 1996; Strauss and Neuhaus, 1997; Cassel and Eklof, 2001). For example, Berrli et al. (2004) conclude that satisfaction together with personal switching costs are antecedents of loyalty.

### **Commitment and Loyalty**

Customer commitment is another factor affecting loyalty by which Oliver (1997) defines loyalty as: “A deeply held commitment to rebuy or repatronize a preferred product/service consistently in the future, thereby causing repetitive same-brand or same brand set purchasing despite situational influences and marketing efforts having the potential to cause switching behavior”.

Beatty et al., (1988) define consumer commitment as the psychological attachment to a service that develops. A customer would be able to determine that their purchase behavior was derived from a sense of loyalty. Luarn and Lin (2003) establish significant relationship between commitment and loyalty.

### **Trust and Loyalty**

Trust is defined as “the willingness to rely on an exchange partner in whom one has confidence” (Moorman et al., 1993). Morgan and Hunt (1994) felt trust exists “when one party has confidence in an exchange partner’s reliability and integrity”. According to Deutsch (1960), trust consists of two components: confidence in ability and intention. Past studies investigating the relationship between trust and loyalty has found significant relationships in e-service (Luarn and Lin (2003) and banking sector (Ball et al, 2004).

### **Image and Loyalty**

Image has been defined as “the perceptions of an organization reflected in the associations held in consumer memory” (Keller, 1993). This is similar to corporate image which is assumed to influence the customer’s choice of service company when it is difficult to distinguish between service attributes. Corporate image is established or developed in the consumer’s mind through communication and experience (Fornell, 1992).

Past studies had found equivocal results regarding the relationships between image and loyalty. While some past studies has found image to have no significant impact on loyalty (Sirgy and Samli, 1985; Bloemer et al, 1998), some researchers has reported positive significant relationships (Kandampully and Suhartanto, 2000; Heung et al, 1996).

### **Perceived Service Quality and Loyalty**

Perceived service quality is defined as “the consumer’s judgment about a product’s overall excellence or superiority” (Zeithaml, 1988). According to Juran (1988), quality consists of two primary elements: (1) to what degree a product or service meets to needs of the consumers; and (2) to what degree a product or service is free from deficiencies. Service quality is believed to depend on the gap between expected and perceived performance (Anderson et al., 1994). In past studies, perceived service quality is hypothesized to have an indirect positive effect on loyalty via satisfaction (Bloemer, 1998).

### **Perceived Value and Loyalty**

There is a multifacet meanings of value which vary according to different functional context –economics – (utility and monetary costs), social science (human values) (Rokeach 1973); industrial settings (processes and costs), and marketing (consumers’ perspective on tradeoffs between benefits and sacrifices or costs)- Zeithaml, 1988, Dodds et al., 1991; Buzzel and Gale, 1987; Roig et al., 2006; Patterson and Spreng, 1997) The meaning is not limited to these functional definitions but also include cognitive and affective aspects of value such as social, emotional and epistemic value (Sheth et. al., 1991a &1991b). Drawing from the vast literature on value, the definition employed in this study is from the marketing perspective whereby Bolton and Drew (1991) define perceived value as a “richer measure of customers’ overall evaluation of a service than perceived service quality. Luarn and Lin (2003) define perceived value from economic perspective which is the customers’ perceived service utility relative to its monetary and non-monetary costs. Prior studies support the general notion that perceived value contributes to customer loyalty (Luarn and Lin, 2003; Parasuraman and Grewal, 2000; Dodds et al., 1991; Grewal et al., 1998; Reichheld’s (1996). For example, Luarn and Lin (2003) have found significant relationship between perceived value and loyalty as well as perceived value and commitment. Roig et al (2006) approach perceived value from six multidimensional formative construct (GLOVAL scale) and test the study on bank customers. They found that perceived value is indeed multi-dimensional.

## **Research Framework**

Figure 1 shows the research framework of the study. The literature indicates that customer satisfaction, commitment, trust and image are direct antecedents of customer loyalty. Perceived service quality is an indirect antecedent of customer loyalty through customer satisfaction. Perceived value is an indirect antecedent of customer loyalty through customer satisfaction and commitment.

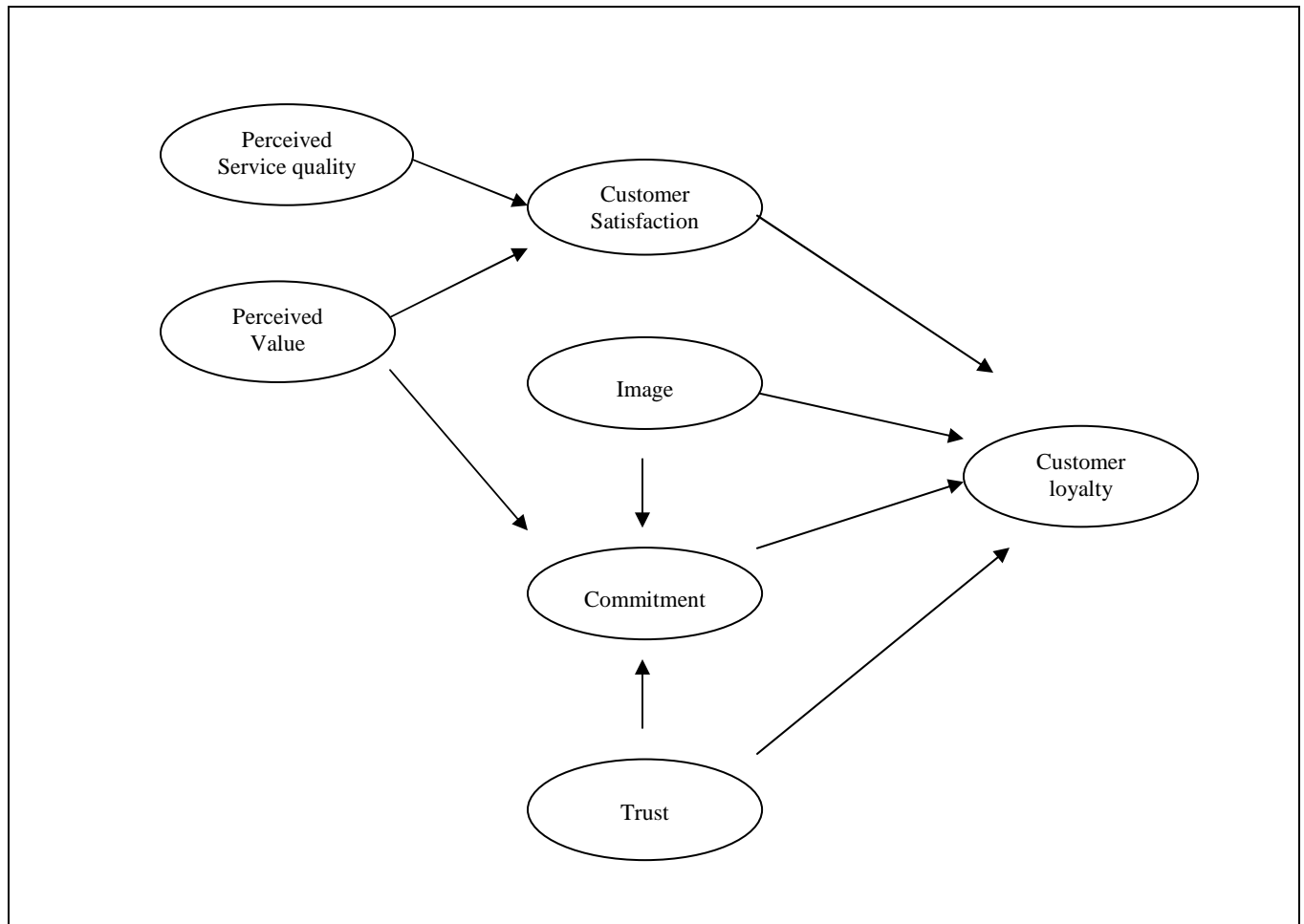


FIG. 1: RESEARCH FRAMEWORK

## Methodology

A total of 120 respondents from four branches of a bank in South Thailand was randomly selected for the survey. The responses collected were 102 questionnaires representing 85 percent response rate. Each variable is measured using 7-point Likert-scale: perceived service quality measure was adopted from Gouneris et al., (2003) and Arasli et al., (2005)-(13 items), perceived value was adopted from Roig et al., (2006)- (11 items), trust was adopted from Ball et al., (2004)-(5 items), image was adopted from Yavas and Shemwell, (1996) and Flavian et al., (2004)- (15 items), customer satisfaction was adopted from Patterson and Spreng (1997); Bloemer et al., (1998); Caruana (2002) and two self-developed items-(total 7 items) and commitment was adopted from Luarn and Lin (2003) and Hunt et al., (1985) (6 items). The data collected was analyzed using SPSS software mainly utilizing factor analysis, descriptive statistics and reliability test. The cronbach alpha readings of all measures are presented in Table 1. All alpha readings are above .70 indicating a high internal consistency in all measures utilized.

TABLE 1: RELIABILITY COEFFICIENT

Variable Name	N	No. of Items	Alpha Coefficient
Customer satisfaction	102	7	.891
Image	102	15	.960
Perceived Value	102	11	.832
Perceived service quality	102	13	.957
Trust	102	5	.920
Commitments	102	6	.836
Customer loyalty	102	9	.932

## Findings

An exploratory factor analysis using principal component extraction method with varimax rotation was applied in the first instance to test for sample adequacy in running this method of analysis. The KMO or Measure of Sampling Adequacy (MSA) reading is .889 (>.5) and Bartlett's test of sphericity stands at significant level of .000 (sig<.05), thus making the following factor analysis permissible (Hair.et al.2006). Next, a confirmatory factor analysis (CFA) using maximum likelihood extraction method with oblimin rotation method was duly conducted. The KMO has increased to .922 and Bartlett's test of sphericity shows a significantly high reading (sig at .000). Table 2 illustrates the result of the confirmatory factor analysis. The final results produced 6 components with eigenvalues above 1 and explaining a total of 70.412 percent of variance cumulatively. Factor 1 which represents perceived service quality contains 10 items remaining from 13 items proposed originally. Factor loadings above .50 were selected and it explains 29.609 percent of variance in factor one. Factor two which is perceived value now consists of two items reduced from 11 items initially. Only one item of the original perceive value with factor loading above .5 was retrieved and one image item was regroup in this component. There was a mixed regrouping of the customer satisfaction and image items. However, 8 items with factor loadings above .5 were secured in this group of component. Customer satisfaction measure indicates a 3.969 percent variance. The fourth factor produced by the CFA is commitment consisting two items with factor loading above .5 and percentage of variance explained is 3.042. Trust forms the fifth factor consisting of 3 items with factor loadings readings above .5 and percentage of variance of 2.929. The sixth component is image which consists of 3 items with factor loadings of above .5 and percentage of variance is 1.936. To conclude, the CFA conducted indicates that all six factors are likely constructs of each measure. The internal consistency of each construct are somewhat substantiated.

TABLE 2: FACTOR ANALYSIS RESULT

Factor/Variance explained	Label	Attributes	Factor Loadings
Factor 1 Perceived service Quality  Variance 29.609 %	Psq9	1.If there is a problem, the bank is willing to discuss it with me.	.789
	Psq8	2.The bank offers a wide variety of product.	.701
	Psq10	3.You do not have to visit your bank many times to solve a particular problem.	.700
	Psq13	4.You receive prompt service from the bank's employees.	.667
	Psq01	5.This bank's reception desk employees are neat in appearance.	.661
	Psq02	6.The employees of this bank understand your specific needs.	.650
	Psq06	7.This bank has employees who give you personal attention.	.645
	Psq07	8.Employees of the bank are well dressed and appear neat.	.641
	Psq03	9. This bank physical facilities are visually appealing.	.617
	Psq05	10. This bank performs the service right at the first time.	.574
Factor 2 Perceived Value  Variance 28.926%	Pv5	1. The service as a whole is good?	.514
	I14	2. The bank and its employees explain their services and fees clearly and completely.	.506
Factor 3 Customer satisfaction Variance 3.969%	I04	1. I believe that the reputation of this bank or savings bank is better than that of the rest of the companies.	.852

		2. This bank or savings bank has a good reputation.	
	IO3	3. I am very satisfied with my decision to deal with this bank.	.763
	Cs01	4. The bank and its employees are trustworthy.	.737
	I05	5.I am very satisfied with the Bank services provided.	.717
	Cs02	6. Security in transactions.	.648
	I01	7. Provides a comfortable environment to do business.	.637
	I07	8. I believe that this bank does what it promises for its clients.	.555
	I02		.537
Commitment Variance 3.042%	Co2	1. I am very satisfied with the bank services provided.	-1.007
	Co1	2.I am very satisfied with my Decision to deal with this bank.	-.578
Trust Variance 2.929%	T04	1. The bank will keep my own account secretly confidentially.	.777
	T05	2. The bank will not let other people know my account balance.	.741
	T03	3. The bank will not inform my cash flow account to other people.	.727
Image Variance 2.929%	I09	1. Offers convenient branch locations.	.640
	I08	2.Pays high interest rates	.619
	I12	3. Does a lot of advertising.	.522



Extraction Method: Maximum Likelihood.

Rotation Method: Oblimin with Kaiser Normalization.

Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy .922, Bartlett's test of Sphericity: Chi-Square= 3759.672, df = 946, Sig= .000.

## Discussion

The objective of this research is to determine and validate the antecedent factor constructs of customer loyalty. Six factors were subjected to confirmatory factor analysis shows a promising result of internal consistency. The CFA include all the six factors as possible antecedents of customer loyalty. Bearing in mind that the measurements has been usually applied in a western culture, the construct validity gives some indications of its applicability in an Eastern culture such as Thailand in general and banking in specific.

## Contribution and Recommendation for Future Research

The findings could be applied for utilization in research regarding customer loyalty for the banking sector in other Asian countries. Furthermore, the analysis of this study could be extended to the confirmatory factor analysis using structural equation modeling (SEM).

## Conclusion

This study has achieved its objective in determining and validating the internal consistency of six constructs or the antecedents of customer loyalty in the banking sector. The six factors in sequence of importance are perceived service quality (10 items), perceived value (2 items), customer satisfaction (8 items), commitment (2 items), trust (3 items) and image (3 items).

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## Preventive Measures of Transactions Data in Internet e-Banking

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### Abstract

This paper examines preventive measures of transactions data and consumer concerns about individual privacy associated with Internet e-banking services. The empirical results indicate that the minimization of transactions error, the control of unauthorized use of customer data, the restriction of offensive access, and the maintenance of transactions data are critical to the enhancement of perceived privacy of Internet e-banking services. The commercial banks and financial institutions are suggested to implement rigorous administrative procedures and measures to protect customer transactions data. The present findings have implications for formulating security policies and managing trusted Internet e-banking services in different contexts.

### Introduction

As one of the popular e-commerce activities, the Internet-enabled e-banking provides an effective electronic channel for delivering banking and financial services and enables individuals to access their bank accounts anytime and anywhere. However, the spread of e-commerce increasingly raises a great concern about the protection of individual privacy (e.g. Eileen 2000; Dhillon and Moores 2001; Liao and Cheung 2002). For instance, many consumers feel that they lost controls over how personal information is being used and circulated among different companies (Eileen, 2000). The provision of personal data and the subsequent misuse without permission raise privacy concerns (Dhillon and Moores, 2001). In the case of Internet e-banking service, consumers are usually not aware of the administrative procedures and privacy policies implemented by the service providers, while the access of the Internet banking requires the submission of personal and sensitive data. Perceived privacy is a key factor influencing user acceptance of Internet e-banking (Liao and Cheung, 2002). Therefore, it is strategically critical for Internet e-banking service providers to understand the individual concerns about perceived privacy and formulate a series of preventive measures from the consumer perspective. As far as this is concerned, this paper aims to explore the determinants and preventive measures of perceived privacy of Internet banking service. A survey has been conducted to collect empirical data from individual consumers. In particular, it examines the impact of several prevent measures on perceived privacy and consumer acceptance of the Internet banking. Furthermore, it discusses the strategic measures for securing consumer privacy associated with Internet banking service.

### Background and Hypotheses

Information privacy can be defined as a condition of limited access to identifiable information about individuals (Smith 1993). Numerous studies have examined the protection of privacy in different contexts (e.g. Culnan 1993; Milberg, Burke, Smith and Kallman 1995; Dutta and McCrohan 2002; Fulkerson, Gonsoulin and Dianne 2002; Liao and Cheung 2002; Smith, Milberg and Sandra 1996). Smith, Milberg and Burke (1996) suggests four dimensions of individuals concerns about organizational practices in managing information privacy, which include collection, unauthorized secondary use, improper access, and errors. In the e-business environment, for instance, consumers might worry about the release of personal data collected by different companies. Therefore, protecting the privacy of consumers on the Internet is a critical issue (Udo 2001). If the firm's practice raises privacy concerns resulting from the perception that personal data is unfairly used, this may make consumers be unwilling to disclose additional

personal information (Culnan and Armstrong 1999). Information privacy has an impact on business-to-consumer e-commerce (Belanger, Hiler and Smith 2002). On the basis of previous work, this study explores several variables possibly relate to perceived privacy in operational environments of Internet e-banking. The hypotheses proposed below will test the impacts of preventive measures in relation to personal data collection, data errors, unauthorized use of personal data, offensive access control, and data loss and their impacts on consumer perceived privacy, attitude and behavioral intention to use the Internet e-banking service.

Firstly, it is not uncommon that individuals might be concerned about extensive amounts of personally identifiable data collected by firms (Smith, Milberg and Burke 1996). Individuals would resent that a large amount of data regarding their personalities, background, and actions are being accumulated (Milberg, Smith and Burke 2000). According to Culnan and Armstrong (1999), individuals are less likely to perceive data collection procedures that invade individual's privacy if the data collected is relevant to the transaction. Eileen (2000) argues that the nature and amount of data collected from consumers should be limited to relevant data that is necessary. Similar to traditional banking and financial service, commercial banks need to request customers to provide personal data when opening an Internet bank account. In this circumstance, some customers may feel offended by the request of providing personal data. Therefore, Hypothesis 1 is proposed:

Hypothesis 1: The collection of customer personal data has a positive impact on perceived privacy.

Secondly, the protection against deliberate and accidental errors in personal data might be inadequate, because some firms are not able to eliminate errors in data processing (Smith, Milberg and Burke 1996). Many individuals believe that some organizations do not take enough steps to minimize problems from errors in personal data (Milberg, Smith and Burke 2000). As far as this is concerned, it is practically difficult to completely eliminate deliberate and accidental errors in business transactions. The assurance of data correctness and data integrity remains an important issue (Fulkerson, Gonsoulin and Dianne 2002). The concern about transaction errors in banking environment may considerably affect individual perceptions of privacy. Therefore, Hypothesis 2 is proposed:

Hypothesis 2: The minimization of transactions errors has a positive impact on perceived privacy.

Thirdly, data collected from individuals might be circulated internally within an organization, or used for another purpose, or disclosed to an external party without authorization from individuals (Smith, Milberg and Burke 1996). Because computerized information is easily duplicated and shared, there is a risk that information provided for one purpose may be reused for unrelated purposes without authorization from individual (Culnan and Armstrong 1999). The sale of current or prospective customer names, addresses, phone numbers, purchase histories, categorizations are not uncommon, while the information is often transferred between the organizational entities as digital files (Milberg, Smith and Burke 2000). The data collected from individuals can be used for unusual purposes without permission. Even within a company, for example, the data collected for research purpose may be used for marketing promotions (Cespedes and Smith 1993). For instance, the data collected from loan applications may be used to classify customers into different categories for different service promotion. In terms of unauthorized use of personal data, it may include secondary use of customer data and share of customer contacts with other firms (Culnan 1993; Smith, Milberg and Burke 1996). Therefore, Hypothesis 3 is proposed.

Hypothesis 3: The control of unauthorized use of personal data has a positive impact on perceived privacy.

Improper access refers to the concern that data about individuals are readily available to people not properly authorized to view or work with the data (Smith, Milberg and Burke 1996). How to effectively control unauthorized access is a critical administrative issue of an organization (Smith, Milberg and Burke 1996). An individual's privacy could be invaded, if unauthorized access to personal information occurred due to security breach or inappropriate internal controls (Culnan and Armstrong 1999). Because some who are not authorized may be able to view or work with a particular data, the offensive access to individuals account is especially sensitive in e-banking environment. Therefore, Hypothesis 4 is proposed:

Hypothesis 4: The restriction of offensive access has a positive impact on perceived privacy.

Furthermore, the storage and data maintenance of individual data remains an important task especially for bank operations management. Customer data and transactions records may be lost while it is processed. They might also be accidentally erased in a database. If an individual assumed that there would be a loss of personal data when

using an information system, little privacy of the application would be perceived (Fulkerson, Gonsoulin and Dianne 2002). Therefore, Hypothesis 5 is proposed.

Hypothesis 5: The maintenance of transactions data has a positive impact on perceived privacy.

## Research Methods

The research methods of this study include survey and statistical data analysis. The questionnaire was designed to elucidate consumer concerns about privacy and individual attitude and behavior intention to use Internet banking service. In order to ensure content validity of the scales adopted, the items within the questionnaire were developed with reference to the existing literatures. Questionnaires were randomly distributed to individual consumers. The respondents were asked to indicate whether they have experience on the use of Internet banking. Individuals were requested to rate their perceptions in relation to a particular item based on the seven-point Likert-scale ranging from 1 to 7. The survey questions were coded such that a higher value indicates a greater perceived importance. They were also requested to provide demographic data such as gender, education, income and occupation. As a result, two hundred and twenty useful responses were received. The Statistical Package for Social Science (SPSS) was used to analyze the data collected and explore the major concerns in relation to perceived privacy of e-banking services. The regression model below includes the endogenous variable  $y_1$ : perceived privacy and the exogenous variables ( $x_1$  to  $x_5$ ) in relation to the five hypotheses proposed in the previous section.

$$y_1 = a_1 + b_1x_1 + b_2 x_2 + b_3 x_3 + b_4 x_4 + b_5 x_5 + \epsilon_1$$

Where,  $y_1$  Perceived privacy of e-banking

$x_1$  Collection of personal data

$x_2$  Minimization of transactions errors

$x_3$  Control of unauthorized use of personal data

$x_4$  Restriction of offensive access

$x_5$  Maintenance of transactions data

$\epsilon_1$  error term

## Results and Managerial Implications

As shown in TABLE 1, the result of the multiple regression analysis indicates that the research model is significant, because several exogenous variables have significant impacts on the endogenous variable ( $F = 28.057$ ,  $d.f. = 5,214$ ,  $Sig. < 0.001$ ,  $Adjusted R^2 = .382$ ). It also suggests that H2, H3, H4 and H5 are strongly supported, though H1 receives limited support. In other words, the minimization of transactions errors, the control of unauthorized use of personal data, the restriction of offensive access and the elimination of transactions data significantly determine the perceived privacy of Internet banking.

TABLE 1: RESULT OF REGRESSION ANALYSIS

	Standardized Coefficients $\beta$	$t$	$Sig.$
(Constant)		4.518	.000
$x_1$	.035	.636	.525
$x_2$	.166	2.566	.011
$x_3$	.231	3.363	.001
$x_4$	.138	2.000	.047
$x_5$	.259	3.689	.000

It has been found that consumers usually understand that they need to provide necessary personal data when opening an account in a financial institution. Therefore, the collection of consumer data has limited impact on

perceived privacy in the case of Internet banking. The banks have little problem on collecting the personal data of a customer when opening a bank account. However, it is desirable that the banks are able to identify any data problems and transaction errors and make prompt corrections during data processing. In addition, the elimination of unauthorized use of customer personal data is critical to the protection of customer privacy. It is not uncommon that some banks might intensively analyze the personal data of customers in order to appreciate customer preferences. The data mining might help customer relationship management. Although the banks usually have particular administrative procedures and regulations for data analysis, consumers are still concerned about the use of personal data. As far as this is concerned, the banks should ask the customers whether they are allowed to use the information for future service promotions.

In order to effectively protect the privacy of customers, commercial banks should strictly restrict offensive access to Internet e-banking systems. A consistent investment in the most advanced security technology is critical because it can enable the banks to immediately identify any unusual attempt to access an e-banking account and to restrict different offensive attacks to the banking information systems. The implementation of a series of rigorous security measures such as the identification of unauthorized access, the control of transactions, and the protection of confidentiality are essential to assure the continuity of e-banking service. The elimination of security risk is essential for enhancing individual confidence. In order to protect financial transactions and look after the assets of customers, the banks should continuously strengthen information systems management and implement the latest security technologies.

Commercial banks should also pay attention to consumer education in relation to the operations of Internet e-banking systems and the use of e-banking service. Consumers might be not aware of the security procedures and technologies actually adopted by the banks, although the banks had implemented the advanced technologies to secure Internet operations. Some worry about uncertainties of Internet e-banking in terms of disclosure of private data and release of transactions information. As far as this is concerned, commercial banks should consistently tell the consumers about security measures and privacy policies when promoting the use of the e-banking and financial service. Customers should also be regularly informed of how to update anti-virus software, change passwords and not to respond to any suspicious e-mail messages.

The empirical results show that the consumers are concerned about the possible loss of transactions data, because the actual transactions through e-banking systems are beyond their control. The banks must be responsible for maintaining all transactions records. The effective elimination of data loss should greatly enhance the customer confidence in e-banking services. The empirical findings suggest that it is necessary to effectively minimize transactional errors, eliminate unauthorized use of personal data, prevent any offensive access, and maintain the transactions records of the customers. Preventive measures should help enhance the perceived level of privacy protection. In order to encourage more consumers to use e-banking, banks must consistently formulate privacy policy and implement a series of security measures to manage e-banking service operations.

## **Concluding Remarks**

This study empirically explores several preventive measures in relation to the protection of privacy from consumer perspective. The results indicate that preventive measures in relation to the control of transactional errors, unauthorized use of personal data, offensive access and transactions data are vital to the enhancement of perceived privacy, which also significantly affect individual attitude and behavioral intention to use e-banking. As a matter of fact, the understanding of consumer concerns and expectations is especially important in the service industry. The findings have managerial implications for improving the existing e-banking systems and managing sustainable e-banking service. Accordingly, the commercial banks and financial institutions should implement a series of consistent administrative policies in order to protect privacy and enhance consumer confidence in e-banking services. Practically, there are various variables associated with the protection of individual privacy in different social and cultural environments. The present study can be extended to explore the determinants of trusted e-banking in different contexts.

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# **Insurance Business in Japan from Corporate Value Perspective**

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## **Abstract**

The corporate value of insurance business should be evaluated from two standpoints, the corporate value creation by underwriting and that by investment. In this report, the minimum requisite capital, which was paradoxically determined based on the ROE when EVA -based stockholder value was zero, was used in various analyses. The corporate value creation by underwriting has a close correlation with underwriting income, but no such close correlation with increase ratio and loss ratio. In the comparison between the theoretical values and actual values of liability reserves, it was revealed that the decrease in the theoretical values was larger than that in the actual values. On the other hand, the corporate value creation by investment strategy has a negative correlation with the ratio of securities for assets. This shows that the return generated when an insurance business entity bears a high finance market risk will not confer benefits on stockholders regarding their value creation.

## **Introduction**

Amid increasing demand for shareholder-oriented management in recent years, the words such as corporate value and business value have been often used. In the corporate and business values, a focus is put on how much cash flow will be produced by the present main business (business and investment/loan) and other businesses. Then, can the corporate value of the insurance business be measured by the same scale? This study was performed basically to clarify the ideal corporate value of the insurance business.

## **Evaluation Markers of Corporate Value**

### **Types of Evaluation Markers**

Corporate value evaluation is a relatively new concept in business management, and various approaches and ideas are now being produced. The followings are major evaluation markers.



Abbreviation	Marker	Details
PER	Price Earnings Ratio	Share price ÷ Earnings per share
PBR	Price Book-value Ratio	Share price ÷ Net assets per share
EPS	Earnings Per Share	Current income ÷ Number of shares authorized
ROE	Return On Equity	Current income ÷ Shareholders' equity
ROA	Return On Assets	Current profits before deduction of interest ÷ Net assets
TRS	Total Returns to Shareholders	Return of shareholders during a certain period (increase of share price and dividend)
DCF Model	Discounted Cash Flow Model	Corporate value is determined by adding the value of investment/loan to the business value determined based on forecasted cash flow.
EVA	Economic Value Added	After-tax operating income - Capital cost (Capital cost is considered to be weighted average of the cost of shareholders' equity and the cost of interest-bearing liabilities.)
MVA	Market Value Added	Total of present value of forecasted EVA value
REVA	Refined Economic Value Added (Refined EVA)	A refined type of EVA in which actual value is used as the cost of shareholders' equity

FIG 1: TYPES OF CORPORATE VALUE EVALUATION MARKER

#### Reasons why we put a Focus on EVA

Although many Japanese companies set ROE as their management goal, there are many problems including the risk of unstable equilibrium in corporate management since ROE is a ratio-based marker<sup>1</sup>. On the other hand, EVA has the following advantages.

##### (1) A marker involving risks

For analysis on the insurance business, a marker involving risks is required. Different from ROE, EVA includes risks because the capital cost determined taking risks into consideration is deducted.

##### (2) A marker that enables cumulative evaluation as an absolute value

Since EVA is a marker for absolute values, cumulative calculation can be performed. This is a feature that cannot be observed in ROE and other markers. For example, when EVA were 10 billion yen, ▲3 billion yen, and 8 billion yen in past three years, respectively, the cumulative value of EVA will be 15 billion yen (10 billion - 3 billion + 8 billion yen). For businesses with long tail like the insurance business, cumulative calculation of management markers is essential.

##### (3) A marker with a concept of economic profit

The economic profit is determined by deducting capital cost from current income of a company. This is distinguished from accounting profit.

Capital cost is the return expected to be obtained when investment is made for a company with similar risks, in other words, the opportunity cost. When a surplus is lower than capital cost, it cannot be said that the company produced economic profits. When determining capital cost, not only dividend but retained earnings should be taken into account. Since the retained earnings are generally paid after distribution of dividends, it is considered that the cost will be zero, and the earnings can be freely used by the company, but this is incorrect. Actually, the profits produced by a company should be returned to shareholders, in addition to the retained earnings. Thus, retained earnings are the profits that are not distributed as dividends and are stocked in a company when shareholders agree with reinvestment of the profits. In this meaning, retained earnings are same with the capital or capital reserves that are paid by shareholders.

It is also inappropriate that only dividends are considered to be the costs for shareholders. Investors expect not only dividends but also capital gain by increase of share values as their return. Since investors make

investment, expecting minimum return on investment by both dividends and increase of share values, corporate executives should consider these as the costs for shareholders.

(4) A simple and clear marker

EVA is a simple and clear marker. EVA higher than zero means that shareholder values are created, while EVA lower than zero means decrease of shareholder values.

Since first introduction of EVA by US companies in early 1990s, EVA has been widely used by academic conferences, security analysts, investors, etc. In recent years, many Japanese companies are interested in EVA<sup>2</sup>.

## Value Creation in Insurance Business

Insurance business is a business category with a unique feature in which underwriting and finance are intricately intertwined with each other. Therefore, the corporate value should be evaluated from two standpoints, the corporate value creation by underwriting and that by investment.

### Share price and EVA, Share price and MVA<sup>3</sup>

Firstly, correlation between share price and EVA/MVA in the insurance business was investigated.

Figure 2 shows changes in share price and EVA during a period from FY1996 to FY2004. Figure 3 shows the correlation between share price and EVA (horizontal axis and longitudinal axis show accounting periods and Pearson's product-moment correlation coefficient, respectively).

The disordered correlation observed in FY2002 or later was caused by the EVA decreased due to decreased current income, which was caused by the fact that the reverse for extraordinary casualties were transferred due to successive large-scale typhoons in FY2004. The correlation coefficient when excluding FY2004 (sum total from FY1996 to FY2003) was 0.58, showing a relatively high correlation.

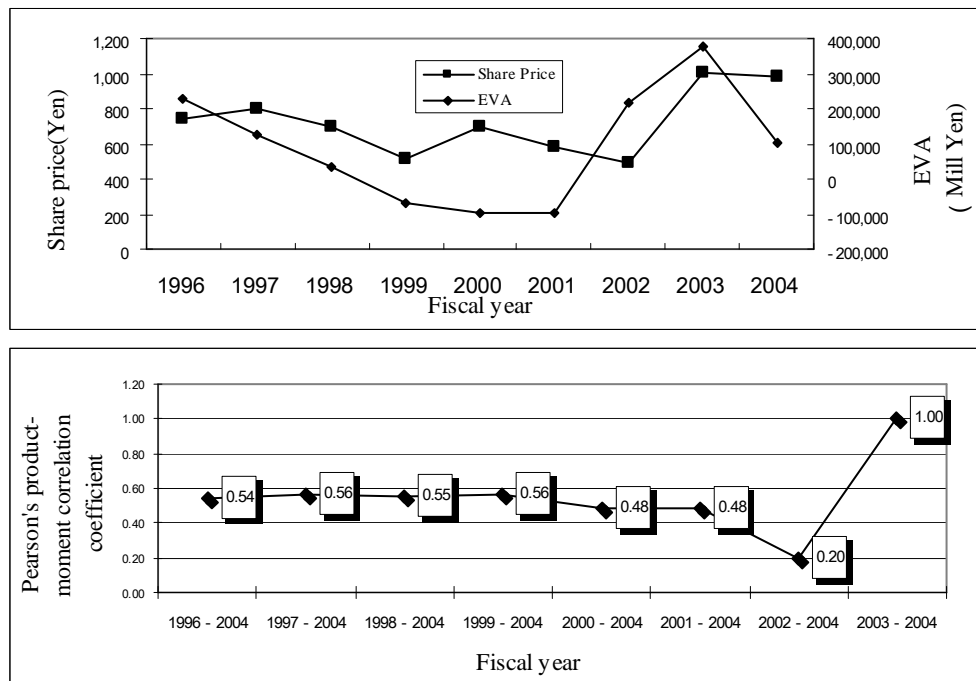


FIG3: CORRELATION BETWEEN SHARE PRICE AND EVA

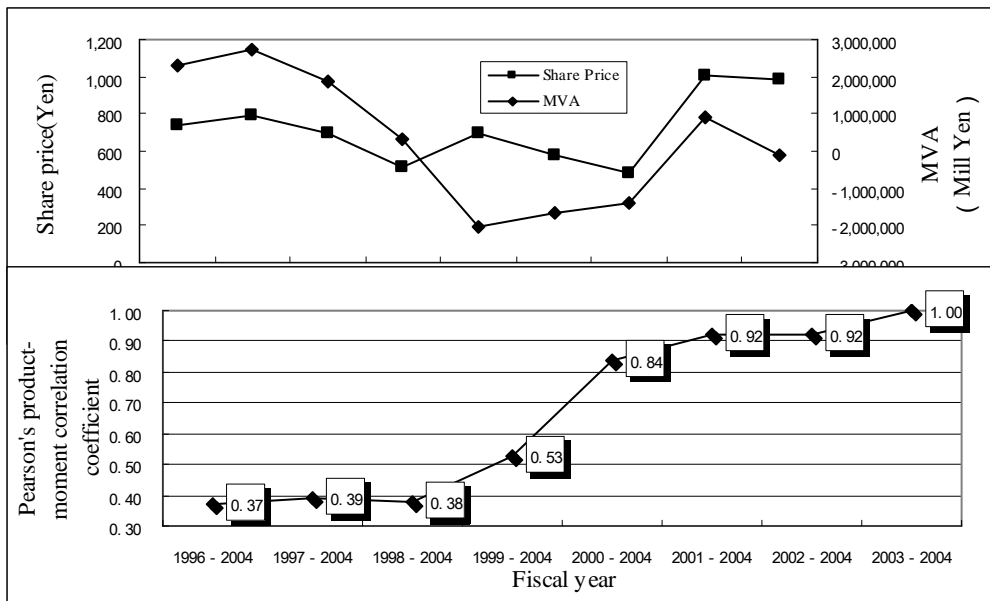
Figure 4 shows changes in share price and MVA during a period from FY1996 to FY2004. Figure 5 shows correlation between share price and MVA (horizontal axis and longitudinal axis show accounting periods and

Pearson's product-moment correlation coefficient, respectively).

Since FY1996, the correlation between share price and MVA has become higher year by year. This is supposed to be caused by corporate efforts of the insurance business to increase the shareholder value.

From FY2000 to FY2002, decrease of MVA was observed. Since MVA is expressed as the difference between total market price of shares and shareholders' equity, MVA is decreased by increase of shareholders' equity. In FY2002, many companies decreased shareholders' equity by payback because ROE was required to be improved for investors. To inhibit decrease of MVA due to falling share price, decrease of shareholders' equity is effective.

Because of increase in share price in FY2003 and later, shareholders' equity was increased, contributing increase of MVA. This shows the original mechanism in which increase of shareholders' equity works as a factor for increase of share price.



\* FIG. 2 - 5 were prepared by the author based on "earning statement" and "balance sheet" of individual insurance companies, "Insurance -Non-life Insurance Statistics-," and "IIC Partners' yields of government bonds."

**Value Creation by Underwriting**

To correctly observe the actual situation in the insurance business, minimum requisite capital, which is determined paradoxically based on target ROE with zero (0) of EVA, is used instead of economic capital<sup>4</sup>.

Value creation by underwriting may be examined by confirming correlation between total market share price and representative markers of insurance business, such as economic underwriting income<sup>5</sup>, increase ratio, loss ratio, and liability reserves.

(1) Economic insurance income and increase ratio

Figures 6 and 7 show changes and correlation of “total current share price/minimum requisite capital” and “economic underwriting income/minimum requisite capital,” respectively. Figures 8 and 9 show changes and correlation of “total current share price/minimum requisite capital” and “increase ratio,” respectively.

Extremely high correlation was observed between “total current share price/minimum requisite capital” and “economic underwriting income/minimum requisite capital” in any fiscal year, while no such high correlation was confirmed between “total current share price/minimum requisite capital” and “increase ratio.” This means that investors tend to put a focus on profitability rather than growth potential represented by “increase ratio.”

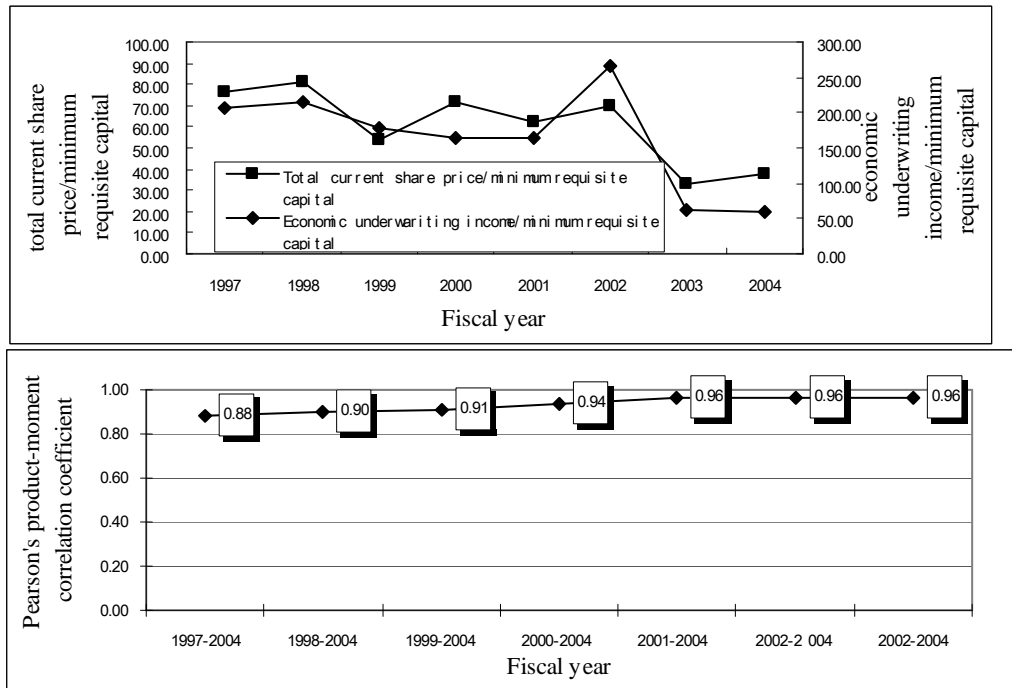


FIG.7: CORRELATION BETWEEN “TOTAL CURRENT SHARE PRICE/MINIMUM REQUISITE CAPITAL” AND “ECONOMIC UNDERWRITING INCOME/MINIMUM REQUISITE CAPITAL”

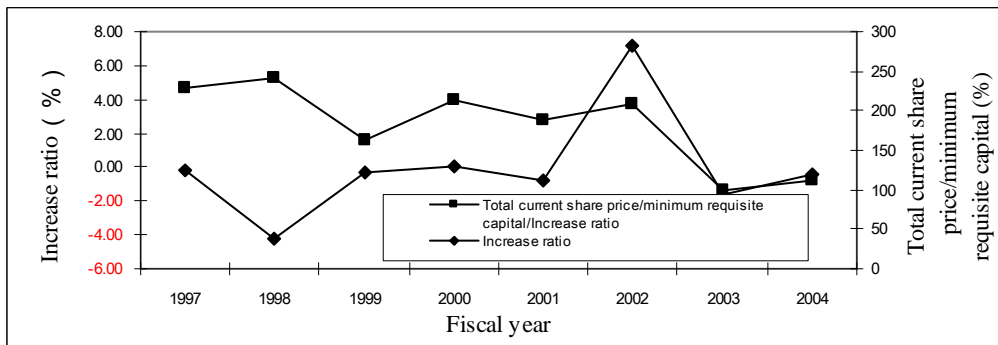
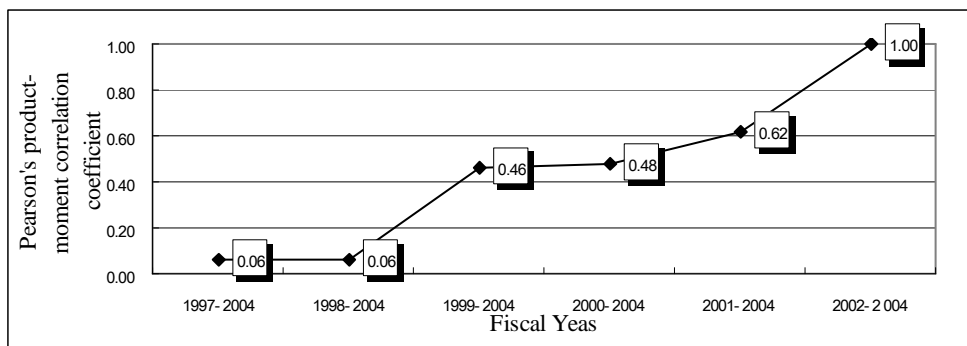


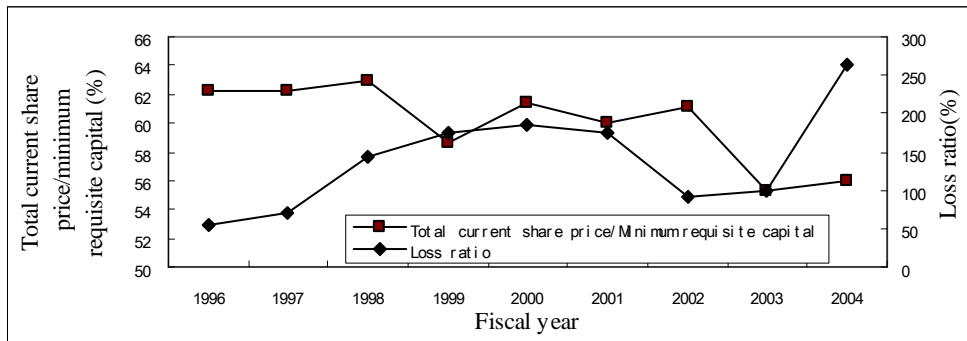
FIG.8: CHANGES IN “TOTAL CURRENT SHARE PRICE/MINIMUM REQUISITE CAPITAL” AND “INCREASE RATIO”

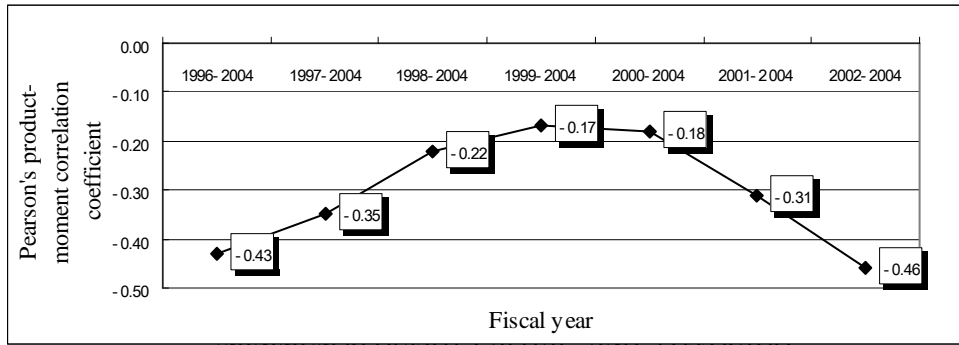


(2) Loss ratio

Figures 10 and 11 show changes and correlation of “total current share price/minimum requisite capital” and “loss ratio.”

It was revealed that such correlation was not so high, although decrease of “loss ratio” may have an impact on the shareholder value. The impact of changes in “loss ratio” on total current share price is limited, and that on entire capital cost is small. When paradoxically considered, it can be said that no large impact is placed on total current share price even at the expense of underwriting in the insurance business. However, this may lead to the possibility that underwriting is considered less serious.

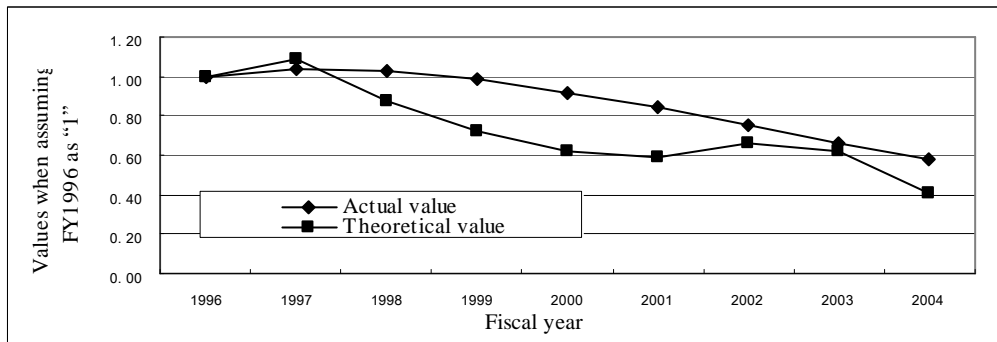




(3) Liability reserves

Figure 12 shows comparison of the current values in FY1996, which were determined by dividing actual value and theoretical value of liability reserves by individual risk-free rates (ten-year yields of government bonds). Theoretical value means the difference between premium paid-in and claim paid in the relevant fiscal year.

In recent years in the insurance business, minimum requisite capital has been rapidly increased, while liability reserves have been decreased year by year<sup>6</sup>. An especially problematic fact is that theoretical value of liability reserves has been decreased drastically since FY1996, compared with actual value.



(4) Total current share price and economic underwriting income

Figures 13 and 14 show changes and correlation of total current share price and economic underwriting income, respectively, showing almost no correlation. This means that absolute value of total current share price has no relationship with economic underwriting income.

In general, share price performance is affected by the scale of an issuing organization, but this is not observed in the insurance business. This means that the economy determined by the scale of an issuing organization in the financial market may not be applied to the insurance business.

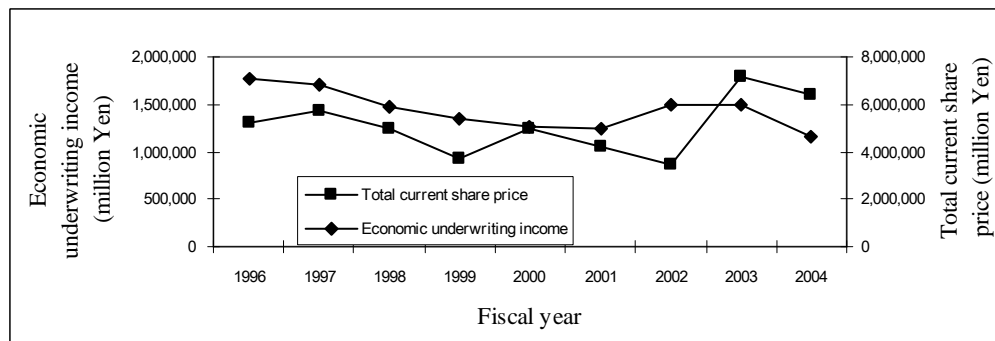


FIG.13: CHANGES IN TOTAL CURRENT SHARE PRICE AND ECONOMIC UNDERWRITING INCOME

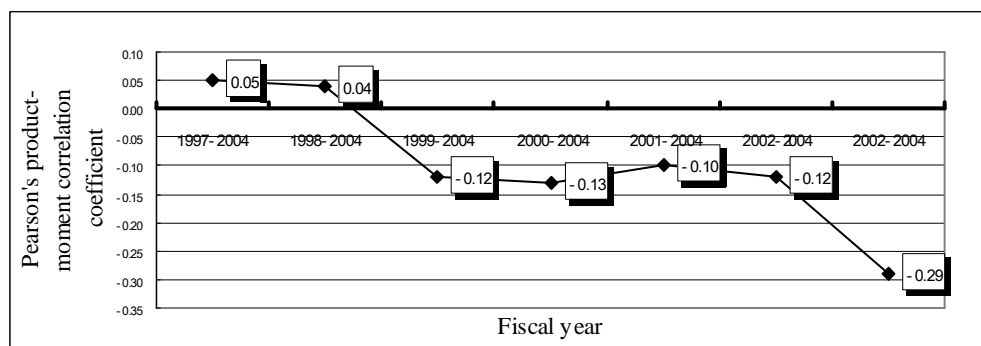


FIG.14: CORRELATION BETWEEN TOTAL CURRENT SHARE PRICE AND ECONOMIC UNDERWRITING INCOME

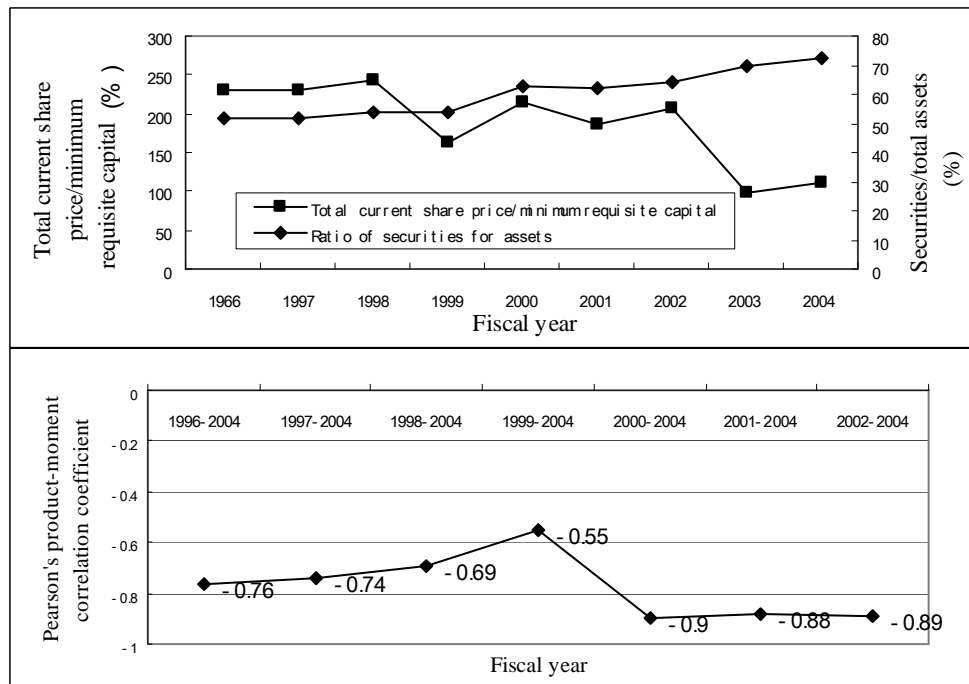
\* Figures 6 - 14 were prepared by the author based on "earning statement" and "balance sheet" of individual insurance companies, "Insurance -Non-life Insurance Statistics-," and "IIC Partners' yields of government bonds."

### Value Creation by Investment

#### (1) Risk taking of the insurance business in the financial market

Figures 15 and 16 show changes and correlation of "total current share price/minimum requisite capital" and "ratio of securities for total assets" in the insurance business during a period from FY1996 to FY2004, respectively. In the insurance business, the "ratio of securities for total assets" has been increasing in recent years, and this has negative correlation with "total current share price/minimum requisite capital." The return generated when an insurance company takes high risk in the financial market will not create the value for shareholders. However, evaluation on share price is not always decreased when investment risks are taken. It can be expected that high investment income and ROE are ensured by investment strategy with high risk. However, since there are various limitations such as solvency and requests from the rating organization in the insurance business, the investment risks cannot be covered by underwriting income.

In addition, the impact of asset scale on the value for shareholders is small in the insurance business<sup>7</sup>. Discussion should be made on the risk in the total assets, not the scale of total assets, and whether an insurance company has shareholders' equity for the risks. In other words, the assets with high risk should be reduced.



\* Figures 15 - 16 were prepared by the author based on “earning statement” and “balance sheet” of individual insurance companies, “Insurance -Non-life Insurance Statistics-,” and “IIC Partners’ yields of government bonds.”

## Characteristics of Capital Cost in Insurance Business

### Insurance Underwriting Risk and Financial Market Risk

In all business entities, capital cost is related to the quantity and quality of the risk to be taken by the companies. The business activity of insurance business includes insurance underwriting contracts and investment in the capital market, and the capital is related to both insurance underwriting risk and financial market risk. Therefore, for evaluation on the capital cost of insurance business, insurance underwriting risk and financial market risk should be examined separately.

In such examination, liability reserves should be discussed. In calculation of minimum requisite capital based on EVA, liabilities were appropriately adjusted in accordance with the actual situation in the insurance business. In the adjustment, the reserves for extraordinary casualties were included in the shareholders’ equity because the reserves for extraordinary casualties are considered to be pseudo shareholders’ equity as the reserves can be accounted for debts for a long period with no interests<sup>8</sup>.

On the other hand, from a standpoint of Basel II, ordinary liability reserves are considered to be the costs to cover average loss, while the reserves for extraordinary casualties are considered to be the risk to cover the difference from average loss. In other words, ordinary liability reserves are the cost in which loss is forecasted in advance (EL: Expected Loss) and the reserves for extraordinary casualties are the resource to cover the risk of unexpected loss (UL: Unexpected Loss)<sup>9</sup>.

### Problems Regarding Liability Reserves

The insurance business can obtain benefits through investment of liability reserves. This means that the insurance business has resource for reinvestment in the capital market. Thus, the investment risk of the insurance business at the capital market is affected by leverage effect of insurance underwriting risk.

In addition, B/S in the insurance business includes the items such as reinsurance with no liquid market, in addition to liability reserves. Many of financial assets in the insurance business are non-liquid financial assets. When



the financial assets are liquid, the market price can be considered as the economic value, but this is not applied to the insurance business.

In addition, capital investment in the insurance business has greater tax-related demerits and agency costs<sup>10</sup> than direct investment by investors. Therefore, the net cost of liability reserves is determined by taking investment income from capital cost.

**Problems Regarding Additional Capital**

When new capital is added in line with increase of foreign investors, the funding costs, such as commission cost and communication cost are generated.

(1) Commission cost

When new shares are issued, commission fee must be paid for the additional capital to investment bank.

(2) Communication cost

Communication cost is required for communication with new investors, including disclosure of present situations and past achievements in the capital market upon the issue of new shares. When appropriate information is not disclosed, the shares of existing shareholders will be diluted.

IR activity is well known as a method to decrease communication costs. Although IR activity does not contribute to benefits in P/L directly, the activity can decrease capital costs when performed effectively. The role of IR is to absorb the shock at market, and provide investors with timely information. When the shock of market can be absorbed, changes in share price (volatility) will become small, resulting in decrease in capital costs.

**Limit of Shareholders' Capital Cost Rate**

In this report, "target ROE (%)," which is determined subjectively by business managers themselves as shareholders' capital cost rate, was used. This is because the use of popular CAPM (Capital Asset Pricing Model) is not realistic, since expected return on investment is determined based only on statistics of shares of shareholders.

In addition, it is known that allocation for individual insurance types cannot be performed and beta values are unstable in using CAPM<sup>11</sup>.

**Existence of Frictional Costs**

As mentioned above, the insurance business takes insurance underwriting risks in addition to financial market risks, and thus additional costs named frictional costs are generated. Frictional costs are the opportunity costs which shareholders receive when they invest through insurance business, not direct investment at the financial market. The following three costs are the frictional costs in the insurance business.

Type of frictional cost	Promotion factors
(1) Financial cost	Franchise values, capital adequacy
(2) Agency cost/uncertainty cost	Transparency, rumor, incentive
(3) Illiquidity cost (capital regulation, capital rating)	Regulation environment, rating environment (capital regulation)

FIG.17: FRICTIONAL COSTS IN INSURANCE BUSINESS (Reference: SWISS RE (2005) ,13.)

**Conclusion**

Insurance business is a business category with a unique feature in which underwriting and finance are intricately intertwined with each other. Therefore, the corporate value should be evaluated from two standpoints, the corporate value creation by underwriting and that by investment.

For analysis, the minimum requisite capital, which was paradoxically determined based on the ROE when EVA-based stockholder value was zero, was used. Regarding insurance underwriting strategy, correlation of total current share price with insurance underwriting benefits, increase rate of revenue, and rate of fractional damage was examined. As a result, it was revealed that insurance underwriting benefits had extremely close correlation in any fiscal year, while no such close correlation was confirmed with increase rate of revenue and rate of fractional damage. In addition, liability reserves have been decreasing year by year. When comparing theoretical values and actual values, it was revealed that decrease in theoretical values was greater than that of actual values. Although stock price performance is generally affected by the scale of issuing organizations, this is not confirmed in the insurance business.

Regarding investment strategy, negative correlation was confirmed between “total current share price/minimum requisite capital” and “securities/total asset.” The return generated when insurance business takes high finance market risks will not create the value for shareholders. This is because investment risks cannot be covered by insurance underwriting benefits in the insurance business due to various regulations such as solvency and requests from rating organizations.

From a viewpoint of investors, investment through insurance companies accompanies more tax-related demerits, agency costs, and frictional costs caused by uncertainty, compared to direct investment. On the other hand, business managers have various problems, for example, CAPM to be used for calculation of shareholders’ capital cost cannot be allocated for individual types of insurance, and it is difficult to take risks at financial/capital market for many illiquid assets due to capital regulations. This means that the insurance business has more limitation on corporate value creation than other general companies and financial institutions.

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## End Notes

<sup>1</sup>Iwase Y. (2006).Corporate Valuation based on EVA, *Journal of Insurance Science*, 594, 23.

<sup>2</sup>Many companies including Asahi Kasei, Kao, Coca-Cola, Kirin Brewery, and Sony use EVA. In addition, more than 50 companies including Kawasaki Steel, Sumitomo, Matsushita Electric Industrial, Mitsubishi, HOYA, and Orix use practically same management method to EVA.

<sup>3</sup>Iwase Y. (2004).An Analysis of Japanese Non-Life Insurance Business Based on EVA, *Journal of Insurance Science*, 587,163.

<sup>4</sup>Determined by taking current debt from current asset

<sup>5</sup>In “An Analysis of Japanese Non-Life Insurance Business Based on EVA” presented in *Journal of Insurance Science*, 587, I adjusted EVA in accordance with actual situations of the insurance business. Economic underwriting income is determined by taking asset management-related items from income and cost in the process of the adjustment. Pre-tax values were used because actual situations were supposed to be confirmed more correctly when frictional cost was counted out.

<sup>6</sup>Iwase Y. (2006).Corporate Valuation based on EVA, *Journal of Insurance Science*, 594,30.

<sup>7</sup>Iwase Y. (2006).Corporate Valuation based on EVA, *Journal of Insurance Science*, 594,32-33.

<sup>8</sup>Iwase Y. (2006).Corporate Valuation based on EVA, *Journal of Insurance Science*, 594,35.

<sup>9</sup>In Basel II, bad debt loss caused from credit portfolio of financial institutions is divided into EL (Expected Loss) and UL (Unexpected Loss). EL is considered to be average loss or the cost accompanied with loans, while UL is considered to be the difference from the average or the risk. The risk does not mean all of the loss, but the part of loss that shows unexpected changes. EL (cost) is imputed to interest rate on loans in the same way with funding cost and expenses. It is required for the loan department to control UL (risk) within the range of shareholders' equity, which is allocated in the frame of comprehensive risk management. (Miyachi A. (2004).Characteristics of new BIS proposed regulation and its impact on financial system, *Japan Bank Working Paper Series,Economic Seminar*, 598.2.)

<sup>10</sup>Iwase Y. (2006).Corporate Valuation based on EVA, *Journal of Insurance Science*, 594, 35-36.

<sup>11</sup>For insurance companies with item portfolio that is different from the average in the insurance business (for example, insurance companies that deal only with accident insurance), CAPM is not an appropriate calculation method of shareholders' capital costs, and beta values of all insurance companies are not always equal to the average of insurance business. Therefore, it is difficult to estimate entire insurance business using beta values that vary depending on individual insurance companies. (Swiss Re (2005).*Capital cost and creation of economic value in insurance companies,Theory and operational problems*, sigma 2005,Vol. 3.28.)

# International “Constraints” on the Life Insurance Markets and Risk Management for Life Insurance Companies

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## Abstract

The purpose of this paper is to analyze the linkage and common factors of the life insurance markets worldwide by using a concept called the “Face amount ratio” (hereinafter called the “FA ratio”).

The FA ratio is a very simple index which is obtained by dividing the personal insurance amount by the nominal GDP, but is one of the international “constraints”. In addition, the market structure in a country and the future expansion can be learned from structures of the other countries’ FA ratios in certain periods.

And the FA ratio is effective to notify us of unusual changes in the markets. Large deviation of this index means that the insurers’ strategy achieved an overly successful outcome, which implies a phase where the risk control is insufficient as seen in Japan and U.S.. FA ratios play an important role in managing or supervising the soundness of life insurance companies.

## Factors to determine the level of insurance amount

The life insurance markets have country-specific characteristics. For example, in the Japanese market, the life insurance amount (of personal insurance only) is four times as much as GDP; and in the U.S. market, the premium income from personal pension accounts for more than 60% of the total premium income. As with other goods and services, however, the purchase of life insurance (including personal pension) depends on the consumers’ expenditure preference based on their satisfaction, subject to a limitation of personal income. Therefore, the international life insurance markets are assumed to have common factors because of people’s common needs for risk aversion.

The differences of life insurance from other goods and services are the facts that: (1) life insurance is a regulated industry; and (2) that the suppliers’ action significantly influences the market formation. The regulations to ensure the soundness – such as entry of new competitors and product development – also restrict free competition. Survivorship insurance products (hereinafter called the “Security-oriented Products” and the market for the Security-oriented Products is referred to as the “Security-oriented Market”), which support the livelihood of surviving families if the head of household is dead, yield a relatively higher profit margin than other products without competition with other businesses. Therefore, the insurers have incentive to mainly sell the Security-oriented Products if such action is acceptable in the market. Since the sale of the Security-oriented Products requires highly functional sale channels that offer consulting and other services in order to bring out the potential needs, insurers do not easily change or abolish the products. Accordingly, the starting point of analyzing life insurance markets is the Security-oriented Market in which insurers’ action is reflected.

First of all, we look at the Security-oriented Market in key countries. To adjust the difference of economic scale, the international comparison is made with the MS ratio, which is obtained by dividing the insurance amount (of personal insurance only) by the nominal GDP, both of them denominated in each country’s currency. Figure 1 shows the MS ratios in bar graph (unit: times). Three values are shown for Japan approx. every 15 years and the latest available values are shown for other countries in order to clarify the time- and area differences. In Japan which has the highest MS ratios, the life insurance amount underwritten only by the private life insurance companies is 2.1 times as much as the nominal GDP in 2004; and it becomes 2.9 times when the amount by Japan Post and Japan Agricultural Cooperatives is included. In Thailand, on the contrary, the insurance amount is equivalent to 20% (one fifth) of the GDP. In the U.S. and U.K., countries most advanced in insurance, the insurance amount is almost same as the nominal GDP – that is, the MS ratio of about 1.

For international comparison of purchase ability, which is often needed for other goods and services, the lines of the GDP per capita (in U.S. dollars) are added to Figure 1. It is presumed that the insurance market expands in accordance with the increase in national income. This is the case in Asia, but negatively correlated in the U.S. and Europe, which suggests that there are factors other than the national income that have an effect on the MS ratio.

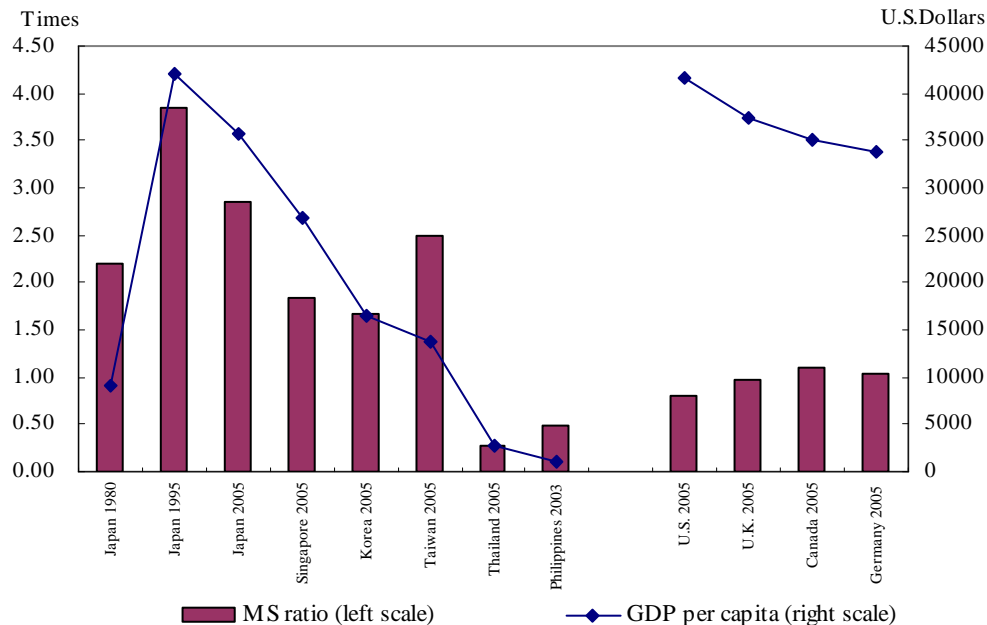


FIG.1: INTERNATIONAL COMPARISON OF MS RATIO

When we reconsider the needs for life insurance, the Security-oriented Products are intended for supporting the livelihood of surviving families in case the head of household is dead. The cost of living for surviving families depends on the income level at the particular time, which means that higher level of living requires greater amount of benefits. This is called the “Income Factor.” Also, in the countries where division of domestic roles is dominant – i.e. husbands earn income and their wives keep house, the higher insurance amount is required for their husbands’ death. In other words, the insurance amount is deemed to decrease if more women advance into society and enter the workforce. This is called the “Female Financial Independence Factor.”

And consumers choose the financial product containing insurance and pension in order to fulfill their needs. The rate which Consumers choose insurances and pensions is called "Preference for Life Insurance." ( See, Section 2 )

Although many other factors exist, these simple parameters are used in this research paper in attempting to explain the differences of the MS ratios in various countries.

The explanatory variables consist of the aforesaid GDP per capita in U.S. dollars as the “Income Factor” and the gender difference in labor force participation rate as the “Female Financial Independence Factor” and “Preference for Life Insurance” The cross-sectional analysis based on country factor and time-series factor was performed for (1) eight countries, that is, Japan, the U.S., U.K., Canada, Korea, Taiwan, Singapore and Thailand for (2) seven years starting from 1999 to 2005 in (3) the life insurance market consisting of personal insurance and personal pension.

Figure 2 shows the results of analysis. Although not all cases are fully explained, t-statistics of three predictor variables are high enough (5.933, 5.504 and 2.127 respectively) to indicate a relationship of the basic structure. Therefore, the relation between Japan (with the MS ratios of more than 3) and Thailand (the MS ratios of around 0.2) is consistent. Also, there are common factors in the Asian market and the European market which significantly vary in the economic and social structures and in the development stage of insurance market.

The deviation between actual values (solid line) and estimate values (dotted line), which could not be

explained in this structural formula, contains each country's market characteristics and standard error of the estimate. The deviation has a considerable significance as discussed in the next section. In Japan, Canada and Taiwan, the actual values exceed the theoretical values, showing that the Security-oriented Market is excessively large, whereas, in the U.S. and Singapore, the actual values are below the theoretical values, showing that the insurers' managerial decision to bring out the potential market needs could expand the Security-oriented Market. Note that the level of theoretical values may vary according to changes in national income and the labor force participation rate of men and women.

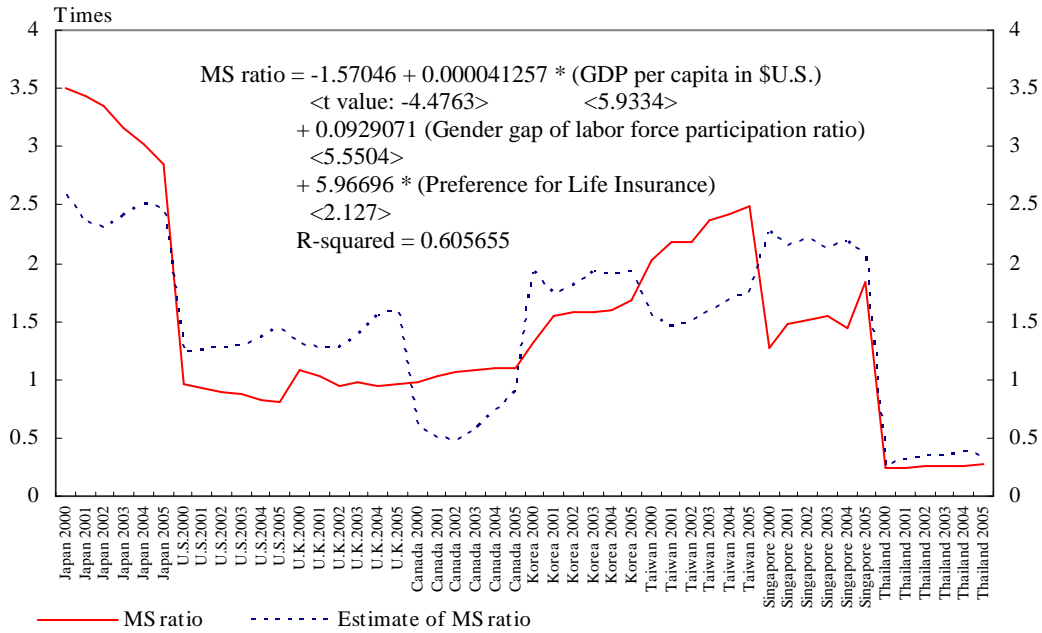


FIG.2: ESTIMATE OF MS RATIO ( 1999 - 2005: 8 COUNTRIES )

## Breakdown of the MS ratio

The portion, equivalent to the MS ratio of approx. 0.5, still remains unexplainable with the aforesaid simplified estimate formula containing two variables. To explain this portion, further analysis is conducted for the MS ratio from another angle.

The MS ratio can be broken down into the following formula.

$$\begin{aligned}
 \text{MS ratio} = & \frac{\text{Personal Life Insurance Amount}}{\text{Nominal GDP (in home)}} \times \frac{\text{Personal Life Insurance Amount}}{\text{Personal Life Insurance Premium}} \times \frac{\text{Personal Disposable Income}}{\text{Personal Life Insurance Premium + Personal Pension Premium}} \\
 & \times \frac{\text{Personal Disposable Income}}{\text{Nominal GDP}}
 \end{aligned}$$

The first, second, third and fourth terms on the right side of the equation are called “Preference for Life Insurance,” “Ratio of security to premium,” “Preference for Insurance over Pension” and “Ratio of Household Budget.” The first term represents the household budget tendency toward life insurance: how much consumers paid for purchase of life insurance from disposable income. The second term represents the product strategy: how far the life insurance companies increase the security component of life insurance products. The third term represents the ratio of personal insurance premium to the sum of personal insurance premium and personal pension premium. Personal insurance emphasizes a security component, while personal pension does savings and investment components. Thus, this ratio indicates preference for security over pension. The fourth term represents the ratio of household budget to the entire economy.

Table 1 shows a breakdown of this equation in three major countries. The comparison between Japan and the U.S. for these 30 years shows that the MS ratios in Japan nearly double those in the U.S. at the moment but they were almost at the same level until 1970, as well as the percentages of four elements described above. The main factors that the disparity of the MS ratios between the both countries rapidly expanded subsequently are the changes in the “Preference for Life Insurance” and “Preference for Insurance over Pension.” The former factor was presumably caused by the difference of circumstances in Japanese and the U.S. life insurance industries. The highly regulated Japanese life insurance industry was able to steadily take in the household budget and personal financial assets, whereas the U.S. life insurance industry failed to do so under the continuous fierce competition with banks, securities companies, and investment trusts.

TABLE 1: STRUCTURE OF THE MS RATIO

	Items	1970 or before	1981	1990	1995	2000	2005
Japan	MS ratio	0.73 (1967)	1.65	2.57	3.14	2.75	2.28
	1. Preference for Life Insurance	3.4%	4.4	6.9	7.0	6.1	7.8
	2. Ratio of Security to Premium	32.5%	58.5	68.1	84.7	85.7	76.4
	3. Preference for Insurance over Pension	98.6%	98.3	91.2	86.2	88.1	66.5
	4. Ratio of Household Budget	68.0%	64.7	60.0	61.5	59.2	57.5
U.S.	MS ratio	0.74 (1970)	0.64	0.92	0.93	0.95	0.80
	1. Preference for Life Insurance	2.4%	2.0	2.7	2.9	3.4	3.1
	2. Ratio of Security to Premium	45.4%	56.4	89.0	87.8	91.5	89.1
	3. Preference for Insurance over Pension	94.7%	77.6	53.0	50.4	42.3	40.1
	4. Ratio of Household Budget	70.8%	71.8	73.9	73.1	73.3	72.3
U.K.	MS ratio	—	0.8 (1985)	0.95	0.99	1.08	0.97
	1. Preference for Life Insurance	—	2.9	5.1	6.2	9.0	6.9
	2. Ratio of Security to Premium	—	61.8	41.3	34.2	26.5	32.6
	3. Preference for Insurance over Pension	—	71.3	69.4	67.1	66.9	64.8
	4. Ratio of Household Budget	—	63.3	64.8	69.5	67.8	66.3

Source: ACLI "Life Insurers Fact Book 2005," ABI "Long-term Business 2006/11" on the website of Life Insurance Association of Japan

Note 1: Figures in Japan represent only those of private life insurance, excluding postal insurance and JA.

Note 2:

- 1) MS ratio is obtained by dividing the personal life insurance amount by nominal GDP.
- 2) Preference for Life Insurance is obtained by adding the personal life insurance premium to the personal pension premium and then dividing the sum by the personal disposable income.
- 3) Ratio of Security to Premium is obtained by dividing the personal life insurance amount by the personal insurance premium.
- 4) Preference for Insurance over Pension is obtained by dividing the personal insurance premium by the sum of personal life insurance premium and personal pension premium.
- 5) Ratio of Household Budget is obtained by dividing the personal disposable income by the nominal GDP.

The latter was caused by two factors. First, in the U.S., the female financial independence actively promoted the sale of personal pension, while in Japan, the slow participation rate of female labor force allowed the insurers to pursue security-oriented products. According to the OECD statistics, the gender difference of labor force participation rate in Japan was 22.7% in 2005, almost twice as high as that in the U.S. (12.0%). The second factor is the difference in the role of the public pension as source of income after retirement. In the U.S., the personal pension premium exceeded the personal insurance premium in the late 1990's to cover the low level of public pension, thus decreasing the "Preference for Insurance over Pension" to 40.1% in 2005. On the other hand, in Japan, despite its aging society, generous public pension system maintained the high level of the "Preference for Insurance over Pension" at 80% in the late 1990's and 66.5% in 2005, almost twice as high as that in the U.S.

As described above, such large Security-oriented Market in Japan was maintained by the slow financial deregulation, low female participation in the labor force, and generous public pension system. Therefore, any change in these three conditions may considerably alter the Security-oriented Market in Japan.



## Interest Rate Fluctuation and Preference for Life Insurance

Interest rates are one of the competitive conditions between banks and life insurance companies. Banks offer a “variable rate under short-term fund management,” whereas insurance companies offer a “fixed rate under long-term fund management.” Interest rates remain an important factor for consumers to select products even though the deregulation in the financial market makes it difficult to clearly differentiate business categories on the basis of interests due to the increase in sales of investment trust or variable insurance. Especially in the U.S. life insurance market, where competition among financial institutions is intense, the interest rate of treasury bonds maturing in ten years and the “Preference for Life Insurance” are highly linked as shown in Figure 3.

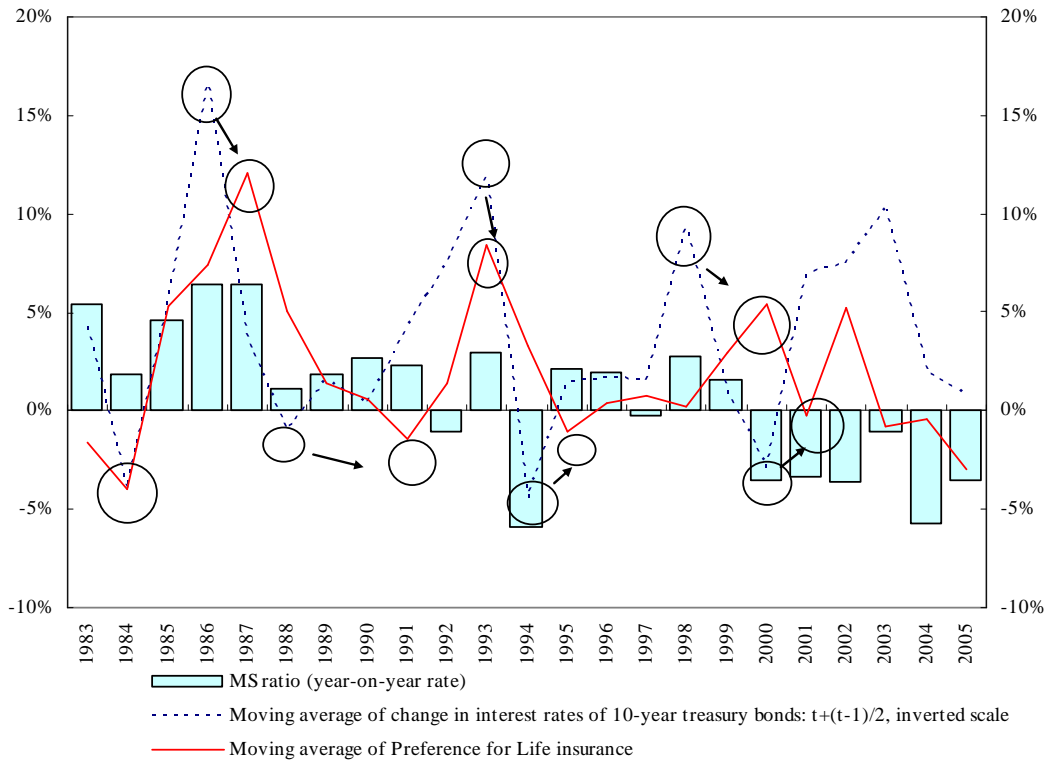


FIG.3: U.S. INTEREST RATE AND PREFERENCE FOR LIFE INSURANCE

However, this relation has been less clear since 2000. Although, life insurance companies compete with banks in the Individual financial assets market intensely, insurance companies accelerated to use banks as one of pension-sales channels. In 2005, the sales channels of banks have 30 percent of the share by a fixed amount pension, and it has about ten percent of the share by a variable annuity on the U.S. individual annuity. In Europe, The share of the insurance sales share by the bank exceeded 60 percent in Spain, France, and Italy. And the sales share around twenty percent is occupied even in Britain, Germany where other channels are strong.

The above direct relation between the fluctuation of interest rates and the “Preference for Life Insurance” is not only seen in the U.S. where the financial deregulation has made progress and thus the MS ratio is low, but also in Asian countries whose MS ratios are still high.

In Taiwan, as with Japan, security-oriented products dominate the life insurance market in which the MS ratios exceed 2.5. Figure 4 shows a structural change of the MS ratios in Taiwan, indicating that the “Preference for Life Insurance” had largely increased in the decline of interest rates since 1997, especially during the period between 2001 and 2003 when interest rates had sharply dropped. Both the “Ratio of Security to Premium” and the

“Preference for Insurance over Pension” had decreased during this period, which means that the personal pension had significantly increased. In 2005, although personal pension kept high level maintained, “Preference for Insurance over Pension” has been increasing.

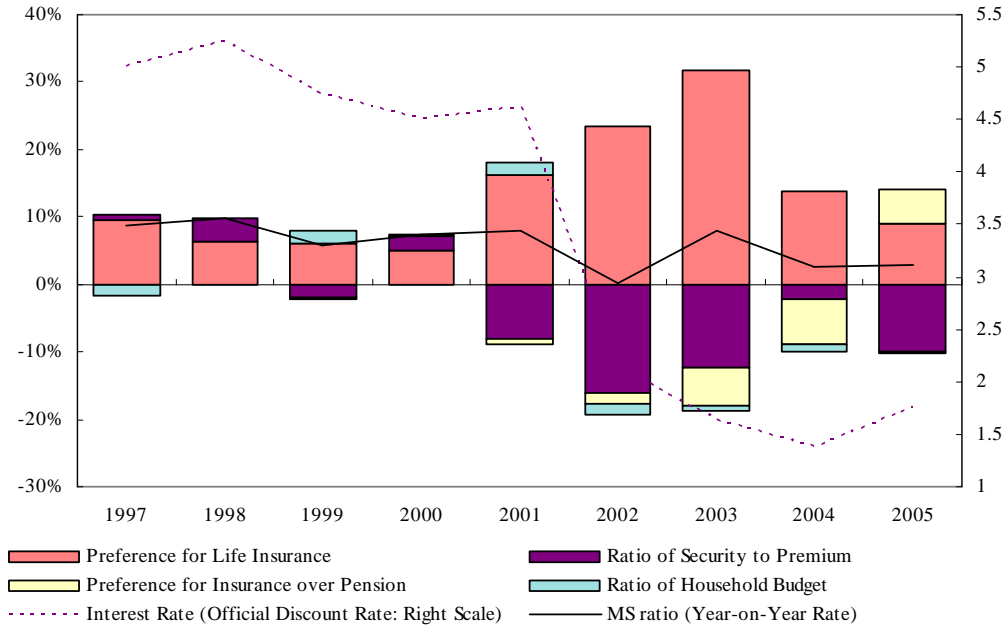


FIG4: MS RATIO (YEAR-ON-YEAR RATE) IN TAIWAN

The MS ratios are also high in Korea, which overcame the currency crises in Asia and the adversity under the control of IMF. The insurance companies in Korea reviewed their products and sales channels, for example by increasing the sales of personal pension plans at bank counters since 2002 to make up for the decrease of their sales staff since 1997. Consequently, the percentage of premium income at bank counters increased to 12.3% in the first half of 2004, while the actual MS ratio value remained below the theoretical value, which shows the potential for large Security-oriented Market in Korea.

As shown in Figure 5, even though long-term interest rates in Korea had rapidly fallen since 2001, the “Preference for Life Insurance” had dropped in 2005 to 80% of the highest record in 1998. In the phase of low interest rates that are favorable to life insurance companies, they did not attempt to earn excessive premium income and instead employed the strategy to increase profitability by enhancing the security components, presumably because Korea had learned a lesson about running the risk of competition with high assumed rate of return, judging from the experiences in insolvency of life insurance companies.

Personal pension increased in Korea, too, as in other countries, but was exceeded by the personal insurance premium and Life Insurance companies in Korea have had the strategy to increase the MS ratios through increase of the “Ratio of Security to Premium.”

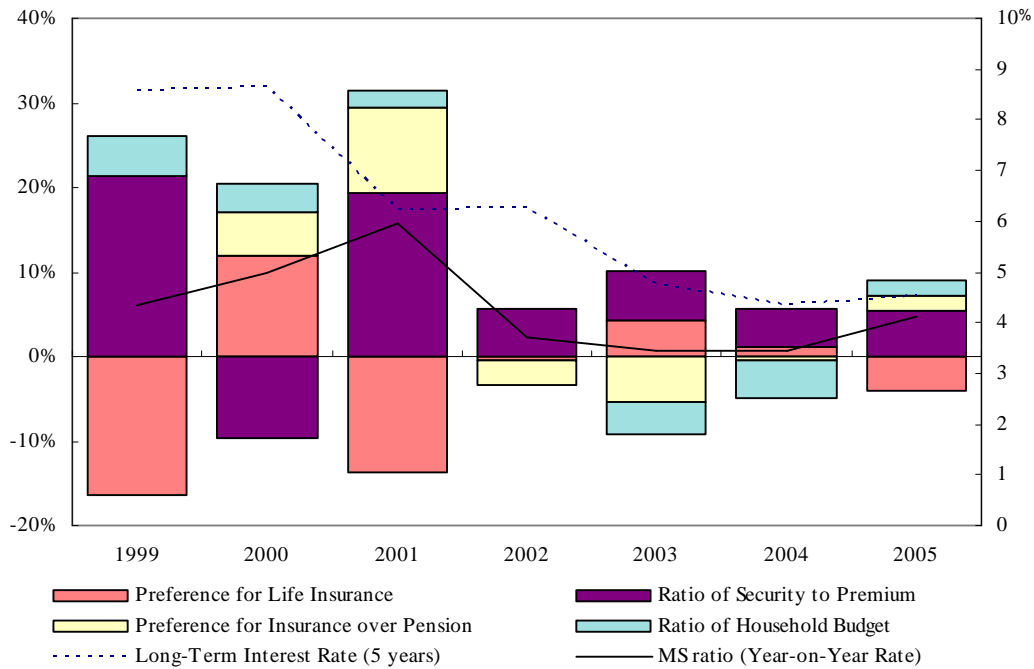


FIG.5: MS RATIO (YEAR-ON-YEAR RATE) IN KOREA

In summary, Taiwan adopted a strategy to increase the premium income, considering the change in interest rates as a good opportunity because of the excessive Security-oriented Market from a view of the MS ratio, while Korea adopted a strategy to increase the long-term profitability without taking advantage of the change in short-term interest rates from a view of risk control. Korea was able to use the strategy since it has the potential for large Security-oriented Market indicated by the MS ratios. This strategy is deemed sustainable because the MS ratio increased to 1.67 in 2005, but still under the theoretical value of 1.84 in 2005.

### International Linkage of the MS ratio

The analysis above shows that life insurance markets do not rely on a single factor, but on multiple factors, such as national income, changes in the MS ratios and interest rates, as well as insurer's managerial strategies. Since the MS ratios vary with the times, two countries, which have different market structures at present, may have similar structures at a different point of time. Moreover, the past structure of the MS ratios in the countries advanced in insurance may imply the future insurance market of those developing in insurance.

For this reason, the international linkage of those structures was studied from the long-term transition of the MS ratios in Japan. Figure 6 shows the variation of Japan's MS ratios from 1982 to 2005. At that time, daring policy was taken to ease monetary supply in Japan so as to address the rapid tendency toward a strong yen and recession since the Plaza Agreement; and thus interest rates of the long-term government bond fell to around 4% from more than 7%. At the same time, the MS ratio had significantly risen. As the Security-oriented Products account for a large portion of life insurance products, the Japanese market is claimed to be less influenced by interest rates; however, that is not the case. In the phase of such declining interest rates, life insurance companies were forced to take a risk in future interest fluctuation, for example through selling savings-oriented single premium life insurance products on a massive scale in order to meet the action of consumers with high liquidity. As a result, the absence of risk control in this period caused the insolvency of many life insurance companies in the late 1990's.

For the past several years, Taiwan has been in a financial environment similar to that of Japan in the mid 1980's: their official discount rate was lowered to 1% range in 2003 from the middle of 5% range in 1997 as a measure to counter IT recession and due to worldwide low interest rates. Under such similar circumstances, the structure of the MS ratios between 2000 and 2005 in Taiwan (see Figure 4) and that between 1982 and 1988 in Japan (see Figure 6) followed the same pattern.

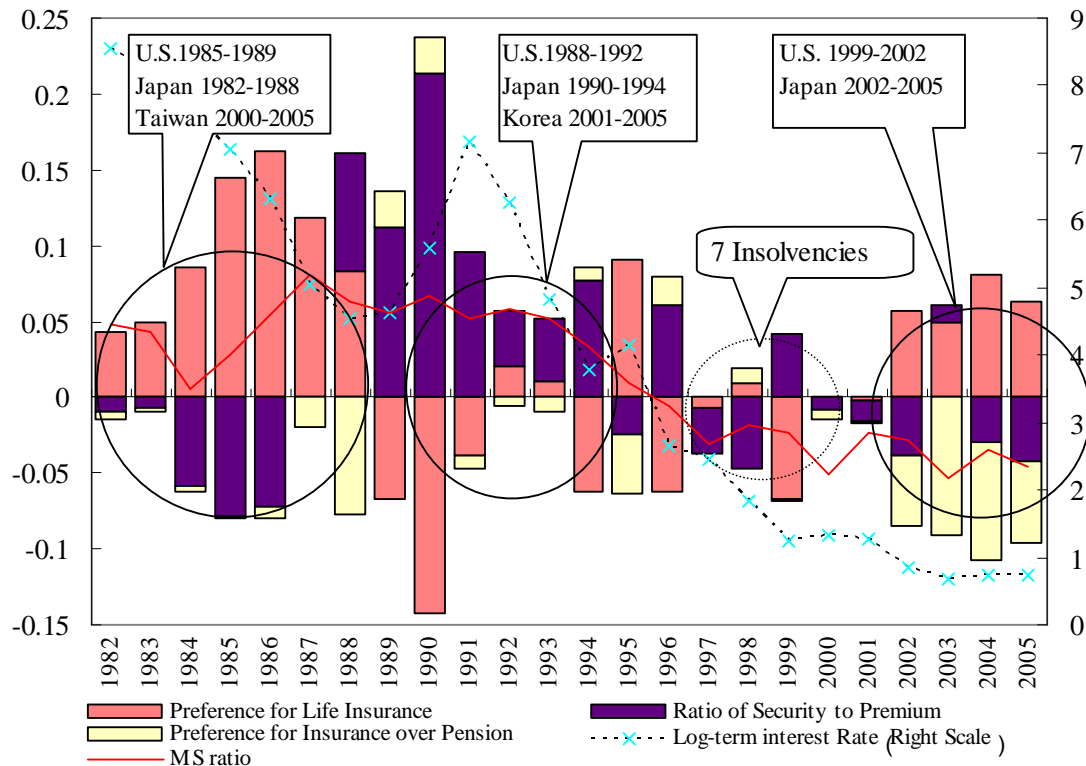


FIG.6: MS RATIO IN JAPAN AND LINKAGE WITH OTHER COUNTRIES

In the 1990's after the collapse of its bubble economy, Japanese life insurance companies drastically shifted their managerial strategy to increasing total amount of insurance in force through raising the "Ratio of Security to Premium." This shift followed the same path as the strategy employed by Korea which placed emphasis on a security component of life insurance products after currency crises in Asia. There is a similarity between the structure of the MS ratios in Japan from 1990 to 1994 and that of Korea from 2001 to 2005. However, since Japan, unlike Korea, had the excessively large Security-oriented Market where the MS ratios largely exceeded the theoretical value, it presumably cost tremendous expenses and heavy burdens on distribution channels to pursue this strategy. As a result, Japan experienced the subsequent decrease in the MS ratios, large-scaled reduction in sales staff and manifestation of insolvency risk. Consumers had lost their confidence in life insurance companies and the "Ratio of Security to Premium" and the "Preference for Life Insurance" continued to decline until 2001.

This situation changed in 2002. The sales of personal pension surged after the deregulation that permitted sale of personal pension plans at bank counters. High premium income obtained by personal pension plans raised the "Preference for Life Insurance" while inducing consumers to purchase personal pension instead of Security-oriented Products, which further lowered the "Ratio of Security to Premium." Such pattern in Japan from 2002 to 2005 bears a striking resemblance to that happened in the U.S. from 1999 to 2002 when the sales of personal pension increased dramatically.

The fluctuation and structure the MS ratios in Japan followed the same patterns that occurred at certain

periods of Taiwan and Korea, as well as of the U.S. and Europe. It can be said that the structures of life insurance markets, which look different between countries at a certain point of time, have common factors in the long view.

Namely, the MS ratio is one of the international “constraints” on the life insurance markets by which market structures are determined according to the change of long-term interest rates and the sales strategy of suppliers (i.e. insurers) who utilize such change. In addition, the market structure in a country and the future expansion can be learned from structures of the other countries’ MS ratios in certain periods.

### **Estimation of the Insolvent ratio in U.S. by MS ratio**

In Japan, the structure of MS ratio where we saw just before the aspect which seven life insurance companies became insolvent indicate a high possibility of something unusual of the soundness risk.. The signs which insolvent of life insurance companies are generated are the following three. (1) The continuous fall of MS ratio, (2) The big rise of the “Preference for Life insurance” and subsequent nose dive. And a sudden rise of the “Ratio of Security to Premium,” (3) Continuous falls of “Preference for Life insurance” in the phase of downside of interest rate.

If three insolvent signs where saw in Japan with few examples (seven examples) are applied also to the insolvent phase of the U.S. life insurance markets with exceeding 500 insolvent companies, these insolvent signs of MS ratio can apply internationally.

AM Best, credit rating agency in U.S., has given “E” ranks (a ranking rank means failure) to the life insurance company of 547 from 1976 to 2002.

The aspects of the Insolvent ratio which is obtained by dividing the number of insolvent companies by the number of companies belonging to ACLI exceeded 1% in 1983, 1988-1993, 1997-1999. The Insolvent ratio rose by the breakdown of the health insurance company accompanying the rise of medical cost in 1983 and by breakdown of ten affiliated companies of General American Life, in 1999. They are slightly special cases.

On the other hand, the insolvent risk increased on the whole industry in 1988-1993. In 1991, the number of collapsing life insurance companies amounted to 55 companies and the Insolvent ratio rose to 3.7%. The long-term interest rate is located in the long fall phases from 1984 (12.5%) to 1993 (5.9%).

As for the rate of change of MS ratio hit the peak, and had been falling for seven years. Moreover, the “Preference for Life Insurance” changed to falling from a big rise, and the “Ratio of Security to Premium” carried out a reverse motion simultaneously. Three insolvent sign in Japan also showed up in U.S.

As shown in Figure 7, the Insolvent ratio in U.S. is estimated roughly from both the rate of deviation ((actual value-theoretical value: Fig. 2)/actual value) and “Preference for Life insurance” of MS ratio. When MS ratio goes up and approaches to the theoretical value, the market will be overheated and the Insolvent ratio will increase. On the other hand, the rise of “Preference for Life insurance” depresses the Insolvent ratio.

Thus, the market structures which MS ratio shows link to the insolvent risk closely. And MS ratio contributes to strengthen the risk management of life insurance companies by finding the insolvent signs early.



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# Customer Expectations of Service Quality in Financial Services Sector

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## Abstract

Capital markets in India have evolved and are offering many new products and services for the benefit of individual and institutional investors. Technological developments are changing the way how services are delivered enabling customers and contact employees to provide better, efficient and customized services. Service providers need to develop and provide service offerings that satisfy customer needs and service expectations. The author examines the service quality literature and delineates the important dimensions of service quality in financial services sector. This paper provides an understanding of the customer expectations in financial services sector, viz. investor services, depository services, etc. The study examines the perceptions of managers about customer expectations on different service quality parameters and provides support for a better understanding of the service mechanisms that lead to consumer satisfaction in financial services.

## Introduction

With growing competition in many service sectors, it is imperative for service providers to develop service systems that help them to gain strategic competitive advantage. Zeithaml and Bitner (2003, p.14) noted that technology is profoundly changing how services are delivered, enabling both customers and employees to get and provide better, more efficient, customized services. The service providers have the major objective to develop and provide service offerings that satisfy customer needs and service expectations. It is imperative for the service marketers to close the gap between consumer's expectations and perceived performance.

Capital markets in India have evolved in recent decade and led to a growth with increasing focus on new services, market information, innovative product offerings, improved relationship with clients/ investors, and financial intermediaries. The Depository Act 1996 in India changed the way the capital markets, specifically the stock exchanges, investors and related organizations would function, setting a framework for changing over capital market investing and trading from paper to electronic mode. This set of financial services are fairly new in the country and need to be studied for understanding the consumer expectations that would enable service providers to design their service systems to offer superior performance/experience to the consumers. While it is useful to generalize about the characteristics of services and service businesses, it appears to be equally important to recognize that differences exist among various services and among the firms that market them (Zeithaml, Parasuraman and Berry, 1985). Hence, research was conducted to study the service quality dimensions of one major national financial service provider.

## Understanding Service Quality

Because services are performances, rather than objects, they cannot be seen, felt or tasted or touched in the same manner in which goods can be sensed (Zeithaml, Parasuraman and Berry, 1985). Service organizations create value for consumers through performances (Berry, Seiders and Grewal, 2002). According to Brady and Cronin Jr. (2001), the service quality is defined by either or all of a customer's perception regarding (1) an organization's technical and functional quality; (2) the service product, service delivery, and service environment; or (3) the responsiveness, empathy, assurances, and tangibles associated with a service experience. The five dimensions of SERVQUAL are terms that might be used to refine some aspect of service quality. The SERVQUAL scale operationalizes and measures service quality along five distinct dimensions: tangibles, reliability, responsiveness, assurance, and



empathy. SERVQUAL scores along these dimensions can be viewed as indicators of the construct of perceived service quality (Zeithaml, Berry and Parasuraman, 1988).

Price, Arnould and Tierney (1995) revealed through their research in service relationship that when the customer interacts with the service provider, three dimensions of service encounter shaping service provider are: temporal duration, affective or emotional content, and the spatial proximity of service provider and customer. According to Zeithaml, Berry and Parasuraman (1996), customers perceiving service performance to be inferior are likely to exhibit behaviors signaling they are poised to leave the company or spend less with the company. These behaviors include complaining, which is viewed by many researchers as a combination of negative responses that stem from dissatisfaction and predict or accompany defection.

The service quality is an antecedent of consumer satisfaction and that consumer satisfaction exerts a stronger influence on purchase intentions than does service quality (Cronin Jr. and Taylor, 1992). Service firm executives may not always understand what features connote high quality to consumers, what attributes a service must have in order to meet consumer needs, and what levels of performance on those features are necessary to deliver high quality service (Zeithaml, Berry and Parasuraman, 1988). There is a strong need to identify the attributes that influence the customers' perceptions of service quality.

#### **Consumer Expectations and Satisfaction**

Expectations are beliefs about a product's attributes or performance at some time in the future (Spreng, MacKenzie and Olshavsky, 1996). Parasuraman, Berry and Zeithaml (1990, p. 12) noted that the service expectations concept is "intended to measure customers' normative expectations," and that these expectations represent an "ideal standard" of performance. More evaluative definition of the expectations construct confounds a person's judgment of some event with his or her expectation of the likelihood of its occurrence (Spreng, MacKenzie and Olshavsky, 1996). Teas (1993) revealed the causal link between perceived quality and consumer satisfaction.

Bolton and Drew (1991) relate customer satisfaction to a customer's evaluation of a specific transaction, while a customer's attitude corresponds to a global evaluation of the product/ service, rather than to an evaluation of a specific transaction. Feelings of satisfaction arise when consumers compare their perceptions of a product's performance to their expectations (Spreng, MacKenzie and Olshavsky, 1996). Satisfaction is a customer's post purchase evaluation of a product / service offering. A customer is satisfied when an offering performs better than expected and is dissatisfied when expectations exceed performance. Customer satisfaction/ dissatisfaction (CS/D) typically is modeled as a function of disconfirmation arising from discrepancies between prior expectations and actual performance (Bolton and Drew 1991). Attitude is the customer's global evaluation of a product/ service offering. Recent research in services marketing has centered on customer evaluations of the overall excellence or superiority of a service – that is, evaluations of service quality (Parasuraman, Zeithaml and Berry, 1985, 1988; Zeithaml, 1988).

Overall (or cumulative) satisfaction is "an overall evaluation based on the total purchase and consumption experience with a good or service over time". Rather than capturing the transient and encounter-specific evaluations and emotions, applied market research tends to measure customer satisfaction as the consumer's general level of satisfaction based on all experiences with the firm (Garbarino and Johnson, 1999). Spreng, MacKenzie and Olshavsky (1996) in their study of determinants of customer satisfaction revealed that feelings of satisfaction arise when consumers compare their perceptions of the performance of a product or service to both their desires and expectations. Dissatisfaction leads to consumer-complaining behavior that is manifested in voice responses (such as seeking redress from the seller), private responses (negative word-of-mouth communication), or third party responses (taking legal action) (Singh, 1988). Affective commitment is an antecedent of both customer retention and customer share development (Verhoef, 2003).

In addition to the theoretical support for performance-based measures of service quality, practitioners often measure the determinants of overall satisfaction / perceived quality by having customers simply assess the performance of the company's business processes. Furthermore, performance-based approach may actually be more in line with an antecedent/ consequent conceptualization: that is, judgments of service quality and satisfaction appear to follow the evaluation of a service provider performance (Cronin Jr. and Taylor, 1992).

## Methodology

Literature survey in services marketing reveals qualitative research being used for identifying dimensions of service quality (Parasuraman, Zeithaml and Berry, 1985) and to study customer interactions and service complaint handling (Tax, Brown and Chandrasekharan, 1998). Qualitative research was used to identify the dimensions the customers consider while evaluating service quality. The research was conducted in one major financial services organization offering investor services such as services relating to market operations (receiving the order to receiving/ delivering the securities from the clearing house to facilitate purchase and/or sale transactions); scrutiny, lodgement, and follow up of securities with Registrars of Issues and /or companies; custody of physical receipt of securities; collection, compilation, and maintaining information about the capital market; reporting market updates; and depository services.

The responses to unstructured, open-ended questionnaires were obtained from 120 executives of a financial services company. Respondents were asked to complete an open-ended questionnaire about the specific attributes they perceived as influences on the interactions, environments, and outcomes encountered during recent service experiences. The respondents were encouraged to list all factors that influenced customers' perceptions of service quality.

## Discussion

The results presented here are an attempt to understand the service quality dimensions that are important from viewpoint of managers' perceptions about customer expectations. The study provides evidence that consumers form service quality perceptions on the basis of their evaluations of service performance. The major dimensions that emerged through the study are discussed below.

### **Employee Capability**

In a research study of customer satisfaction with the individual aspects of the banking service, Ganesh, Arnold and Reynolds (2000) revealed that satisfaction with the people factor of the service will be a stronger discriminant of customers than satisfaction with other aspects of service. The employee capability comprises of three dimensions as employee attitude, employee knowledge and competence, and responsiveness can affect the service delivery positively or negatively.

**Employee Attitude:** The attitudinal and behavioral responses of customer-contact employees are important in delivering the service and they can affect customers' perceptions of the service quality. Keaveney (1995) revealed that service encounter failures were all attributed to some aspect of service employees' behaviors or attitudes, and if employees were uncaring, impolite, unresponsive or unknowledgeable, customers switched service providers. According to Hartline and Ferrell (1996), the five attitudinal and behavioral responses of customer-contact employees, viz. self-efficacy, job satisfaction, adaptability, role conflict, and role ambiguity affect the ability of contact employees to serve customers in a manner that enhances service quality. Empathy, which is identified as another focused emotion (as opposed to an ego-focused emotion), involves feeling compassion for others in a social or interpersonal context. With greater empathy, perceived time and energy costs will be lower (Berry, Seiders and Grewal, 2002). Extended, Affective, Intimate Service Encounter (EAI encounters) demand a service provider role that incorporates empathic sharing, communication of caring, evolving intimacy, and exchange more characteristic of friendship than commercial service provision (Price, Arnould and Tierney, 1995).

**Knowledge:** Customer contact employees need to have knowledge about the consumer need, their buying pattern, usage pattern and knowledge about the company offerings that match the consumer expectations. Consumer insight is increasingly emerging as the key success factor for frontline employees in understanding and meeting consumers' needs. This is dependent on the skill and competence of the customer contact employee. Being knowledgeable and being well versed in state-of-the-art techniques is viewed by service consumers as important benefit. Sharing information reaffirms (Schneider and Bowen, 1999) customer feelings of competency, whereas being condescending to customers clearly challenges their self-perceived level of intelligence.

**Responsiveness:** In many cases, customer contact employees are the first and only representation of a service firm. Customers often base their impressions of the firm largely on the service received from customer contact employees (Hartline, Maxham III and McKee, 2000). A sample of service executives claimed that frontline employees are pivotal in forming a customer's level of perceived service quality (Parasuraman, Zeithaml and Berry, 1985). The "employee responses to service failures" were grouped into three subcategories that range from bad to worse: (1) reluctant responses, (2) failure to respond, and (3) patently negative responses (Keaveney, 1995). Frontline employees' quality is sensitive to burnout tendencies that emerge from self-regulation failures as they try to cope with increasing role demands, ambiguity, and conflict (Singh, 2000). Contact employees who share the customer-oriented values of the firm are more likely to exhibit behaviors that are consistent with those values and the firm's strategy (Hartline, Maxham III and McKee, 2000).

### **Product Configuration**

The product configuration deals with three dimensions, viz. product range, price, and additional services.

**Product Range:** The depository and custodial services address the individual investor's needs. The service provider designed financial products keeping in mind the investment psyche of the clients/investors. The product range consisted of financial products such as pledging of shares, dematerialization, purchase and selling of securities, and value added products.

**Price:** When price and performance are consistent, expectations have an assimilation effect on performance and satisfaction judgments; when price and performance are inconsistent, expectations have no effect on performance and satisfaction judgments (Voss, Parasuraman and Grewal, 1998). The pricing category included all critical switching behaviors that involved prices, rates, fees, charges, surcharges, service charges, penalties, price deals, coupons, or price promotions. Pricing subcategories included (1) high prices, (2) price increases, (3) unfair pricing practices, and (4) deceptive pricing practices. In the "high price" subcategory, customers switched services when service prices were exceeded internal reference prices. Prices were deemed too high relative to some internal normative price, too high relative to the value of the services received, or too high relative to competitor's prices (Keaveney, 1995).

**Additional Services:** Additional services such as advisory services, expert advice, providing analytical reports to facilitate decision making by the consumer, delivering products as per consumer convenience, etc. are valued and desired by the consumers. These services also facilitate other associated/complimentary services making the purchase/ use easier and offer convenience to the consumer.

### **Service Recovery**

While timeliness focuses on provision of information and service delivery at right time, complaint handling refers to solving the problem faced by consumers by establishing appropriate resolution procedures, interpersonal communication, and delivery of desired outcomes.

**Timeliness:** Information – the product of communication – is the tie that binds in any relationship, including commercial relationships with customers and other stakeholders. Information is something that makes decision making easier by reducing uncertainty. Information processing has dominated most approaches to marketing communication, which suggests that communication can be managed or controlled (Duncan and Moriarty, 1998).

**Complaint Handling:** A complaint is viewed as a conflict between the customer and the organization in which the fairness of (1) the resolution procedures, (2) the interpersonal communications and behaviors, and (3) the outcome are given the principal evaluative criteria of the customer (Tax, Brown and Chandrasekharan, 1998). Consumer complaints are highly symbolic; they might imply failure or inadequacies of previous marketing decisions, and constitute criticism of the individuals responsible for the problematic policies or programs (Fornell and Westbrook, 1984).

Complaint handling refers to the strategies firms use to resolve and learn from service failures in order to (re)establish the organization's reliability in the eyes of the customer (Hart, Heskett and Sasser, 1990). Complaint data, are key in quality management efforts because they can be used to correct problems with service design and delivery, which makes it more likely that performance will be done right the first time (Lovelock, 1994). In general, the less time and effort required of consumers to effectively deal with a failed service, the better is the recovery service. Service system design is instrumental in managing the time and effort costs required for consumers to use a

service (Berry, Seiders and Grewal, 2002). Justice involves the propriety of decisions. A three-dimensional view of the concept has evolved over time to include *distributive justice* (dealing with decision outcomes), *procedural justice* (dealing with decision making procedures), and *interactional justice* (dealing with interpersonal behavior in the enactment of procedures and delivery of outcomes) (Tax, Brown and Chandrasekharan, 1998, Schneider and Bowen, 1999).

### **Convenience**

Convenience of buying and using the services is viewed in terms of reliability of services, process simplicity and technology, and accessibility.

**Reliability of Service:** All types of convenience that reduce consumers' time and effort in shopping, such as operating hours or credit availability, belong to the domain of service convenience (Berry, Seiders and Grewal, 2002). Consumers' energy expenditures, or effort, are acknowledged to be a distinct type of no monetary cost that, like time, influences perceived convenience (Seiders, Berry and Gresham, 2000) and satisfaction (Lovelock, 1994). The factors that influence consumers' perceptions of waiting are service, facility, and customer characteristics; perceived fairness of the wait; and information provided by the firm (Berry, Seiders and Grewal, 2002). Consumers, on average, significantly overestimate time spent waiting (Hornik, 1984). The consumers may perceive the service provider's location, hours of operation, waiting time for service, or waiting time to get an appointment as convenience. They also perceive minimizing or eliminating mistakes, billing errors, etc. as other sub dimensions of convenience.

**Process Simplicity and Technology:** Technology is a key adjunct to service system design (Meuter, Ostrom, Roundtree and Bitner, 2000). Self-service technologies (SSTs) are technological interfaces that enable customers to produce a service independent of direct service employee involvement. Technologies specifically designed to improve service convenience can affect each type of service convenience. Berry, Seiders and Grewal (2002) have identified five defining types of convenience, viz. decision, access, transaction, benefit, and post benefit convenience. According to them, 'decision convenience' refers to making it easier for consumers to take decisions about intangible and variable services; 'access convenience' refers to consumers' participation in using services; 'transaction convenience' relates to waiting time; 'benefit convenience' refers to a service's benefit what consumers invest resources to receive; and 'post benefit convenience' refers to allocating additional time and effort resources to reinitiate contact with a firm after a service encounter. Post benefit inconvenience is exacerbated by regency effects; it comes at the end of the consumer's service experience.

**Accessibility:** Offering service through several outlets increases the convenience of access for customers but may start to raise problems of quality control as convenience of access relates to the consistency of the service product delivered (Lovelock, 1983). Identification of ideal service locations is critical to achieving better facility utilization since the demand for customer service is based on convenience. With ATMs in place, serving a customer need such as financial transactions processing does not have to be limited to the regular banking hours and the service can be made available for 24 hours a day, 365 days a year. The transactions can be processed through ATMs placed at strategic locations off the bank premises (Bharadwaj, Varadarajan and Fahy, 1993). Self-service technologies usually have wider availability and longer, more flexible hours of operation and help customers to immediately solve a problem (Meuter, Ostrom, Roundtree and Bitner, 2000).

Because service encounter environments are purposeful environments (i.e., they exist to fulfill specific needs of consumers, often through the successful completion of employee actions), spatial layout and functionality of the physical surroundings are particularly important (Bitner, 1992). An effective way to reaffirm a customer's feeling of confidence and competency is to arrange environments in ways that permit them to feel in control (Schneider and Bowen, 1999). Ambient conditions include background characteristics of the environment such as temperature, lighting, noise, music, and scent. As a general rule, ambient conditions affect the five senses (Bitner, 1992). A service provider can maintain and enhance esteem in services by making the environment knowable and predictable; by creating a customer-friendly environment in which people feel smart, competent, important, and comfortable; and by offering them choices (Schneider and Bowen, 1999).

### **Assurance**

Assurance is viewed in relation to the trust and commitment processes.

**Trust:** Moorman, Deshpande and Zaltman (1993) define *trust* as a willingness to rely on an exchange partner in whom one has confidence and that an expectation of trustworthiness results from the ability to perform (expertise), reliability, and intentionality. Morgan and Hunt (1994) define *trust* as the perception of “confidence in the exchange partner’s reliability and integrity.” Doney and Cannon (1997) define trust as the perceived credibility and benevolence of a target of trust. According to them, trust primarily involves a *calculative process* (when one party calculates the costs and/or rewards of another party cheating or staying in the relationship), the *prediction process* (relies on one party’s ability to forecast another party’s behavior), the *capability process* (determining another party’s ability to meet its obligations), the *intentionality process* (the trustor interprets the target’s words and behaviors and attempts to determine its intentions in exchange), and a *transference process* which suggests that trust can be transferred from one trusted “proof source” to another person or group with which the trustor has little or no direct experience.

Commitment is recognized as an essential ingredient for successful long-term relationships (Morgan and Hunt, 1994) and refers to an enduring desire to maintain a valued relationship (Garbarino and Johnson, 1999). According to Schneider and Bowen (1999), security refers to the need to feel unthreatened by physical or economic harm. In a volatile stock market era, financial advisers establish investment portfolios suited to their clients’ risk limits and thus fulfill their security needs. Upholding a customer’s need for security involves the basic mental and emotional security concerns of the consumer.

Central to the development and maintenance of relationships is the establishment of norms of conduct that allow for future exchange and increased risk taking in the relationship. The most fundamental norm is trust, which provides the foundation for understanding expectations and for cooperation in the relationship. Relational trust facilitates joint learning activities. With relational trust, it is more likely that the parties share information they otherwise would consider sensitive and that they create constructive, creative dialogues around making sense of information they share, to the benefit of both parties. It also follows that as the parties build mutual trust, they are more likely to develop a shared memory with access across company borders (Selnes and Sallis, 2003).

## **Managerial Implications**

The competitive climate has changed rapidly in the last one decade in Indian financial market. At the same time, technological innovations in service delivery and changing expectations of consumers in this sector have induced offering of many new financial products and services. Since service providers have a primary objective to achieve consumer satisfaction, this research helps in identifying important dimensions for their service consumers.

Study has revealed that the twelve dimensions of service performance are valued by the customers. Three dimensions viz. employee attitude, employee knowledge and competence, and responsiveness can affect the service delivery. Managers have to focus on front line employees/ consumer contact employees by providing them training and education, job clarity, minimizing the role conflict. Employees need to be empathic to their consumers, skillful and competent, well versed in state-of-the art techniques, caring for the consumers, intimate and friendly with consumers, flexible to accommodate consumer requests, responding to consumers’ queries, and to be proactively communicative.

Product range that offers better choice is valued by the consumers as an important dimension of performance in financial services ranging from depository services to value added products. Consumers are also sensitive to price levels and expect price levels that are not high, deceptive, and/ or unfair. Additional services such as advisory services, providing expert knowledge to the consumers to enable them to take faster decisions is also viewed as performance criterion from the viewpoint of consumers.

While timeliness focuses on provision of information and service delivery at right time, complaint handling refers to solving the problem faced by consumers by establishing appropriate resolution procedures, interpersonal communication, and delivery of desired outcomes. The convenience related factor consists of three dimensions, viz. reliability, process simplicity including self-service technologies, and accessibility. Decisions relate to service system design, physical service environment, self-service technologies, technology facilitated transactions, reduced effort and waiting time, streamlining service performance and easy accessibility including locational convenience

and flexible hours of operations. The service managers have to formulate the trust development processes which are in line with the expectations of the consumers.

Thus, service managers need to identify the gaps in actual performance delivered to the consumers and their expectations. In accordance with the gap analysis, managers may have to undertake business impact analysis for each of the decisions for impact on service delivery performance. The framework provided in the paper allows service providers a better understanding towards designing service system in achieving increased consumer satisfaction.

## Limitations

Although the research focused on data collection from the executives about the dimensions that are important to customers based on respondents' own knowledge and experience in the field, there is a scope to do further research by directly collecting data from the consumers on service quality dimensions that are important to them. However, this research provides some guidelines to the researchers while initiating such studies as it provides the framework of perceived service quality for seeking responses on various dimensions of service quality. The proposed framework may not be applicable for all kinds of financial services and hence may need modifications of this conceptualization to make it more appropriate for specific services.

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# Corporate Universities in an Era of Globalization: Strategic Evolution and Worldwide Trends

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## Abstract

Since the 1990's, business and academic literature have paid increasing attention to the emergence and evolution of corporate universities in the USA and Europe and, more recently, in emerging economies, notably India. The paper reviews the emerging literature, both academic and corporate- in the context of current developments in corporate universities worldwide, notably the impact of new learning technologies, shifting functions and alignments with organizational goals, changes in composition and characteristics of teachers and learners, and increasing emphasis on partnerships with traditional universities and other stakeholders and service providers. Notwithstanding the growth in this literature, there has been striking a paucity of analysis of the development of corporate universities in the context of strategic issues such as global competitiveness and alignment with development of human capital. This survey of the current literature on corporate universities in their various forms and geographical locations will inform scholars and practitioners in the disciplines of Management and Education.

## Introduction

It is difficult to readily identify a distinct and well established scholarship on the subject of corporate universities (CUs). However, the term does appear throughout both academic and corporate literature with a range of definitions, connotations and implicit links with more established areas of management scholarship. CUs have been identified, described and analysed primarily in corporate training and education as well as human resource management (HRM) literature. Since the 1990's, references to CUs in the business and academic literature have paid increasing attention to the emergence and evolution of CUs worldwide and particularly in USA and Europe and, more recently, in emerging economies, notably India. As this paper contends, the salient features of CUs suggest strong relationships to the broader trends of globalisation, talent management and workplace learning. All three trends have established themselves in a well identified and growing business and academic literature. Nonetheless, there remains a striking paucity of consistent analysis of the evolution of CUs in relation to inter-related developments in globalisation, talent management, and workplace learning. This paper proposes directions for extending and enriching the extant analysis of CUs. Drawing on a critical review of the recent literature on CU, the paper recommends an integrated approach across emerging strands of literature on CUs as well as on globalisation, talent management and workplace learning. This will enrich our understanding of the contemporary and future evolution of CUs.

This approach in this paper is five-fold. First, the notion of CUs is examined critically by surveying definitions in the extant literature, reviewing reported trends in the incidence and typology of CUs, and summarising the dominant strategic perspectives used to describe CUs. Second, the scholarship on globalisation and its related impact on talent management and workplace learning are examined as a foundation for analysing the dynamics of the evolution of CUs. Third, to illustrate possible insights from working across these streams of literature, two questions which could be framed within a broader research agenda are advanced and elements of possible responses are drawn from disparate management and CU literature. This provides an indication of the utility of building a more unified framework for analysing the contemporary evolution of CUs. Fourth, the utility of the proposed integrated approach for analysing CU evolution is further motivated by examining regional patterns of both CU literature and actual practices of CUs. Finally, based on these literature and empirical surveys, a preliminary research agenda is sketched to more firmly frame future analysis of CUs within the related management scholarship on globalisation, talent management and workplace learning.



## Corporate Universities: A critical literature review

Using 'corporate university' as a key word, this researcher identified and reviewed 150 articles published during 1997-2007 as well as five books. This search revealed that the extant business and academic literature on CUs embraces a wide range of definitions and perspectives, all of which provide insights into the evolution, role, purpose, changing settings, and dynamics of CUs.

### Dominant Definitions and Attributes of CUs

In the business and academic literature, description and perspectives on CUs are wide ranging. CU definitions vary as do the functional attributes associated with CUs. Among the most frequently cited publications in the literature as well as pioneering books to use the term in the title is *Corporate Universities : lessons in building a world-class work force*, (Meister, 1998) which defines a CU as “the strategic umbrella for developing and educating employees, customers, and suppliers in order to meet an organization’s business strategies” (underline inserted). This compares closely to the definition in *The Corporate University Handbook* (Allen, 2002) :“A corporate university is an educational entity that is a strategic tool designed to assist its parent organization in achieving its mission by conducting activities that cultivate individual and organizational learning, knowledge, and wisdom” (underline inserted). Beyond definitions, these two and other sources in the CU literature fit differently within the constellation of entities which are self-styled CUs and those with different self-descriptions which nonetheless share CU-like attributes. This can be illustrated by considering CU target audiences, the distinction between CUs and traditional universities, and different nomenclature for entities with CU-like attributes.

According to Meister (1998), CUs largely offer learning programs exclusively to employees. However, some CUs, notably Motorola University, also include clients, partners, suppliers, and other stakeholders as participants. Walt Disney University actively markets and sells its programs to outsiders but still focuses on employees as its core business, distinguishing it from a traditional university (Allen, 2002).

Allen (2002) explains that a CU, unlike a traditional university or even a for-profit university such as the University of Phoenix, does not have education as its primary product offering. This is consistent with Walton (2005) who conducted a word search of websites for traditional and CUs and discovered little mission statement overlap between university and CU websites, other than a shared focus on “life long learning”. At the same time, there are former CUs such as the Arthur D. Little School of Management that have opened their services to the public and become traditional universities (Meister, 1998). There are also CUs that offer their employees credit for courses and degrees, but they are few in number and grant credit and degrees in partnership with traditional universities. (J.Meister, 1998; S. Taylor and Paton, 2002).

The CU nomenclature alone is inadequate for identifying entities which carry out the functions described above. Other entities share the functional attributes of CUs implied in these definitions. Yet they do not carry one or the other of the two words in the compound term “corporate university.” For example, an entity sharing the functional attributes of self styled CUs can also be called an institute, school, academy, varsity, centre, or college, depending on the inclination of the organisation (“The corporate university: riding the third wave,” 2005; S. Taylor and Paton, 2002). Some studies suggest that half of all CUs do not have the word university in their title (Prince and Beaver, 2001). Similarly, the label “corporate” does not appear in some important entities which nonetheless share attributes of CUs according to different definitions. They included public sector institutions and non governmental organizations. For example, in the *Handbook of Corporate University Development*, (Paton, Peters, Storey, and Taylor, 2005) L. Taylor and Fryer, (2005) profile the issues and challenges in implementing a CU for the massive National Health Service in the UK.

The description, functional analysis and nomenclature of the CU phenomenon are therefore diverse. It is noteworthy that both Meister (1998) and Allen (2002) refer to the “strategic” character of CUs. In fact, the role of the CU as “umbrella” or “tool” which aligns learning programs with organizational objectives is the most widely accepted concept in the literature and distinguishes the CU from a traditional training department (Walton, 2005). A benchmarking study from Corporate University Exchange (“Update on CUs,” 2005), defines CUs as tying “corporate learning efforts directly to overarching business goals.” Further analysis below refers to this strategic character of CUs. This attribute provides for analytical links to the inter-related phenomena of globalisation, talent

management, and workplace learning. These phenomena are posited in this paper as fundamental to understanding the dynamics of evolution of CUs.

#### **Prevalence and Drivers of CU evolution**

Another significant aspect of CUs concerns their evolution and projected growth. These have been reported in different ways. Walton (2005) estimates that there are over 2000 CUs worldwide. According to Andresen and Lichtenberger (2007), as of the turn of the century, forty percent of the Fortune 500 companies had established CUs. Salmi (2000) reports predictions by 2010 of the number of CUs outnumbering traditional universities.

The prevalence and projected growth of CUs are impressive. It is useful to also briefly consider the historical origins of CUs as well as factors underpinning the growth in their numbers. The existence of CUs can be traced back to the post WWII era. The General Electric John F. Welch Leadership Centre at Crotonville is an often cited example of a CU prototype founded in the 1950's which has withstood the test of time and continues to evolve (Durett, 2006). Another CU prototype is "Hamburger U" at McDonald's ("Face value: The burger king," 1999; Galagan, 2006). Both can be seen as among the forerunners of CUs which remained few in number until the 1980's, when the term was introduced in the literature (S. Taylor and Paton, 2002). CUs then rose in popularity during the 1980's in the USA and during the 1990's in Europe ("Strategy by degrees," 2005). An analytical review of the CU literature indicates that this growth has largely been analysed as a response to the following drivers:

- Emphasis on knowledge management and the learning organization (Altman and Iles, 1998; Jansink, Kwakman, and Streumer, 2005)
- Availability of learning technologies enabling a company to offer employees standardized products and processes at a distance and removed from time constraints (Murray, 2005; Watkins, 2005).
- Increasing global competition for skilled employees, particularly at the managerial level (Authers, 1999).

#### **Strategic Perspectives on CU Design**

As strategic tools of organizations CUs, as defined above in the extant literature, tend to reflect organizational cultures (Barley, 2002). This strategic dimension of CUs is also distinct from other issues such as organization, governance, funding, staffing, marketing, technology, and metrics. All these are significant issues in the development and implementation of a corporate university initiative and also constitute the main focus of the extant CU literature (Allen, 2002; J. C. Meister, 1998; Paton et al., 2005; Wheeler and Clegg, 2005) These tactical and operational issues are however not a focus of the present paper. Instead, this paper takes the strategic characteristic of CUs, as identified in the extant literature, as a fundamental point of departure for exploring the evolution of CUs to developments in globalisation, talent management and workplace learning.

There are several strategic perspectives for CUs found in the literature. This researcher has categorized four: structure oriented (content and mode of program delivery), developmental (stages of CU maturity within and across organizations), role oriented (function and purpose within the organization), and process oriented (how the CU supports and aligns with key organizational processes and strategies). As illustrated below, these four perspectives are useful in analysing CU evolution over time and in different localities.

Structure-oriented perspective: Salmi (2000) discusses the range of modalities of delivery, whereby a CU may operate under any combination of delivering courses or programs : (1) via a network of physical facilities (Disney, Toyota, Motorola); (2) completely virtually via e-learning (IBM, Dow Chemical); or (3) via partnerships with traditional universities (Bell Atlantic, United Technologies). Although many CUs outsource portions of their CU programs and operations to private educational firms or institutions of higher learning, several companies such as Accenture offer complete outsourcing of CU services from design and development to delivery and calculation of ROI (J. Meister, personal communication, March 11, 2007). S. Taylor and Paton (2002) offer a typology of CUs along two dimensions: (1) the nature of learning from basic skills training to more advanced forms of knowledge sharing and research; and (2) the mode of delivery from completely virtual to classroom and campus based. Based on these axes, there are four archetypes of CUs: (1) the "training school", exemplified by McDonald's Hamburger U., delivers skills training in a classroom setting; (2) computer based training on the company intranet such as Shell Open University; (3) the "chateau experience" where leaders get away from the pressures of daily work to bond and strategize such as Boeing's Leadership Development Centre; and (4) the "polymorphous" university exemplified by Cap Gemini Ernst & Young, which may offer a combination of (1), (2), or (3).

Developmental perspective: Using data obtained at a 2000 global corporate university conference, Rademakers and Huizinga (2000) identify three phases of CU development: (1) fragmented training operations are centralized and the goal largely remains skills training and knowledge dissemination; (2) the linkage with company strategy is formed and CUs become the “knowledge backbone” of the organization; and (3) organizations actively generate and disseminate knowledge utilizing largely internal resources such as internal case studies and managers as instructors.

Role-oriented perspective: Fresina (1997) describes three distinct strategic roles of the CU within the organization: (1) reinforcing and perpetuating behaviour that reflects the organizational culture; (2) managing change; or (3) driving and shaping the organization. Wheeler (2002) employs a similar taxonomy when categorizing CUs according to drivers at the firm level: (1) using the label of “university” to gain prestige; (2) employee competency and career development; (3) leadership development to provide for effective management teams and succession planning; (4) alignment with specific business strategies such as globalisation, productivity, process improvement, and/or empowerment; (5) business development initiatives exploring, developing, and planning for new opportunities; (6) educating and managing the customer and supplier relationship; or (7) change management facilitating a “transformation process as a company embarks on a new strategy or is in the process of merger or acquisition.”

Process-oriented perspective: Prince and Stewart (2002) describe four types of processes present in the organizational context of a CU: (1) knowledge systems and processes including the technology for capturing, analysing, and disseminating knowledge; (2) networks and partnerships, both internal and external to the organization; (3) people processes including HRD policies, programs, and procedures; and (4) learning processes including creating a culture for learning supported by top management. At the centre of this model lies the CU as a conduit and facilitation device, linking and aligning to these key processes through information sharing, coordination, evaluation, and other activities. Andresen and Lichtenberger (2007) identify two types of CU strategies: (1) CU learning strategies that are directly aligned with organizational strategies; and (2) contextual strategies that have an indirect effect. Learning strategies evolve in their complexity from employee skill delivery to business initiatives and environmental scanning. Contextual strategies include knowledge management, boundary spanning, and dissemination of a common organizational culture and vision.

#### **Evolution and Sustainability of CUs**

In keeping with its focus on the strategic aspects of CUs, the literature review in this paper assessed what the extant literature considers to be the strategic value of CUs, how this value is measured and sustained, and how CUs evolve in response to changing strategic challenges of corporations. Here too, there is a wide range of views in the extant literature, as is selectively illustrated below.

Field (2005) reports that CUs have been shown to improve employee performance and reduce turnover. At the same time, Taylor and Patton (2002) report that CUs can and do occasionally fail, due to an inability to cope with rapid changes in corporate structures and policies. CUs are increasingly becoming means for parent organizations to demonstrate good corporate citizenship. The University of Toyota, for example, opens its doors to outside organizations that are able to benefit from their “lean thinking” manufacturing process and has provided training to the U.S. military and police departments at no charge (Spector, 2007).

Also noteworthy is the evolution of CUs in response to strategic opportunities and challenges. According to the Corporate University Exchange (CUX, 2006), the sustainable CU model has evolved from that of a traditional university to the structure of a corporation and is likely to be “virtual”. Teare (2004) also predicts that CUs will be less reliant on the symbols and trappings of traditional universities as they deliver a “parallel, equivalent, but different paradigm in business and management education.” CUs are also changing in response to evolutions in adult education and workplace learning. Blended solutions, action learning, communities of practice, podcasting, just in time learning, and simulations are increasingly part of the CU repertoire. There are also numerous firms offering outsourced learning solutions to CU clients and an enhanced willingness on the part of business schools to create joint degree and non-degree programs with CUs (Meister, 2006).

Clearly, elements of strategic evolution of CUs appear in the literature. Yet, it is striking that there is little focus as well as little or no consensus on how CUs have evolved in response to strategic business challenges which elsewhere have been linked to globalisation. For example, business response to the challenge of global talent

management would be an obvious shaper of CU evolution. Rademakers and Huizing (2000) conducted a survey at Global Corporate University week in 2000 and did not find talent management to be a priority for CUs. However, according to (CUX, 2006) and (Field, 2005) talent management and leadership development have become top priorities for CUs worldwide, increasing the sustainability of CU influence within the organization. As suggested below, a research gap may lie in the interstices between the extant CU literature and the inter-related literature on globalisation, talent management and workplace learning.

## **The Impact of Globalisation on Talent Management and Workplace Learning**

This paper argues for the heuristic value of linking the analysis of CU evolution to the dynamics of three related developments – globalisation, talent management, and workplace learning. Relevant aspects of the literature on these topics are reviewed here to help situate and analytically frame the contemporary dynamics of CU evolution.

Part of the difficulty of relating the phenomenon of CUs to globalisation may be that definitions and analyses of the latter abound and vary. Nonetheless, this paper argues that most analyses of globalisation which are relevant to CUs tend to share a common concern with capturing a series of economic, political, technological, demographic, cultural, and other shifts which are shaping the size and nature of the global marketplace. Within this plethora of definitions, globalisation can be broadly typified as the “complex integration of capital, technology, and information across national boundaries in such a way as to create an increasingly integrated world market...” (Salmi, 2000). While the literature of globalisation generally recognises it as a phenomenon that is not new, much emphasis is placed on the impact of the contemporary process of globalisation on shaping the behaviour of firms facing an increasingly competitive environment. At the same time, globalisation has ushered distinctly different processes of internationalisation as so-called “born global firms” and “international new ventures” have emerged which are international players almost from inception in contrast to older and more established multinational enterprises (MNEs) which internationalised starting from a strong home country base (Mathews and Zander, 2006). Future CU evolution could parallel this new dynamic of international firm creation, with both phenomena being closely related to globalisation. They are therefore further considered in the research agenda on CUs proposed in this paper.

Related to globalisation is the challenge of talent management which this paper contends is central to understanding the future evolution of CUs. Chambers, Foulon, Handfield-Jones, Hankin, and Michaels (1998), in a landmark article published in the *McKinsey Quarterly*, introduced the concept of a growing “war for talent” and the need for firms to undertake a process of strategic talent management. Talent management situated in the context of human resource or human capital management can be defined as the strategic recruitment, development, and retention of talent for competitive advantage (Michaels, Handfield-Jones, and Axelrod, 2001). Focussing on relevant issues for CU evolution, the following citations from the talent management literature highlights six global workforce trends that impact upon and inform talent management developments and practices in the 21<sup>st</sup> century.

- Demographics in developed countries (USA, Europe, and Japan) have resulted in an aging population, many of who are retiring early. These trends will result in a severe shortage of skilled labour, exacerbated in nations reluctant to import large numbers of immigrants to compensate for the loss (Frank and Taylor, 2004).
- Both workers and jobs are becoming increasingly global, with the number of jobs in high-wage locations moving offshore set to increase dramatically, although estimates differ (Tucker, Kao, and Verma, 2005; Farrell, Laboissière, Pascal, Rosenfield, de Segundo, Stürze, and Umezawa, 2005).
- Technological advances have enabled a surge in remote working arrangements and virtual teams. The ability to network across time zones and cultures has become an imperative in a global talent supply chain (Pucik, 1996).
- Due to economic and demographic changes, as well as migration patterns, the global workforce is increasingly diverse, necessitating cross cultural skills in communication, teamwork, and leadership at all levels (Rodriguez, 2005).

- Technical innovations that have created products and processes that are “information” intensive, giving rise to a new skilled category of employee termed the “knowledge worker.” This class of worker has become “autonomous and empowered” on decisions affecting working conditions and career paths. (Tucker, Kao, and Verma, 2005).
- With increasingly complicated global operations and an increasingly diverse workforce working at locations around the world, some virtually, there is a pressing need for global leadership competencies at the managerial level (Cabrera and Bowen, 2005).

This paper contends that the above related developments in globalisation and talent management are fundamental shapers of the contemporary evolution of CUs. In order to more robustly frame the contemporary dynamics of evolution of CUs, these factors should be considered in conjunction with related shifts in the nature of workplace learning. Workplace or enterprise based learning situated in the context of human resource or human capital development has traditionally occurred at the individual level to provide the firm with sufficiently “trained” personnel. However, attention is beginning to be paid to the motivational aspects of learning, particularly as the need to attract and retain talent intensifies. At the individual level, the opportunity to learn is a both a motivating force and a career necessity in a rapidly changing and sometimes unstable economic environment. In 2005 Towers Perrin undertook a survey of 86,000 employees in 16 countries, focusing on workplace practices that influence employee motivation. They found “the most important element influencing engagement, defined as the “willingness and ability to contribute to the organization’s success,” is the possession of sufficient opportunities to learn and develop new skills” (O’Neal and Gebauer, 2006). Firms are quickly realizing that “high performance global companies must create an inclusive culture where people are self challenged...”(Jacobs, 2005). The MOW study assessing the relative importance of managerial work goals across eight Asian nations found the “opportunity for learning” to be a universal preference (Pearson and Chatterjee, 2004). Edwards, Raggatt, Harrison, McCollum, and Calder (1998) address life long learning in the context of globalisation as a “key instrument in developing a competitive, multi-skilled workforce.” The article also mentions the strategic imperative of work place learning in the life long learning context in dealing with ever changing career paths and uncertain economic environments, necessitating individuals to continuously update their resumes with new competencies.

Notwithstanding this traditional and continuing focus on individual skills as a major thrust in workplace learning, attention is also starting to shift toward the concept of the “learning organization” whereby learning becomes a collective and sustainable process embedded in organizational systems and culture (Marquardt, Berger, and Loan, 2004). The literature on the “learning organisation” has also evolved in tandem with a closely related literature of knowledge management which has also grown in recent years partly as a result of competitive pressures related to more rapid global diffusion of information. Although not a focus of this paper, these developments are noteworthy because of the implications they have for how organisations structure themselves to better acquire and use knowledge at the global level. Indeed, to a large extent, the recent evolution of CUs can be seen as a response to the imperative of effective organisational learning and knowledge management processes coupled with a drive for acquiring, developing and retaining scarce global talent (“Survey: Everybody’s doing it,” 2006; S. Taylor and Paton, 2002). This paper suggests that a preliminary analytical framework for integrating analysis of CUs into established areas of management scholarship can be found at the nexus of the scholarship on globalisation, talent management, and workplace learning with certain overlaps into scholarship on organisational learning and knowledge management. Pointing to a possible broad research agenda on CU evolution, the next section illustrates the scope and utility of bridging CU literature with other areas of management scholarship. It posits two research questions on CU evolution which could draw on both empirical elements of the extant CU literature and concepts from the three areas of management literature considered above – globalisation, talent management, and workplace learning

## The Dynamics of Corporate University Evolution in the Context of Globalisation

Although “corporate universities are a global concept” (Monga, 2006), the CU literature surprisingly contains very limited direct references to the impact of globalisation on CU products and processes. The scant academic and corporate literature on CUs in a global context largely consists of case studies of MNE workplace learning strategies addressing specific issues such as global leadership development. Other literature specifically focused on CUs discusses the development of the phenomenon in specific geographic contexts (U.S and Europe) and most recently, in emerging markets (e.g. India), as also documented below. Nonetheless, several “entry points” are available to bridge the CU literature with established management literature and through which the phenomenon of CU evolution can be more robustly and analytically framed in relation to globalisation, talent management, and workplace learning. This discussion underpins the research agenda proposed in the conclusion of this paper.

One entry point is the abundant literature on the internationalisation of human resources development and enterprise learning, both as structural responses to changes in the dynamics of international business and as specific competencies for leaders, managers, and employees. Pucik (1996) points out that MNEs have traditionally focused on expatriate management selection and support to the detriment of an organizational culture that is truly global. Grainger and Nankervis (2001) posit that globalisation has transformed the nature of business operations and subsequently the role of the expatriate and expatriate preparation and training. Expatriates have increasingly been joined by international managers who are locally or regionally based and global managers, who may be third country nationals. Global managers will require a broader set of knowledge and skills, ostensibly that come with experience as well as formal learning. Regarding the competencies required in the international firm Marquardt and Berger (2003) and Marquardt et al. (2004) emphasize the need for learning at the individual and organizational level that will address: (1) leadership development; (2) basic educational skills; (3) cross cultural competencies for overseas assignments and global teams; and (4) policies that are strategically aligned globally and locally responsive, entitled “glocal.”

The set of knowledge and skills mentioned above, coupled with a global organizational awareness and paradigm shift have been abundantly referenced in the literature as “global mindsets”. A global mindset can be defined as “an openness to other cultures that facilitates international dealings and decisions” (Rhinesmith, 1995). Global mindsets can exist at the individual and organization level. Gupta and Govindarajan (2002) illustrate an advanced organizational global mindset by quoting the CEO of a U.S. based household accessories company’s strategy as “combining Chinese costs with Japanese quality, European design, and American marketing.”

Although discussion of global competencies and mindsets usually takes place at a managerial or executive level (Dainty, 2005), the literature contains examples of international adaptations in perspective and behaviour by front line employees and their supervisors in global service delivery firms. Traditionally these firms have been located in the tourism and hospitality industries, but due to increases in outsourcing and offshoring, have been joined by financial services, IT, the consulting industry, and call centres. In his book on global call centres Granered (2005) discusses employees’ awareness and adaptation to the cultural values and communication styles of customers worldwide as a success variable. He also makes specific recommendations of training activities based on best practices in global customer service in the hospitality industry, such as the Ritz Carlton (“The Ritz-Carlton Company: How It Became a 'Legend' in Service,” 2001). In their book on multicultural customer service (Aguilar and Stokes, 1996) provide a framework and exercises for training employees in cross cultural awareness and techniques based on the Walt Disney Company’s success in creating international tourism destinations.

These emerging strands of literature can suggest at least one significant research question relevant to the evolution of CUs. How can and how do multinational companies employ workplace learning and, more specifically CUs, in building a global corporate culture? Possible responses to this research inquiry can be extracted and synthesised from the disparate management and CU literature. Ananthram and Chatterjee (2004) identify “boundary spanning activities” and international experience as key factors in nurturing global mindsets. Boundary spanning activities can include “international strategic alliances, joint ventures, international mergers and acquisitions, international supplier agreements, global responsibility designations, global team participation, ad hoc project groups, networks, shared tasks or jobs across national boundaries.” While some of the activities listed above are the

consequence of strategic global decisions, others can be designed and implemented as learning activities to enhance global awareness and strengthen mindset competencies at multinational organizations.

This line of inquiry can be pursued by borrowing from Wisniewski and Laubenthal (2006) who posit a global learning culture framework that requires learning operating structure and protocols, technical communications capabilities and a “cultural exchange program that increases buy-in, promotes understanding and shares best practices.” Applying the concepts from Ananthram and Chatterjee (2004) and Wisniewski and Laubenthal (2006), empirical responses to the research question above can be found from examples of formal and informal global learning initiatives in the CU literature. Meister (1998) describes tactics taken by mature CUs such as Motorola and General Electric to create global awareness and share best practices worldwide such as benchmarking field trips for executives followed by teams of technical and staff workers. GE has opened their training centre at Crotonville to high potential Chinese managers from other companies as potential partners (Meister, 1998). Stanek (2001) at General Motors recommends global mentoring programs as a means to identify and develop the mindset of high potentials worldwide. TRW, a global technology, manufacturing, and service company headquartered in the U.S. has created a 20 day “global leadership program” whereby senior managers from worldwide operations are brought together for campus based learning and a team based action learning assignment in a TRW country location (Neary and O’Grady, 2000). Ernst & Young regularly conducts cultural exchanges of learning experts worldwide, even periodically pulling local subject matter experts off their regular jobs to build global content libraries with learning teams at headquarters (Wisniewski and Laubenthal, 2006). Heineken, with 60,000 employees in 170 countries, established Heineken University in 1998 and hosts 1300 employees annually at its Amsterdam learning centre along with provision of an extensive virtual business education program, culminating in the Heineken Business Challenge, an annual global entrepreneurship simulation (Pollitt, 2005).

Broadly related to the above is another illustrative research question pertaining to the evolution of CUs in the context of globalisation, talent management, and workplace learning. How can MNE CUs help meet the twin challenges of developing a global corporate culture while operating in diverse cultural environments?

The experience of Motorola University, one of the best known examples of a CU as global learning enterprise, provides some insight. Motorola University was established in 1979 and has grown into a worldwide facility covering 100 sites in 24 countries (Shaw, 2005). Motorola is known as a training and development leader, requiring all employees to complete at least 40 hours of training per year (Authers, 1998). Motorola University China was established in 1993 and launched a range of educational programs for customers and suppliers in 2002 (Goff, 2002). This expansion represented a major investment in human resource development, particularly the development of a managerial cadre and the emphasis away from traditional training to strategic learning partnerships in the region (“Motorola University and higher education- the exception that proves the rule?,” 2003).

China particularly experiences a lack of managerial talent in the 40-50 year old age cohort due to an interruption of education during the Cultural Revolution of 1967-1976 (Law, 2006). The new high potential Chinese workers, dubbed “high flying dragons” are motivated by career advancement and the opportunity to work overseas. China also faces the same shortage of “soft skills” capabilities due to a tradition of emphasising technical skills in the education sector (“China discovers its soft side,” 2006).

In order for Motorola and other MNEs with CUs in China to be successful in utilizing their CUs to attract, develop, and retain the next generation of “high flying dragons” and create global managers with local capabilities also known as “glocal” managers- they may need to combine Western style principles such as meritocracy and equity with traditional cultural values and practices (Shaw, 2005; Dam, 2005). Motorola’s emphasis on long term relationships in China is compatible with the “long term orientation” identified as a cultural dimension in Asian countries, particularly China (Hofstede, 2005). However, according to Shaw (2005), cultural barriers still exist in the adoption of e-learning as opposed to traditional classroom instruction and forms of management development, such as coaching which breaks down traditional “guanxi” relationships.

## Worldwide Evolution of CUs: a Comparative Literature and Empirical Review

Before extending the two illustrative questions above into a broad research agenda, it is also useful to briefly consider how both the CU literature and CUs themselves have actually evolved in various geographic settings. This further motivates the general interest in this paper in the impact of globalisation on CU evolution. The emphasis below is on broadly comparing CU developments in Triad and periphery economies as well as other regions with a view to motivating unexplored questions in various settings regarding the future evolution of CUs. These include issues of possible future convergence and divergence in MNE CU practice worldwide, shaped by twin global and local forces impacting on MNEs.

### **The Comparative Development of CUs in Triad Economies: the United States, Europe, and Japan**

Europe and the United States provide interesting cases of both comparison and variance in their CU literature as well as CU practices. One noteworthy pattern in CU research is the predominance of corporate literature over academic literature in the U.S. and the reverse in Europe. In the U.S. benchmarking research has largely been performed by consulting firms and disseminated as industry newsletters and reports by private organizations such as the Corporate University Exchange (CUX), International Quality and Productivity Centre (IQPC), Corporate University Enterprise (CUE), and Best Practices, LLC. Most of the peer reviewed literature in English found by this researcher originated in universities in the United Kingdom, followed by the Netherlands and Germany. The Open University Business School in the UK, for example, has established a Corporate University Project, which “aims to provide the first analytic and empirical study of a significant development in workplace-based learning” (“The Corporate University Phenomenon,” 2005).

Although CUs grew in popularity in Europe in the 1990s, their numbers are by some accounts still in the low hundreds. This is relatively small compared to the U.S. (Blass, 2005). Common practices in the U.S. and Europe include “running training centres as businesses, involve leaders as teachers, influence how and what people in the company learn, measure the value of their investments in education, and experiment and coordinate and innovate new partnerships with universities and business schools” (Blass, 2005). Among European MNEs with well established CUs are Lufthansa, Siemens, Daimler Chrysler, Heineken, BAE Systems, Isvor-Fiat, Body Shop, Nestle, and Unilever. In one of the few comparative case studies of CUs, Renaud-Coulon (2002) examined CUs in nine European countries and discovered some distinctions from the U.S. model such as a greater reluctance to use the label “university”, a more selective learner base comprised of more executives and high potentials and fewer customers and suppliers, more limited use of rewards and diplomas, more use of the “chateau model” (Prince and Stewart, 2002), and more frequent use of the “cost centre” rather than the profit centre financial model. Andresen and Lichtenberger (2007) conducted an analysis of 15 CUs in Germany with comparable size to their U.S. counterparts and also found a more limited selection of learners but a “wider range” of action internationally.

Although Renaud-Coulon (2002) described a reluctance on the part of European CUs to adopt e-learning solutions, Bradshaw (2000) reports that several European Universities have been recognized by Corporate University Exchange for their development of online teaching including Lufthansa’s School of Business, Cap Gemini Ernst & Young University, and the University for Lloyds TSB. Lufthansa, the first CU in Germany founded in 1998, has also been recognized for their innovative use of partnerships with business schools (“Another award for Lufthansa’s corporate university” 2007). An interesting development in Europe has taken place around the Corporate Learning Improvement Process (CLIP) administered by the European Foundation for Management Development and adopted thus far by Daimler Chrysler Financial Service Academy and ten other leading European CUs (Boone, 2006). CLIP serves as a quality assurance and accreditation mechanism that involves a review process lasting several days, allowing self assessment against benchmarked practices (Anderson, 2005).

CU developments in Japan illustrate many of the imperatives of globalisation. Major Japanese corporations such as Toyota, Nissan, and Fujitsu, have established CUs with extensive global networks. Mike Morrison, dean of the University of Toyota, founded in 1998, has written of his experiences designing a university that supports dealers and employees worldwide (Morrison, 2002). Although the University of Toyota is headquartered in California, the principles of *kaizen* (continuous improvement), signifying small changes as opposed to the American



tendency for bold moves, and *genchi genbutsu* (go look, go see) are displayed on the walls and incorporated in “lean enterprise” training principles and practices such as “just in time” learning (Spector, 2007; Summerfield, 2002).

#### **CUs in Emerging Markets: The Indian Experience**

Paradoxically, emerging economies with huge labour pools, such as India and China, perhaps best illustrate the imperative of CU evolution driven by talent management needs. Over the past five years, increasing attention has been paid to the rapid growth of the Indian economy and specifically the international success of Indian firms in the IT industry (Sengupta, 2006a). Despite India’s growing population and number of graduates from institutions of higher education, the Indian economy is facing a “talent famine” where qualified individuals are in short supply (Sengupta, 2006b). There is expected to be a 500,000 labour shortfall in the IT sector alone by 2010 (“Survey: The world is our oyster,” 2006). Opportunities have lured back Indian expatriates (Pocha, 2007), Indian companies are going abroad to recruit technical talent in North America, Europe, and Australia (Sengupta, 2006a) and outsourcing technical operations in rival economies such as China (Rai, 2004). Indian firms are also facing another problem with regard to talent; graduates of public institutions in India often lack the ability to transition from a somewhat rigid academic system into fast paced industries that require flexibility, problem solving, and adaptive leadership (Mahajan, 2007).

As with the situation in China described above, MNEs in India have undergone initiatives to develop a pipeline of job-ready employees, using the resources and expertise of their CUs. IBM Corp. is establishing a Development and Executive Centre in Bangalore that will, among other strategic initiatives, enhance the software development skills of Indian students (“IBM Triples Investment in India,” 2006). Motorola University, teaming with government and private sector partners, is opening the Motorola School of Communication Technology in Hyderabad, offering higher education and research and development opportunities spanning IT and telecommunications industries (“Motorola U to set up school in India,” 2000).

Indian firms are developing workplace learning initiatives to keep pace with the need for technical and managerial talent. Of the 29 organizations lauded by the American Society of Training and Development for their ability to “leverage learning to achieve amazing results”, five were Indian firms: Tata Consultancy Services, Wipro Technologies, Reliance Industries, ICICI Bank Limited, and Gecis International Holdings (“29 Organizations That Leverage Learning To Achieve Amazing Results,” 2005).

Among rapidly growing Indian firms are “born international” enterprises that must almost from inception, attract, develop, and retain talent worldwide. Raghuram (2001) wrote a case study focused on the human resource development challenges faced by Infosys, an IT consulting and services firm headquartered in Bangalore. Leadership development and promotion occurs in a compressed format, whereby a new 22-year old hire may become a manager at age 24 and a vice president at 35 years. In response, Infosys has invested 300 million dollars (US) in building a CU in Mysore with the capability of training 13,500 people at one time (“The Academic System Is Not Market Responsive; A BT-NASSCOM panel ponders on a looming qualitative talent crunch, and looks for longer-term solutions,” 2007). Infosys was the first company founded in Asia to receive the Corporate University Exchange Excellence award for “aligning corporate learning to business strategies” (“Infosys wins prestigious Annual Corporate University Xchange Excellence Award for ‘Aligning Corporate Learning to Business Strategies,’” 2002).

Satyam Computer Services, another Indian IT and consulting services firm, has experienced an expansion of staff from 100 to 30,000 associates worldwide in 15 years. The Satyam School of Leadership, located in Hyderabad, was founded in 2005 to provide “entrepreneurial leadership opportunities” to the top 5 percent of associates in defined areas, thus “growing leadership” faster than the competition (“Satyam Plans Corporate University to open the Satyam School of Leadership to develop and nurture leaders to accelerate the company's growth,” 2005). Eighty per cent of Satyam’s learning programs take place virtually or in an alternative to classroom based learning such as “coaching, mentoring, job rotations, and self study” (Cohen, 2007).

#### **CU Development in Other Regions**

There is a variety of literature focusing on CUs in other regions. Canadian organizations have been recognized in the literature for their innovative learning programs such the Bank of Montreal Institute for Learning (El-Tannir, 2002), the TELUS Corporation’s Leadership Expectation Program (“29 Organizations That Leverage Learning To Achieve Amazing Results,” 2005), and the Eaton School of Retailing, which was founded in partnership with a Canadian

university in 1994 to train Eaton employees but has now branched out to other retail organizations (Morin and Renaud, 2004).

Australia has a long tradition of distance education and corporate partnerships with traditional universities to develop and deliver learning initiatives (Dickson, 2002). Holland and Pyman (2006) conducted a case study of the Coles Myers Institute, CU of the largest private sector employer in Australia and found a strategic focus on career development at all levels, including certificates and diplomas offered in conjunction with Deakin University.

According to Gqubule (2006), CUs are making an inroad in South Africa. SAB's Training Institute, founded in 1992, is the oldest recognized CU in South Africa, offering on site programs as well as on-the job "learnerships" in all aspects of the business. A unique life skills program is entitled "resilience" and serves to reinforce organizational loyalty ("Investing in people," 2006). Finally, while there is evidence of a growing CU presence in Russia (Skovorinsky, 2006), Brazil, and the Middle East (CUX, 2007) the literature on developments in these location is not readily accessible or scarce within corporate or academic journals.

## **Conclusion: Towards a Unified Analytical Framework and Future Scholarship on CUs**

It would be presumptuous to presently specify a single appropriate or even likely set of future models for CUs, especially for MNEs, based on our presently available research on both CUs and globalisation and our understanding of the contemporary dynamics of CU evolution under globalisation. However, at least four significant developments can be identified or postulated, based on developments reviewed above, as an indication of how globalisation might plausibly shape the evolution of CUs worldwide:

- The talent shortage experienced by MNEs worldwide and an emerging role for CUs as motivators as well as developers of talent;
- The imperative of global companies to develop specific competencies needed in a global climate and the related role of CUs in developing and delivering these competencies;
- Some limited evidence of convergence as well as divergence in CU practice (notably in contrasting experience of the US and Europe) as well as twin global and local shapers of MNC CU strategies; and
- Specific CU innovations in firms situated in the periphery, especially in emerging economies, and specifically in the case of "born global" firms emerging in these and other economies.

These developments themselves suggest a rich and useful research agenda which can draw from a synthesis of findings and approaches from the CU literature and emerging research in globalisation, talent management and workplace learning. More specifically, and drawing on the limited and selective review above of these streams of literature, the following non-exhaustive set of research questions, among others, can be suggested as fruitful areas for further inquiry:

- If workplace learning strategies can be used to attract, develop and retain talent in MNEs, what roles can CUs play to implement these strategies?
- How might CU strategies vary among MNEs with a globally diverse workforce according to imperatives of fostering a global corporate culture versus adapting to possibly different workplace learning requirements which are determined by specific culture and locality?
- Are there patterns in CUs of "born global" firms and newly emerging MNEs from the periphery which suggest distinctly new approaches to workplace learning and talent management compared to past CU strategies in more established MNEs?

In conclusion, it is suggested that various streams of literature briefly and selectively reviewed here can all benefit from a more unified approach to these and other related questions and also enrich our grasp of the strategic, comparative, and dynamic aspects of CU evolution as underpinned by globalisation.

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NOTE: Contact the author for the full list of references

# Self-Construal and Perfectionism Effects on Strategies of Postgraduate Business Education

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## Abstracts

The purpose of the current study was to investigate and compare similarities and differences among three major ethnic groups as consumers of post-graduate education (i.e., Western-Australians, Eastern-Asians and Eastern-Indonesians-Malaysians). Central was the mediating role of personality factors (i.e., self-construal and perfectionism dimensions) in the relationship between culture and complaint or compliment behaviors noted in postgraduate business education at Curtin University of Technology. The quantitative research design depicts an understanding of the relationships between cultural links among personality factors and complaint/compliment strategies; findings confirm sundry aspects of cultural links. Results also indicate a strong statistical significance demonstrating differences among the three major ethnic/cultural groups in relation to independent self-construal, interdependent self-construal and socially prescribed perfectionism; these differences influence the inclination of post-graduate business education students to select particular communication strategies, and demonstrate that complaint and compliment strategies in higher business education are affected not only by ethnic origin, but also by personality factors which underlie consumer behaviors.

## Introduction

In today's climate, this is imperative as the growing importance of marketing higher business education, use of marketing techniques and increasing enrolments of international students within Australia put pressure on tertiary institutions to create a greater awareness of their offerings. In marketing, customer satisfaction is the basic entry point for business practices to provide good service quality by setting higher barriers to market entry and reinforcing organizational competitive advantage. Evidences have indicated that, across cultures, there are differences and similarities in the process of customer satisfaction and behavior intention (Liu, Furrer & Sudharshan, 2001; Liu & McClure, 2001; Barnlund & Araki, 1985).

The extant literature on customer satisfaction has its roots in marketing; higher education has been managed under somewhat different environments and situations than private 'for-profit' organizations. Athiyaman (1997) clarified the relationship between perceived quality and satisfaction within university education and suggested that all service encounters should not be forgotten that the purpose of services is student satisfaction. In the application of customer satisfaction theory to higher education in business it has been argued that students are not always customers (Alford 2002), but a quarter of the role (Guolla 1999), and that higher business education is not 100% about business practices as other business industries, but an example of quasi-commercial activities (Brookes 2003). According to the perspective of above cited role play, it is very stressful for an organization's service provider; being in a passive position depends on receiving the corresponding feedback from satisfiers and dissatisfiers.

Ideally, as highly satisfied people spread positive word-of-mouth or highly dissatisfied people spread negative word-of-mouth among students, peer word-of-mouth acts as a powerful influence which is a free walking, talking, living advertisement for any educational institutions, Especially in Asian countries, the word-of-mouth referral behavior is common (Money, Gilly & Graham 1998). Essentially, the possibility for satisfiers or dissatisfiers at the completion of their studies, whereby students complain/praise to institutions and service providers directly or indirectly via sundry channels, should be given a great deal of attention. With the increasing use of the Internet, word-of-mouth communication among satisfiers or dissatisfiers will spread faster and further when the phenomenon

of communication breaks geographical boundaries; it drives many service practitioners to re-focus on students' reactions on service quality.

In higher education of business, hundreds of publications on the subject of quality, such as quality management frameworks (Owlia & Aspinwall 1996; 1998), student satisfaction (Athiyaman 1997), measuring customer satisfaction in higher education (Aldridge & Rowley 1998), research has been geared strongly toward demonstrate students' psychometric performance, but examination of the effects on behavioral responses across culturally has received very little attention. In practice, managing to moderate or reduce the dissatisfaction of current customers/consumers can protect an organization's market share, profitability and product positioning. Unlike complaint behavior, compliment behavior has received little attention.

No matter whether students use complaints and compliments, behavioral responses to satisfaction would lead to useful or subjective information as signals to the service providers. Yet, people perceived service quality differently would not lead to the same behaviors. In relation to communication style, it is noted that it is not culture that complains or compliments, but people. General speaking, dissatisfaction alone may not lead people to consider complaining (Bearden & Mason 1984; Halstead & Droge, 1991) and the presence of situational and personal factors may determine whether people complain or not (Day, Grabicke, Schaetzle & Staubach, 1981). Furthermore, while recognizing the influence of culture in shaping personality, culture is defined as the result of individuals learning from experiences in their environment (Axelson 1993). Although there is a wide range of individual differences in any given culture, different people frequently do not perceived situations similarly or choose to act in them in a similar way. However, cultural influences can be beyond one's active control and it is an unconscious and automatic act to default behavioral and affective reactions to certain events and objects (Rozin 2003).

There is limited information related to how culture affects complaint and compliment behavior through an individual personality, thus, the rest of this paper is organized as follows. Firstly develop the conceptual model and associated research hypotheses that address the possible linkage; the mediating role of personality factors (i.e., self-construal and perfectionism dimensions) in the relationship between culture and complaint/compliment strategies. Then, to describe the sample and measures employed in the study and follow by reporting the empirical research results. Finally, conclusions from this study have important managerial implications to service providers, identifying study limitations and proposing future research directions.

## **Literature Review, Research Hypotheses and Conceptual Framework**

Based on the literature review, there are sundry factors related to complaint or compliment behavior that can be addressed accordingly.

It is evident logically that there is no universal model that can fit in all organizations and all customers or consumers. Even though higher education institutions practice business-like activities, they cannot apply 100% of the customer-oriented marketing theories and techniques without tailoring them to fit into their operation. For example, in the case of a complaint response, if a student fails the study program, it is difficult to seek redress, replace, refund or compensate the goods/services. A similar discontinuity occurs, when a student is extremely satisfied with an encountered service; they cannot leave a big tip to service providers as a complimentary response. Such a response could be viewed as a serious breach of behavior in higher education and, depending on its timing, may be viewed as bribery attempt.

In marketing, satisfaction/dissatisfaction is the internal state of a psychological process which is similar to attitude. The feeling of dissatisfaction may cause people to complain, complain can be manifest in different ways, i.e., exit, voice, negative word-of-mouth behavior and their party responses (Singh, 1988, 1990). Liu and McClure (2001) have argued that consumer complaint behavior (CCB) has been primarily western-oriented. Their empirical investigation compared CCB in a collectivist culture (South Korea) and an individualist culture (United States of America); results showed that customers in different cultures do have different complaint behaviors patterns (i.e., voice responses, private responses and third party responses), especially in actual behavior, the following hypothesis:

*H1:* Postgraduate business students with different ethnic origins differ in complaint responses (i.e., 9 complaint strategies: a. oral express directly to service provider, b. post it on the internet, c. write a letter or card to service

providers, d. telling friends and families, e. convince friends and families, f. write a letter to the media, g. report the issue to a higher authorities, h. take legal action, i. do nothing or forgot it-not to complain).

The primary compliment researches were prone to focus on linguistics to show cross-linguistic and cultural communication aspects of the politeness phenomena, i.e., giving and acceptance (Ye, 1995; Lim, 2000; Holmes, 1988; Saito & Beecken, 1997) in relation to speakers of English for learners from different cultural backgrounds. Meanwhile, complaint or compliment acts often arise out of contrasting experience to confuse people who live in more than one culture; even it is received no complaint does *NOT* mean satisfaction, e.g., the complaint acts in Asian culture emphasize ‘harmony’ and ‘face-saving’, while for felt dissatisfaction, Asians prefer to complain to their social group or keep silent instead of directly complaining to a poor service provider. Western people are taught to express their emotions freely like ‘read me as read my face’ whereas Asian people would hide their emotion behind a neutral face. For compliment acts in Western culture, Australians are likely to praise family members in public as a courtesy, or a female dressed up may show friends ‘I look pretty, don’t I’ to gain more compliments; but those acts would be viewed as ‘self-praise’ which should be avoided in Confucian or Buddhist cultures. Furthermore, literature shows that personal norms and rules that guide behavior directly affect communication behavior and cultures have no existence except as they are manifest in the behavior of the people who constitute them (Barnlund & Araki 1985), thus,

*H2: Postgraduate business students with different ethnic origins differ in compliment responses (i.e., 9 compliment strategies: a. oral express directly to service provider, b. post it on the internet, c. write a letter or card to service providers, d. leave a gift to express appreciation, e. telling friends and families, f. convince friends and families, g. write a letter to the media, h. report the praises to a higher authorities, i. do nothing or forgot it-not to compliment).*

On the basis of services marketing and cross-cultural psychology literature, Liu, Furrer and Sudharshan (2001) depicts how culture influences behavioral intentions toward banking services and hypothesized relationships between Hofstede’s cultural dimensions (i.e., power distance, individualism, masculinity, uncertainty avoidance, and long-term orientation) and the five categories of behavioral intentions (i.e., loyalty to the company, propensity to switch, positive word of mouth, negative word of mouth and complaining). Moreover, the majority of the studies of the similarities and differences in individual psychological processing in various cultural and ethnic groups to indicate that culture is an antecedent to human thought and behavior (e.g., Furrer, Liu, & Sudharshan, 2000; Berry, Poorting, Segall & Dasen 1992; Trianis, 1994). However, the role of culture was defined in work-related values to generalize Hofstede’s findings to the whole culture.

In many past studies, culture was assumed rather than measure directly, drawing upon Individualism-Collectivism (I-C) score. It assumed I-C was a set of values, beliefs, attitudes and behavioral norms used as a conception for different cultural syndromes (Triandis 1995). Since the 1990s, cultural psychologists have looked at more differentiated, more meaningful variables to identify collectivist and individualist identities and societies, and the shift in relations between East and West. Markus and Kitayama (1991) assumed that cultural-level individualism and collectivism have a parallel in individual level differences. A conceptual framework has been developed to examine personal self-construal and cultural identity (Marcus & Kitayama 1991, 1995; Singelis 1994, 1995). In the past, both individualism-collectivism and independent- interdependent self-construal were conceptualized by researchers as bipolar dimensions. Recently, more researchers have agreed that the two self-views were neither orthogonal nor mutually exclusive, but rather coexist within every individual (Markus & Kitayama 1994; Gudykunst et al. 1996; Singelis & Brown 1995; Singelis, Bond, Sharkey & Lai 1999). The two aspects of self can coexist within the individual (Aaker & Lee 2001; Brewer & Gardner 1996) and can vary in a given culture, across ethnic cultural background within Western or Eastern society. In addition, evidence has been documented (Kwan, Bond & Singelis 1997; Singelis & Sharkey 1995; Gudykunst et al. 1996) that, at the aggregate or cultural level, self-view differences have been found whereby individuals from Asian samples, (collectivist, East-Asian culture) tend to see themselves as less independent and more interdependent than those in North American/Western Europe (Individualist) samples.

People with an independent self tend to be unique, strive for their own goals, express their own viewpoint and are direct in communication whereas people with an interdependent self-construal which is a ‘flexible, variable’ self tend to emphasize external features such as status, roles and relationships that are more indicative of how one relates to others (Markus & Kitayama 1991). Members of individualistic cultures with independent self-construal in

their social interaction reflect a tendency to be pointed, direct, clear, unambiguous and concise in the choice of verbal tactics in conversations (Kim 1994) whereas those in collectivist culture are more indirect. According to Asker and Schmitt (2001, p. 562), cultural difference arising from traditions and religions (Buddhism versus Christianity), life philosophies (e.g., Confucianism versus the Enlightenment) and socialization processes (e.g., child-rearing practices that encourage differentiation versus assimilation) tend to foster the asymmetric development of the independent or interdependent self.

*H3A: Postgraduate business students with different ethnic origins differ in*

*1: Independent self-construal*

*2: Interdependent self-construal*

Moreover, Markus, Kitayama & Heiman (1996) suggested self-construal is the traits that demonstrate points of distinction about the nature of self through the method of cross-cultural comparison that have been explored.

In the psychology literature, when people are optimistic about their chances of success, they are less likely to engage in a defensive pessimism or doubt their ability to buffer the self from possible failure (Norem & Cantor 1986). Crocker & Park (2003) exemplified that most studies assume that when person perceived actual or anticipated success or failure, perfectionism or lower self expectations will be elicited as a mean of self-protective strategy. In marketing literature, Kopalle & Lehmann (2001) found an effect between perfectionism and expectations; they found that consumers who are perfectionists will have higher expectations than do non-perfectionists. If people can lower their stated expectations, an outcome can increase potential satisfaction. Nowadays, perfectionism has been given a new perspective as multidimensional approaches (Rice & Lapsley 2001), not a disorder but personality construct with adaptive as well as maladaptive. Studies comparing 417 African-American and White college students (Nillsson, Lupini & Tatem 1999) on two different perfectionism scale MPS (Hewitt & Flett 1991; Frost, Marten, Lahart & Rosenblate 1990) reported statistically significant differences between African American and White students on four subscales, with African American students scoring higher on other-oriented perfectionism and parental expectations, and lower on concern over mistakes and parental criticism. Mor, Day, Flett & Hewitt (1995) conducted a study of professional performance and found that both self-oriented performance dissatisfaction in terms of career progress and unhappiness with performance. Thus, even though perfectionist may deliver on accomplished performance, their exceptionally high standards may undermine the satisfaction associated with performing and may result in disappointment, which may be internalized into a negative self-view.

Kowalski (1996) suggested that individual personality related differences might influence a subject's complaint behavior. For example, if individuals affected by social concern have a high degree of fear of negative evaluation, that negative feeling will be likely to result in dissatisfaction that will lead to complaints. When outcomes are highly desirable but uncertain, people tend to protect themselves from disappointment by engaging in a variety of cognitive and behavioral strategies (Pyszcaynski 1982, as cited in Crocker & Park 2003, p. 14).

*H3B: Postgraduate business students with different ethnic origins differ in*

*1: self-oriented perfectionism*

*2: other-oriented perfectionism*

*3: socially prescribed perfectionism*

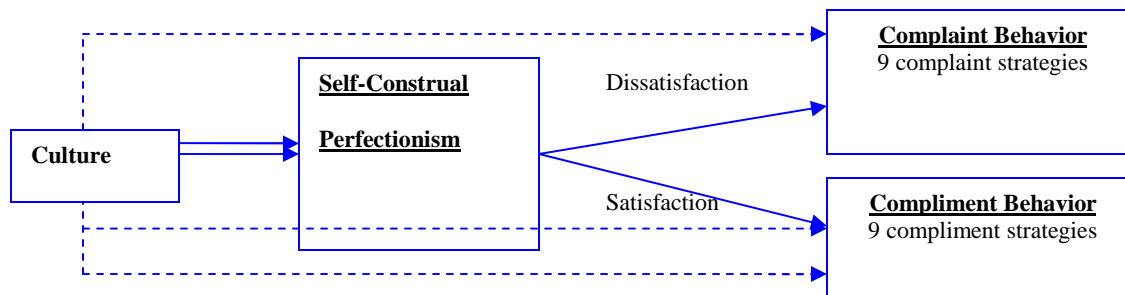
For international students pursuing advanced knowledge, postgraduate life in a host country can be filled with stress; from their cultural and language differences and preferred learning styles distinct from local students, it may be expected that postgraduate business students would be affected by social concerns and hold a high degree of fear of negative evaluation; in that case, their negative feelings may well result in dissatisfaction that will lead to complaint or not. Conversely, how is their compliment strategy when they perceive satisfaction toward service?

A proposed conceptual model is presented; FIG. 1 depicts the mediating role of personality factors in the relationship between culture and complaint or compliment strategies that were investigated any difference or similarity in higher business education context.

Independent  
Variables

Mediating Independent  
Variables

Dependent  
Variables



Hypothesised Causal Relationship  $\longrightarrow$   
 Hypothesised Relationship without considering mediating variables  $\dashrightarrow$   
 FIG. 1: CULTURAL ORIENTED MODEL OF COMPLAINT/COMPLIMENT

## Method

### Subjects

Participants were selected across Curtin Business School, from a number of business courses and were at least in their second semester of their postgraduate study, the volunteer lecturers consented to distribute questionnaires in their classes as a take home survey.

Participants were informed that they would be filling out questionnaires about their personal feelings and attitudes. Once participants had filled out a questionnaire they were excluded from responding in other classes. Informed consent was obtained from all participants and students were advised that could withdraw at anytime without prejudice or penalty. In addition, students were able to return questionnaires anonymously.

### Mediating Independent Variable

It included Self-Construal Scale (independence self- construal and interdependence self-construal) and perfectionism (self-oriented, other-oriented, or socially prescribed perfectionism).

The Self-Construal Scale (SCS) is designed to measure individual levels of independence self-construal and interdependence self-construal as separate dimensions by assessing “constellations of thoughts, feelings, and actions” (Singelis 1994, p. 584). In short, the purpose of adopting SCS is to determine the cultural identities of the participants. The SCS consists of 24 items comprising 12 on each of two dimensions. Each item is rated on a 7-point Likert scale, with answers ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Two separate scores are calculated, one for the strength of the independent self and one for the interdependent self. The scales are scored by adding each respondent’s scores for all the independent items and the interdependent items, and divided by 12 respectively to get the mean score for the items. Singelis reported coefficient alphas of 0.74 for the Interdependence subscale and 0.70 for the Independence subscale.

The Multidimensional Perfectionism Scale (MPS, Hewitt & Flett, 1991) is a 45-item scale consisting of three subscales that correspond with the authors’ hypothesized dimensions of perfectionism: self-oriented perfectionism (e.g. “I demand nothing less than perfection from myself”), other-oriented perfectionism (e.g., “Everything that others do must be of top-notch quality”), and socially prescribed perfectionism (e.g. “My family expects me to be perfect”) with 15 items in each of the dimensions. Respondents are asked to rate their agreement with statements based on a 7 point Likert scale ranging from 1 (*disagree*) to 7 (*agree*).

These distinct dimensions of perfectionism have reported reliability coefficients of 0.88, 0.74, and 0.81 for self-oriented, other-oriented and socially prescribed perfectionism, respectively (Hewitt & Flett, 1991). Research on the MPS based on college student samples has shown that it reflects three empirically distinguishable dimensions and has good test-retest reliability over a three month period (0.88, 0.85 and 0.75 for the subscales of self-oriented, other-oriented, and socially prescribed, respectively). MPS has construct validity with other measures of perfectionism (Chang & Rand, 2000). In their research on perfectionism and it relationship to college student



adjustment, Chang and Rand (2000) reported Cronbach's  $\alpha$  coefficients of 0.78, 0.71, and 0.76 for self-oriented, other-oriented, and socially prescribed perfectionism subscales, respectively.

#### **Dependent Variable**

In being reworded and refined to redesign the construct of complaint and compliment instrument for postgraduate business student, to rephrase and built on the constructs of Singh (1988) and Ho (2003) by focus group of a number of academic staff and postgraduate students within the school to develop a rang of appropriate compliment and complaint responses became necessary. The reason is most selected measures of several dependent variables that were known to be related with complaining behavior and compliment behavior in for-profit organizations, it cannot be employed 100% directly in higher business education context.

Complaint Strategies including 9 negative responses i.e., a. oral expression directly to service provider, b. post it to the internet, c. write a letter, email or card to service providers, d. tell friends/families about this bad experience, e. convince friends/families not to experience/use/enroll, f. write a letter/email to the local newspaper (media) about the bad experience, g. report the issue to a higher authorities, h. take legal action against the institution (represent lawful action), i. do nothing or forgot it (not to complain).

Compliment Strategies including 9 positive responses i.e., oral expression directly to service provider, b. post it to the internet, c. write a letter, email or card to service provider, d. leave a gift to express appreciation, e. leave a gift to express appreciation, e. tell friends/families about this pleasant experience, f. convince friends/families to experience/use/ enroll it, g. write a letter/email to the local newspaper (media) about the good experience, h. report with praise to a higher authorities, i. do nothing or forgot it (not to compliment).

Each complaint and compliment response was measured on a five-point Likert scale, with 1=Never, 2=Unlikely, 3=Somewhat Likely, 4=Quite Likely, 5=Highly Likely. The coefficient Cronbach's alphas is from 0.643 to 0.758 for the complaint strategies and from 0.642 to 0.768 for the compliment strategies, thus, approximated or exceeded 0.6 which is commonly regarded as an acceptable level of internal consistency.

#### **Data Analysis**

To investigate whether different culture/ethnic backgrounds will affect complaint responses, compliment responses, perfectionism dimension and self-construal dimension. The hypotheses will be tested by several one-way ANOVAs were performed and where the normality assumption could not be justified, the non-parametric techniques such as Kruskal-Wallis Test, Mann-Whitney test and tests of variance equivalence suggested unequivalent variance for the groups; the *Scheffé test* was performed in the present study. Apart from ANOVA, the principle statistical analysis technique was Bivariate Pearson Correlation, the purpose of which was to identify significant associations between the culture, personality factors and complaint/compliment behavior.

The commonly accepted level of significance in most business and social research is 5%. However, owing to the large number of tests performed in this study and, consequently, the increased risk of a Type 1 error, the 1% level of significance was adopted throughout the research.

## **Result**

Data was obtained from a sample of 261 postgraduate business students' enrolment from countries with diverse cultures: 109 (42%) were ethnic group 1=Western-Australian, 105 (40%) were ethnic group 2=Eastern-Asian and 47 (18%) were ethnic group 3=Eastern-Indonesian and Malaysian. After approximately 620 questionnaires were distributed, the valid returning rate was 42%.

Reliability analysis was conducted for each scale and subscale. Cronbach's alphas for the scales measuring dependent variables i.e., the overall complaint behavior and compliment behavior were 0.706 and 0.702. The alphas of the subscales in the multidimensional perfectionism scale, all samples yielded alphas of 0.879 on self-oriented perfectionism, 0.720 on other-oriented perfectionism and 0.765 on socially prescribed perfectionism. The alphas of the subscales in the self-construal scale, all the samples yielded alphas of 0.704 on independent self-construal and 0.733 on interdependent self-construal. Those  $\alpha$  are consistent with the published standards.

**ANOVA**

TABLE 1 shown findings partially support *Hypothesis 1*; significant differences occur between postgraduate business students with different ethnic origins and the complaint strategies of ‘oral direct expression to service provider’, ‘post it on the Internet’ and ‘telling friends/families’ only. In addition, TABLE 1 shown findings partially support *Hypothesis 2*; significant differences occur between postgraduate business students with different ethnic origins and the compliment strategies of ‘post it on the Internet’ and ‘telling friends/families’ only.

**TABLE 1: THE ETHNIC ORIGINS VS. COMPLAINT STRATEGIES AND COMPLAINT STRATEGIES**

Dependent Variables	Test of Homogeneity of Variances  Sig.	ANOVA  Sig.	Kruskal-Wallis Test  Sig.	Post Hoc Tests Multiple Comparisons						
				Scheffé				Mann-Whitney		
				Ethnic Grouping (I)	Ethnic Grouping (J)	Mean Difference (I-J)	Sig.	Ethnic Groupings	Sig.	
Oral Directly -Dissatisfaction	.132	.005*	N/A	1	2	.436	.015	N/A		
					3	-.047	.970			
				2	1	-.436	.015			
					3	-.483	.043			
				3	1	.047	.970			
					2	.483	.043			
Post it Internet -Dissatisfaction	.030	.001**	N/A	1	2	-.612	.002*	N/A		
					3	-.463	.103			
				2	1	.612	.002*			
					3	.148	.792			
				3	1	.463	.103			
					2	-.148	.792			
Telling Friends -Dissatisfaction	.003	N/A,	.007*	N/A				1	2	.007*
								1	3	.009*
								2	3	.620
Post it Internet -Satisfaction	.025	.000**	N/A	1	2	-.753	.000**			
					3	-.618	.013			
				2	1	.753	.000**			
					3	.135	.812			
				3	1	.618	.013			
					2	-.135	.812			
Telling Friends & Family - Satisfaction	.009	N/A,	.006*	N/A				1	2	.019
								1	3	.003*
								2	3	.247

Remark: independent variables: 1=Western-Australians, 2=Eastern-Asians and 3=Eastern-Indonesians-Malaysians.  
 \* The mean difference is significant at the .01 level. \*\* The mean difference is significant at the .001 level.

TABLE 2 shows findings support *Hypothesis 3A1* and *Hypothesis 3A2* that there are significant differences between postgraduate business students with different ethnic origins and the aspects of independent and interdependent self-construal. Moreover, TABLE 2 shown findings support *Hypothesis 3B3*, which supports a significant difference between postgraduate business students with different ethnic origins and the aspect of socially prescribed perfectionism.

TABLE 2: THE ETHNIC ORIGINS VS. PERSONALITY

Independent Variables	Test of Homogeneity of Variances	ANOVA	Kruskal-Wallis Test	Post Hoc Tests						
				Multiple Comparisons						
				Scheffé				Mann-Whitney		
	Sig.	Sig.	Sig.	Ethnic Grouping (I)	(J)	Mean Difference (I-J)	Sig.	Ethnic Groupings	Sig.	
Independent self	.837	.000**	N/A	1	2	6.346	.000**	N/A		
					3	3.002	.141			
				2	1	-6.346	.000**			
					3	-3.344	.091			
				3	1	-3.002	.141			
					2	3.344	.091			
Interdependent self	0.74	.000**	N/A	1	2	-6.459	.000**	N/A		
					3	-7.304	.000**			
				2	1	6.459	.000**			
					3	-.846	.863			
				3	1	7.304	.000**			
					2	.846	.863			
Socially Prescribed Perfectionism	.000	N/A,	.000**	N/A				1	2	.000**
				1	3	.000**				
				2	3	.063				

Remark: independent variables: 1=Western-Australians, 2=Eastern-Asians and 3=Eastern-Indonesians-Malaysians.  
 \* The mean difference is significant at the .01 level. \*\* The mean difference is significant at the .001 level.

**Correction**

As show on TABLE 3 and TABLE 4, aggregately, it is only some component dimensions, e.g., independent self-construal, interdependent self-construal and aspects of prescribed perfectionism are related to complaint and compliment strategies, but it is impossible to say that the entire concept is related.

TABLE 3: CORRELATIONS BETWEEN SELF-CONSTRUAL AND COMPLAINT/COMPLIMENT

Independent Variables	Dependent Variables	Pearson Correlation	Sig.
Independent Self	Oral Directly-DIS	.249	.000**
Interdependent Self	Post it Internet-DIS	.186	.003*
Independent Self	Oral Directly-SAT	.225	.001**
Interdependent Self	Post It Internet-SAT	.280	.000**

\*.Correlation is significant at the .01 level (2-tailed) \*\*. Correlation is significant at the .001 level (2-tailed)

TABLE 4: CORRELATIONS BETWEEN PERFECTIONISM AND COMPLAINT/COMPLIMENT

Independent Variable	Dependent Variable	Pearson Correlation	Sig.
Socially Prescribed Perfectionism	Post it Internet-DIS	.178	.005*
Perfectionism	Telling friends/families -DIS	-.190	.003*
	Do Nothing-DIS	.181	.004*
Socially Prescribed Perfectionism	Post It Internet-SAT	.290	.000**
	Leave a gift-SAT	.214	.001**
	Telling friends/families-SAT	-.196	.002*

\*.Correlation is significant at the .01 level (2-tailed) \*\*. Correlation is significant at the .001 level (2-tailed)

**Discussion**

In regard to the complaint strategy or compliment strategy, two things have been identified from this relationship between the actions and cultural groups. Firstly, there is a significant but not large to indicate that cultural related personality factors only make a PARTIAL contribution to the behavior. It may be argued that other variables might give a more accurate prediction to criterion variables than cultural linked personality factors. The fact is quite substantial for complaint or compliment behavior in the higher business education context; thus, complaint and compliment behavior are neither a shallow concept nor effected only by ethnic origins in a diverse culture campus without considering personality factors in communication strategies. Secondly, difference between the tendencies of cultural groups to engage in some pattern of complaint behavior, such as 'oral directly complain to service provider', 'post complaint on the Internet' and 'telling friends/families about dissatisfaction' or in some pattern of compliment behavior, such as 'post compliment on the Internet' and 'telling friends/families about their satisfaction experience' would find.

Conclusions from this study have important managerial implications to service providers, the senior academic and administration staff of Curtin Business School can learn that students' culturally connected personality factors are related to their tendencies to engage in different complaint or compliment strategies. Statistically significant findings show that there is a linkage between culture and complaint/compliment behavior such that academic and administrative staff cannot rely sole on the verbal and visual cues of face-to-face communication for service evaluation. They must not draw hasty conclusions regarding satisfaction or dissatisfaction from the presence or absence of this form of communication. Generally speaking, oriental students do not express complaints on the face-to-face basis to the service providers, so staff should not think that all is going well just because they do not received any complaints.

Unexpectedly, the original stereotype image was broken when the Eastern Indonesian-Malaysian group was separated from the oriental students, and findings indicated that there are significant differences between the Western-Australian, East-Asian and Indonesian-Malaysian cultural groups. Similarly, in the case of compliment behavior, the fact that staff does not receive direct positive feedback from a particular group of postgraduate students should not automatically be interpreted as a sign of dissatisfaction. They may not be culturally or otherwise inclined to express themselves in that particular form. Staff should therefore broaden their awareness of other forms of feedback and try to provide alternative means to encourage the expression of feelings about the services provided. Some professional staff training in this area may be beneficial.

For those in academic management roles who are inclined to study the relationships between personality and compliment/complaint behavior, the following broad relationships may be informative.

- Stronger 'independent self-construal' tends to encourage direct oral expression.
- Clients with stronger 'interdependent self-construal' or 'socially prescribed perfectionism' are more inclined to post their compliments and complaints on the internet.

The following relationships between the manifest cultural groupings and compliment/complaint behavior also emerged:

- The Indonesian-Malaysian group and the Western-Australians students were more inclined to complain orally to the service provider than the East Asian students, however,
- There was no apparent difference between the groups in expressing compliments orally.
- East Asians are more inclined to put their compliments and complaints on the internet than the other groups
- The West Australian students had the highest inclination to convey their satisfaction and dissatisfaction to family and friends.

Differences between cultural groups could also be identified in terms of their actual satisfaction and importance they place on specific service attributes. Their respective inclinations to express compliments and complaints in different ways provides a useful means of more accurately monitoring the performance of each service with respect to that cultural group in an ongoing way.

Although the findings indicate that staff cannot rely only on face-on-face communication to gather information on dissatisfaction or satisfaction and other channels may be necessary, it is nonetheless highly desirable to create a friendly environment to encourage and educate the students to speak out freely so that service providers may know immediately where the problems are and what improvement tactics can be used. Other strategies such as cooperating with relevant personality criteria in the student selection process or managing student expectations in

relation to service quality and encouraging students to be more independent would improve satisfaction and diminish complaints.

In conclusion, this research has provided academic management with a valuable tool within the higher business education context. It makes a useful contribution towards the effective interpretation of on-going and incidental client compliment/complaint behavior. While it is recognized that personality is not an obvious cue for the academic or management staff, the identified culturally related personality variables offer a partial explanation for various compliment or complaint behaviors. It means that in the medium-term, changes in some of the relevant personality factors may be possible with encouragement leading to more direct and useful feedback. In the meantime, the observed associations between the cultural groupings and their tendencies to prefer certain modes of expression provides management with useful information (based on visible ethnic origin) to anticipate the type of complaint or compliment strategies they are likely to engage in.

### **Research Limitation/Future Work**

The primary limitation of this study is the scope and size of its sample. The current study investigated postgraduate business students' behavioral responses and was conducted only in Curtin Business School, West Australia; only used three cultural groups to infer that those cultures promote a string of personality factors which limits the generalizability of the findings.

However, the study does provide evidence of culturally linked personality factories exist to draw implications for postgraduate business education service providers. This would suggest the possibility there are steps toward developing and encouraging independent self to orally express out directly to service provider that may add to student satisfaction. Also, even where there is dissatisfaction, clients should be encouraged to speak out, thus service providers may know where the problem is and what improvement tactics can be used. Other strategies such as cooperating with criteria in the student selection process or managing student expectations in relation to service quality and encouraging student to be more independent would improve satisfaction and diminish complaints.

Therefore, the identified variables appear to have a partial explanation for various behaviours. It means, in the long-term, changes in the string of personality factors or the culture can be influenced by some personality factors and the complaint/compliment behavior itself can change. Meanwhile, the findings provide partial evidence, but further elaborated explanations about cultural grouping itself provides far more useful information to help management identify the person from visible data and to anticipate what type of complaint/compliment strategies they are likely to engage in within the higher business education context.

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# The Casualization of Teaching in Accounting Education: A Case Study of Sessional Staff

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## Abstract

This study is to develop a map of Casualization for accounting education in universities in Western Australia to 1) analyze the responses from Casual staff to determine their views about the conditions of employment; and 2) examine issues of importance to casual staff. The value of contributions: 1) It has practical importance for the long-term development of accounting education in Australia because it will provide evidence of casual staffs' lived experiences in the Accounting schools within which they work, and 2) it will add to Australian knowledge about the extent of the use of casuals. This qualitative case study uses a natural setting as the source of data to investigate Casualization which incorporates the language of staff as they relate their experiences. The pilot interviews suggest some essential issues which portray and highlight casual staffs concerns, expectations and disappointments.

## Introduction

The study is to develop a Map of Accounting Education in universities in Western Australia that which reflects the casualisation of teaching and the management arrangements of units/courses in accounting schools. The scope of this study is limited to the learning/teaching of Accounting in universities in Western Australia. As indicated in the background universities have been transformed, in particular the role of academics has changed. These changes have been occasioned by changes in technology; the use of the Web and Internet for teaching has meant that teachers have worked with technical people like course designers, programmers, and Web persons to develop learning materials and new educational experiences for students. It is also true that work place conditions have changed. Academics are now more accountable; staff must be flexible and have more diverse interests as they try to relate to a changing student profile, reduced funding and declining numbers of tenured academics. An example of such changes is the separation of teaching from research.

The consequence is that many teaching staff are no longer tenured and staff/student ratios have increased over time. Because universities are unsure about sustaining growth in enrolments they now use casual staff because such use gives them flexibility. It also buffers the impact of reduced or reducing enrolments, and allows universities to marginally cost their teaching operations. Specifically this study analyses responses from casual staff to determine their views about the conditions of employment, and examines the employment arrangements in place for accounting in four universities in Western Australia.

The research questions for this study are specified from casual staffs' perspectives:

1. What are the benefits of casualization?
2. What are the causes of casualization?
3. How do casual staff perceive their role in universities?

As Johns, The National Director of Education for CPA Australia (2002, p. 5) noted:

The attraction of academic freedom is eroding in the face of heavy workloads, reduced time for research and poor salaries compared with industry...CPA Australia is concerned about the long term prospects for future recruitment.

Workloads have increased. Academics complain of excessive teaching loads and excessive administration duties, not to mention the need to conduct research. As a staff member noted:

Most of my colleagues do not have higher degrees, and without that there is little hope for research or career advancement, despite their teaching excellence...the current situation will mean good

people will leave!

Demsky et al., (2002, p. 2), referring to the changes in higher education in America, assert that:

Too many maps and navigation instruments that were once effective guides are now obsolete, and too much in higher education's traditional language no longer describes actual conditions, notwithstanding its continued rhetorical appeal.

There is one map of particular concern for this study, the existing structure of the teaching force in Accounting Schools in Western Australia. The theory underpinning this study of Casual Staff in Accounting Schools in Western Australia is Managerialism. This theory represents a new university system, a system imposed on universities by reduced Federal funding introduced to improve the efficiency, effectiveness, and productiveness of Australian Universities.

## **Background**

Universities in western nations have dramatically changed in the last two decades. Australian universities in 2006 are multi-purpose internationalized businesses. The change from independent loosely run public entities began in 1987 with the issue of a Green (discussion) Paper on Higher Education which signaled the governments' intention to make universities and other Higher Education institutions accountable for contributing to the economy. The issue of the White (policy) paper in July, 1988 and the passing of legislation to create a Unified National System of Higher Education (UNS) confirmed the federal government's intention to merge small universities and give the new universities the power and freedom they needed to carry out the new agenda proposed in the White Paper (1988). At that time there were 65 colleges and universities. Rather than develop a public/private sector the government had decided to privatize public universities – the advent of business-like universities—meaning that they would be able to manage and determine their futures.

In 1987 universities were in financial difficulty – a problem caused in part by Federal/State relations as dictated by the Constitution. Australia is a Federation consisting of a central government, 6 states (Victoria, New South Wales, Queensland, Southern Australia, Western Australia, and Tasmania) and two territories (the Northern Territory and the Australian Capital Territory, Canberra). The Constitution sets out the rights and responsibilities between the States and Territories and the Federal Government. For example, the Federal Government is responsible for all matters which affect the country as a whole (e.g., external affairs and security), and States and Territories are responsible for all matters which affect their constituents (e.g., education and health). In 1946 (after the war), the States agreed to cede taxing powers to the Commonwealth in return for social security benefits for their citizens. The loss of this power would ultimately weaken the States' financial strength.

Until the end of World War II only five universities and a number of technical and teacher training colleges provided post secondary education in Australia. Ex-servicemen were granted the right of entry to university if they chose to study, so it soon became clear that more education facilities were needed. In 1966 a new second tier post secondary education system was legislated for. Five Colleges of Advanced Education (CAEs) were spread around the states. In addition the Federal Liberal/Country Party Government agreed to contribute \$1 for every \$1.85 paid by the States to ease the cost of higher education. When the Federal Labor Party (who had been out of power since 1949) was returned to power in 1972, they agreed to take over responsibility for higher education from the States. The Labor government introduced significant changes over and above the funding of higher education, so much so that it ran out of money and was dismissed in 1975.

In between times a Liberal Coalition Government led by Malcolm Fraser failed to right the economy, so the Labor Party was returned to power in 1983. Thus began a 12-year period of economic reconstruction to make Australia internationally competitive. First in 1984 the Australian dollar was floated and the Australian banking system was deregulated. One of the strategies for expanding trade was a decision in 1985 by the federal government to introduce full fee international marketing of education as an export industry; no limits were placed on the number of students that could be enrolled. At home they announced that a \$250 Higher Education Administration Charge (HEAC) would be payable by all students in 1987 (it changed in 1989 to HECS). This 1989 development relieved the federal government from increasing expenditures on higher education, but it created serious problems in



university management.

In 1991 an Open University managed by Macquarie University was also piloted. And so the market slowly matured and expanded to include by 1993, a private company *Deakin Australia*, which developed with partners to provide education in accounting, architecture, and engineering. Deregulation required new arrangements between the university and the government. University managers became institutional managers, and collegial decision-making was reduced. Thus universities were effectively transformed into private entities. Significant freedoms were given in exchange for fiscally responsible management and less funding from government, i.e. all restrictions on teaching/enrolling overseas students were removed by 1994 as the new Unified National System of Higher Education was put in place. There were now thirty seven (37) merged universities and two (2) private universities, making 39 universities in all.

The Higher Education sector was thereby effectively deregulated with the full authority of the federal government. This also signalled the privatisation and marketization of universities; privatisation meaning the transfer of state activities (and costs) to the private sector, particularly in the reduction of state provision and regulation. The privatisation and marketization of higher education allowed universities to sell education places to students, both in Australia and overseas. So began a new phase as universities entered into the marketization and branding of their universities.

The Labor Government was defeated in 1996 by the Liberal Coalition Parties led by John Howard. The Howard Government continued the policies put in place by the Labour Government, that is, to reduce government funding for higher education. It also commenced an overview of higher education in Australia, and by 2000 came to the conclusion that students should contribute more toward the cost of a university degree. Thus regulations were passed to allow universities to charge fees to Australian students based on the demand for courses. In the meanwhile the Federal government continued to fund degrees at a pre-determined level and students continued to pay HECS. By the end of 2000, the target for enrolments/graduates set by Labor Party in the late 1980s was reached. This figure represented a 43.38 per cent increase in enrolments over 1990 and confirmed the transformation of an elite university sector in 1970 to a mass education sector in the 1990s.

## **The Drivers of Change**

There are many drivers of these changes, the most important of which are neo-liberalism, globalisation, and academics' reluctance to change of their own accord.

### **Neo-liberalism**

Neo-liberalists tend to define all social, economic and political issues as problems of management (Fitzsimons, 1999). Their objective is to improve efficiency in areas of government by redefining cultural issues as economic ones. Similarly management control is decentralised in the interests of efficiency. From the perspective of neo-liberalists higher education is treated as a private good – available for sale, no longer in limited supply, ideal for market forces so that... 'Radical change or restructuring of an institution of higher education means either fewer and/or different faculty, professional staff, and support workers'. Other neo-liberal strategies in higher education include:

1. Treating all organizations as business relationships,
2. Defining education as efficiency and accountability,
3. Treating educational courses as commodities,
4. Changing the teacher/student relationship to one of producer/consumer, e.g. the need for textbooks, performance criteria and so on.

Moreover neo-liberal strategies are global. The International Monetary Fund (IMF) in promoting trade liberalisation had this to say in 2002: 'a global market offers greater opportunity for people to tap into more and larger markets around the world. It means that they can have access to more capital flows, technology, cheaper imports, and export markets' (IMF, 2000).

### **Globalisation**

Another predominant driver is globalisation. Changes in Western Universities are attributed to global and

international developments (Deem, 2001). Most academics and politicians agree that changes to the power of nations, especially in respect of economic deregulation, are reflected in social policy and the provision of welfare. First, governments seem to be reluctant to fund public services, and second public funded organisations must enter or create a 'market', using a managerialist approach. Globalisation is defined as 'the extension of social relations over the globe (Poullaos, 2004, p. 716), and as the widening, deepening and speeding of world wide interconnections in all aspects of contemporary social life from the cultural to the commercial, the financial and the spiritual (Held, et al, 1999, p. 2). Globalisation is a 'central driving force...reshaping modern societies and the world'. (Held, et al., 1999, p. 7).

Globalisation is seen as the triumph of desire over law, i.e. social affairs (property and human rights aside) are 'settled through market decisions' (Roberts, 2004, p. 464). Competition for students who want flexible programs encourages strategies like using more contract and casual staff because they are effective and flexible. Strategy is one managerial aspect that demonstrates how higher education has changed. Similarly assessing research quality using journal rankings, citations, and student evaluation, is another.

The information revolution suggests that experience, power and culture are increasingly organized around networks. Enabled by information technology (including telecommunications), networking logic has spread throughout society to the point where presence in or absence from networks can become "critical sources of domination and change" (Castells, 1996, p. 469). Whereas Boyce (2002) is concerned that such networks are exclusionary and impact on local communities, Poullaos notes that networks are a means of analysing "the exclusionary basis of globalisation" (p. 583).

#### **Academics' Attitudes towards Change**

Another driver was the attitude of academic staff to change. Change was often resisted by academics, people tended to protect their positions, resources were often unfairly distributed, and strategic options were often not considered. The combination of all the effects of managerialism makes it essential to identify their impact on staffing, specifically casualization, to make learning and teaching conditions in accounting in higher education transparent.

## **Literature Review**

### **Managerialism**

The theory underpinning this study is managerialism. Managerialism is variously defined. According to Edwards (1998) managerialism has four components; managerial ideology, economic efficiency, as perpetuation of class consciousness by managers, and manager as a moral agent for the common good. Enteman (1993) defines managerialism as an international ideology, an economic, social, and political order of advanced western democracies in which the new societies are defined as equivalent to the sum of the transactions made by managements of organizations. Ferlie et al., (1996, cited in Deem 2001, p. 10) defines it as a concept used to refer to ideas about changes in the way publicly funded institutions are managed. Managerialism, now a common feature of management in education and management control is decentralised in the interests of efficiency.

#### **Effects on Universities**

Globalisation has had significant adverse effects on universities. This part provides some effects of globalisation on universities.

1. Freedom of speech has been fettered i.e. Universities now control their employees using classical management strategies like authority, discipline and centralisation,
2. Funding sources include fee paying students, offshore teaching, and industry partnerships in research or consulting, reduction of operating costs, i.e., by enlarging classes, contract teaching, the shifting of administrative tasks to schools, faculties, or divisions, and
3. The education sub system has been expanded to include:
  - 1) Delivery of education overseas,
  - 2) Student evaluation of teachers (SET) has been introduced, and
  - 3) An expanded research sub system.

In sum, the effects of Managerialism have been felt at every level of the university:

- 1) Sources of funding have been extended to include fee paying students, offshore teaching, and industry partnerships in research or consulting.
- 2) Operating costs have been reduced, i.e. much teaching is undertaken by contract staff.
- 3) Internal users must pay, i.e., accounting schools pay a cost centre for the stationery they use-administrative tasks have been shifted to schools, faculties and divisions, and budgets have been tightened.

Moreover the education sub system has been expanded to include new private universities. Deloitte, Touche, Tomatsu (1998, p. 1) note that universities, particularly newer ones, increasingly rely on borrowings. In addition the private sector is asked to support academic appointments (cited in Lafferty & Fleming, 2000, p. 259).

#### **The effects of Managerialism**

Deem (2001, p. 7) identifies four (4) concepts of change in universities: globalisation, internationalisation, ideology, and entrepreneurialism. The effects of Managerialism have been felt at every level of the university. Below are some instances of these effects:

1. Management structures have changed,
2. There is a new management style, and
3. The Academic Profile has been changed.

#### **Management Structures have Changed**

Vice-Chancellors and their advisors 'have increasingly assumed the role and powers of corporate CEOs' (Parker 2002, p. 609). Members of the Senior Executives Service (SES) now have specialized roles in areas like teaching and learning, international, academic, research, and so on. Schools, faculties, and divisions have been refined/downsized and the breadth of their control has been redirected. Thus control and accountability has been re-routed from the university Senate to the (SES) executive group.

#### **There is a New Management Style**

University Vice Chancellors have restructured their Universities. They now have a small number of faculties, divisions, or strategic business units (SBUs) (Parker 2002, p. 606). SBUs, which are presided over by Deans are accountable to Vice Chancellors, and specialist Pro Vice Chancellors or Deputy Vice Chancellors. This group constitutes the senior executive (SES) management team. Its members have significant power and authority over committees. Thus one committee has been substituted for mutual accountability between academic committees. Communication is top down as top management develops policies and passes them down for comment.

Collegial management by committee has been replaced by professional management by the executive. Such replacement has reversed the traditional model in which the administration was answerable to an academic management committee. Moreover managers of functional units like marketing, Alumni, international programs, and research now have authority to act on behalf of the university in raising revenue. The end result is that the decision-making layers have also been reduced.

#### **The Academic Profile has been Changed**

Middle management, i.e. Heads of Department, now manage budgets largely dictated by senior management, while full-time, tenured or tenurable academics are engaged mainly in teaching and research, and some administrative roles. Fixed-term or short-term contract (casual) staff usually teach in the high-enrolment, (often first-year) subjects, while a large pool of casual staff, mainly postgraduate students, are also engaged in daily teaching.

The 'user pays' principle has expanded in higher education, particularly through the Higher Education Contribution System (HECS), whereby students pay for part of the cost of their education, payable either *via* fees on enrolment or after graduation through the income tax system.

#### **Power of Management is Stressful**

The implementation of corporate managerialism in the Australian university sector has increased tension as evident in the following changes:

1. Universities have been restructured along line-management principles (from Vice-Chancellors, down through a senior management stratum, to departmental heads).
2. Performance management schemes have been introduced.
3. Academic tenure has been substantively eroded, permitting easier dismissal of tenured academic staff,
4. Organizational units deemed financially unviable have been eliminated or reduced, and
4. There is an increasing emphasis on competitive marketing of both universities and individuals. (Lafferty &

Fleming, 2000, p. 260)

### **Effects on Academic Climate/Culture**

Change always alters the culture of an institution (Kezar & Eckel, 2002, p. 295) because it changes various assumptions and organisational behaviours, processes and products. Change is also, 'deep and pervasive, affecting the whole institution'. However, whereas it is always intentional it takes time to become apparent. (Kezar & Eckel, 2002, p. 296)

## **Casualization**

Massification has expanded access to university and helped to reduce elitism but this new university structure has affected staffing in Higher Education. It has changed university maps. For example, institutional competition has increased and changed the relationship between government and universities. Moreover, globalisation and marketization have changed the balance in higher education from internal concerns to external concerns, that is, how universities situate themselves in the marketplace and reconfigure their missions to ensure their financial survival. For example, increased student numbers have caused teachers to change their teaching and assessment methods, and students are now required to pay for basic teaching materials and photocopying, among many changes (Bradley, 1995, p. 13). The Dawkins 1988 reforms in higher education in Australia had four objectives:

- To improve participation rates in higher education,
- To improve access to higher education for underrepresented groups.
- To improve the efficiency and effectiveness of these organizations, and
- To make institutions more responsive to Australia's economic and social needs (Karmel, 1990, p. 31).

Note that the focus of these reforms is on participation and efficiency, not on quality.

### **The Structure of Academic Employment**

Academics can be employed in a number of ways, i.e. casual or fixed term contract or permanent/tenured appointment. In addition universities provide an extra 3% for TESS (the Tertiary Education Superannuation Scheme).

In respect of casual staff (the word part-time is not used) the award provides a salary scale for lecturer, tutor, demonstrator and supervisor, and for marking, and if there is sufficient money, for staff development. However, the award salary for casual staff is capped at 60% of the normal teaching load of a full time staff member.

The structure, which is increasingly bureaucratized, includes senior managers i.e. the Vice-Chancellor, and senior bureaucrats who can negotiate their salary with the governing body (generally the Senate). This is one example of how private university managements now use private sector strategies to achieve their goals; another Map that is not understood.

At the system level there has not been any systematic attempt to articulate in detail the goals for higher education in Australia. None of the major national enquiries have seriously addressed the issue (Linke et al, 1984, p. 20). Teaching is a delicate business requiring as it does teaching, research, caring, student management, and administration. All is not well in academe however. The Evatt Foundation commented in 1994 (p. 106) that academics' morale had diminished due to:

- Increased workloads,
- Increased pressures to be all things, teachers, researchers, entrepreneurs, and administrators,
- Increased internationalization leading to competition for scarce resources, and decline in promotion opportunities, and
- Increased bureaucratic decision-making, with increased reporting and administration requirements without additional support.

### **Casualization of University Staffs**

The current system of casual academic employment is creating an academic underclass, a secondary academic labour market subject to abuse, insecurity, lack of resources, and increased work responsibilities. Casual labour is beyond scrutiny and incapable of being reviewed which raises the question of teaching as a priority and the merits of staff contributions to the university.

Casual labour provides flexibility for universities- it is presented as best practice (Bradley, 1995), but this expression probably obscures the real reasons, which are, a) cost savings and cutbacks and b) university expansion coupled with financial prudence. This explanation emphasizes outcomes management which tend to be reduced to the efficient economic management of human and financial resources.

The academic 'Profile' is government's vehicle for changing universities, while tenure is regarded as an obstacle to adjusting the labour market, suggesting that the use of casual staff has assisted in changing university academics' roles, as follows:

- Changing the nature of academic work,
- Creating a new contingent work-force,
- Charging fees for education, and
- Reducing academic involvement in governance.

Gumport and Zemsky (2003, p. 34) contend that academic work has been unbundled in American universities as evidenced by the separation of research and teaching. Rice (2004, p. 28) confirms the casual/full time split. For example, new non-tenured staff are functionally specialised, that is, either teaching only or research only staff – a matter of great concern because it is the marriage of research and teaching that made universities great institutions.

#### **The Status of Casual Staff**

Casualization provides many *cost/benefits* for universities. They do not pay for:

- Study leave and long service leave, and
- Outside studies programs, and
- They do not provide support services; and office space etc. is also limited. (Lundy & Warne, 1990, p. 215)

Perhaps the major positive benefit of casualization is that it helps universities to respond to sudden increases in student numbers, and affords opportunities to change tack quickly (Bradley, 1993, p. 154). Nonetheless, casualization is an international problem. Casual staff are a marginalised work force (Bassett, 1998). Leatherman (1997, p. A12) contends that there are now so many part-timers in American universities that departments are called 'faceless'.

#### **Evidence of Marginalization**

Casuals are throw-away academics and not considered part of the faculty (Kirov, 1991, p. 41). Whether such staff are rehired depends on enrolments, so employment for casuals is uncertain and insecure (Fine et al, 1992, p. 51). Research indicates that even if such academics belong to a union they are left out of academic decision-making processes (Rajogopal & Farr, 1989, p. 267). Gappa and Leslie found for example that casuals felt vulnerable and dissatisfied with their second grade status (1993, p. 43). Restrictions in using fixed term contracts imposed by the Industrial Relations Commission (see Healy, 1998) may further exacerbate the position, that is, casual staff may be used in order to avoid disputes or legal action.

The growth in student numbers over the last twenty years (together with funding cuts) has led to an increase in casual staff; a model described by Handy (1993, p. 20) as a minimalist (flexible) model, underpinned by cost cutting and the notion that staff are expendable. Such staff are exploited, paid by the hour, and do not ordinarily receive paid leave, research funding or office facilities. According to Castleman et al. (1995, p. 9) 'flexibility' is an insidious word in a teaching context. Casual staff members are paid an hourly rate (Bradley, 1995, p. 154) and their duties may or may not include consultation time with students. Moreover, casual staff members have no claim over the infra-structure.

With few exceptions casual staff is treated as second-class citizens (Rice, 2004, p. 30). For example, staff have been categorised into core and non core, meaning that of the three classes of staff, *viz.*, tenured, full time untenured, and casual staff, only the full time tenured are core, those who perform all the traditional roles an academic undertakes, i.e. teaching, research and service. There is thus a need for an academic centre of gravity.

#### **Reasons Why Casualization Occurs**

For many universities, there is a substantially increasing reliance on casual staff (lecturers, tutors) to meet their teaching needs. For example casualization provides

- More flexibility and diversity with staff arrangements (to provide teaching opportunities for PhD) students, release staff for overseas teaching, and teaching relief for senior staff, and
- Less government research funding, and cost savings to departments/institutions.

Casualization provides many cost/benefits for universities; for example they do not pay for:

- Study leave and long service leave, or
- Outside studies programs.

#### **The Trend towards Casualization**

Casualization has grown rapidly over the past two decades. Casual work has always been the largest of the non-permanent categories. Notwithstanding the everyday understanding, casual is a form of employment in which the worker is deprived of many rights and benefits, including no entitlement to paid annual leave, public holidays, sick leave, notice of dismissal or redundancy pay. It is unprotected because part time staff miss out on many types of social protection developed for permanent employees, and other forms of employment including fixed-term employment, apprenticeships and traineeships. Worsening staff/student ratios are being exacerbated not only by increasing enrolments but by the shrinking number of academic staff due to natural attrition combined with unattractive salaries and poor working conditions.

The number of full time employees declined during the 90s and casual employment accounted for the net growth in employment. According to the Australian Bureau of Statistics a casual employee is an employee who is not entitled to paid annual leave and paid sick leave. At August 2003 there were 2,239,000 (or 27.6% of all employees) such persons. This figure rose from 830,000 or 15.8% of all employees. (Campbell, 2004, p. 87)

## **Significance**

This study is significant for two reasons:

1. It has practical importance for the long term development of accounting education in Australia because it will provide evidence of casual staffs' lived experiences in the accounting schools within which they work.
2. It will add to Australian knowledge about the extent of the use of casuals. It will identify, who they are? what they do? How they feel about their work? and complete part of the picture of the teaching of accounting in Schools of Accounting in Australia including Tasmania.

## **Research Method**

This study is a qualitative case study, incorporating expressive language and the "presence of voice in the text" (Eisner, 1991, p. 36). Qualitative research processes cover a range of interpretive techniques which aim to describe, translate and make sense of the changing educational environment. Qualitative research uses the natural setting as the source of data. The researcher attempts to observe, describe and interpret settings as they are, maintaining what Patton calls an "empathic neutrality" (Patton, 1990, p. 55). He notes that there are no "absolute characteristics of qualitative inquiry, but rather strategic ideals that provide a direction and a framework for developing specific designs and concrete data collection tactics" (Patton, 1990, p. 59). These characteristics are considered to be "interconnected" (Patton, 1990, p. 40) and "mutually reinforcing" (Lincoln & Guba, 1985, p. 39).

It is important to emphasize the emergent nature of a qualitative research design. It is not possible or appropriate to finalize research strategies before data collection has begun for example, because the researcher's objective is to observe and interpret meanings in context (Patton, 1990). Qualitative research proposals should, however, specify the primary questions to be explored and what the data collection strategies are. The particular design of a qualitative study always depends on the purpose of the inquiry, what information will be most useful, and what information will have the most credibility. There is no strict criterion for sample size (Patton, 1990). 'Qualitative studies typically employ multiple forms of evidence..., and there is no statistical test of significance to determine if results count' (Eisner, 1991, p. 39). Judgments about usefulness and credibility are left to the researcher and the reader. Nonetheless because the objective is to improve accounting education, it is necessary to use a case study approach because as Hughes and Berry (2000), and Eisenhardt (1989) point out, a case study is necessary when a fresh, comprehensive perspective is required. These conditions apply to Maps in Universities which (according to NCPI *Beyond Dead Reckoning*, 2002), are now urgent. More importantly there are signs in Australian

accounting schools that the level of work of full time staff (particularly those that teach and administer) is getting out of hand. Finally it is also expected, given that quality is an issue in Accounting Education that measurable constructs and testable hypotheses will emerge.

## **Data Collection**

The primary method for this study is the interview. Interview research may collect specific data. However interviews provide different data using observations: they allow evaluators to capture each project participants' point of view and those of staff and others associated with a study. The use of interviews can be understood because the data collection method assumes that participants' points of view are meaningful, knowable, and that these points of view affect the success of the study. An interview, rather than only a survey, was selected because interpersonal contact is important for searching the limits of the topic and following up interesting comments if desired.

The interview process has three stages. First, a pilot study using 2 (two) casual staff from Curtin University will be conducted to test the relevance of the research method and strategies (their experiences as casual staff and their feelings about their status), and to adjust them if required.

Second, once the pilot study is complete, the survey will begin. Twenty casual staff members will be randomly selected from each of the universities (Heads of School/Unit controllers will be asked for names). Those casual staff members who agree to be interviewed will be sent a questionnaire requesting background details and consent to participate.

The third stage involves the interview proper in which participants will be asked to expand on their experiences and to raise issues of concern to them. The objective is to get them to talk, so prompts will be necessary.

## **Data Analysis**

It is always difficult to summarize taped interviews because the interviewee may withhold information given that a permanent record is being taken. It is also difficult to reduce interview data. Thus key aspects of the interviews will be identified as the interviewer listens to the tape. A set of key words will be developed from the first two (pilot) interviews to reduce further the evidence to be used. In this way key words will be built around the structure of the substantive interviews. Access to this information and the point to point summaries will provide a reference to the content of each point made in each interview. This information will then be coded. All summaries will then be examined for inconsistencies and tape recordings will be checked to confirm or resolve any inconsistencies. When these procedures have been completed, a summary of the views and perspectives of each interview will be returned to the interviewee to confirm the record, giving the interviewee an opportunity to agree/verify that the contents are a 'true' record of the interview.

Once this stage is complete, a second reviewer will be asked to code the information using the above system and to confirm the reliability of the coder. The criteria for agreement include;

- a) that the same section of the taped interview represents a point,
- b) that the same key word for each point summarized is used by both coders, and
- c) that the two summaries of each point have the same meaning (see Keeves, 1997, p. 300).

In sum, interviews and other material will be analyzed in an iterative process to distinguish interviewees' views, concerns, expectations, and disappointments. These concerns, expectations, and disappointments will be highlighted and used in the recommendation for a new Map.

## **Summary**

A pilot study was conducted to trial the interview instrument and at the same time to encourage casual staff to agree to an interview. Accounting casual staff were identified and a request was sent to each one inviting them to be part of the survey. The instrument asked for personal and professional details. Casual staff were invited to respond and also

requested to return the completed form to the supervisor with contact details. All casual accounting staff responded and all questions on the survey were answered.

Prior to the interviews all casual staff in the School Accounting were invited to participate in this study. The invitation letter assured the interviewees that their participation was voluntary and that they could withdraw at any time. A set of interview questions was prepared following a literature review for these pilot interviews. Two respondents were selected and contacted to see if they would participate in the pilot interviews. Both accepted the invitation. The two interviewees for the practical pilot interviews were chosen based on their levels of experience and their teaching histories. The next step therefore was to identify from the responses which questions to ask. This was not a difficult task because the interviews were not structured. The talking was done by the interviewee with minimal prompting (ideally) from the interviewer. One of the hazards of this approach is that interviewees can ramble on but that was a risk which seemed worthwhile in the pilot stage. It was assumed that the staffs' real feelings would come through using this approach.

The pilot interviews were carefully analyzed to determine what the interviewees focused on. Three distinct issues emerged, i.e.

First, Lack of Policies in three (3) aspects

- a. Lack of resources
- b. Lack of training
- c. Lack of paid consultation time

Second, Lack of Recognition, specifically

- a. Lack of a sense of belonging
- b. Lack of interaction with unit controllers and other staffs

Third, Lack of Communication (including feedback)

- a. Lack of feedback
- b. Lack of security
- c. Lack of input into teaching

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# Chinese Students Studying Accounting in Australian Universities: Problems and Solutions

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## Abstract

Chinese students are the single largest group of overseas students in Australian universities and they are also the main source of the much needed new accountants. So they are crucial to the economic growth of Australia. This study reports on the major problems encountered by Chinese students in studying accounting in Australian universities, particularly those related to differences in cultural background, learning style, English fluency, accounting standards and local accents and offers some solutions. Twenty current Chinese students of accounting were asked to identify the main problems they face in learning accounting in Australia and to describe their expectations and needs during their study. They were also asked to suggest solutions.

## Introduction

During the past decade, there has been substantial expansion in the probation of under graduate and postgraduate programs for overseas students in Australian Universities. The main sources of such enrolment have been from Asia and Middle-East (Chen et al 1998). The difficulties encountered by Asian Students who come to Australia to study have provided a rich field for research (Ballard & Clanchy, 1991, Volet & Renshaw 1996, Fung & Mackeerras 1998). Research indicates that national culture influences various aspects of human behavior and that culturally based differences in people's values and attitudes significantly affect their behavior in various situations including their learning styles (Biggs 1996). Biggs (1993) set the surface/deep debate in the context of Chinese culture, echoed by Marton *et al* (1993b), namely that, in Asian culture, understanding may come through memorization. This paradox of the Asian learner has been observed as anecdotal evidence of rote learning but high academic achievement.

Chinese students are the single largest group of overseas students in Australian universities and they are also the main source of the much needed new accountants. So they are crucial to the economic growth of Australia. As they are crucial it is very important to better manage and satisfy this group. A common list of needs and expectations of Chinese students will be a very useful tool in the hand of academics to develop a teaching and learning strategy which will encourage students to relate the subject matter in practice in a purposeful way. Otherwise a vast amount of resources, energy and academic time will go in vane.

The main issues/factors of culture and language relevant to teaching and learning in higher education can be identified as English language ability, communication skills, learning style, accent of the local academics.

### **English Language / Communication Skills and Culture Issues:**

Of all the generic skills considered necessary for lifelong learning, communication skills are perhaps the most critical. Many of the international students agree that they require English language support to make a successful transition to tertiary study, particularly in their first and second year of university in Australia (Briguglio, 2000). In her study, Briguglio (2000) found that language and culture issues are extremely closely interwoven, although students themselves may not be aware of the role that culture plays in their 'English language difficulties'. In her study when asked questions relating to their English language needs almost all students indicated they could use some support in all four macro skills of listening, speaking, reading and writing, with writing and speaking given the highest priority. A self-rating scale that students were asked to complete produced similar results, with writing ranked as the skill students thought they most needed to improve.

### **Problems of Teaching and Learning in 'Foreign' Language:**

So much of the educational process is dominated and influenced (embedded) in the culture in which it exists. So

these problems are inextricably tied to and contained / constrained by the cultural and language imperatives of the dominant culture and social structures. The major difficulty in teaching in English in other language dominant environments is communication of ideas. Most university lecturers and teachers have rather large and disciplinary jargon filled language patterns. This creates many problems for students who do not understand the jargon or the expanded language of the university (Collier, 2003). The author in his study, found that students have a cultural imperative to respect age and position. Therefore it was difficult to get them to question and to challenge the assumptions and statement of 'authority'. In Perry's sense, they would be very dual with great difficulty in accepting relativity or context differences. Many of these traditional students look for right answers, and they expect the lecturer, to supply them with these answers. They are, for the most part, excellent at memory skills, and can reproduce volumes of text and facts and quotations.

#### **Learning Style and Cultural Background:**

In comparing the approaches to learning by international (mainly Hon Kong Chinese) and local Australian Business Students, Ramburuth (2000) found that international students displayed significantly higher group means for the surface approach to learning, surface motivation and the use of surface strategies and were different from their Australian counterpart on all dimensions of the surface approach. The international students also demonstrated more frequent use of deep approaches than Australian students and Ramburuth (2000) concluded that the two constructs of deep and surface might not be mutually exclusive.

Based on the results obtained in Study by Wong (2003 & 2004) it was obvious that the majority of Asian international students would prefer a more student centered style of learning. Despite the fact that these Asian international students had come from a so-called 'spoon-feeding' or teacher centered style of learning environment, they are able to adapt to the new style of teaching and learning here within two to three months.

Comparative study between First and Second Year students with Third and Fourth Year students also showed that the longer the students study in Australia the more they are likely to adapt to and adopt the style of teaching and learning here. It would seem therefore that learning styles are not culturally based but contextual. In fact these Asian international students regard the more student centered style of learning here as the strength of Australian higher learning education. There is therefore no apparent necessity for Australian higher learning institutions to adapt to the Asian style of teaching and learning but rather the authorities and personnel concerned should try to understand the initial learning difficulties faced by these Asian international students and take certain measures to support them when needed.

This study offered nine solutions of the various major problems faced by the Chinese students in learning accounting in the Australian Universities.

## **Methods**

To collect information a random sample of twenty Chinese students from the 'Financial Accounting' class of Bachelor of Business course of The University of New England were asked to identify the main problem they face in learning accounting in the university here in Australia and to describe their needs and expectations during their study of accounting. Students were also asked to provide some suggestions to overcome the problems they face. A semi structured questionnaire was given to each student to express themselves. The questionnaire also included some identified problems (from the literature and my past teaching experience) to find out that still the students considered those problems as crucial problem or not.

## **Results**

The most important findings of the study are:

- 1 85% of the students were unable to express themselves clearly. They find it difficult to understand the local accent in the initial period. They reported that lack of English Language ability & Communication skills were the main problems they faced in understanding and writing assignments in the initial periods (about one year) of their accounting study.

- 2 70% of students reported that they had difficulties in understanding the different terms used in lectures, so they find difficulty in comprehending the lecture. They are confused by the differences in accounting standards. Moreover, because of their cultural background, they feel unable to ask questions during lectures or tutorials and so just accept what lecturers say.
- 3 50% believed that the Australian university system does not satisfy their expectation. They were spoon-fed back home; they expect lecturers to provide the solutions for all the problems being discussed during lectures and tutorials. They find it very difficult to adopt the Australian style of individual study in the initial (about one year) study period.
- 4 90% feel comfortable working with other Chinese students. They feel shy about their spoken English so they stay silent in a more cosmopolitan environment.

I have seven years of experience of teaching accounting to non-native English speaker, mainly Chinese students, in Singapore and these findings are congruent with that experience.

Wong (2004), found that 65% of Chinese students studying in Australian universities learn best when learning by them selves with little or no assistance from the lecturer, 21% believed that they learnt better when most of the information was given during lectures; only 14% of the students preferred being spoon-fed by the lecturer; and 12% of the students were not happy with the teaching and learning style they were experiencing in Australian university.

In my study half of the students expressed dissatisfaction about teaching and learning expectation. This result shows a substantial deviation from the result what Wong (2004) found. Most (75%) students preferred a student-centered style of learning which essentially the same proportion as Wong reported (70%). In contrast the preference for spoon feeding (50%) was substantially higher than in Wong's findings (14%).

In view of these results and my past experience in teaching Chinese students, I suggest that the following actions might go a long way to resolve the problems faced by the Chinese students learning accounting in Australian universities.

Getting students to explicitly workshop and negotiate issues around culture, language and learning and how best to respond to their needs (to use this to restructure learning)

- i) Taking individual care to give them confidence,
- ii) Going very slow with the students so that they can understand the concept, (to address their English language problem)
- iii) Extensive use of white board and Power point slides will be used during the lecture to make them understand the various accounting concepts
- iv) Providing lecture notes prior to the lecture so that they may read all these material before attending lecture.
- v) Encouraging students to form informal study group to discuss the problems within themselves.
- vi) Working through step by step the practical problems with the students, (to address the different accounting procedure and standards)
- vii) Try to understand style and culture of their learning,
- viii) Meeting the students in a tutorial session at least once in a week

## Discussion

Briguglio (2000) in his study stated that several students spoke of their frustration when they felt unable to express certain more complex ideas fluently in English. One student expressed it thus:

"I want to contribute during the tutorial. I got an idea inside me that I want to get through, but the problem is I don't know how to express it, in a way. The problem with us from overseas, we tend to think in our native tongue and when we speak, sometimes, we can't put our thoughts into words. We sort of can't speak up. We've got the idea, we want to contribute but we don't know how to express it. That's the problem, I think (student, cited in Briguglio, 2000)"

In her study Briguglio found that tutorials were of more concern than lectures to students, many of whom said that they found it very difficult to participate in them fully: that is, they had trouble understanding everything that was being said as well as contributing ideas. The reasons for this were complex. Generally, students indicated that they were reluctant to take a more active part in tutorials because:

- they were used to being 'spoon-fed' in their previous schooling system
- they were shy about speaking up
- they felt their spoken English was not as fluent as that of 'Australian students'
- they were not used to the Australian tutorial system.

My study also found the similar result as found in Briguglio's study. The result of my study indicated that problems faced by Chinese students in Australian universities were identified before and still they remain the same for the new Chinese students studying in Australian universities. My study offered some solutions to solve these problems.

Students in the Briguglio study (2000) were asked what sorts of lecturing styles/ techniques they found particularly helpful and easy to follow. Students in (Briguglio study) indicated that they found practical examples which illustrate theoretical aspects particularly useful. Other things which were considered helpful included:

- use of overhead transparencies (which are not whipped away before students have time to copy from them)
- lecture notes or lecture outlines, and
- Lecturers' use of concrete examples to which students could relate (i.e. not just Australian and local examples).

Other useful things were: very detailed unit outlines; lecturers who spoke slowly and clearly and did not use 'slang'; and lecturers who had 'good teaching skills'.

In my study half of the students expressed dissatisfaction about teaching and learning expectation. This result shows a substantial deviation from the result what Wong (2004) found (Wong (2004), found that 65% of Chinese students studying in Australian universities learn best when learning by them selves with little or no assistance from the lecturer, 21% believed that they learnt better when most of the information was given during lectures; only 14% of the students preferred being spoon-fed by the lecturer; and 12% of the students were not happy with the teaching and learning style they were experiencing in Australian university). This substantial deviation could be due to three main reasons, (i) student's level of study: all the students of my study were doing their second year of the Bachelor of Business course where as students were drawn from all year levels in case of Wong's study (not known from which level of year), (ii) nature of the subject studied: students in my research were studying accounting where as students in Wong's study were drawn from different disciplines, (iii) Cultural background: Wong selected nine Asian international students from different countries whereas I have selected twenty students all from China in my study.

Most (75%) students in my study preferred a student-centered style of learning which essentially the same proportion as Wong reported (70%). In contrast the preference for spoon feeding of (50%) was substantially higher than in Wong's findings (14%). This could be mainly due to the student's level of study. All the students of my study were doing their second year of the Bachelor of Business course and were studying accounting where as students of Wong's study were selected from different year levels and different discipline. Most of the students in my study joined second year level directly coming from China. As maturity level of the students in my study were much lower than Wong's study and they were relatively new to the Australian university system they could have preferred spoon feeding.

Above discussed findings by Briguglio (2000), Collier (2003), and Wong (2002 &2004) combined with my previous teaching (Seven years of teaching accounting mainly Chinese non-English speaking students in English speaking teaching and learning environment in Singapore) experience supported and reinforced my findings in this study.

## Conclusion

This study identifies the most common major problems faced by the Chinese students in learning accounting and offers a list of nine suggestions those hopefully will help to overcome these problems. The study shows that the problems reported by others with Chinese students continue to be problems. I wish to offer nine interrelated strategies to solve these problems. Suggested methods/ strategies will be very good tools in the hands of academics and Chinese students in teaching and learning accounting more effectively. Given the findings of the literature combined with result of the study and my own experiences with Chinese students, it would appear that the above mentioned suggestions might go a long way to resolve the problems faced by Chinese students.

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# Selection of Universities in Africa: Information Requirements and Expectations

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## Abstract

Tertiary institutions have a major role in providing relevant education that best meets the needs of the various constituencies served. To meet these needs an assessment of factors that influence their choices becomes imperative. Attracting quality students in a highly competitive education environment is crucial as the large number of students aspire to enter to the University with limited success because of limited spaces and other resource constraints. In striving to curb the problems and enhancing marketability of students in the limited available markets, re-strategising and applying sound marketing principles is imperative. This paper examines the criteria used by South-African and Swazi students, when choosing or evaluating a tertiary institution. The main findings were amongst others that the most important attributes in attracting and maintaining students are: offering relevant degrees and programmes that are aligned to the different country's sectoral needs; financial assistance, ease of location and access, well equipped and approachable staff, good library and computer facilities, and studying in a reputable institution.

## Introduction

Education in Higher Education institutions has been changing rapidly in response to the dynamic national, regional and global developments. Examinations systems, structures and other related processes have changed drastically impacting on the pass rate at the highest school levels and affecting their intake at tertiary level. Consequently, a large number of students relative to available spaces and available government loans/scholarships apply with limited success. Prospective higher education students and the tertiary institutions' administrators normally undertake extended decision making during their processing of applications for courses of study. De Jager and Du Plooy (2006) noted how the decision-making process with regard to a course or a specific institution can be very complex. An increased understanding of the potential higher education student decision-making process would enable Higher Education institutions to market their courses in a more timely and effective way (Moogan et al., 2001:197). Consequently institutions of higher education should be well aware of what aspects students value most in order to make a final decision with regard to a specific institution (De Jager & Du Plooy, 2006). Because institutions of Higher Education are constrained by numerous factors such as limited funding and other resource constraints, entry into these institutions may be difficult as students compete for limited resource facilities (Mulamba, 2003). Consequently Institutions of Higher education should determine the most important variables that are under their control in order satisfy the changing needs of the students. The constraints may also affect the ability of the institutions to match the expectation and needs of students and that of the end users of the universities by-products. Most students in these institutions have dire financial constraints. Generally, only a restricted number of students are admissible to the University. Even if they qualify for entry they compete for limited spaces on the basis of their educational grades, leading to the universities admitting only the top best (Emanyonu, 2006).

**Challenges relating to support facilities, infrastructure, location, ease of access, image and marketing, and academic issues of concern in the tertiary education sector and the marketing aspects thereof,** with specific reference to the service quality associated with the service package provided to students, are reviewed in the two African countries: South-African and Swaziland. In addition it is done in order to facilitate and to identify critical areas that require improvement in managing these institutions and offering relevant programs that equip the students with the relevant competencies needed to revive the two country's dwindling economic performance. The

major challenge is therefore, to develop an inclusive learning environment which accommodates all possible factors that affect the learning environment and hence impacting negatively on the reputation of the institution.

## **Theoretical background**

### **Contemporary challenges in the tertiary education sector in Africa**

Countries in Africa face major challenges that promote and hinder the development of the students, institutions, the respective countries and their ability to compete regionally and globally. In view of the challenges, there is a need for re-strategising to help counteract potential problems of poor service delivery, declining standards, offering of irrelevant or outdated programmes; and marketability of the institutions' products and their students because of deficiencies experienced in various programmes' offerings. The strategic process entails overhauling the institutional environment to embrace all the critical major influences on the institutional and student's development. In Tisdell's (1995: 7) view, creations of an enabling inclusive learning environment should:

*“ reflect the diversity of those present in the learning activity itself in the curriculum and pedagogical/ andragogical style; attend to the wider and immediate institutional contexts in which the participants work and live; and in some way reflect the changing needs of an increasingly diverse society.*

This view emphasise the need for various institutions to ensure that the programmes offered and the institutional context reflect the values of the learners and that of the end-users of the universities products. A similar view was expressed by other researchers (Brown et al., 1988; Wilson, 1993; Anderson et al.,1996) who noted how institutions should realize the link between knowledge, its by-products and context. The by-products refers to the translation of knowledge and skills to socio-economic and other developmental goals. Nkomo (2006) indicated how they are translated to the enhancement of the various communities quality of life and their standards of living. In these roles, higher education promote national development, foster national unity and minimize the potential for conflict as a result of varied cultures, enhance individual talents and enhance opportunities for people's meaningful participation in their socio-economic goals, foster positive attitudes among each other and hence promote social justice and morality (Emenyonu, 2006; Mungai 2002). Kargbo (2002) acknowledges how African universities are a major element in development; at the apex of the educational system is a place for the pursuit and dissemination of knowledge and playing a pivotal role in the onward struggle for national development. To effectively pursue this vital role, universities have to be provided with essential resources for improvement and upgrading of their infrastructure and to also enable them to attract highly skilled personnel for the purpose.

Over the past few years, higher education institutions in South Africa have experienced dramatic changes in their structuring, funding and student numbers. The Tertiary education sector faces many new challenges, including, more recently various mergers and the transformation of technikons into universities of technology. This transformation has not only brought about a change of status in these institutions, but also the mergers of intrinsically different institutions. The broadening of access to higher education in South Africa under the present government policy has seen a growth in the number of applications to tertiary institutions (Bunting & Cloete, 2004). The transformation of higher education institutions in South Africa is one of the concerted efforts to provide the fertile ground for the empowerment of previously disadvantaged groups. This process is one of the numerous efforts geared towards ensuring that higher education institutions respond toward national imperatives for redress, in areas of employment equity and skills development (Diale, 2006). According to Cooper and Subotzky (2001), South Africa has experienced a “revolution” regarding the increase in proportion of African student enrolments in tertiary education thus they have constituted the majority since the middle 1990's. This consequently calls for a re-assessment of the needs of current students in higher education.

Similar to South Africa, Swaziland is transforming its education system in higher institutions of learning in response to developments regionally and globally. It continuously reviews its programs to meet the demands of contemporary society but its efforts are hampered by shrinking funding as more funds are diverted to the funding of orphans and vulnerable children as well as addressing the socio-economic development issues of HIV/AIDS,



shrinking inward investments and the associated high unemployment and poverty issues (Joubert et al., 2006). De Jager and du Plooy (2006) noted how the downward trend in the economic situation and the resultant decline in public finances since the 1980's onwards led in governments' inability to continue to meet the financial needs of higher education whereas a growing demand for access continued. The resultant higher educational constraints discussed are manifesting themselves in political upheavals that involve students, brain drain of the limited country's think tanks and eventually the quality of education will be hampered and hence, hindering the country development. Drastic measures are thus needed to circumvent the effects; that is partly why this study is being undertaken. To address the quality and national relevance issues extensive consultation with key stakeholders and implementation of response action programmes are key solutions to these problems. Proponents of the social-action approach argue for getting solutions from those directly affected by the problem (Burrell & Morgan, 1985; Hammersley & Atkinson, 1983; Goldthorpe et al., 1968). Other researchers have also expressed how learning institutions cannot be separated from the world of action but exist in robust, complex social economic environments made up of actors, actions, and situations (Wilson, 1993; Anderson et al., 1996).

### **Institutional and Programmes' Image to recipients and product end-users**

Barich and Kotler (1991) point out that the critical role of institutional image and institutional reputation in customer's buying intentions are well known in marketing; and Raj (1985) points out that institutional image and reputation are important to develop and maintain a loyalty relationship with customers. An institutions image and reputation may also have impact on student's decision to enrol at a particular institution of higher education or to stay for advanced studies. In emphasizing this view, the public relations officer of George Fox university noted how the University from which a student studies is part of the student's life. A similar view that the manner in which students make choices on type of tertiary institution is fundamental was also expressed by one of the students at the University of Nottingham, hence the argument that their input be solicited (Susie, <http://www.news.bbc.c.uk/Education/>). University students are also branded with their institutions' diplomas/degrees and transcripts and their employers use them as their educational identity (Spokeperson, <http://www.georgefox.edu/about/distinctives/>). Clearly then, the choice of a university and its associated programmes will in part determine employability and success. In order to claim and maintain a competitive advantage, the creation and maintenance of an acceptable image for an organization is one of the most important steps. Ivy (2001) states that as competition for student's increases and funding decrease universities need to create and maintain a distinctive image in the market place. Higher education institutions are becoming increasingly aggressive in their marketing activities and need to be clear about their positioning in order to convey a favourable image to their distinctive interest groups, from students to donors (Russel, 2005; Ivy, 2001) and the labour market. In their study of university image, Paramewaran and Glowacka (as cited by Russel, 2005:67) found that higher educational institutions need to maintain or develop a distinct image to create a competitive advantage in an increasingly competitive market. This requires maintenance of close links with customers and be proactive in their orientation by anticipating challenges and respond to them on time.

### **The Role of Marketing in the Tertiary Education Sector**

In almost all cases, it is important to understand how consumers make preferences for, and choose among existing products or services designed for them. Moreau and Dahl (2005)'s response is that in many situations their needs are more specific and unique and thus require consumers to play an integral part in constructing their own solutions which is why the researchers tackle the problems using a social-action approach.

The increased level of competition in the education environment has led to institutions of higher education employing managerial techniques to improve the efficiency and quality of their provisions (Palihawadana, 1999) and

switch from a passive to a more active market approach (Naudé & Ivy, 1999). The overriding philosophy of education post independence in South Africa in 1994 is offering an education system that is outcome based (Parbhoo, 2006). Therefore, if universities are to satisfy students and the end-users requirements they must be aware of their own offerings and how these are perceived in the market place. It is important for institutional policy makers to be aware of the influential factors and the associated impact on potential students, (Moogan, Baron & Bainbridge, 2001:197) and on the graduates. Therefore a market analysis in the process is very vital for in-depth knowledge of customers' needs and that of the market and the wider business environment served. Tertiary institutions can then identify specific benefits sought by students from their programmes; the factors influencing demand and their purchasing criterion; the associated risks and challenges in buying their products/services. Along with the academic programmes are other related support programmes such as social amenities and ease of networks formation that go along with you when you graduate (<http://www.georgefox.edu/about/distinctives/>).

Higher Education Institutions should understand their own offerings and how these are perceived in the market place, because it could have important marketing and management implications. Various factors influence the choice of potential scholars to study at a specific tertiary institution, including location (Ford, Joseph & Joseph, 1999; Roberts & Allen, 1997), reputation of academic quality (Landrum et al., 1998; Ivy, 2001), course specifics, (Ford et al., 1999) and career opportunities (Ford et al., 1999; Krone et al., 1981). A recent study (2002) by the Human Sciences Research Council (HSRC) in South Africa has found that the most important influence upon choice of institution is its reputation followed by the geographical location. One of the reasons why location is important for students in South-Africa is because is that more than a third of all learners do not have a suitable quiet, place in their homes to study (Cosser, 2002) and might use library facilities to study.

In SERVQUAL (Parasuruman et al., 1998), five generic dimensions of service quality are suggested namely; responsiveness, reliability, empathy, assurance, and tangibles. However, many subsequent studies of service quality in a variety of services, have failed to recover the five dimensions of service quality (Buttle, 1996). The findings on the factors of Higher Education Service Quality diverge-such as the factor structure identified by Ford, Joseph and Joseph (1999) including academic reputation, career opportunities, programme issues, physical aspects, location, and other. Oldfield and Baron (2002) suggest that there are three underlying factors of higher education service quality namely, requisite elements (encounters which are essential to enable students to fulfil their study obligations), acceptable elements (which are desirable but not essential to students) and functional elements (which are of a practical or utilitarian nature). Cheng and Tam (1997) came to the conclusion that based on different conceptions of education quality and the different concerns about achievement of education quality, various people may use diverse indicators to assess education quality and miscellaneous strategies to achieve education quality. It may result in not including all aspects of the input, process and outcome of an education institution. Consequently, our discussion in this paper will focus on the factors emerging from the data.

## **Objective of the Study**

The primary objective of the study is to determine the most important service quality variables for students when selecting an institution of higher education and to determine whether there are significant differences between South African and Swazi students when making the decision.

## **Research methodology**

### **Conceptualising the purpose of the investigation**

In order to achieve the primary objective of the research the service quality variables were grouped into five main categories: Support facilities and Infra structure; Image and Marketing; Academic issues; Administration issues; and Location and access. The following secondary objectives were formulated:

To evaluate the expressed levels of importance of South African and Swazi students with regard to these identified variables;

To determine the existence of significant differences between the South African students and Swazi students with regard to their expressed levels of importance with these variables.

### **Research hypotheses**

With regards to the objectives the researchers formulated the following hypotheses:

Ho: There exist no significant differences with regard to the importance of the service variables between the sample of South African and the sample of Swazi students.

Ho: There exist significant differences with regard to the importance of the service variables between the South African and Swazi students.

### **The sample framework**

A sample of 385 students at a university in South-African and the University of Swaziland were chosen at random. Two hundred and eleven of the respondents were students from a large South African University while one hundred and sixty four of the respondents were student from the University of Swaziland. The sample comprised of 46% male and 54% female students. The attitudes of the two student samples were tested regarding the importance of pre-identified service quality issues when selecting a specific tertiary institution. The list of variables was based on an extensive literature research and the findings of focus groups consisting of students and lecturers. The questionnaires were distributed to randomly selected students in pre-determined classes.

### **The measuring instrument and reliability measures**

A structured questionnaire was used as measurement instrument and included twenty-three variables related to service quality at a higher educational institution. A five-point Likert-type scale (one being very important and five not important at all) was used to measure the levels of importance with regards to these variables at the two institutions of higher education in the two countries.

The data was gathered and captured over a period of six months during the first semester of 2006. The SPSS version 13.0 statistical package was utilised to analyse the data. For this analysis the Kolmogorov-Smirnov Test was employed based on the assumption that if the significant values exceeded 0.5, normality could not be assumed and the researchers had to rely on employing non-parametric analysis techniques. As normality could not be assumed after applying the Kolmogorov-Smirnov Test the researchers employed the Kruskal Wallis test to test the null hypothesis and the alternative hypothesis that there exists no significant difference between the levels of importance between the two groups and there exists significant differences between the groups (SA and Swaziland students).

An item analysis was carried out to test the validity and the reliability of the questionnaire and an overall Cronbach's alpha of a 0,903 was obtained.

## **Findings of the study**

The main findings of the study are discussed by first identifying the overall most important variables and then comparing the South-African and the Swaziland samples with regard to each of the five individual groupings as

identified earlier. The scale on which means are based is 1=very important, 2= important, 3 = not important nor unimportant, 4 = not important and 5 = not important at all.

The means of all the categories (**Tables 1 to 5**) are located between very important and not important nor unimportant with the majority of the ratings generally clustered around important.

TABLE 1: LEVEL OF IMPORTANCE OF LOCATION AND ACCESS WHEN CHOOSING AN EDUCATIONAL INSTITUTION

Location and access		SA		Swaziland		Total		Results of hypothesis test
Item	Item wording	Mean	SD	Mean	SD	Mean	SD	
v80	Location of the Institution	1.78 1	0.84	1.89 4	1.07	1.83 2	0.95	p-value = 0.7471 Conclusion: Ho accepted
v81	Size of student population	2.40 5	1.13	2.34 7	1.17	2.37 6	1.15	p-value = 0.4610 Conclusion: Ho accepted
v82	Distance to institution	1.91 4	1.02	1.84 3	1.08	1.88 3	1.04	p-value = 0.2931 Conclusion: Ho accepted
v83	Availability of public transport	1.85 3	1.15	1.52 1	0.88	1.71 1	1.05	p-value = 0.0050 Conclusion: Ho reject
v102	Attractive campus	1.79 2	0.89	2.10 6	1.05	1.92 4	0.97	p-value = 0.0030 Conclusion: Ho rejected
v86	Hostel accommodation	2.87 7	1.48	1.59 2	0.98	2.31 5	1.44	p-value = 0.0001 Conclusion: Ho rejected
v87	Private accommodation near institution	2.78 6	1.38	1.99 5	1.05	2.44 7	1.30	p-value = 0.0001 Conclusion: Ho rejected

Sig = 0.05

df =1

In the location and access category (**table1**), the availability of public transport (v83) is rated as the most important variable when selecting an institution of higher education in this category. Ho is rejected as significant differences are measured amongst the two sample groups with Swazi students rated it significantly more important compared to the SA sample that rated it in third position. In addition a higher level of consensus exists amongst Swazi students in this regard.

The overall second most important variable when selecting an institution of higher education in this category is the location (v80) of the institution. While no significant differences exist amongst the two sample groups, the SA sample rated it as the most important variable in this category compared to a fourth rated position by the Swazi sample. In addition a much higher level of consensus is measured amongst the SA sample.

The overall third most important variable in this category is the distance to the campus (v82). Although no significant differences exist amongst the two samples the Swazi sample rated it slightly more important (in third place) compared to the SA sample (fourth position) with a higher level of consensus amongst the SA sample. All abovementioned variables were rated between very important and important.

The variable that are overall rated least important is private accommodation (v87) Significant differences are measured amongst the two groups with SA students rated it less important (sixth position) compared to the Swazi sample (fifth position).

TABLE 2: LEVEL OF IMPORTANCE OF SUPPORT FACILITIES AND INFRASTRUCTURE WHEN CHOOSING AN EDUCATIONAL INSTITUTION

Support facilities and infra structure		SA		Swaziland		Total		Results of hypothesis test
Item	Item wording	Mean	SD	Mean	SD	Mean	SD	
V84	Parking facilities on campus	2.40 9	1.41	2.44 9	1.25	2.42 9	1.34	p-value = 0.4618 Conclusion: Ho accepted
V85	Security/Safety conditions on campus	1.36 3	0.70	1.37 3	0.86	1.36 3	0.77	p-value = 0.3979 Conclusion: Ho accepted
V90	Sport facilities of institution	2.19 7	1.08	2.01 7	1.01	2.11 7	1.05	p-value = 0.0770 Conclusion: Ho accepted
V96	Well equipped Computer facilities	1.26 2	0.54	1.25 2	0.59	1.25 2	0.56	p-value = 0.7785 Conclusion: Ho accepted
V97	Well equipped Library facilities	1.21 1	0.49	1.20 1	0.52	1.21 1	0.50	p-value = 0.7788 Conclusion: Ho accepted
V98	Recreation Facilities	1.87 5	0.87	1.86 5	0.96	1.86 5	0.91	p-value = 0.5889 Conclusion: Ho accepted
V106	Tuck shops on campus	2.02 6	0.93	1.94 6	1.02	1.99 6	0.97	p-value = 0.1532 Conclusion: Ho accepted
V107	Dining halls on campus	2.53 10	1.13	2.17 8	1.07	2.37 8	1.12	p-value = 0.0009 Conclusion: Ho rejected
V108	Bookstores conveniently located / stocked	1.69 4	0.83	1.41 4	0.80	1.57 4	0.82	p-value = 0.0001 Conclusion: Ho rejected
V114	Social activities/night life	2.25 8	1.05	2.71 10	1.28	2.45 10	1.17	p-value = 0.0009 Conclusion: Ho rejected

Sig = 0.05      df = 1

In the Support and infrastructure category (table 2), Well-equipped library (v97) and Computer facilities (v96) are regarded as most important and second most important variable by both samples overall and distinctively). This implies that students are aware of the importance of technologically advanced equipment in the training process. Although Ho is accepted for both variables (as no significance differences were measured between the two sample groups), the Swazi sample rated it slightly more important. While there are slightly less consensus amongst them compared to the SA sample.

The Security and safety (v85) condition on campus are overall and distinctively rated as third most important variable in this category. Although no significant differences are measure between the samples, the SA sample rated it slightly more important with a higher level of consensus amongst the respondents.

The overall least important variable in this category is social activities and a night live (v114). Significant differences are measured amongst the two samples with Swazi students rated it significantly less important (in 10<sup>th</sup> position) compared to their SA counterparts (rated it in eight position).

Overall the scholarships available for students (v95) are rated as most important variable in this category (table 3). Significant differences between the two samples exist with Swazi students rated it significantly more important (rated most important) compared to the SA sample (that rated it in sixth position). A higher level of consensus is measured amongst the Swazi sample.

The academic reputation of the faculty (v91) and the reputation of the lecturers (v92) at the institution are both rated the second most important in the Image and Marketing of the institution's category. However, the SA sample rated the reputation of the lecturers at the institution first while it was rated fourth by the Swazi sample. With regard to the academic reputation of the faculty, Swazi students rated it second while rated third by SA students. However Ho is accepted as no significant differences exist between the two countries with regard to these variables.

However while Swazi students hold a slightly stronger view point with regard to the importance of the academic reputation of the faculty the SA sample are slightly more in favour of the reputation of the academic staff.

Consequently the fourth overall important variable is the Academic reputation of the institution (v91) with Swazi students holding a slightly stronger point of view although no significant differences are measured between

the groups. Overall the least important variable is the Sport reputation of the institution (v89). This view is shared by both samples as no significant differences are measured between the two samples.

TABLE 3: LEVEL OF IMPORTANCE OF IMAGE AND MARKETING WHEN CHOOSING AN EDUCATIONAL INSTITUTION

Image and marketing of institution		SA		Swaziland		Total		
V88	Academic reputation of institution	1.534	0.82	1.452	0.80	1.494	0.81	p-value = 0.2470 Conclusions: Ho accepted
V89	Sport reputation of institution	2.389	1.09	2.369	1.12	2.379	1.10	p-value = 0.6935 Conclusions: Ho accepted
V91	Academic reputation of faculty	1.513	0.78	1.452	0.72	1.482	0.75	p-value = 0.5827 Conclusions: Ho accepted
V92	Reputation of lecturers at institution	1.441	0.68	1.474	0.80	1.482	0.75	p-value = 0.9402 Conclusions: Ho accepted
V93	Availability of information about faculty	1.492	0.61	1.546	0.79	1.515	0.69	p-value = 0.9991 Conclusions: Ho accepted
V94	Marketing activities of Institution	2.008	0.84	1.868	1.00	1.948	0.92	p-value = 0.0205 Conclusions: Ho rejected
V95	Scholarships available	1.636	0.78	1.161	0.47	1.431	0.70	p-value = 0.0001 Conclusions: Ho rejected
V103	Reputation of study program	1.687	0.70	1.637	0.78	1.667	0.74	p-value = 0.2588 Conclusions: Ho accepted
V112	Career Advisors (of institution) accessible and informed	1.555	0.70	1.515	0.74	1.536	0.72	p-value = 0.3246 Conclusions: Ho accepted

Sig. = 0.05 df = 1

TABLE 4: LEVEL OF IMPORTANCE OF ACADEMIC ISSUES WHEN CHOOSING AN EDUCATIONAL INSTITUTION

Academic issues		SA		Swaziland		Total		
Item	Item wording	Mean	SD	Mean	SD	Mean	SD	Results of hypothesis test
V99	Small classes for better learning	1.868	0.99	1.978	1.00	1.918	1.00	p-value = 0.2180 Conclusions: Ho accepted
V100	Reasonable class fees	1.371	0.65	1.646	0.89	1.503	0.77	p-value = 0.0024 Conclusions: Ho rejected
V101	Admission requirements	1.534	0.66	1.625	0.77	1.574	0.71	p-value = 0.3102 Conclusions: Ho accepted
v104	Comprehensive educational program	1.666	0.67	1.657	0.74	1.667	0.70	p-value = 0.6663 Conclusions: Ho accepted
v105	Spacious well equipped classes	1.615	0.73	1.614	0.83	1.615	0.77	p-value = 0.5227 Conclusions: Ho accepted
v110	Academic staff approachable/informed	1.453	0.61	1.462	0.71	1.462	0.65	p-value = 0.7737 Conclusions: Ho accepted
v113	Offer wide range of degrees/majors	1.392	0.60	1.261	0.52	1.331	0.57	p-value = 0.0442 Conclusions: Ho rejected
v115	Provide variety of internship/practicum programs	1.737	0.85	1.523	0.77	1.646	0.82	p-value = 0.0087 Conclusions: Ho rejected

Sig. = 0.05 df = 1

A wide range of degrees/majors offered (v113) is overall rated as most important issue in the Academic category (**table 4**), rated most important by the Swazi sample and second by the SA sample. Ho is rejected as significant differences exist between the two sample groups with Swazi students holding stronger feelings in this regard, rating it as most important while SA students rated it second.

The overall second most important variable in the Academic issue category is approachable and well informed academic staff (v110). While it was rated second by the Swazi sample it was rated third by the SA sample. Although no significant difference between the two samples is measured, SA respondents rated it slightly less important. A higher level of consensus is also existed for the SA respondents.

The overall third most important variable in this category is reasonable class fees. Significant differences are measured amongst the two groups with the SA sample rated it significantly more important (rated as most important) compared to the Swazi sample (rated it in sixth position). A significant higher level of consensus existed amongst the SA sample.

Small classes for better learning are rated as least important variable. No significant differences between the two samples are measured although the SA sample rated it less important with a higher level of consensus compared to the Swazi sample. It has to be stated that this variable was overall rated less than 2 on a five point scale indicating that it is still fairly important. This outcome is probably because students, especially from previously disadvantaged population groups, realise the importance of wiping out the backlog in education as a result of political imbalances of the past.

## **Conclusion and recommendation**

In order to achieve the primary objective of the research, the service quality variables are grouped into five main categories in this study: location and access, support facilities and infrastructure; image and marketing; and academic and administrative issues.

In the **location and access** category the availability of public transport is rated as the most important variable when selecting an institution of higher education in this category. Ho is rejected as significant differences are measured amongst the two sample groups with Swazi students rating it significantly more important compared to the South African sample that rated it in third position. In addition a higher level of consensus exists amongst Swazi students in this regard. The overall second most important variable when selecting an institution of higher education in this category is the location of the institution. While no significant differences exist amongst the two sample groups, the SA sample rated it as the most important variable in this category compared to a fourth position for the Swazi sample. In addition a much higher level of consensus existed amongst the SA sample. The overall third most important variable in this category is the distance to the campus. Although no significant differences exist amongst the two samples the Swazi sample rated it slightly more important with a higher level of consensus amongst the SA sample. All abovementioned variables were rated between very important and important.

In both countries the Location and the accessibility of the institution are playing an important role as the students have special requirements to reach the respective universities with limited financial means. This is because the majority of both countries' students are from previously disadvantaged population groups which may in most cases be characterised by financial constraints. Inadequate infrastructure is also contributing to these findings. The Location is important because the majority of the students have to commute long distances to the university on a daily basis. The number of registered students exceeds the available accommodation on the various campuses by far. The importance of public transport thus came as no surprise as most of the students are dependant on it. The availability of Public transport is important as most of the students do not have the financial means to privately own vehicles. Transport to hostels, Private accommodation as well as to other central transport facilities have to be acknowledged and maintained. Non adherence to these needs may result in loosing many prospective students and exacerbate late-coming and absenteeism as this service, provided by both institutions, is regarded as a necessity. This necessity is supported by the relative unimportant rating of private parking facilities. The reason may be because the availability of private parking facilities does not directly affect the students as most of them are making use of public transport. Parking requirements for the latter are attended to by both institutions.

The rating of the availability of private accommodation and university accommodation was considered to be the least important and as revealed by the relative low scores. This may be related to financial constraints that necessitates the provision of an adequate transport system. Promising students that show a need for hostel accommodation should be identified and approached with the offering of financial aid in order to attract and maintain them.

In the **Support and infrastructure category**, Well-equipped library and computer facilities are regarded as most important and second most important variable by both samples. This implies that students are aware of the importance of technologically advanced equipment in the training process. Although  $H_0$  is accepted for both variables as no significance differences were measured between the two countries, the Swazi sample rated it slightly more important although there was slightly less consensus amongst them compared to the SA sample. The provision of access to up to date information in order to support excellent training should be prioritized. Financial provision should be made for the upgrading of computer hardware and soft ware as well as access to the latest literature in order to establish a competitive advantage over other educational institutions. The Security and safety condition on campus are rated as third most important variable in this category. Although no significant differences are measured between the samples the SA sample rated it slightly more important with a higher level of consensus amongst the respondents. This issue becomes extremely important as the high unemployment rate in both countries is partially to be blamed for high crime rates. Assuring a safe environment on campus and while making use of official transportation are therefore important issues to address. As a result of the high crime rate experienced by all citizens in the Republic of South Africa and to a lesser extent in Swaziland, security measures on campus should be strictly maintained and the visibility of security officials should be increased. Technologically advanced methods should be implemented to secure class rooms and hostels to prevent associated risks of theft and that of endangering the lives of students. This could include an electronic card system to monitor entrance to university campuses and to prevent unauthorized entrance. Refraining from putting these measures in place could lead to an undesirable image. A safe and secure environment on campus can create a competitive advantage. The least important variable in this category is social activities and a night live. Significant differences existed amongst the two samples with Swazi students rating it significantly less important compared to their SA counterparts.

Overall the scholarships availability for students are rated as most important variable in the **Image and marketing category**. Significant differences between the two samples existed with Swazi students rating it significantly more important (rated most important) compared to the SA sample (that rated it in sixth position). A higher level of consensus is measured amongst the Swazi sample. The academic reputation of the faculty and the reputation of the lecturers at the institution are both rated second most important in the Image and Marketing of the institution's category.  $H_0$  is accepted as no significant differences exist between the two countries with regard to these variables. However while Swazi students hold a slightly stronger view point with regard to the importance of the academic reputation of the faculty, the SA sample are slightly more in favour of the reputation of the academic staff. Consequently the fourth overall important variable is the academic reputation of the institution with Swazi students holding a slightly stronger point of view although no significant differences are measured between the groups.

The fact that the availability of scholarships is rated as most important variable provides support for previous findings that is related to limited financial resources that is derived from a certain degree of poverty experienced by the population. As mentioned elsewhere, promising students (students that obtained a high score in the selection process) should be encouraged by means of financial aids. Various options may be considered including, government bursaries for the orphans and for the most needy because of their parents status; and/ or reduction on fees based on A, B or C symbol achieved in high school or loans that may be converted into bursaries for most successful students. In arriving at a workable solution all the key stakeholders: government, parents and the students should be involved in the decision-making process. Once a decision is made on these matters it should be communicated to the students on time to facilitate effective planning and not to disrupt the smooth operation of the institutions, particularly in Swaziland where over the years there have been severe disruptions and delays as result of delays in processing of scholarships.



The reputation of the faculty and that for lecturers are rated second and third important variables, respectively, providing an indication that maintaining the overall reputation of the institution should be prioritised and displayed to all the key stakeholders particularly students and end-users of graduates. The overall reputation of the institution is consequently regarded as high priority area to be addressed in the management strategy. This will ensure that the most promising students/employers are attracted. Building and maintaining a good reputation could be done by implementing high quality training of international acceptable standards. International partnerships in training should be high on the agenda and should be emphasised in internal and external communications with employees and alumni. The importance and power of word of mouth communication should not be underestimated. Academic institutions' active involvement in research of highly acceptable standard will ensure a good national and international academic standing and hence facilitate these countries developments and competitiveness regionally and beyond. The recreational amenities of the institution have been rated least important and no significant differences exist between the two groups. Because a significant number of senior students were involved in the survey it may be concluded that at this phase of their academic career, it is agreed upon that academic issues are more important than the extramural activities although a balance should be maintained in life in general.

A Wide range of degrees/majors offered is overall rated as most important issues in the **Academic category** although significant differences exist between the two sample groups with Swazi students holding stronger feelings in this regard, rating it as most important while SA students rated it second. A demand for a wide variety of study areas are expected in order to make provision for employment in a diversified labour market where the unemployment rate is high. The overall second most important variable in the Academic issue' category is approachable and well informed academic staff. While it was rated second by the Swazi sample it was rated third by the SA sample. Although there were no significant difference between the two samples, SA respondents rated it slightly less important. A higher level of consensus is also measured for the SA respondents. Lecturers should consequently be informed about the importance attached to this variable and training sessions should consequently be formulated to prepare lecturers for this need. The overall third most important variable in this category is reasonable class fees. Significant differences are measured amongst the two groups with the SA sample rating it significantly more important compared to the Swazi sample while a significant higher level of consensus is measured amongst the SA sample. Because of the relative high unemployment rate in both countries reasonable class fees are expected to be rated as very important. Annual increases in class fees should be justified, as unjustified class fee increase often results in protests. Financial support, as mentioned several times is an issue warranting serious consideration because of the status of most of the students; they come from poor family backgrounds and/or are orphans, some are heads of their siblings burdened with extra responsibilities as a result of HIV/AIDS and/or unemployment. Small classes for better learning are rated as least important variable. No significant differences between the two samples are measured although the SA sample rated it less important with a higher level of consensus between the samples. It has to be stated that this variable was overall rated less than 2 on a five point scale, indicating that it is still fairly important. This outcome is probably because students, especially from previously disadvantaged population groups, realises the importance of wiping out the backlog in education as a result of political imbalances of the past.

To conclude, the management of higher education institutions should be in touch with the needs of their respective clients of which students and end-users/employers are most important. In order to achieve this most important link, attention should be given, in priority order, starting with attracting and maintaining students and offering of relevance degrees and programmes that are aligned to the different country's sectoral needs; .financial assistance, ease of location and access, well equipped and approachable staff, good library and computer facilities, reputable institution. The scholarship or students loans to enable them access to higher education was considered to be of uttermost importance because of the two countries developmental goals. Secondly, for greater access to bursaries/student loans, tertiary institutions should attract and develop well rounded students to match with the needs and expectations of the labour market and socio-economic goals of their respective countries, more so because of both countries developmental status; and because of the high need for greater competitiveness in the region and globally. Well- rounded students require good marketing strategies to reach out and maintain a cream of students who are reputable and worthy of good performance to the end-users. Resources' availability is the key to the improvement and development of the tertiary institutions' infrastructure; such as well-equipped staff, well equipped

library facilities, well-equipped computer facilities, security and safety on campus and an overall reputable institution.

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# Strategic Learning Organization: The New Paradigm of Learning Organization

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## Abstract

A lot of attention has been paid to action learning in the last decade and the success of such program has also been widely studied. How can action learning program promote organizational learning performance and strategy in small and medium-sized enterprise (SME)? This article discusses the association between strategic learning organization and action learning program and the ability of SME to be strategic learning organization. In the case of Alpaco, action learning program that promote employee communication behavior, knowledge sharing, and organizational learning are found to be positively associated with corporate strategic performance. The results indicate that action learning program in SMEs indeed associated with greater knowledge sharing, learning communication skills and changing organizational culture. Strategic learning organization can be, in turn, positively developed by action learning program for creating competitive advantage. This study offers further support for both the practical perspective on strategic learning organization. The evidence from this case study suggests that the action learning program play a significant role in the development of strategic learning organization of the firm. SMEs seeking to promote ability of learning should consider making investments in action learning program that encourage employee participation in decision making, knowledge sharing, and organizational learning.

## Introduction

A consensus has emerged on the importance of learning organization as a modern mode of organizing economic activity. Especially, action learning program in SMEs has been increasingly recognized as a key practical function necessary for achieving competitive advantage of learning organization. (Clarke, Thorpe, Anderson, & Gold, 2006; Faull, Hartley & Kalliath, 2005; Mwaluko & Ryan, 2000). Also, more recent studies confirm that the competitive nature of learning organization and performance in firms pose fundamental challenges for both academics and practitioners (Kontoghiorghes, Awbrey & Feurig, 2005).

Many studies of learning organizations have attempted to diagnose the characteristics of learning organization and performance (Armstrong & Foley, 2003; Phillip, 2003). Regardless of which outcomes are deemed most important, there is little empirical evidence in the literature that how the practical methodologies of learning organizations affect strategic organizational outcomes. Herein I argue that the competitive success of practical program such as action learning can in part be attributed to strategic learning organization that makes a channel to share competitive knowledge. Furthermore this study examined here is designed to add to the base of empirical evidence through case study regarding the relationship between strategic learning organization and action learning program.

In recent researches, another stream of the learning organization concerns strategic perspective as a source of competitive advantage. Because the learning of knowledge is predominantly competitive advantage, action learning may be critical for the long-term success of learning organization (Davey, Powell, Cooper, & Powell, 2004; Law & Chuah, 2004). Nevertheless, there has been limited empirical work on the development of strategic learning organization through process of action learning and little research has been conducted the relationship of action learning and strategic learning organization. Also, if strategic learning organization-action learning program relationship is viewed as an important element in the firm's strategy or is a major competitive advantage contributor, managers are likely to get more involved in the relationship activities and to share more knowledge through action learning in order to ensure success.

The primary objective of this case study is to examine the nature of relationship between strategic learning organization and action learning in SMEs. To address further understanding of action learning processes in practical field, this study will introduce and empirically investigate the process of action learning components

through Alpaco case study. Finally, the strength of the relationships between strategy, learning organization, and action learning will be examined in light of the possible supportive effects of four important factors: institutional factors, physical factors, technical factors, and leader's role.

## Essential Features of Strategic Learning Organization

In the past, organizational researchers have focused their work on conceptualization of the learning organization, identifying characteristics of such enterprises that have the capacity to learn, adapt, and change. According to the strategic approach to the learning organization, a learning organization requires an understanding of the strategic internal drivers necessary for building learning capability. Garvin(1993) defines a learning organization as “an organization skilled at creating, acquiring, and transferring knowledge, and at modifying its behavior to reflect new knowledge and insights”. Having synthesized the description of management practices and policies related to this construct in the literature, Goh(1998) contends that learning organizations have five core strategic building blocks: clarity and support for mission and vision, shared leadership and involvement, a culture that encourages experimentation, the ability to transfer knowledge across organizational boundaries, and teamwork and cooperation. Further, the strategic building blocks require two main supporting foundations. The First is an effective organization design that is aligned with and supports these building blocks. The other consists of the appropriate employee skills and competencies needed for the tasks and roles described in these strategic building blocks.

The strategic perspective of the learning organization posits that certain managerial practices or strategic building blocks are prerequisites for becoming learning organization. These strategic building blocks can serve as practical guidelines for operational and managerial practice, and along with the supporting foundations they can also provide advice for management. However, in the past, the strategic perspective emphasizes the macro level and thus neglects some of the commonly identified elements of a learning organization, such as individual or practical learning tools. Consequently, this perspective was not selected as practical guide for the development of learning organization, and researchers could not explain directly the relationship between strategic learning organization and practical learning tools.

As a step toward gaining better understanding of the relationship of the strategic learning organization-practical tools, this study was designed to observe the Alpaco's action learning processes.

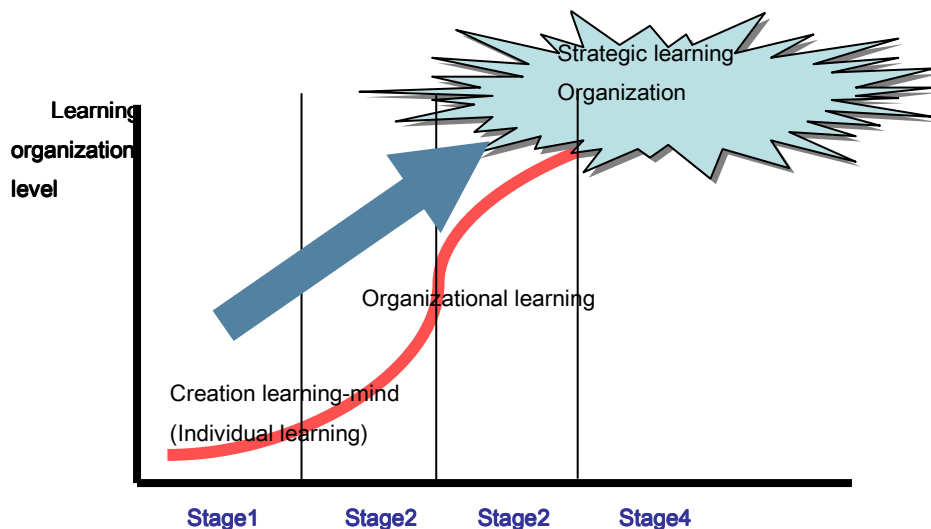


FIG. 1: THE LEARNING CURVE OF ORGANIZATION

## What is Action Learning?

As an important practical tool of the learning organization, the role of action learning in business has been drawing increasing attention recently from management researchers and practitioners alike (Coghlan & Coughlan, 2006; Davey, Powell, Cooper, & Powell, 2004; Law & Chuah, 2004; Johnson & Spicer, 2006). There appears to be a general consensus among researchers that action learning is important and useful in a tool of organizational learning activities, and along with the supporting strategic building blocks (Goh, 1998). Especially researchers noted that the role of action learning in strategic learning organization development is of fundamental importance. The development of learning organization based on action learning create the strategy-learning relationship ties, finally access the strategic learning organization with competitive learning knowledge (Clarke, Thorpe, Anderson, & Gold, 2006; Faull, Hartley & Kalliath, 2005; Mwaluko & Ryan, 2000). In sum, action learning between strategy-learning relationships should be positively associated with knowledge sharing because it provides strategic perspective of support for mission and vision, shared leadership and involvement, creates a culture that encourages experimentation, supports the ability to transfer knowledge across organizational boundaries, and makes teamwork and cooperation.

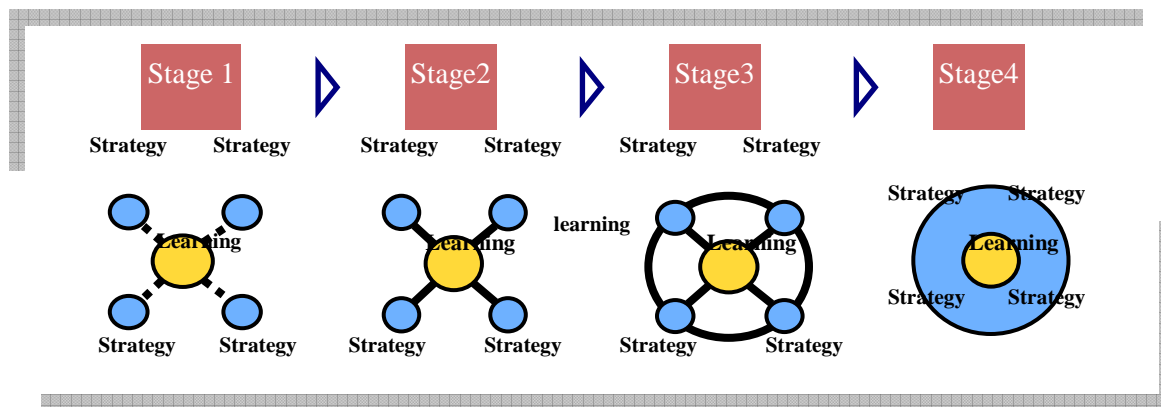


FIG. 2: THE DEVELOPMENT OF STRATEGIC LEARNING ORGANIZATION THROUGH AL

### Action Learning Process

Action learning (Evans, 1998) is a process that embeds a learning culture in groups, facilitating positive change for a wide range of organizations such as Motorola, Xerox, Peace Corps, and United Nations Development Program (Dotlich, & Noel, 1998; Marquardt, 1999). A structural process enables group exploration, definition, actioning, and evaluation of complex and work-related problems. Weinstein (1995) identifies five components of action learning program. The components include the following.

#### The Set

The set is a small group of people, normally five to eight, who meet regularly, ideally once a week for a day.

#### Real Project

These are for each person to work on. Body (1981) writes that on the issue how to generate and select projects it is worth considering a range of project selection styles. He identifies three selection styles, including:

- Ask senior management to suggest projects;
- Generate information from participants about problem areas, formulate into projects by trainers/senior management;
- Participants generate their own projects.

Criteria for selection may include, for instance:

- Relevance of the project to the survival and growth of the organization;
- Commitment of the client to the project;
- Feasibility of implementation in terms of time and skills and authority;
- Complexity of the problem requiring creative solution

#### **The Process**

Conceptually, the action learning cycle consists of four phases (Zuber-Skerritt, 2000). First, the identified problem must be of immediate relevance to the group, within the power of the group to solve and be problems (or opportunities) where no single course of action is evidence. Next, the problem-solving process begins by a process of individual reflection, followed by group discussions to examine critically the language used and reach consensual agreement on the meaning of this language and related concepts. This process facilitates movement from unawareness, feeling of anxiety, unsafe risk, and confusion to a supportive, questioning, and learning environment that engages and extends individual beyond programmed knowledge to pose and explore increasingly insightful questions. The questions, rather than individual, become the focus of attention and the “problem” to be solved, facilitating exploration of possible actions. Thirdly, the group identifies the most applicable action, based on their increased knowledge and implements the action. Finally, they evaluate its effectiveness. If the evaluated solution to a problem does not meet the group’s requirements, further rounds of action learning re repeated to address the problem.

#### **The Set Advisor**

The set advisor is a person who facilitates the process. Casey (1987) identifies five roles of the process advisor. They include:

- To facilitate giving;
- To facilitate receiving;
- To clarify the action learning process and
- To help others undertake the above tasks;
- To act from time to time as personal consultant to set members in the group setting

#### **Time**

Weinstein (1995) writes that action learning program take a duration of between three and six months.

### **A Look at Action Learning Program: an Alpaco’s Case Study**

The following Alpaco case study illustrates the use of action learning to facilitate innovative change and development of the strategic learning organization. Recognizing the potential benefits of using an action learning approach as a means of SME development, a governmental funding body sponsored a yearlong project.

The approach to data collection incorporated a longitudinal component through embedding at all meetings of the action learning program, individual consultant within the sets involved who recorded from an insiders perspective the behavioral responses and outcomes as reported by the facilitators involved program.

#### **The Program**

The program, which took a period of six months, i.e. from May 2006 to October 1996, involved all employees in Alpaco. There were 24 members in total. and they were divided by 4 sets. The set members adopted the conventional action learning process and a variety of decision-making tools(ex. Fishbone analysis or Mind Map) and techniques to accomplish their projects.

Although the program was initiated by the headquarters, the projects were selected by the set members themselves. The criteria for selection included:

- Relevance of a project to create the competitive advantage of corporation

- Ability of the project to promote learning

The following projects were selected by the set members:

- Design and implementation of a high-loyalty customer management program;
- Design and implementation of C-CRMS
- Redesigning of the web mode of education result
- Improving the effectiveness of learning management

**The Super Action Team**

The Super Action Team consisted of 5 members from education division, managerial support division, LMS development Team. In the first meeting, set members introduced themselves and listened to an explanation of the action learning program and its aims. During the second meeting, team members believed that they would have to overcome the problem of customer’s database by identifying the strategic internal drivers to address collectively. So, the advisor reinforced the need to identify a specific issue related to their day-to-day activities, asking them to highlight one for discussion in the next meeting. During the fourth meeting, the idea of a “C-CRMS” for customer was proposed. The C-CRMS would help search the information of customers, reduce operation time and improve the image of the strategic marketing. In educational industry, the strategic marketing approach is very critical. At the tenth and eleventh meetings, members reported on their progress with customer organization. The meetings led to the concept of a “C-CRMS” for construction being modified.

At the end of the action learning program, they said that the successful introduction of a “C-CRMS” would provide;

- Greater access to information about customer enterprises
- Reaction to customer’s request quickly
- Using alpaco’s ERP



FIG. 3: STROY BOARD OF C-CRMS

**Results**

There where a number of very interesting results from in-depth qualitative analysis. I will outline some evidence from evaluation. The factors resulting in success of action learning were the institutional factors; physical factors; technical factors; leader’s role. If any if these factors were not presents, the outcome probably would not have been as positive.

Which suggests that action learning program was an effective learning tool of strategic learning organization. In particular, the significant factors of action learning on strategic learning organization are found across the main process and output.

#### **Institutional Factors**

Alpaco's action learning program could begin with supporting of government policies for SMEs. Especially SMEs such as Alpaco cannot focus on learning organization programmes because of times and cost, government support policies play very important role in structuring learning organization and creating competitive advantages. In this case, government support successfully promoted the climate of learning, interactive teamwork and cooperation, and openness in action learning program. Furthermore, in this study, I identified internal institutional factors supporting strategic learning organization: reward system for result of action learning, relation with performance appraisal. These systems directly effects on motivation of participants to concentrate the action learning program.

#### **Physical Factors**

Actually, physical factors in the process of action learning program such as equipment, learning room played important role in learning effects. The combination of action learning and learning environment had contributed to the implementation of process to organizational learning. Effective equipment and facilities in action learning program promoted more active attitude to learning communication. Also, spaces for action learning meeting helped participants to concentrate the action learning program separated from their own jobs and businesses.

#### **Technical Factors**

In this Case, one of interesting results was using frequently internet community in all teams for interactive communication and transferring the knowledge. Before every meeting, participants shared and transferred their pre-learning knowledge in internet communities, so it was very critical for a team to save meeting time and to adjust the agenda. Therefore, technical factors based on IT network could were key success factors for learning organization performance through action learning program. Moreover, the ability of IT network in the action learning program will be critical to the competitive advantage of a learning organization in marketplace. Participants' knowledge and skills accumulated in communities through action learning can be the foundation of knowledge management system. Additionally, the support of top managers for IT network system to adopt a series of internally compatible learning practices has impact on the fit of the KMS itself and on the KMS with the firm's strategy. Clearly, there is a need for empirical studies to further enhance understanding of the effects of KMS on organizational learning.

#### **Leader's Role**

Powerful support and driving force of Alpaco's CEO were very important for successful implementation of action learning. As a major factor, the CEO's understanding of learning organization and insight into future were crucial in facilitating the strategic learning organization through action learning program in Alpaco. The capability of CEO matters to the effectiveness of the design and implementation of action learning program. The design of a sophisticated action learning program can be well accomplished if the firm's strategy is comprehensive understood by the CEO and managers. Therefore, the capability of CEO, especially in terms of abilities in understanding the importance of learning organization and analyzing the firm strategy, influenced the success of action learning results.

## **Discussion and Future Research**

The purpose of this study is to test empirically the impacts of action learning program and strategic importance on learning organization. To explore the topic of action learning within the organizational settings, Alpaco was studied. Through a case study approach of Alpaco, this study has focused on the process of action learning programs and the relationship between strategy and action learning output by proposing and testing a practical effectiveness that explicitly articulates the role of action learning that in past research received attention only partially and theoretically one another.

The overall results point to the critical role played by action learning program as an effective learning tool of strategic learning organization. In particular, the significant factors of action learning on strategic learning organization are found across the main process and output. These findings do not only coincide with past research that action learning acts as a powerful process on inter-team relationship in organization and performance. They also



provide some new light on the multidimensional process of action learning program across strategic learning organization.

Also, the results shows that the institutional support, physical environment, technical system and leader's role have a significant impact on action learning program success, and a higher level of organizational commitment positively influences participant's satisfaction and performance. Our findings contribute to action learning and strategic learning organization research in several ways. This study helps address the need to detail and to test practical effectiveness of action learning and thus provides evidence of the value of integrating concepts from strategic learning organization and inter-team relationship.

From a practical point of view, this study indicates that action learning program offer significant strategic perspectives for small and medium-sized enterprises. They may be able to actively manage their action learning program and supportive factors to stimulate strategic perspectives and build competitive advantage. Furthermore, government support policy can form the basis for strategic learning organization that may lead to greater value-creation opportunities. There are several limitations of this study. First, our sample was particularly one case, Alpaco, it is unclear how well these results would generalize to a broader sample. At the same time this research has focused on a single dimension of learning organization and strategic perspective and implemented it in one case. To clarify these problems and broaden this study, much in-depth empirical work remains to be conducted before a general theory can emerge. Finally, I believe that the findings presented herein have important practical implications for organizations facing today's challenging environment.

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# **Towards a Model of Career Development: Evidence from the Singaporean Hospitality Industry**

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## **Abstract**

Despite the touted benefits of job career planning in the contemporary human resource management (HRM) literature, few workers enjoy engagement with meaningful career development initiatives, yet most people are engaged in work for a high proportion of their waking life. This paper reports a study with 505 respondents who provided robust data that were used to evaluate a relatively compact model that integrated work career planning with predictor constructs and the demographic dimensions of gender and age as well as the outcome variables of commitment and job satisfaction. The results demonstrated significant support for the fundamental predicted linkages of the conceptual model, while disclosing that gender was not a significant mediating variable, but understandably, older employees held substantially less importance for career planning than younger employees. The results are discussed in terms of the paradox of the claimed benefits of HRM practices that incorporate individual career development decisions and the somewhat seldom endorsement of healthy career development initiatives of contemporary organisations.

## **Introduction**

There is increasing evidence that institutions are being challenged to undertake proactive career management. In past periods of relative stability, and somewhat predictable linear progression, the likely career advancement of cadres could be 'written on a wall' as organisations were male dominated, generally employees worked in one company to a retirement age of 65 years, and thus, regular promotion was a feature of seniority (Hind, 2005). But the emergence of a competitive, global marketplace, a shortage of qualified and skilled staff, a lack of leadership strength, and the increasing participation of professional and managerial women (Burke, Burgess and Fallon, 2006) is compelling organisations to revitalise and reposition career management. A dominant contemporary belief is a firm can build competitive advantage, by supporting career aspirations of staff, and thus, ultimately contribute to human capital accumulation.

An impetus for the employment of various career aspirational programmes has been an offshoot of the demise of traditional careers. For instance, the notion of lifetime employment has been replaced by the concept of lifetime employability (Koh, 2006) as advancing technology has compelled a renaissance in core job attributes and job incumbents are scampering to gain educational skill compositions (Bagshaw, 1997; Finn, 2000; *ILO*, 2003). And as the labour market becomes more gender balanced both men and women engage in non traditional career choices (e.g., nursing, teaching). Coupled with these actions is evidence that job holders, irrespective of gender, report more traditional role attitudes (Jome and Tokar, 1998; Lease, 2003), and acquire relatively common managerial work goals (Chatterjee and Pearson, 2006; Pearson and Chatterjee, 2004). However, making career compromise choices may lead to expressions of gender role conflict and dysfunctional job attitudes (i.e., low commitment, job dissatisfaction). Consequently, there are strong grounds for career counsellors to include such considerations in career development programmes (Dodson and Borders, 2006).

Predictably, there is ongoing pursuit to better understand career management processes that include personal and contextual dimensions. Since the mid 1990s a number of social scientists (Judge et al., 1995; Kirchmeyer, 1998; Tharenou et al., 1994) have studied a variety of likely predictors (e.g., family, education, and ambition) of career success with the objective of being able to conceptualise more encompassing models. The departure point for these newer paradigms is rooted in traditional HRM practices, which were developed almost 20 years earlier. Understandably, these earlier HRM arrangements, that were employed to increase job motivation,

improve incumbent task competencies, and to reduce dysfunctional behaviours of poor performance, absenteeism and turnover provide only partial answers for the nurturing of today's employees. Indeed, many institutions have yet to realise the strategic importance of innovative programmes for human resource development, which are likely to build human capital accumulation. Despite the chronicled efforts of leading edge organisations relatively little is known about how managerial women and men experience these initiatives (Eby, Allen and Brinley, 2000). The exploratory study reported here is an endeavour to provide some elucidation of the relativity of situational and personal characteristics with incumbent attitudes in a career management system.

The purpose of this paper, which is in six parts, is to report an evaluation of a conceptual career framework that integrates situational and personal features as well as two important work related attitudes – commitment and job satisfaction. In the first part the theme of the paper focusing on some important dimensions of career development, in terms of its antecedents and outcomes, is outlined. The second part delineates the investigative framework and the theoretical underpinning for the predicted relationships. How this conceptual arrangement was assessed is the third part of the paper, and the fourth section of the manuscript provides findings of the analyses. The final two sections provide a discussion and some concluding remarks to express the relevance of the study findings for career development and the role of this HRM practice in a world of modernity.

## A Model of Career Development

The conceptual model depicting the relationships of the variables is presented in Figure 1. It is shown in Figure 1 that career planning and career management, two primary independent variables, lead to career development. Career development in turn is linked with the two outcome variables of job satisfaction and career commitment. In other words, career development is hypothesised as an intervening variable linking the association of career planning and career management on job satisfaction and career commitment. Also expressed in Figure 1 is a proposition that career development model will include not only situational features, but personal factors, and in particular, age and gender. A detailed explanation of the hypotheses offered by Figure 1 is presented next.

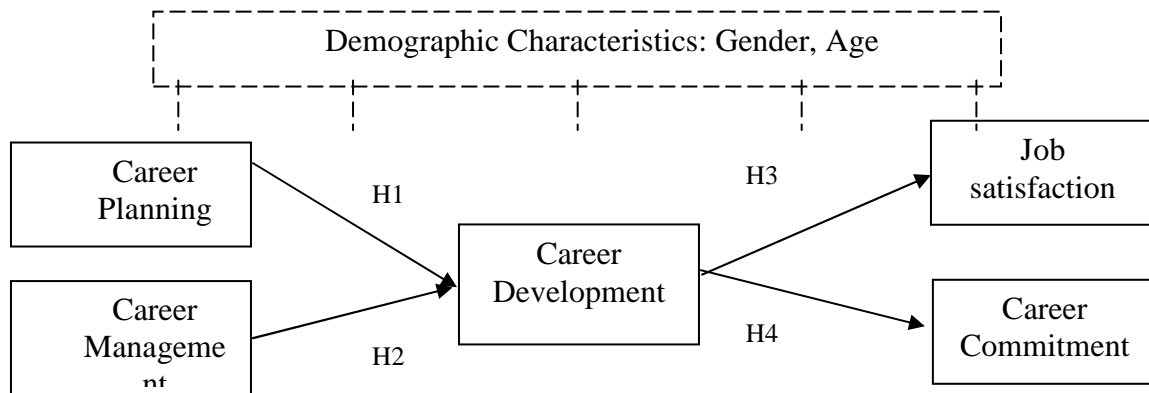


FIGURE 1: CONCEPTUAL MODEL FOR THE RESEARCH STUDY

### Career Planning and Career Development

Career development is a long term complex process. Career development has often been reported as an organisational initiative whereby organisations set up mechanisms, processes, structures and systems to foster career development initiatives among individuals (Herr, 2001; McDaniels and Gysbers, 1992). Indeed, organisations can assist by providing career planning tools or workshops through vocational counselling or by using workbooks or career resource centres to guide employees to conduct self-assessment, analyse and evaluate their career options and preferences, write down their development objectives and prepare the implementation plan (Hall et al., 1986; Appelbaum, Ayre and Shapiro 2002; Leibowitz, Farren and Kaye, 1988).

The notion of individuals pursuing their careers has received widespread attention. In fact, the concept is that given the opportunity individuals can be involved in the shaping, moulding and developing of their career path in order to achieve beneficial outcomes. Pragmatically, there are tangible benefits for both the employer and the employee, but the primary focus is generally on the individual. Halls, et al (1986) defines career planning as a deliberate process for becoming aware of self, opportunities, constraints, choices and consequences, as well as identifying preferred career goals, and programming for work, education, and related developmental experience to provide the direction, timing and sequence of steps to attain a specific career goal. Support for this contention has been given by Leibowitz, Farren and Kaye (1988), who also generally concur with this definition when they define career planning as a process by which individuals determine their skills, interests, and values; consider which options best 'fit' them; and set goals and establish plans for achieving their goals. Furthermore, Leibowitz, Farren and Kaye (1986) argue that individuals are responsible for initiating their own career planning as well as identify their skills, values, interests and seek out their career options in order to set goals and establish their career plans. In summary, career planning is viewed as an initiative where an individual exerts personal control over their career and engages in informed choices as to his occupation, organisation, job assignment and self development (Hall, et al, 1986). These propositions provide underpinning for the first hypothesis H1.

*H1: Career planning is related to career development*

#### **Career Management and Career Development**

Career management is another commonly cited antecedent of career development. Arguably, once individuals have decided upon their career goals, they will require skills, competencies and opportunities to pursue appropriate strategies (i.e., career management practices) that will provide pathways to the ultimate achievement of their career destiny. In other words, the next step after establishing the initial career will be formulation of the plans through appropriate career management practices to achieve the set milestones. In practice, career management is an ongoing process of preparing, developing, implementing and monitoring career plans and strategies undertaken by the individual alone or in concert with the organisation's career system (Hall et al., 1986; Greenhaus, Callanan and Godshalk, 2000).

Career management is a continuous process of integrating dimensions of work life and personal expectations. A satisfying career can promote feelings of fulfilment while poor career decisions can have a devastating effect on a person's sense of well being (Greenhaus, Callanan and Godshalk, 2000). In addition, changing environments such as a change of business strategies which can be linked with organisational downsizing, mergers and acquisitions and technological changes will demand ongoing career management. Thus individuals need to often revisit career options and modify career paths (Greenhaus, Callanan and Godshalk, 2000).

Research work by Greenhaus, Callanan and Godshalk (2000) support the contention that effective career management can enable individuals to make informed decisions that are consistent with their talents, aspirations and values and improve organisation effectiveness. In fact, many researchers have argued that the career management initiative is a nexus between organisations and individuals where organisations endeavour to match individual interests and capabilities with organisational opportunities through planned program encompassing activities such as career systems, career counselling, job rotation and other career management tools and resources (Hall, et al, 1986; Martin, Romero, Valle and Dolan, 2001). Some support has been provided by a few studies that have been done on the association of career management and career development. For instance, a study by Noe (1996), attempts to identify the relationships between career management, employee development and employee performance. The study findings indicate a voluntary increase in development activities and exploratory behaviour, with age, position and manager's support for development, as significant with respect to career management process. These contentions provide support for hypothesis H2.

*H2: Career management is associated with career development.*

#### **Career Development and Job Satisfaction**

The importance of ensuring participants are satisfied with career aspirations is attracting the attention of HRM practitioners. This interest is being promoted because relatively little is known how managerial and professional staff experience career development initiatives (McCracken, 2002; Rutherford, 2005). Indeed, there is emerging evidence that while there are a few reported instances there are growing numbers of U.K. and U.S. organisations that

are implementing practices to support managerial and professional women in career development programmes to achieve their promotion to senior positions (Burke, Burgess and Fallon, 2006). In addition to the primary aim of supporting women's career advancements an important objective of these training and development activities is to improve job satisfaction and general well being.

There is a great deal of literature to support a premise that career development and job satisfaction are related. An early, broadly based perspective suggesting a link between these two constructs was given by Gregson (1987) who contended the emotional state of job satisfaction can develop from the self appraisal of experiencing the job activity and the achieved task results. Other social scientists have suggested a close connection between work and affective responses. For instance Noe (1996) posited job satisfaction as the pleasurable feeling of believing a strong connection between doing the work and attaining valued judgements. A closer relationship was more recently envisaged by Jaspen and Sheu (2003) who commented that the extent of linking a job is an universal aspect of career development. And recently there has emerged evidence (Chen, Chang and Yeh, 2004) to expressly demonstrate that career development programmes have potential to influence job satisfaction. To further corroborate the linkage between career development and job satisfaction, hypotheses H3 is advanced.

*H3: Job satisfaction will be related to career development*

#### **Career Development and Career Commitment**

Career commitment has been reported as an important outcome of career development initiatives. Commitment is influenced by both personal predispositions and organisational interventions (Wiener, 1982). Career commitment is defined by Hall (1971) as the strength of one's motivation to work in a chosen career role (Noordin, Williams and Zimmer, 2002). Colarelli and Bishop (1990) contend that career commitment is characterised by the development of personal career goals, the attachment to, identification with and involvement in those goals. Thus it is likely that organisations that provide career relevant information and assistance will narrow employees' career focus and bind them more closely to an organisation, leading to organisational commitment (Granrose and Portwood 1987). Commitment to an internally defined career may become an important source of occupational meaning and continuity as organisations become more fluid and less able to guarantee employment security (Colarelli and Bishop, 1990). Perrow (1986) highlight that career commitment is also important to the development of ability, because commitment to a career helps one persist long enough to develop specialized skills and also provides the staying power to cultivate business and professional relationships (Noordin, Williams and Zimmer, 2002; Colarelli and Bishop, 1990). Therefore, career commitment would seem to be essential for career progression and development (Noordin, Williams and Zimmer, 2002).

Career development opportunities are viewed as being supportive towards career commitment initiatives among employees. King (1999) points out that psychological force of self identity, self insight and resilience in pursuing career goals represent core components for career motivation and commitment; and for building cooperation, cohesiveness and consensus in an organisation. Career commitment forms a centripetal force inward, protecting the organisation from outside influence, drawing human resources toward countless acts of cooperation with each other (King, 1999). Lee (2000) claims that employees' job satisfaction, organisational commitment and morale levels are important in appropriate career decision frameworks. This theoretical underpinning provides foundation for speculating H4.

*H4: Career commitment is associated with career development.*

#### **Gender as a Mediator**

Interest in the topic of the career development of women has escalated in the past 15 years. Underpinning this interest is the rapid changes in women's lives, and in particular the greater participation rate of women in professional careers and a realisation that traditional 'gender homogeneity' corporations are not well suited for the contemporary global market place. Yet, the representation of women on international assignments is only slowly increasing (Harris, 2004), and few women (compared to their male colleagues) eventually rise to senior executive positions (Belkin, 2003). Also worrying is the evidence that demonstrates only a very small proportion of professional women aspire to further promotion from the middle management levels (Catalyst, 2003). Male world views may well suggest these outcomes are to be expected given basic assumptions about traditional female gender work and family roles that can become a barrier to linear progressive organisational promotion. Alternative perspectives with an emphasis "...to adequately address the uniqueness and complexity of women's career

development.” (Whitmarsh et al., 2007: 11) have led to a great deal of research that has uncovered a wide variety of themes and issues that impact gender differences in career patterns.

Frameworks for evaluating career planning and career decision making patterns and their effects are in transition. For instance, both women and men may work in non-traditional careers, yet there are few studies that have comprehensively evaluated male responses of men who are engaged in non-traditional careers. Hence, further knowledge is required to develop predictive models. The need to revisit the relationships between gender and career choice is gathering support. For example, Whitmarsh and colleagues (2007) state many of the core assumptions that included 1) separation of work and family, 2) reverence for autonomy, 3) work as a central attribute of life, and 4) linear, rational nature of the career development process may only be suitable for gender differences in career behaviours in traditional organisations. The argument for revitalising these frameworks in contemporary work arrangements is advanced by an expanding literature that confirms the importance of a wide range of topics. These items include such features as gender role associations, frames for career directions, work family balance, career changes, personal compromises, and a plethora of individual, social and contextual dimensions. Clearly, these issues are beyond the scope of this paper. At best this study can take guidance from Kato and Suzuki (2006) who suggest many employees follow the general parameters of drift, mist and hope, and eventually are likely to concede their future is already decided for them by their employer who has previously given greater emphasis to male career planning. Instructively, these broad assumptions lead to the relational statement.

*H5 : Female managers are likely to hold lower levels of importance for career patterns than male managers.*

#### **Age as a Mediator**

Research attention on the role of age as a reliable predictor of the soundness of career planning has intensified. This position has been driven by the knowledge that the different expectations job incumbents can have for career planning in contemporary institutions is extensive. A plethora of career path preferences is a reflection of the significantly diminished existence of the phenomenon of linear career paths with many people having multiple jobs or careers in a lifetime (Finkelstein, Allen and Rhoton, 2003), the engagement of older workers as organisational newcomers (Kram, 1996) as well as ‘retired’ people undertaking part time work. Consequently, corporations can experience age diversity across different hierarchical levels and within departments whereas a hallmark of companies in earlier times was the relative similarity and stability of age profiles. It is because of the demographic seachange that chronological age may not be a good linear predictor of organisational initiatives for career development. Moreover, much of the research findings from evaluations of age issues and career planning that were conducted over a decade ago in more ‘traditional’ firms may have limited relevance for contemporary institutions of today and tomorrow.

Organisational age heterogeneity and the flux of demographic profiles promotes a perspective of discontinuity as a feature of career planning models. Additionally, the extent of ‘noviceness’ of the individual is likely to be a factor that reflects the level of active involvement in decision making choice for achieving career advancement adequacy. For example, university or college graduates (who are likely to provide the bulk of younger corporate employees) are likely to express a preference for the financial rewards and an alignment of their core study knowledge with their work. Yet, prior to employment they were job holder novices and would have held relatively high career aspirations (Walker and Levesque, 2006). In later years, when the euphoria of the job has subsided (note no longer a job novice), these advanced employees and other more mature co-workers are then likely to give greater consideration to their immediate and future careers. In the latter stages of organisational life, particularly with the onset of retirement, older employees are likely to give greater consideration to financial planning to achieve retirement income and “...the importance of managing retirement, accumulation and liquidation risks.” (Power and Hira, 2004: 121) rather than further career planning in the employing organisation. Notably, the intensity of the preoccupation with retirement (a new career) planning is being undertaken by novices of the new ‘work organisation’ – retirement lifestyle. As this paper only reports data for employee perceptions and attitudes in terms of career planning for the current employer organisation the retirement environment is not included in this report. Thus, it is intuitively suggested that younger and older employees will demonstrate lower vigour and perceived importance for career planning in their current organisation than cohorts of organisational age profile of the mid ranges. These imperatives provide the foundation for the following hypothesis.

*H6: The importance of career planning will be less for younger and older employees compared to other employees..*

## **Methodology**

### **Site and Respondents**

This research was undertaken in a leading Singapore hotel. The hotel, which was established in 1986 is a five star international residence and the third largest (hotel) in Singapore. The primary reason for choosing this hotel as the research site was underpinned by the fact that its employees have rated 'Opportunities for career development' as the second lowest satisfaction factor in two recent, consecutive, annual Employee Satisfaction Surveys. Furthermore, exit interview data of the second survey demonstrated that one of the first three reasons for leaving the employment of the hotel was a perception of better employment opportunity elsewhere. Currently, the hotel is experiencing a period of rising turnover rates.

The respondents were full time hotel employees. A total of 523 employees, who were working across a wide spectrum of jobs within the hotel, participated in the survey. These participants were employed in a variety of roles which ranged from managerial functions to a variety of customer oriented duties (e.g., reception, housekeeping, administration, kitchen, security and financial activity). As the hotel cadre was 547, the initial participation rate was 95.6 per cent. However, eighteen questionnaires were invalid, leaving 505 valid questionnaires (92.3% of the total hotel cadre) for data analysis.

### **Procedure**

A survey questionnaire was developed from the relevant literature to evaluate the conceptual model. This questionnaire was administered to those employees who wanted to participate in the survey over a span of three days. Employees were assembled in groups and given a specific time period in which they were required to complete the questionnaire. The key objective of the study was explained before respondents were invited to address the survey questions, and further, it was explained that participation in the study was voluntary and anonymous. Respondents were assured that the information they provided would be treated with confidentiality. The questionnaire was completed and returned during the same session.

Two versions of the questionnaire were employed. There was an English version and a Mandarin version, delineating the same set of questions. As the source of the instruments was from Western literature, the original form of the questionnaire was in English. A back translation procedure was employed to create a Mandarin version, with a three stage process. In the first stage, a group of bilingual assistants translated the English version to the Mandarin version. The second stage was undertaken when independent group of bilingual assistants translated the Mandarin version to an English version. In the third stage of the back translation process a third independent group compared the initial English version with the translated, secondary version of the English questionnaire. Where there were obvious and critical differences these matters were referred to the first group of bilingual assistants, who retranslated and 'passed the newer version to the second group of translators. This English version had a literal meaning with the initial English questionnaire. Then the Mandarin version, from with the secondary English version, was accepted. A 'perfect' translation cannot be expected as Mandarin is a language from an extant society that has considerably different religions, cultural dimensions and nuances to a traditional Western society from which the original English version of the questionnaire was sourced. Staff that were less comfortable with English were encouraged to complete a Mandarin version of the questionnaire.

### **Measures**

Three types of variables were measured. First, demographic properties of gender and age were sought. Second, perceptual responses to career planning, career development, and career management, were assessed. Last, two dependent variables, namely job satisfaction, and career commitment, were evaluated. The independent variables, the intervening variable and the two dependent variables were measured with seven point Likert scales (1 = strongly agree to 7 = strongly disagree). Arithmetic means were determined for each variable. The validity of all scales was demonstrated by factor analysis employing the varimax rotation (see Puah and Ananthram, 2006).



### **Career Planning**

Respondents provided perceptual information about the existence of career planning, setting of career goals and importance of career planning in the career development process. The 11 questions used to assess this variable were adapted from King (1999), Gould (1979), and Coachline's career development needs survey (Available : <http://www.orghealth.com/cdn/>).

### **Career Management**

Career management practices were assessed with six items by adapting measurement scales from Chen, Chang and Yeh (2004), and Chay and Bruvold (2003). The measurements were about the importance and availability of career management practices.

### **Career Development**

The intervening variable assessed the importance of career development to the respondents and whether career planning and career management were important elements to attain career development. The five scale questions were developed by adapting Coachline's career development needs survey (Available : <http://www.orghealth.com/cdn/>),

### **Job Satisfaction**

Job satisfaction was assessed with seven items by adapting questions from the Job Diagnostic Survey, which was developed by Hackman and Oldham (1980).

### **Career Commitment**

Career commitment was assessed by adapting eight items from the work of Chay and Bruvold (2003), and Colarelli and Bishop (1990).

### **Analysis**

The analyses were undertaken in five stages using Statistical Package for the Social Sciences (SPSS). First, data robustness was established by principal component factor analysis employing the varimax rotation option to uncover the underlying factors associated with the independent, dependent, mediating and intervening variables. Questions that were cross loaded were excluded from analysis. The second stage of the analyses was the conducting of reliability estimates to ensure consistency and stability of data (Cavana, Delahaye & Sekaran 2001). A Cronbach's coefficient alpha which measures how well the variables are positively related to one another was estimated for each of the interval scale assessed variables. In the third stage, correlation analyses were conducted. The results gave an indication of the strength of the relationship between the variables to evaluate the construct relativities. The fourth key stage of the analysis of the conceptual model was regression analysis. This procedure enabled an examination of the hypothesised relationships shown in the conceptual model of Figure 1. Finally, in the fifth state the impact of age and gender on the hypothesised relationships were assessed using multiple regression analysis, t-tests and analysis of variance measures.

## **Results**

### **Demographic Profile of Respondents**

Table 1 shows the respondent attributes of gender and age. Both genders were well represented. There was also a reasonable distribution of respondents across the three assessed age categories, albeit that nearly 60 per cent of the employees were in the 25 years to 44 years age group.

TABLE 1 : DEMOGRAPHIC PROFILE OF THE RESPONDENTS % (N = 505)

Demographic Characteristic	
<b>Gender</b>	
Male	48.5
Female	51.5
<b>Age (in years)</b>	
<25	21.8
25 to 44	58.4
> 44	19.8

#### Descriptive Statistics and Correlation Analysis

Table 2 presents the mean scores, the standard deviations, the reliability assessments, and the correlations for all the conceptual model variables that were measured with interval scales. The relatively high means shows respondents perceived a high consensus for agreement with the scale items, and the somewhat low standard deviations demonstrate a central tendency of the responses. Further, the reliability assessments indicate the data were robust, while the correlation scores delineate strong support for the forecasted bivariate relationships that are depicted in Figure 1. Overall the content of Table 1 give general support for hypotheses H1 to H4, inclusive.

TABLE 2: DESCRIPTIVE STATISTICS AND CORRELATIONS (N = 505)

Variables	Mean	S.D.	1	2	3	4	5
1 Career Planning	5.32	1.09	<b>0.94</b>				
2 Career Management	4.75	1.20	0.60*	<b>0.87</b>			
3 Career Development	5.54	1.12	0.70*	0.54*	<b>0.91</b>		
4 Job Satisfaction	5.44	1.17	0.64*	0.60*	0.65*	<b>0.90</b>	
5 Career Commitment	5.06	1.18	0.58*	0.66*	0.59*	0.73*	<b>0.92</b>

- Notes: a. S.D. = Standard deviation of the means.  
 b. Correlation is significant at the 0.01 level (2-tailed).  
 c. Bold values across the diagonal are the reliability alphas.

#### Regression Analysis

Regression analyses were employed to test the postulated hypotheses. Each hypothesis was tested independently. Table 3 presents the result of career planning as an antecedent of career development for the Singaporean sample. It is shown in Table 3 that 49.4 percent of the variance in the assessed linkage was explained by the independent variable career planning which provides confidence for the posited relationship between career planning and career development. The significant result at the  $p < 0.001$  level provides strong support for hypothesis H1.

Regression analysis was conducted to test hypothesis H2. Table 3 shows that almost 30 percent of the variance was explained for the bivariate relationship between career management and career development. The significant relationship at the  $p < 0.001$  level provides empirical support for hypothesis H2 specifically that career management is an antecedent of career development

TABLE 3: REGRESSION ANALYSIS FOR THE EFFECT OF CAREER PLANNING AND CAREER MANAGEMENT ON CAREER DEVELOPMENT (N=505)

Dependent Variable	Independent Variable	Adjusted R <sup>2</sup>	F	t
Career Development	Career Planning	0.494	491.477	22.169*
	Career Management	0.299	214.761	14.655*

Notes: a. F = F statistic, t = t statistic.  
b. \* p<0.001.

Table 4 displays the results of regression analyses for assessing hypotheses H3 and H4 that job satisfaction and career commitment are positively related to career development and are both outcomes of career development. The amount of variance explained for the two relationships were 43 percent and 35 percent, respectively providing confidence in the forecasted linkages. Both the relationships were significant at the p<0.001 level providing support for H3 and H4.

TABLE 4 : REGRESSION ANALYSIS FOR THE EFFECT OF CAREER DEVELOPMENT ON JOB SATISFACTION AND CAREER COMMITMENT (N=505)

Dependent Variable	Independent Variable	Adjusted R <sup>2</sup>	F	T
Job Satisfaction	Career Development	0.433	383.997	19.596*
Career Commitment		0.355	277.126	16.647*

Notes: a. F = F statistic, t = t statistic.  
b. \* p<0.001.

#### Impact of Gender on the Hypothesised Relationships

The mediating influence of gender on the four fundamental hypothesised relationships of the conceptual model was assessed by conducting a regression analysis, independently for males and females as reflected in Tables 5a and 5b. Table 5a suggests that the respondent males and females at the Singaporean hotel felt that career planning and career management were significant antecedents of career development. Table 5b also reports the relationship between job satisfaction and career commitment was mediated by gender. The models for the influence of gender on the fundamental hypotheses are reasonable given the adjusted R<sup>2</sup> values.

TABLE 5A: REGRESSION ANALYSIS FOR THE EFFECT OF GENDER ON THE HYPOTHESIZED LINKAGES BETWEEN CAREER PLANNING, CAREER MANAGEMENT ON CAREER DEVELOPMENT (N=505)

Dependent Variable	Independent Variable	Males (n = 245)			Females (n = 260)		
		AR <sup>2</sup>	F	t	AR <sup>2</sup>	F	t
Career Development	Career Planning	.547	295.45	17.19*	.427	193.79	13.92*
	Career Management	.381	151.35	12.30*	.211	70.13	8.38*

Notes: a. F = F statistic, t = t statistic.  
b. \* p<0.001.

TABLE 5B: REGRESSION ANALYSIS FOR THE EFFECT OF GENDER ON THE HYPOTHESIZED LINKAGES BETWEEN CAREER DEVELOPMENT, JOB SATISFACTION AND CAREER COMMITMENT (N=505)

Dependent Variable	Independent Variable	Males (n = 245)			Females (n = 260)		
		AR <sup>2</sup>	F	t	AR <sup>2</sup>	F	t
Job Satisfaction	Career Development	.557	308.00	17.55*	.319	122.28	11.06*
Career Commitment		.385	154.07	12.41*	.319	122.36	11.06*

Notes: a. F = F statistic, t = t statistic.  
b. \* p<0.001.

A comparison of means tests was conducted using the t-test technique to investigate into the significant differences between males and females for each of the assessed variables and the results are presented in Table 5c. From Table 5c, it can be noted that male employees reported significantly higher scores for career commitment than female employees. The mean scores of all other variables were none significantly different between males and females.

TABLE 5C: T-TEST RESULTS ACROSS GENDER FOR ASSESSED VARIABLES

Variables	Male (M)	Female (F)	Mean Difference (M – F)	Sig (2-tailed)	
Career Plan	5.32	5.33	0.00	0.98	n.s.
Career Management	4.86	4.66	0.19	0.07	n.s.
Career Development	5.56	5.53	0.03	0.79	n.s.
Career Commitment	5.18	4.95	0.23	0.03*	M>F*
Job Satisfaction	5.54	5.35	0.19	0.07	n.s.

Notes. a. \*p<0.05.  
b. n.s. = non-significantly different.

#### Impact of Age on the Hypothesised Relationships

The impact of age on the hypothesised relationships was also assessed by conducting a regression analysis on the linkages independently for the three age groups as presented in Tables 6a and 6b. The results of Table 6a suggests that the respondent age groups at the Singaporean hotel valued career planning and career management as significant contributors towards their career development initiatives. Table 6b reports career development initiatives were a significant predictor of job satisfaction and career for all age groupings.

TABLE 6A: REGRESSION ANALYSIS FOR THE EFFECT OF AGE ON THE HYPOTHESIZED LINKAGES BETWEEN CAREER PLANNING, CAREER MANAGEMENT ON CAREER DEVELOPMENT (N=505)

Dependent Variable	Independent Variable	<25 years (n = 110)			25 – 44 years (n = 295)			>44 years (n = 100)		
		AR <sup>2</sup>	F	T	AR <sup>2</sup>	F	T	AR <sup>2</sup>	F	T
Career Development	Career	.347	58.97	7.67*	.477	268.6	16.39	.573	133.9	11.57
	Planning					1	*		1	*
	Career Management	.286	44.70	6.69*	.226	86.96	9.325	.600	149.2	12.21
							*		1	*

Notes: a. F = F statistic, t = t statistic.  
b. \* p<0.001.

TABLE 6B : REGRESSION ANALYSIS FOR THE EFFECT OF AGE ON THE HYPOTHESIZED LINKAGES BETWEEN CAREER DEVELOPMENT, JOB SATISFACTION AND CAREER COMMITMENT (N=505)

Dependent Variable	Independent Variable	<25 years (n = 110)			25 – 44 years (n = 295)			>44 years (n = 100)		
		AR <sup>2</sup>	F	T	AR <sup>2</sup>	F	T	AR <sup>2</sup>	F	T
Job Satisfaction	Career Development	.394	71.99	8.483	.415	209.2	14.46	.532	113.5	10.66
Career Commitment		.337	56.50	7.52*	.307	131.2	11.46	.539	116.9	10.81
						1	*		1	*

Notes: a. F = F statistic, t = t statistic.  
b. \* p<0.001.

Table 6c delineates the ANOVA results for the three age categories utilising the Scheffé means test for the assessed variables. Employees in the first two age categories (less than 25 years and 25-44 years) placed a higher emphasis on career planning and career commitment compared to managers older than 44. Furthermore, career management, career commitment and job satisfaction mean scores were none significantly different across the three age groups.

TABLE 6C: ANOVA RESULTS ACROSS AGE FOR ASSESSED VARIABLES

Variables	Age Categories (in Years)			ANOVA		Means Comparison
	(A) <25 (n = 110)	(B) 25-44 (n = 295)	(C) >44 (n = 100)	F	Sig.	Scheffe test
Career Planning	5.41	5.42	4.96	7.29	.001	A>C*, B>C*
Career Management	4.77	4.70	4.89	0.94	.391	n.s.
Career Development	5.69	5.63	5.13	8.94	.000	A>C*; B>C*
Career Commitment	5.10	5.03	5.10	0.19	0.83	n.s.
Job Satisfaction	5.40	5.47	5.40	0.21	0.81	n.s.

Notes. a. F = F statistic, Sig. = level of significance  
b. \*p<0.01.  
c. n.s. = non-significantly different.

## Discussion

In spite of consensus for the value of career planning seldom is this actively embraced, healthily. Part of this paradox is underpinned by a perennial question of why individuals do not acquire ultimate responsibility for their career development. Another problem for the adoption of career planning by organisations and their employees is the huge amount of information, institutional material and available services, so choice becomes a challenge. A third reason can be that organisations, and sometimes the employees, are more concerned with tangible achievements (e.g., bottom line profits, work life balance), which can lead to less attention being given to engaging in career development planning. The ubiquity of change can be a fourth reason for low levels of interest in career development. A continuity of change, revitalisation and restructuring of organisational architectures together with an overall lack of confident, predictable ability does not encourage individuals and systems to grapple with long term career planning initiatives to articulate goals and objectives of a future 'phantom' situation.

Serious investment in career path planning can be hampered by the forces of globalisation. In particular, globalisation can contribute to environmental volatility and uncertainty as market forces are interrupted by crises, changing consumer expectations and national exigencies. A good example of how global forces can distract

attention for salient career related beliefs is demonstrated by the current Australian 'boom'. In the capital cities of Brisbane and Perth many people who have been engaged in professional and technical vocations and hold sound employment prospects (e.g., teachers, police, chefs, trades) are resigning from their companies in droves. These people are becoming the new employees of 'mineral groups' who are exporting ores and gas overseas and in particular to the People's Republic of China. Salaries in these new jobs are multiples of the payments of the previous employment. And the local workforce, now severely depleted is insufficient so the Australian government is providing restricted visas to an immigrant workforce in an endeavour to 'fill' the 'boom' vacancies. All know that when the 'boom' does collapse (some are predicting within five years) contracts will be cancelled. Within this labour market phenomenon traditional career planning frameworks are unravelling in preference for immediate short term employer and employee milestones.

Marketability of personnel, willingness to relocate and career impatience are also the features of the departure point of the study reported in this paper. Data were captured and analyses were undertaken to evaluate a theoretical, traditional based career planning encompassing conceptual model when it was disclosed by leavers that their expectations for career development were not being met. An analysis of a robust data set revealed the connections between the study variables, of the conceptual model, were as predicted and indeed, significant. In fact, all of the forecasted linkages were supported. Of substantial importance was a finding that both male and female respondents often reported similar high levels of importance for the examined constructs. Not unexpectedly, the cohort of older aged employees held the lowest levels of importance for career planning and career development. A strong inference of these findings is contemporary corporations in traditional HRM frameworks that were established on studies that were conducted a decade or more ago. More encompassing boundary less perspectives will be required to unravel some of the mystique about career planning for employees of modernity.

## **Conclusion**

A major dilemma for contemporary organisations is how to deal with the issue of career planning. Those institutions that fail to adequately pursue a satisfactory solution are likely to continually experience labour market crises. For instance, multinational corporations are adversely affected when the overseas projects suffer and their expatriates return earlier than planned. Furthermore, these companies suffer both direct and indirect costs, when the retention rates of these 'valuable' managerial groups are lost because of poor retention strategies. Clearly, a lack of sequence of the 'journey' and the 'final destination' of managerial cadres is the root of the poor career development of expatriates.

More efficient career planning frameworks will amalgamate employer and employee contributions. In traditional schemes the organisation fostered welfare career planning for employees who worked for their lifetime in the firm. In this arrangement employees abdicated their career planning to the employer who ensured the employee was retained and was promoted regularly (often slowly). This situation is unusual with younger employees in today's organisations. The modern employee is less concerned with preserved employment, but expects an opportunity to learn a bundle of skills that will prepare the incumbent for future jobs, not necessarily in the same organisation. In addition to acquiring skills for future vocational opportunity younger employees see career development to be more than just about a job. They see the process as being able to fulfil numerous personal expectations (i.e., psychological health, favourable work, work family interfacing). These expectations will impose a newer set of demands on employers, who in many instances have yet to realise the strategic importance of employees as partners.

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# **Analysis of Factors Affecting Knowledge Sharing Intention and the Use of Knowledge Sharing Mechanism**

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## **Abstract**

Despite the utmost importance of knowledge sharing in modern organizations individuals tend to hoard knowledge and do not transform personal knowledge easily into organizational knowledge. This article is to explore which individual level factors influence the level of intension to share knowledge and the preference to knowledge sharing medium. We specifically focus on personality trait, individual ability, and the level of extrinsic and intrinsic motivation structure. A total of 207 participants answered questionnaires. Results of this study find that expertise; subjective norm and self-efficacy have significant influence on knowledge sharing intention, and agreeableness, reciprocity, self-efficacy have significant influence on knowledge sharing mechanism.

## **Introduction**

Knowledge sharing, or the contributions by individuals to the collective knowledge of an organization (Cabrera and Cabrera, 2002), is increasingly acknowledged as an important research topic. Knowledge sharing is crucial because it helps organizations promote best practices and reduce redundant learning efforts or 'reinventing the wheel' (Hansen, 2002; McDermott and O'Dell, 2001). To succeed in a knowledge economy, organizations need to develop systematic processes to create and leverage knowledge. However, In the KPMG (2003) survey, 78% of respondents believe they are currently missing out on business opportunities by failing to successfully exploit available knowledge. This result signifies that despite a growing understanding of the importance of knowledge sharing, the knowledge sharing within organizations remains a tough challenge (Burgess, 2005).

When knowledge sharing occurs, more people may have that same knowledge, and as a result, that knowledge is considered to be less valuable. Organization experts view the knowledge individuals possess as their intellectual property which gives them a personal advantage they can leverage for the organization they are working for and thus are reluctant to share with other coworkers (Bowman, 2002).

One person's primary motivation for sharing knowledge might be to accrue recognition and rewards, whereas another person might be primarily motivated by a desire to help his or her colleagues. Organizations need to take the initiative to foster such behaviors. Several factors have been identified to help create a high performing knowledge sharing, including leadership, rewards, organizational culture, and so on. Moreover, as more organizations now employ KMS to help them better manage knowledge, people who want to share knowledge may use a combination of many different media.

This paper will examine the effects of individual factors on knowledge sharing intention and knowledge sharing mechanism for two reasons. First, major portion of KM literature has put emphasis on information systems for KM as well as the macro level variables of organizations. However, research is needed on how individual characteristics (e.g., personality, motivation) influence knowledge sharing intention for a better understanding of KM, because people are the fundamental players of KM initiatives. Second, different organizations implement knowledge management in different ways including the use of KMS -a knowledge repository and a message board (Kankanhalli et al 2005; Wasko and Faraj, 2005). Some studies focused on knowledge sharing using COP (community of practice) (Wasko and Faraj, 2005; Ardichvili et al 2006). However, more research is needed to examine individual factors that influence the use of knowledge sharing mechanism.



## Theoretical Background

Organizations have come to realize the importance of capitalizing on the knowledge within the organization itself and have also realized that knowledge sharing would have a positive effect on organization performance.

There are many organizational factors that affect knowledge sharing; organizational structure, organizational culture, leadership and information systems (Davenport, 1998; Bock, 2005; Ardichvili, 2006). Interpersonal factors include avoidance of embarrassment, obligation, trust, and identification (Burgess, 2005; Faraj and Wasko, 2002). Some researchers examine individual factors that influence knowledge sharing such as individual ability greed, self efficacy, extrinsic rewards, fear of punishment, expected rewards, expected associations, expected contribution, perceived costs, extrinsic benefits, intrinsic benefits, anticipated extrinsic rewards, anticipated reciprocal relationships, sense of self-worth, and so on (Bock et al, 2002; Burgess, 2005; Faraj and Wasko, 2002; Wasko, 2005; Kankanli et al, 2005).

However, knowledge sharing is a fragile process comprising conflict of interest among the individuals involved (Von, 1998). Literature reveals numerous elements influencing the decision whether to share or conceal knowledge. For example, it encounters the particular case of a social dilemma (Cabrera, 2002). Social dilemmas are paradoxical situations in which individual rationality, maximizing the individual pay-off, leads to collective irrationality. Maximizing individual pay-off may evoke an individual's reluctance to share knowledge.

Despite its importance, little research has been conducted on how individual characteristics relate to knowledge sharing in spite of the rising interest in issues related to KM. However, in the sense that it is the individuals who are ultimately responsible for managing knowledge, it would be important to examine the intention of individuals to get a better understanding of how we may be able to promote knowledge sharing and better manage employees' knowledge.

There are primarily two different types of KM strategies: the personalization strategy and the codification strategy (Hansen et al, 1999). For those companies employing personalization strategy, the knowledge is usually transferred through direct person-to-person contact. And companies using codification approaches rely primarily on repositories of knowledge. Recently, technologies are commonly adopted for KM not only because of their capacity to store knowledge but also for the reason that with the globalization of the economy, KM processes expand to be across time and geographical distance. Knowledge management systems (KMS) have been used to facilitate organizational learning by storing organizational knowledge and having it available to employees when needed (Alavi and Leidner, 2001).

Knowledge sharing is a process where personnel communicate each other with their own knowledge, and diffuse knowledge from individual level to organization level. In order to make knowledge sharing easier and more popular, it is necessary that organization build a mechanism of knowledge sharing. In terms of mechanisms, Chai and colleagues (2003) defined the knowledge sharing mechanisms as the methods, procedures or processes involved in knowledge sharing within organizations.

Petersen et al (2003) found that firms use written documents as transfer mechanisms more heavily if knowledge is purchased from outside, whereas daily face-to-face communication is preferred for the transfer of knowledge generated by own experience. Alavi and Leidner (2001) identified four knowledge sharing mechanisms, informal or formal, personal or impersonal mechanisms. Informal mechanisms such as unscheduled meetings, informal seminars, or coffee break conversations; formal sharing mechanisms such as training sessions and plant tours; personal mechanisms such as apprenticeships or personnel transfers; impersonal mechanisms such as knowledge repositories. In recent years, Communities of Practice (COP) have gained increasing popularity as a medium of knowledge sharing within organizations (Ardichvili et al, 2006), and have also received significant attention (Wasko and Faraj, 2000; Davenport and Prusak, 1998; Davenport and Volpel, 2001; Ardichvili et al, 2006). In this vein, Bartol and Srivastava (2002) also identified four knowledge sharing mechanisms, that is, database, formal interactions, and informal interactions, and Communities of Practice (COP).

## The Research Model and Hypotheses

The research model shown in Figure 1 proposes an integrated model in which knowledge sharing intention and knowledge sharing mechanism are influenced by four sets of factors: personality traits (agreeableness, conscientiousness) and individual ability (expertise, tenure in the field) and extrinsic motivation (rewards, reciprocity, subjective norm) and intrinsic motivation (self-efficacy, reputation).

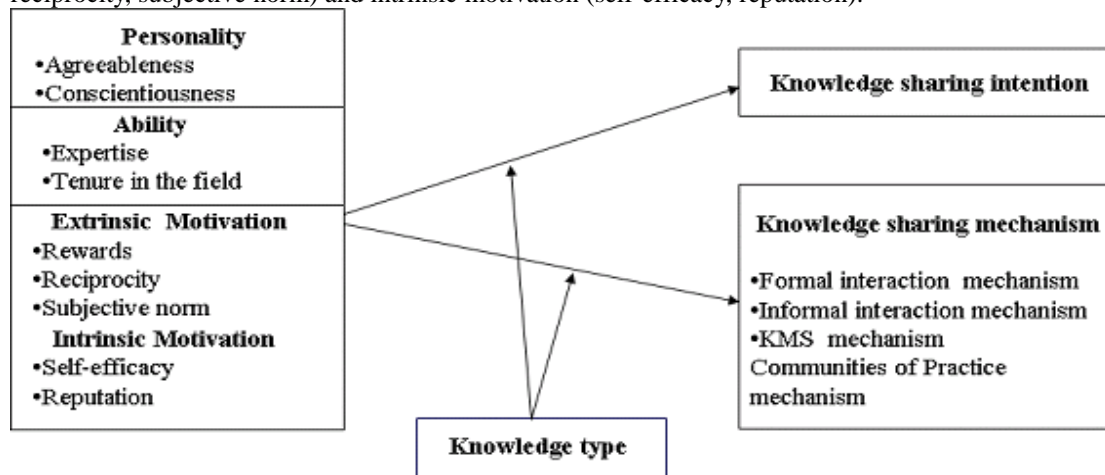


FIG.1: RESEARCH MODEL

### Personality Trait

The definitions of agreeableness show that individuals who are high on these traits also have high level of trust, straightforwardness, altruism, compliance, modesty, and tender-mindedness. It is of their nature to help others. Cooperation is considered to be the essence of agreeableness (Barrick et al., 1998). Highly agreeable individual shows high emotional attachment to, identification with, and involvement in the organization. Particularly, agreeableness contains the facet trust that has been related to knowledge sharing (Abrams et al.2003). Individuals with high conscientiousness have been reported competence, order, dutifulness, achievement striving, self-discipline, and deliberation. Due to these characteristics, people tend to do what is expected of them to accomplish work (Liao and Chuang, 2004). Matzler et al (2005) found agreeableness and conscientiousness were related to affective commitment and documentation of knowledge, which in turn, had an influence on knowledge sharing. Thus, this study expects agreeableness and conscientiousness to directly influence knowledge sharing intention and knowledge sharing mechanism. This leads to the first set of hypotheses.

**Hypothesis 1:** Personality will have a positive effect on one's intention to share knowledge.

**Hypothesis 2:** Personality will have a positive effect on the use of knowledge sharing mechanism.

### Personal Ability

This study view ability as made up of two related factors: expertise and tenure in the field. Before an individual can contribute knowledge to others, that individual must possess a certain level of requisite base knowledge. Even if an individual is highly motivated to contribute knowledge to others, contribution is still unlikely unless he or she has the requisite knowledge to contribute. In addition, people are less likely to contribute when they feel their expertise is inadequate (Wasko & Faraj, 2000). Long time members of an organization are more likely to comprehend the application of expertise (Faraj & Wasko, 2002). It also seems reasonable to posit that the ability of individuals with high level expertise and longer tenure will influence the use of knowledge sharing mechanism. This leads to the following hypotheses.

**Hypothesis 3:** Ability will have a positive effect on one's intention to share knowledge.

**Hypothesis 4:** Ability will have a positive effect on the use of knowledge sharing mechanism.

### Extrinsic Motivation

Employees are extrinsically motivated when satisfaction does not lie in the content of the activity itself (Ko et al, 2005). O'Dell and Grayson (1998) argue that an important leadership role for senior management is to reinforce and reward behaviors for sharing knowledge. Especially, the results of Bock and Kim's (2002) field survey indicate that extrinsic motivation imposed by management is a trigger for knowledge sharing.

Extrinsic motivation is related to rewards, reciprocity and subjective norm. Rewards are a compensation for the contribution to the organization. To encourage sharing knowledge through certain mechanism, organizations may provide various forms of reward such as increased pay, bonuses, job security, or promotion (Ba et al 2001). Surveys have found that the majority of managers and executives do not believe that their organization adequately rewards or recognizes knowledge sharing (KPMG, 2000); nonetheless, companies that have been leaders in knowledge management have utilized extrinsic rewards (Davenport & Prusak, 1998). Extrinsic rewards have also been demonstrated to increase knowledge sharing across work units (Irmer et al, 2002; Burgess, 2005).

Reciprocity refers to the expectation of knowledge contributors that their current contribution will lead to their future request for knowledge being met (Kankanhalli et al 2005). Prior research suggests that people who share knowledge in online communities believe in reciprocity (Wasko & Faraj 2000). Further, researchers have observed that people who regularly helped others in Electronic knowledge repositories (EKR) tended to have a high level of reciprocity expectation (Kankanhalli et al 2005).

The subjective norm construct, defined as a person's perception that people who are important to him think he should or should not perform the behavior in question (Ajzen, 1991; Venkatesh and Davis, 2000), has received considerable empirical support as an important antecedent to behavioral intention (Thompson et al 1991). In particular, Bock et al, (2005) argue that subjective norms have an important influence on intention to share knowledge. This leads to the following hypotheses.

**Hypothesis 5:** extrinsic motivation will have a positive effect on one's intention to share knowledge.

**Hypothesis 6:** extrinsic motivation will have a positive effect on knowledge sharing mechanism.

#### **Intrinsic Motivation**

In contrast to extrinsic motivation, employees are intrinsically motivated when their needs are directly satisfied or when their satisfaction lies in the content of the activity itself. Intrinsic motivation occurs when an activity' is valued for its own sake and appears to be self sustained (Ko et al 2005).

Osterloh and Frey (2000) conclude that intrinsic motivation should enable the transfer of tacit knowledge. O'Dell and Grayson (1998) found intrinsic motivation important to transferring best practices, project management, business reengineering, database administration, and systems integration as illustrated by ERP implementation.

Intrinsic motivation is related to self-efficacy and reputation. Self-efficacy is defined as people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances (Bandura 1986). When people share expertise useful to the organization, they gain confidence in terms of what they can do and this brings the benefit of increased self-efficacy (Constant et al. 1994). This belief can serve as a self-motivational force for contributors to share knowledge (Bock & Kim 2002), improve work efficiency, or make a difference to their organization (Wasko & Faraj 2000). In particular, self-efficacy significantly impacted EKR usage by knowledge contributors (Kankanhalli et al, 2005).

Reputation refers to the overall quality or character as seen or judged by other people, or the recognition of some specific contribution to the organization by other people. In today's organizations, the importance of reputation is increasing as traditional contracts between organizations and employees based on length of service erode (Ba et al. 2001; Davenport et al.1998). In such working environments, knowledge contributors can benefit from showing others that they possess valuable expertise (Ba et al. 2001), which earns them respect and status. Therefore, knowledge contributors can benefit from improved self-concept when they contribute their knowledge (Hall 2001). Moreover, Wasko and Faraj (2005) found one significant predictor of individual knowledge contribution is the perception that participation enhances one's professional reputation.

This leads to the following hypotheses.

**Hypothesis 7:** Intrinsic motivation will have a positive effect on one's intention to share knowledge.

**Hypothesis 8:** Intrinsic motivation will have a positive effect on the use of knowledge sharing mechanism.

#### **Knowledge Types**

The last factor to consider is the type of knowledge to be transferred. There are suggestions for examining types of

knowledge. The tacit-explicit knowledge classification is widely cited (Alavi & Leidner, 2001). Clearly, tacit knowledge is personal and is hard to communicate to others. Explicit knowledge is much easier to capture and sharing. The transfer of tacit knowledge is far more difficult than explicit knowledge (Argote, 2000). In this vein, Dixon (2000) emphasized that the selection of the appropriate knowledge sharing mechanism within an organization depends on the type of knowledge (explicit and tacit).

Knowledge types are a determinant of estimating the time and cost of knowledge transfer and choice of sharing mechanisms (Pedersen, 2003). This implies that individual's knowledge sharing intention and the choice of knowledge sharing mechanism depends upon the type of knowledge being transferred. This leads to the following hypotheses.

**Hypothesis 9:** Knowledge types will moderate the effect of individual factors on the intention to share knowledge.

**Hypothesis 10:** Knowledge types will moderate the effect of individual factors on the use of knowledge sharing mechanism

## The Research Model and Hypotheses

### Measurement Development

To test the proposed research model using a survey research method the questionnaire items are developed either by adapting measures that had been validated by other researchers or by converting the operational definitions of constructs into a questionnaire format. The variables are measured using five-point Likert type scales. Bases on the typology developed by Parikh (2001) this study classified the knowledge of question into four categories, internal-tacit, external-tacit, internal-explicit, and external-explicit. And based on research developed by Bartol and Srivastava (2002), four major mechanisms to share individual knowledge were identified; Knowledge management system (KMS), Community of Practice (COP), Formal interaction, Informal interaction. Table 1 shows the definitions of the constructs.

TABLE 1: DEFINITION OF THE CONSTRUCTS

Construct	Definition	Reference	Items
Agreeable-ness	People who are agreeable are described as trusting, forgiving, courteous, helpful, and cooperative. The facet scales of this domain are Trust, straightforwardness, altruism, compliance, and modesty. Tender-mindedness.	Barrick & Mount (1991) Liao & Chuang (2004)	6
Conscientious-ness	Conscientious individuals are described as dependable, hardworking, organized, and achievement-oriented. The facet scales of this domain are competence, order, dutifulness, achievement striving, self-discipline, and deliberation.	Barrick & Mount (1991) Liao & Chuang (2004)	6
Expertise	Refers to performing the responsibilities required of professionals to the standards necessary for effective practice	Campbell (1993) Wasko (2005)	4
Tenure in the field	Refers to the number of months individual has been a member of the professional association.	Faraj & Wasko (2002)	1
Rewards	The degree to which one believes that one can have extrinsic incentives due to one's knowledge sharing.	Bock & (2002) Ko (2005)	3
Reciprocity	The degree to which one believes one can improve mutual relationship with others through one's knowledge sharing.	Wasko (2005) Kankanhalli(2005)	2
Subjective norm	The degree to which one believes that people who bear pressure on one's actions expect one to perform the behavior in question.	Venkatesh (2000) Bock et al (2005)	3
Self-efficacy	The degree to which one believes that one can improve the organization's performance through one's knowledge sharing.	Bock (2002) Lu et al (2006)	4

Reputation	The degree to which one believes one can enhance one's status in one's social system through one's knowledge sharing.	Venkatesh (2000) Wasko (2005)	3
Knowledge sharing intention	The degree to which one believes that one will engage in a knowledge act.	Bock et al (2005)	1
Knowledge types	Internal-Tacit, external-tacit, internal-explicit, external-explicit.	Nonaka, 1995, Parikh, 2001.	4
Knowledge sharing mechanisms	As the methods, procedures or processes involved in how knowledge might be shared within organizations.	Alavi, 2001, athryn (2002), Chai (2003)	4

### Survey Administration

The study was conducted in Korea, a country where a number of public and private organizations have conducted KM initiatives. Self-administered questionnaires were distributed out and accompanied by an e-mail survey. Of 180 questionnaires that were distributed to part-time MBA students of Hanyang University and to employees of Korean National Information Society Agency, 141 questionnaires were returned completed. E-mail survey was distributed to three of Samsung subsidiary companies' employees and a total of 81 people completed. Due to incomplete data, 15 responses were eliminated and the remaining 207 responses were analyzed.

### Validity and Reliability

Factor analysis for independent variable yielded 8 components with Eigen-values above 1, with expertise and tenure in the field combined into one component. In order to improve the validity and reliability, two items of the agreeableness construct were deleted due to low loadings; four items were dropped from the conscientiousness construct. One item of the tenure in the field scale had to be deleted due to low loading, one from self-efficacy, and one item was dropped from reputation.

### Hypothesis Tests

We tested the hypotheses using multiple regression analysis (SPSS 12.0 for Windows). All statistical tests were carried out at a 5 percent level of significance, after ascertaining that the constructs meet parametric requirements of the regression test.

### Testing the Main Effects

The  $R^2$  value of 0.179 and adjusted  $R^2$  value of 0.142 indicated that the overall model was acceptable in explaining the variance in knowledge sharing intention. Expertise ( $\beta=0.156, p<0.05$ ), subjective norm ( $\beta=0.170, p<0.05$ ), and self-efficacy ( $\beta=0.181, p<0.05$ ) had a significant relationship with knowledge sharing intention. The  $R^2$  value of 0.163 and adjusted  $R^2$  value of 0.124 indicated that the overall model was acceptable in explaining the variance in knowledge sharing mechanism. Agreeableness ( $\beta=0.172, p<0.05$ ), reciprocity ( $\beta=0.141, p<0.05$ ), and self-efficacy ( $\beta=0.178, p<0.05$ ) had a significant relationship with knowledge sharing mechanism.

### Testing the Moderating Effects

Through multiple regression analysis under the four knowledge type's condition, as may be seen in Table 2, which summarized the regression results under four knowledge type's condition, the moderating variable indicated a significant effect in knowledge sharing intention as well as knowledge sharing mechanism.

### Results of Hypothesis Testing

Table 3 summarizes the results of hypotheses tests. Expertise, subjective norm, and self-efficacy had a significant positive relationship with knowledge sharing intention. Agreeableness, reciprocity, and self-efficacy had a significant positive relationship with knowledge sharing mechanism. As mentioned above, the moderating variable (knowledge types) indicated a significant effect in knowledge sharing intention as well as knowledge sharing mechanism. Individuals' choices of knowledge sharing mechanisms were estimated using multiple regression analysis under the four knowledge type's condition. By comparing the explanatory power of each model under the four conditions, we ranked the individuals' choice of the knowledge sharing mechanism. Table 4 summarizes the ranking of individuals' choice of knowledge sharing mechanism. Furthermore, results indicated that formal interaction mechanism is the most preferred knowledge sharing mechanism within each of the four knowledge

types' condition.

## **Discussion and Implications**

Based on our results, agreeableness did not significantly affect knowledge sharing intention, but significantly affected knowledge sharing mechanism. Indicating that the more agreeable one was, the more likely they affect their choice of knowledge sharing mechanism. This study also found that expertise has a significantly affect knowledge sharing intention, implying that individuals with higher levels of expertise tend to actively share their knowledge, thus, making experts play a vital role in organizations by sharing knowledge to the benefit of others.

The result did not indicate that awards had a significant effect on knowledge sharing intention or knowledge sharing mechanism, whereas many practitioners mentioned that rewards played an important role in knowledge management. Reward may be a trigger for knowledge sharing, but they are not a fundamental force for forming a person's intention to share knowledge.

TABLE 2: THE RESULTS OF REGRESSION UNDER FOUR KNOWLEDGE TYPES' CONDITION

Knowledge type	Dependent variable	Independent variable	Beta(Sig)	R <sup>2</sup>	Adjusted R <sup>2</sup>
Internal Tacit	Knowledge Intention	Self efficacy	.174(.031)*	.093	.061
		KS mechanism	Self efficacy	.250(.001)**	.156
	Reputation	.191(.005)**			
External Tacit	Knowledge Intention	Self efficacy	.254(.001)**	.141	.102
		Reciprocity	.146(.048)*		
	KS mechanism	Self efficacy	.250(.001)**	.165	.127
		Agreeableness	.191(.005)**		
Internal Explicit	Knowledge Intention	Expertise	.211(.009)**	.159	.120
		Subjective norm	.237(.003)**		
	KS mechanism	Reciprocity	.196(.005)**	.102	.093
		Self efficacy	.186(.008)**		
External Explicit	Knowledge Intention	Agreeableness	.154(.031)*	.107	.086
		Subjective norm	.172(.036)*		
	KS mechanism	Agreeableness	.263(.000)**	.111	.071

TABLE 3: RESULTS OF HYPOTHESIS TESTING

	Dependent variable	Independent variable	Standardized coefficient	Hypothesis test
H1	KS Intention	Agreeableness	.114	H1A was not supported
		Conscientiousness	.001	H1B was not supported
H2	KS mechanism	Agreeableness	<b>.172*</b>	H2A was supported
		Conscientiousness	-.073	H2B was not supported
H3	KS Intention	Expertise	<b>.156*</b>	H3 was supported
H4	KS mechanism	Expertise	.107	H4 was not supported
H5	KS Intention	Awards	.027	H5A was not supported
		Reciprocity	.087	H5B was not supported
		Subjective norm	<b>.170*</b>	H5C was supported
H6	KS mechanism	Awards	.024	H6A was not supported
		Reciprocity	<b>.141*</b>	H6B was supported
		Subjective norm	.006	H6C was not supported
H7	KS Intention	Self-efficacy	<b>.181*</b>	H7A was supported
		Reputation	-.053	H7B was not supported
H8	KS mechanism	Self-efficacy	<b>.178*</b>	H8A was supported
		Reputation	.070	H8B was not supported
H9	KS intention	Individual factor		H9 was supported
H10	KS mechanism	Individual factor		H10 was supported



TABLE 4: THE RANKING OF THE CHOICE OF MECHANISM ACROSS KNOWLEDGE TYPES

Knowledge types	1	2	3	4
Internal-tacit	Formal interaction	KMS	COP	Informal interaction
External -tacit	Formal interaction	COP	KMS	Informal interaction
Internal-explicit	Formal interaction	COP	Informal interaction	KMS
External -explicit	Formal interaction	Informal interaction	COP	KMS

### Implications

The result shows why there is a lack of usage of knowledge management systems to share knowledge despite a high level of expectation from and investment into the implementation of KMS. Based on our findings, this study proposes the following suggestions to those leading knowledge management initiatives or otherwise desiring to encourage knowledge sharing within their organizations.

First, emphasize efforts to nurture the targeted social relationships and interpersonal interactions of employees before launching knowledge sharing initiatives. In particular, fostering a work context characterized by high levels of organizational citizenship is likely to nurture the mutual social exchange relationships that are apparently important in driving knowledge sharing intentions.

Second, actively support the formation and maturation of robust referent communities within the workplace. In particular, be sure to provide appropriate feedback to employees engaged in (or not engaged in) knowledge sharing. Such actions follow the findings on the importance of exerted pressure from one's referent groups (e.g., peers, supervisors, senior managers, etc) to engage in knowledge sharing behaviors.

Third, should pay more attention to enhancing the positive mood state for social associations which precedes knowledge sharing intention and should provide useful feedback to improve the individual's self-efficacy instead of designing a reward system. Do not stress extrinsic rewards as a primary motivator within knowledge sharing initiatives.

Finally, the individuals are more likely to choose formal interaction mechanism to share knowledge, such as training sessions, seminars, periodic meetings held in teams and departments etc. It might be possible for an organization to allocate certain amount of performance appraisal weight to the sharing of knowledge. Management should hold formal events and sessions for employees to share knowledge, even though it takes time.

### Limitation for Future Research

Although this research has focused on individual factors which affected the knowledge sharing and mechanism, considering the fact that facilitating knowledge sharing is a complex challenge, other factors need to be considered in a more integrative way in practice and in the future research.

While many prior researches have indicated that trust is a significant predictor of knowledge sharing, this study only found that agreeableness, which contains facet trust, has a significant relationship with knowledge sharing mechanism, not knowledge sharing intention. The result of this study suggests that agreeableness for knowledge management may need to be further examined. Future studies should, however take a more comprehensive view and include the remaining three dimensions of personality traits (extraversion, openness to experience, and neuroticism) as predictors. Extroversion contains the facets of warmth, gregariousness, activity, excitement seeking, and positive emotions. Extrovert individuals are likely to communicate with others and provide knowledge so that other people would be able to get to know more about them (Flynn et al, 2001). Openness to experience is described with the attributes such as fantasy, aesthetics, feelings, actions, ideas, and values. This trait could be related to the use of new tools or information technologies that facilitate knowledge sharing. As technological developments signifies high level of functional convergence, and as enhanced mixture of functionality

with channel capacity and mobility be available, the effects of such advanced, rich, and time-sensitive medium also deserve extensive future research.

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# The Evolution of Franchising in China: Prospects and Caveats

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## Abstract

This paper presents a descriptive study of the evolving contemporary franchising industry in China. Recent domestic policy changes have made this an extremely lucrative market for multinational franchisors wishing to enter China. Estimates suggest that the current Chinese franchising market, pegged at USD 25 billion and 2.4 million job opportunities, is growing at the annual rate of 53 percent (China Chain Store and Franchise Association, 2005). While seventy percent of the top twenty franchisors and thirty six percent of the top 200 of the global franchising giants have already entered China, the franchising industry is in its rapid and steady stage. The total amount of franchising systems increased by ten point five percent and amount of franchising systems reaches 2320. Outlets increased by thirty eight percent and amount to 0.168million. The average outlet of each franchising system is 57. The final character of franchising in China will soon be determined by the early franchise systems already in operation in China, and the system that enter the fray in the near future. We also provide an account of prospects and caveats for entering the Chinese market as a franchisor.

## Introduction

Franchising as a method of business operation was introduced to China by US fast food pioneers in the late 1980s in an environment which was by then increasingly receptive to foreign investment and Western concepts under Deng Xiaoping's economic reforms and open-door policies. Since the introduction of franchise regulation in 1997, the Chinese franchising sector has grown rapidly through its adoption by both international and domestic franchising companies. With 2320 franchise systems, China is already the most franchised country in the world in terms of systems, although the scale of operations is still very limited from both per capita and percentage of GDP perspectives. Franchising accounts for only 3 percent of China's retail sales compared to 40 percent in US (Yan, 2005). Systems average 43 outlets compared to 540 outlets in the USA (Guo, 2005).

Since China re-engaged with the international community and commenced a massive economic reform program in the late 1970s, its economic development has been remarkable with an average annual growth rate of over 8%. With its rapid economic growth and its 1.3 billion, increasing wealthy, population, China is potentially the largest market in the world. These factors, in combination with a relatively stable political environment, have made China the most popular destination in the world for foreign direct investment (National Bureau of Statistics of P.R.C, 2003). Franchising has thrived in this environment, but until the franchise pioneers KFC and McDonald's commenced operations in China, the word "franchise" was not a part of the Chinese language. Terry and Wang (2005) point out that ironically despite introducing the franchising concept to China, these fast food pioneers did not initially use franchising to expand their businesses, and even today operate primarily through directly owned and managed "chain" operations. In 1997 the Government promulgated China's first franchising regulation which not only provided a basic framework for the operation of franchising but also facilitated its growth. China's increasing engagement in the global community, together with its accession to the WTO in 2001, has also influenced the development of franchising in China through liberalization of foreign investment in the franchise sector.

If the entry of KFC in 1987 is taken as the first contact China had with franchising, its development can be divided into several stages. The first stage was the introduction of the franchise concept by the US fast food pioneers (1987-1992). The second stage was the adoption of franchising by local enterprises (1992-1997). The third stage was the rapid growth of franchising which has been accompanied by predictable problems (1997-2005).

## Introduction of the Franchise Concept by International Franchisors

Franchising as a method of doing business is a US invention and was introduced to China in the way same it was introduced to other countries - by the international expansion of US franchise enterprises, particularly the fast food systems. English, & Xau (2001). English, & Xau (2001) find out that KFC was the first major US fast-food franchise company to enter China. In February 1986, after nearly three years of negotiations with government agencies, it entered into a joint venture contract with two state owned enterprises – Beijing Corporation of Production and Processing and Beijing Travel and Tourism Corporation. On 12 November 1987, KFC opened its first outlet, in Beijing. Its distinctive outlet and its distinctive product attracted massive consumer interest. The opening day of the 650 seat Beijing restaurant was a great success breaking KFC world sales records. Its initial success led to its rapid expansion throughout China. By mid 1996, KFC had 100 outlets and today it has over 1,500 outlets in more than 260 cities. Its expansion is outlined in Figure 1.

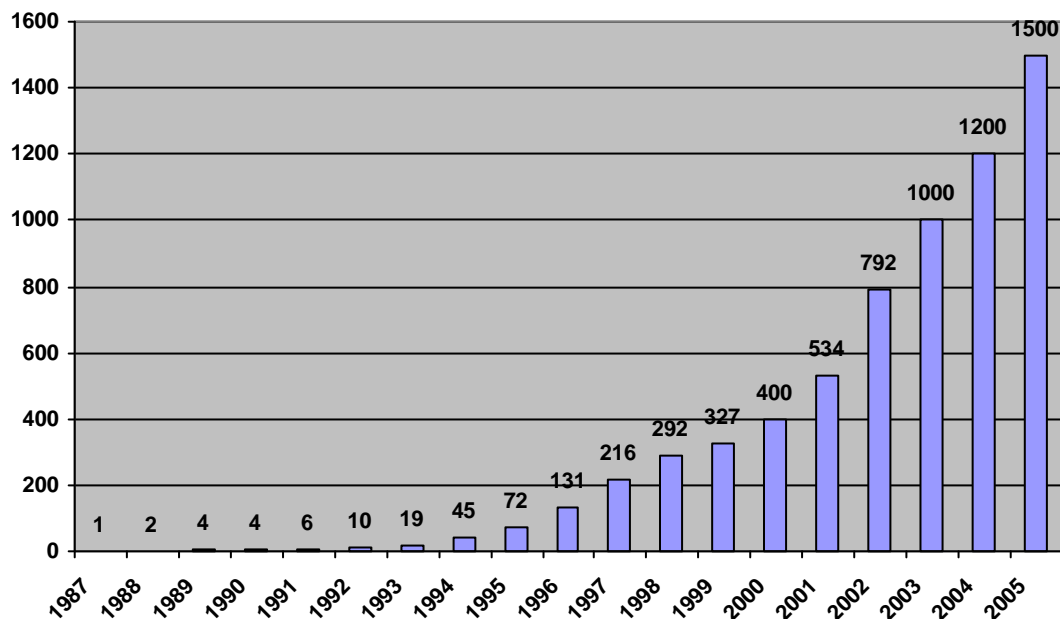


FIG. 1: KFC EXPANSION CHART

Source: [http://www.kfc.com.cn/kfccda/aboutus/index\\_china.aspx](http://www.kfc.com.cn/kfccda/aboutus/index_china.aspx)

McDonald's entered into a joint venture contract with Beijing Corporation of Farming Industry and Commerce in November 1990. McDonald's was a later entrant into the Chinese market opening its first outlet in 1990. Although it first adopted a similar strategy to KFC in establishing a joint venture with a state owned enterprise, it commenced its operation not in the national capital but in Shenzhen in the south of China, one of the first Special Economic Zones established by Deng Xiaoping to experiment with foreign investment. McDonald's soon moved to Beijing and in April 1992 opened an outlet in Wangfu Jin (the major shopping street of Beijing) which is still the largest in its 30,000 plus worldwide chain. Today, McDonald's has more than 600 outlets in China (McDonald's website, 2005).

Since then, other international franchise companies have commenced operations in China. Pizza Hut and hotel chains Marriott and Holiday Inn entered China in the early 1990s. Century 21 appointed its first master

franchisee in 2000 and has expanded rapidly. It now has 500 outlets with 5,000 brokers and a RMB10 billion (US\$1.21 billion) annual turnover. 7-eleven, Carlson Wagonlit Travel, Coldwell Banker Real Estate, Subway, Taco Bell, Domino's Pizza, Sheraton, among others are established in China. Burger King opened its first restaurant in Shanghai in 2005 and plans to have a 1,000 restaurant chain within a decade ( Desutter, S. 2005). Today, of the world's top 20 franchise chains in terms of worldwide sales (Franchise time,2005), 15 are in China.

Although the entry of internationally prominent US franchise systems introduced the concept of franchising to China, their operations currently are primarily through managed chain operations rather than through franchised operations. For example, of KFC's 1,500 outlets only about 70 are franchised (Su, 2005) – a small but nevertheless much greater proportion than for McDonald's which currently has only one franchised outlet in its 600 restaurants network.. Zhou (2005) defines that McDonald's nevertheless plans to commence a franchising strategy, outside the major cities in which it is already established in 2006. Because of a combination of regulatory, commercial and cultural factors, most foreign companies have established joint ventures with local companies, and for similar reasons, have expanded their operations through directly owned and managed owned outlets, rather than through franchising.

### **Adoption of Franchising by Local Enterprises**

The success of the US fast food companies alerted the local business community to the unique advantages of the franchising concept and encouraged its adoption by local entrepreneurs. Li (2000) points out that the first Chinese enterprise to franchise its operations is reputed to be Lining Corporation, a sportswear company established in 1990 by Li Ning – a sporting legend, who won three gold medals in gymnastics of the 1984 Olympics. Li Ning expanded his business from 1993 through franchising, and soon created another legend by developing his system throughout the country.

Another early entrant was the Quanjude Group which was established in 1993 to take over Quanjude - the oldest and most famous Peking duck restaurant in Beijing which originally commenced operation in 1864. The Quanjude Group quickly adopted franchising to expand its operations, and it currently has more than 60 stores of which 37 are franchised. It is one of the few Chinese franchise companies that has franchised outside China with restaurants in the US and Japan and a proposal to open in Chinatown in Sydney Australia (China Chain Store and Franchise Association, 2005)

Lining has become the leading domestic sportswear company and has been a franchising role model for private enterprises. Quanjude has become a role model for anachronistic state owned enterprises diversifying, reviving and re-establishing their relevance. Encouraged by their successes, many other local enterprises have started to franchise, including supermarket chains HuaLian and Lianhua, leisure restaurant Donglaishun, dry cleaning chain Rongchang, and Chinese style fast food chain Malan Noodle. These successful domestic franchisors have led to the wider adoption of franchising by local enterprises.

### **Rapid Growth and Emerging Problems**

The high profile and success of foreign systems, such as KFC, McDonald's and Pizza Hut, and local systems such as Lining and Quanjude, led many Chinese entrepreneurs to believe that franchising was a magic formula and a guarantee of business success. Enterprises traded off the proven success of franchising to promote their franchise systems and their consulting services. Slogans such as “to be the McDonald's of China”, “the 10,000 stores project” and “boss making factory” were frequently used. Guo (1999) notes out that franchising as a business strategy was widely utilized in expanding industry sectors but was practiced by many franchisors, franchisees and consultants without a comprehensive understanding of franchising or an appreciation of the factors on which its success had been built. As its development in other countries, franchising was diminished by inappropriate practices, and by “scam merchants”, who cheated investors using the good name of franchising. Negative comments in the media undermined people's confidence in franchising.

A 1995 speech made by former Premier Li addressed the need for the healthy development of franchising to protect franchisees first signaled the Government's interest in the orderly development of the sector. It was soon followed by China's first official acknowledgment of franchising in the 1997 Opinion on Regularizing the Operation and Management of Chain Stores which defined three forms of chain stores including the "franchise chain" and the 1997 Administrative Measures for Franchising Operation (Trial Implementation) (hereinafter the 1997 Franchise Measures) which defined franchising for the first time in Chinese law and set out an elementary set of administrative rules for its operation. Opinion on Regularizing the Operation and Management of Chain Store issued by the Ministry of Internal Trade on 27 March 1997. Article 4 defines three forms of chain stores:

- Direct managed chain ---- a chain of stores all owned and operated by one head office;
- Voluntary chain --- individual companies voluntarily agree to trade under the same name but maintaining their own independence and autonomy;
- Franchise chain --- franchisor and franchisee continue a relationship under a contract, which allows the franchisee to use franchisor's trademark or trade name, technology, management skill and distribute goods and services produced by the franchisor. The franchise chain under this article is similar to the Western concept of the business format franchise.

The regulatory implications of the 1997 Franchise Measures were obviously significant but their greatest impact has perhaps been on communicating the Government's support for franchising concept and encouragement of its adoption. 1997 is also significant as in that year the China Chain Store and Franchise Association (CCFA) was approved and registered by the Ministry of Civil Affairs to formulate trade regulations on franchising operations develop disciplines in the industry and to provide services to both franchisors and franchisees.

## **Franchising Systems in China**

Although China has recently emerged as the most franchised country in the world in terms of system numbers, the economic impact of its franchise sector is still at an embryonic stage. There is a massive potential for future growth as franchising business currently accounts for only 3 percent of China's total retail sales, starkly behind the 40 percent in the United States (Guo, 2005).

Franchising as a method of business operation in China today is used by both local and foreign companies to access a wide range of industry sectors. Businesses in diverse sectors have used franchising to expand their operations. Currently in Beijing there are 70 types of industries in chain store businesses of which over 40 have utilized franchising. Due to the increased pressures in the workplace and the need for leisure activities there are increased demands on time, and home services are becoming increasingly popular. Franchise systems have quickly responded to this niche. The figure below shows that fast food restaurants, retail and household services are currently the three most popular areas for new franchise investment in China.

Sectors		Average Growth of Outlets %		Average Growth of Turnover %	
		Franchisors	Franchisees	Franchisors	Franchisees
1	Real Estate	75.48%	79.06%	150%	190%
2	Home Decoration	48.7%	85.2%	58%	62%
3	Education	31.2%	41.8%	30.2%	30.5%
4	Bookstores	8.51%	7.43%	8.12%	7.28%
5	Laundry	24.81%	21.43%	46.43%	45.66%
6	Chinese Restaurant	34.72%	37.92%	27.28%	24.59%
7	Clothing	18.07%	15.54%	26.19%	28.22%
Average		33.18%	37.87%	33.94%	40.15%

FIG. 2: AVERAGE GROWTH OF OUTLETS AND TURNOVER  
Source: The 2005 Blue Book Report of Franchising and Chain Performance in China,

Although franchise systems in China account for only a small percentage of retail sales, their sales growth has been extremely rapid. The sales growth of the franchise sector has averaged 40 per cent over the last few years, far greater than the 10 percent annual growth rate for national consumer sales (Bian & Ilan, 2003). However, the growth rates of various industries are different.

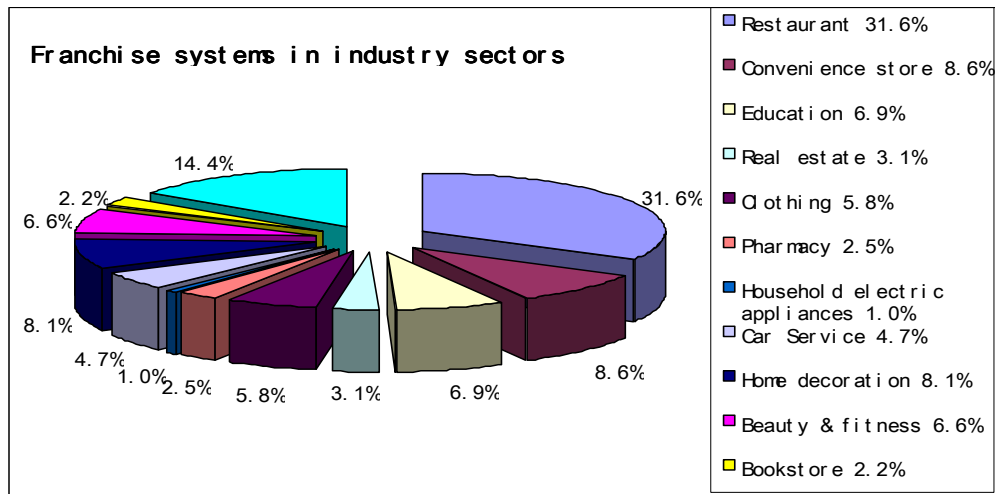


FIG.3: DISTRIBUTION OF FRANCHISE SYSTEM IN INDUSTRY SECTORS

The introduction of international franchise brands and the emergence of local franchise enterprises have led to the development of increasing franchising expertise. Chinese franchising is increasingly characterized by growing maturity in the organization of the wider sector. The government promotes franchising in different ways, including supporting the CCFA in its exhibitions and data collection. The CCFA has hosted National Franchise Conference and Expo in Beijing annually since 1999 and International Franchise Forum and Expo in Shanghai annually since 2002. The CCFA also has played an important role in education and obtaining statistical data. Zhu & Li (2004) claim that exhibitions held by national and provincial industry associations and private sector companies have increased to more than three per month on average, and these have grown each year

in terms of franchise brands marketing their systems, potential investors and attendees. Academics have been attracted by the booming franchise sector as a significant research field. The International Franchise Academy of Beijing Normal University in Zhuhai, the University of International Business and Economics and China University of Political Science and Law have played a leading role in sector research. These and other universities offer subjects in franchising and the International Franchise Academy offers a dedicated four year franchising degree, believed to be the first such initiative in the world. Books, magazines and websites devoted to franchise have increasingly appeared and the sector is now the subject of wide general interest.

However, although franchising has been enthusiastically embraced in China by enterprises looking to expand, by individuals wishing to enter business sectors using another's proven system. The development of franchising is uneven across China. Franchising is well developed in the major cities such as Guangzhou, Beijing and Shanghai which have been most exposed to economic reform and Western influences, but the vast majority of Chinese do not live in these major cities. The benefits of economic reforms have not been evenly shared across China and, to the majority of the Chinese population, franchising is still not well known. The chain store (including franchise chain and direct owned chain) and retail enterprises in the municipalities of Shanghai and Beijing and the provinces of Jiangsu and Guangdong account for almost 70 percent of total chain store and retail sales of the whole country.

## **Prospects and Caveats on Franchising in China**

Another reality of the Chinese franchise sector today is that many domestic systems are still at an early stage of development. Successful franchise systems develop from successful prototype business operations and pilot operations, from which the essential operational formats and management systems are tested, refined and documented. Franchising is the replication of a proven business concept through a proven business system. It has been the metamorphosis of franchising from unsophisticated product and trade name distribution arrangements to comprehensive business format franchising arrangements which has driven the growth and development of franchising throughout the world. The essence of contemporary business format franchising is replication of proven systems incorporating comprehensive managerial and operational protocols. However, in China, domestic franchising is generally at an early developmental stage. 30 percent of the franchisors do not have a franchise manual, and 20 percent of them have no operation manual. The term "franchise" is widely used to describe the arrangement which is often simply unsophisticated distribution arrangements offering little in the way of operational formats, assistance and training.

This is not an experience unique to China and most, probably all, franchise sectors in their early stages of development experience predictable growing pains. Many of these problems arise from a lack of understanding of franchising and the intricacies of the franchisor/franchisee relationship. Unethical practices are also common. The problems were summarized by Guo Geping, the Chairperson of CCFA, in her speech to the CCFA International Franchise Forum on 19 October 2004, Shanghai, as follows:

- Franchisors may commence franchising without meeting the basic requirements such as having a registered trademark or sufficient experience or a proven system;
- Franchisors may not disclose information appropriately or sufficiently - information regarding the risk of operation may not be adequately disclosed, or the potential profit may be exaggerated;
- Franchisors may stop supplying ongoing support and services to franchisees after the franchise fees are collected, or engage in other fraudulent practices;
- Franchisors and franchisees may knowingly breach the franchise contract;
- Franchisees may not pay franchise fees as specified or may infringe the franchisor's intellectual property.

Infrastructure necessary to support the sector is still at an early stage of development. While banking, accounting, marketing, insurance and legal services are increasingly available. Supply chain management and logistics, human resources and managerial expertise are developing more slowly and are current obstacles to orderly expansion. The foreign franchisor in China also faces problems arise from cultural traits such as a lack of respect for regulatory regimes for business and feudal ideas of "being the head of a chicken than



the tail of a cow". Such characteristics aggravate the franchisors management challenge and may threaten the unity of franchise systems and harm the entire franchise business.

The problems are exacerbated by the uneven development of commerce and franchising across China. Despite a national language, there is a great variety of dialects in addition to cultural, social and demographic differences. China's growing body of regulatory laws is applied at the regional and local level and the different administrative regimes have complicated the expansion of franchise systems into geographically dispersed regions. Most of the infrastructure issues except the major cities, particularly logistics, are complicated.

In China, as in other countries, the law has a significant role in improving the environment for franchising. UNIDROIT (2005) defines a "healthy commercial law environment" as "one with general legislation on commercial contracts, with an adequate company law, where there are sufficient notions of joint ventures, where intellectual property rights are in place and enforced and where companies can rely on ownership of trademarks and know-how as well as confidentiality agreements". Generally speaking, laws relevant to the franchise operation such as intellectual property protection law, joint venture law, foreign owned enterprise law and contract law have been revised according to the requirements of WTO accession. However, the enforcement of the laws is an ongoing concern.

Franchise specific problems have to some extent been addressed by specific franchising regulation. Besides the USA, China was one of the first countries to adopt specific franchising regulation. The 1997 *Administrative Measures on Commercial Franchising (Trial Implementation)* (the 1997 *Franchise Measures*) were promulgated by the then Ministry of Internal Trade "for the purpose of standardizing franchise operations, protecting the lawful rights and interests of both the franchisor and the franchisee, and further promoting the growth of chain business". The 1997 *Franchise Measures*, together with other relevant regulations, provided a basic framework for the operation of franchising in China at that time, but applied only to domestic enterprises which created doubts as to the status of foreign franchisors and the enforceability of their contracts. To meet its WTO commitments, the Ministry of Commerce issued new *Administrative Measures on Commercial Franchising* (the 2005 *Franchise Measures*) on the last day in 2004, which took effect on February 1 of 2005. The 2005 *Franchise Measures* establish legal requirements for franchise operations in China for both foreign and domestic franchisors. It honored WTO commitments by subjecting domestic and foreign franchising enterprises to the same regulation. (The 2005 *Franchise Measures* nevertheless provide that before a foreign invested company can franchise in China, it must first obtain approval from government agencies, which is not a requirement for a domestic company). The 2005 *Franchise Measures* prescribe the necessary qualifications of franchisor and franchisee and their rights and obligations, (including a requirement for an enterprise to have at least two stores in operation for more than one year within China prior to commencing franchising). They also prescribe prior disclosure requirements, the content of the franchise agreement and sector administration. The 2005 *Franchise Measures* have generally been welcomed not only because of the introduction of a viable regulatory regime for both domestic and foreign franchisors, but also because of their recognition of "freedom of contract" and their emphasis on intellectual property protection. Wang (2004), the Chairperson of CCFA, acknowledges that a more professional and comprehensive specific franchise regulation at the State Council level (as opposed to the current Ministry rules) is an urgent priority for the orderly growth of the franchise sector. Although the State Economic and Trade Commission responsible for the proposed "Commercial Franchise Regulation" stated as early as July 2002 that the new regulation would be implemented before the end of that year (China Daily, 2002), it has still not appeared. The law clearly has an important role in China, as in other countries, to address the growing pains of a rapidly emerging franchise sector. However, it cannot solve all the problems. Balancing localization with standardization is a challenge for both domestic and foreign franchising systems as the observation is frequently made that China is not "one country" from the consumer's and the franchisor's perspective. In relation to domestic franchisors, most local franchising systems are not yet strong enough to be a real threat to established international franchisors because they lack the key elements for a successful franchising system, such as a recognized brand, a proven system and know-how, which are the innate advantages of established foreign franchisors. Foreign franchisors nevertheless face real challenges in that they are unfamiliar with the Chinese commercial environment, consumption psychology and industry conditions. Finding the right partner and senior management is both time consuming and difficult. Cultural

issues require particular sensitivity for foreign franchisors. China is rapidly moving to a more familiar Western business environment, but a 5000 year culture cannot be expected to change overnight. It is not only language – which in its spoken form has many dialects – but more entrenched characteristics. Prominent among these is the concept of “guanxi” – of the prime importance of personal connections, networks and relationships with business partners, government officials, media and trade associations which are forged through sustained cooperation, commitment and contact.

The Chinese adopt the philosophy that: “while nothing is easy, everything is possible”. Despite the challenges, companies which have adopted this attitude have achieved great success in China (Fan, 2006). As noted above, KFC negotiated with government authorities for nearly three years and devoted another 20 months for developing its supply chains training staff and refining its system before the first outlet opened in Beijing. The turnover of its 1,200 outlets of 2004 in China reached RMB12 billion (approximately US\$ 1.5 billion), which is nearly one third of the total turnover of its 5,524 outlets in USA (US\$4.9 billion in 2003) (Huang,2005). Yum! Brands, which owns KFC and Pizza Hut in China claims that “KFC makes almost as much money in China today as it makes in the US” (Novak, 2004). Kodak spent four years conducting seven rounds of negotiation in order to acquire the major Chinese film manufacturers. In 1998 it invested US\$1.2 billion, of which was its largest overseas investment, and it has established a near monopoly position in the film-manufacturing sector in China. It has also expanded its Kodak Express network through franchising with the support of the Bank of China, and now has more than 8000 outlets in China. With its rapid economic growth and “the world’s largest potential market, embracing 1.3 billion people including 412 million young consumers under twenty and with rapidly rising levels of disposable income in economically booming urban area”(Sheppard, 2000), China is an increasingly attractive franchise market for both local and foreign enterprises. Increasing disposable income has made it possible for more consumers to source higher quality products and services. Chinese consumers are increasingly sophisticated and brand conscious. There is an increasing demand for standardized quality which franchise networks can provide and an increasing preparedness to pay more for well-known brands. Post WTO market liberalisation reforms have facilitated foreign investment in the franchising sector and foreign franchisors are entering in increasing numbers.

Not surprisingly, the economic reforms which have made possible the development of franchising have not been without casualties. Jing (2004) argues that the reforms of past twenty years have resulted in some unwelcome and previously unknown consequences, including a rising unemployment rate, which has become a critical problem for the government and the public. It is in part because franchising is seen by the Chinese government as a strategy to solve these problems that its development has been encouraged by the government. The existence of unemployment and the prevalence of entrepreneurship provide an ample supply of potential franchisees (Zhu, 2005). The development of Chinese private companies and the growth of private capital provide a solid foundation for franchising business. China has a great number of potential franchisees with strong sources of funding. Franchising compensates for their commercial inexperience by linking their investments to well-tested concepts and operating systems, comprehensive training and support.

## **Conclusion**

Over the last decade the franchise market in China has been growing at extraordinary speed. Originally under the influence of foreign franchise systems, recently more domestic enterprises have adopted franchising strategy. Rapid growth has nevertheless been accompanied by predictable problems including domestic and foreign enterprises. These problems should become less significant with increasing knowledge of franchising, continuing modernization of the legal system and more effective avenues for enforcement of contractual obligations and intellectual property rights. The experience of the past twenty years of franchise development in China, combined with the increasing sophistication of the economy and its vast potential consumer market, strongly suggest that the continuing growth of the franchise sector is inevitable. There is wide and increasing agreement with the comment of Jerry Wilkerson (2005), the former president of the International Franchise Association, that China, the largest marketplace the world has ever known, “will be a magnificent place for franchising to flourish in the near future”.

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# Malaysia's Franchise Friendly Policy: The Role of Perbadanan Nasional (PNS) as Sole Government Agency in Franchise Development and Financing

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## Abstract

In developing franchising in Malaysia, several organisations are involved and play an important role. Franchising in Malaysia uses strategic partnerships that embrace alliances not just between franchisor and franchisees but also between other parties involved. Malaysian franchising involves a strategic partnership in collaboration with the Malaysian Government, the Franchise and Vendor Development Division, Ministry of Entrepreneur Development (MeCD), Franchise Development Programme (FDP), Malaysian Franchise Association (MFA) and Perbadanan Nasional Berhad (PNS). The first organisation that plays a role in developing the franchising system in Malaysia is the *Malaysian Government*. The second organisation that plays a role in the developing franchising system in Malaysia is the *Ministry of Entrepreneur Development, Malaysia*. There are five major activities and programmes organised and coordinated by the Franchise and Vendor Development Division. Another organization involved aggressively in developing franchising system in Malaysia is Malaysian Franchise Association (MFA). The main objective of the MFA is to support and promote franchising in Malaysia (Awalan 1998). Then, in June 2004, MeCD handed the Franchise Development portfolio to Perbadanan Nasional Berhad (PNS) and recently appointed it as the lead agency to promote the development of Malaysian franchise industry. PNS provide financial assistance to Bumiputera entrepreneur venturing into franchise businesses via equity investment and franchise business financing. PNS have different roles to play towards the development of the Bumiputera franchising in Malaysia. In summary, there are four main organisations involved as active supporters in the development of a franchise industry in Malaysia, including Malaysian Government, Ministry of Entrepreneur Development (MeCD), Franchise Development Program (FDP) and Malaysia Franchise Association (MFA) and Perbadanan Nasional Berhad (PNS).

## Introduction

It was only in the 1950s that franchise systems began to grow (Mendelsohn 1999; Sanghavi 1991). The growth rate of franchises in the United States of America is a useful source of retail business development both in the United States of America (Naisbitt 1986) and in other industrialized nations (Justis 1995). Currently, there are over 600,000 franchised business establishments in the United States of America and about 100,000 more around the world that carry the logo of an American franchise system (Mendelsohn 1999). Employment in franchising in the United States of America including part time workers will probably reach 7.3 million (Mendelsohn 1999).

Franchising in Australia has diverse firms that make up the franchising sector. For example, in 1999, franchising in Australia had sales of goods and services from more than 49,400 outlets and probably reached a AUD\$ 76.5 billion turnover (Frazer & McCosker 1999). The total number of persons employed in the Australian franchising sector including part timers probably reached 553,200 workers.

With this positive progress of franchising, franchise businesses will continue to expand in developed countries such as in Europe, and also the developing countries such as in Asia and Latin America (Chan & Justis 1991; International Franchise Association 1999). Those who do best at international expansion are those who have the foundations of a sound and profitable business at home, the financial resources needed to expand, the manpower resources required to expand, infinite patience, the ability to listen and adapt, the ability to acknowledge that things are different in a foreign country to recognize the difference, and be prepared to adapt to them (Mendelsohn 1994).

Long before Asia became a continent of modern nation states, the West already had links with the region through commerce. The franchise industry continues the tradition of successfully capturing and creating business opportunities especially in Asia (Abdullah 1999). Malaysia followed countries like Australia and New Zealand in establishing more local franchising business networks (McCosker 1995). The local franchising business network will not only benefit the local franchisors but also local entrepreneurs (Hodgetts & Luthans 1997) because the local franchise package is cheaper compared to the imported franchises (Mendelsohn 1994).

Currently, the Malaysian franchising industry is second only to Japan in terms of numbers of franchise outlets in the Asian region (excluding Australia and New Zealand) (Idris 1999). In addition, Malaysia is geographically and strategically well situated to become a regional base for foreign franchises planning to expand into South East Asia (Awalan 1999a). The growing economies of Singapore and Indonesia are within reach, as are Thailand, Myanmar, Vietnam, and Kampuchea. Franchising is growing in Singapore and most international franchisors would view it and Malaysia as a single territory for a master franchise, so they will choose one or the other as their base (Awalan 1999b). In terms of the potential number of franchise business units that can be set up over a wider area and the ease and practicality of administration and management, it would be more appropriate for foreign franchises to base operations in Malaysia than anywhere else.

## Franchising in Malaysia

The above discussion considered Malaysia as an appropriate base to develop and promote international franchises. Now, the growth of franchising will be discussed. The recent history of Malaysian franchising development will now be outlined in order to place it in perspective for international comparisons, as shown in table 1.

TABLE 1: THE HISTORY OF THE DEVELOPMENT OF FRANCHISING IN MALAYSIA

Duration	Events
1940s	Early stage of franchising in Malaysia with the opening of several petrol stations followed by the Singer Sewing Machine Co.
1991	Malaysian government decided to promote franchising as a vehicle for the development of Malaysian entrepreneurs
Mid-1992	The establishment of Franchising Development Programme (FDP) as a special unit in The Implementation and Coordination Unit, Prime Minister Department, Malaysia
March 1992	Malaysian Franchise Association (MFA) was formed
Mid-1995	The establishment of Franchise and Vendor Development Division, Ministry of Entrepreneur Development, Malaysia (MeCD)
Mid-1995	The Franchise Development Programme (FDP) was transferred to the Franchise and Vendor Development Division, Ministry of Entrepreneur Development, Malaysia (MeCD)

*Source: developed for this research*

Franchising first started in the early 1940s with the opening of several petrol station outlets (table 1). Later, the Singer Sewing Machine Co. franchised outlets in Malaysia to sell Singer sewing machines, followed by Bata and automobile dealerships. In the 1970s and 1980s, franchises commenced in the fast food industry such as Kentucky Fried Chicken, McDonalds, Wimpy, and A & W Malaysia, the industry experienced explosive growth (Awalan 1999c; Mat Hassan 1999; Mohd Ali 1995). However, the franchise industry was initiated without much awareness

from the local population. The concept of the franchise business was not well understood and there was little interest by the business community in franchising their businesses (Mohd Ali 1995).

## **The Organisations Involved in Malaysian Franchise Development**

In developing franchising in Malaysia, several organisations are involved and play an important role. Franchising in Malaysia uses strategic partnerships that embrace alliances not just between franchisor and franchisees but also between other parties involved (Idris 1999). Malaysian franchising involves a strategic partnership in collaboration with the Malaysian Government, the Franchise and Vendor Development Division, Ministry of Entrepreneur Development (MeCD), Franchise Development Programme (FDP), Malaysian Franchise Association (MFA) and Perbadanan Nasional Berhad (PNS). Each of these will be discussed next.

### **The Role of the Malaysian Government**

The first organization that plays a role in developing the franchising system in Malaysia is the *Malaysian Government*. Although the franchise industry was introduced in the country in the 1940s, rapid development has only been seen in recent years. In 1991 (table 1), the Malaysia government decided to promote franchising as the vehicle for the development of indigenous entrepreneurs and thus as a catalyst for economic development (Mahathir 1998; Mohd Ali 1995). The government has been an active supporter of the franchise industry ever since 1992 when the Prime Minister, Dato' Seri Dr Mahathir Mohamed, established a special unit dedicated to franchising development within the Prime Minister's Department. The task was then taken up by the Ministry of Entrepreneur Development (MECD) upon its formation in the middle of 1995 to further strengthen and promote the franchise industry (Abdullah 1999). The growth was propelled by the active role taken by the government through the Ministry of Entrepreneur Development (Malaysian Franchise Directory 1999).

### **The Role of Ministry of Entrepreneur Development, Malaysia**

The second organisation that plays a role in the developing franchising system in Malaysia is *the Ministry of Entrepreneur Development, Malaysia*. In 1995, the Malaysian Government set up the Franchise and Vendor Development Division under the Ministry of Entrepreneur Development (MeCD) (table 1). When the Franchise and Vendor Development Division was set up under the Ministry of Entrepreneur Development, there was a noticeable increase in interest of the business community towards the franchise concept and the franchising businesses (Mohd Ali 1995). This division set a vision and objectives, and plays the role of ensuring the progress of franchising in Malaysia.

There are five major activities and programmes organised and coordinated by the Franchise and Vendor Development Division. The first activity is promoting the franchise business, that is, informing and educating the public on the franchising concept and promoting franchising as a viable business option to the population (Mohd Ali 1995). The second activity is franchise recruitment, that is, coordinating recruitment and maintaining a database of applicants intending to take up a new franchise, and then helping the franchisor to carry out the selection process (Mohd Ali 1995). This process helps the franchisor to select suitable entrepreneurs to be a new franchisee (Sam 1999).

The next activity is to organize training for both the franchisor and the franchisees, and to coordinate supervisory visits to check on performance and resolve problems (Mohd Ali 1995). These supervisory visits will ensure the quality and standard of the franchise business in Malaysia (Sam 1999). Then, the Franchise and Vendor Development Division provides consultation and assistance to help those persons who come under the franchise programme, and require assistance and advice about loans, selecting premises, and applying for franchise licences and permits (Mohd Ali 1995). The last and most important activity coordinated by the Franchise and Vendor Development Division is enforcement of the franchise regulations (Sam 1999).

In order to get feedback about the activities organized by the Franchise and Vendor Development Division, a research and development programme was conducted with higher institutions (Sam 1999). The government is proactive toward supporting the growth and development of the franchise industry and has aimed to achieve a target of 1200 franchisees under the Seventh Malaysia Plan (Malaysian Franchise Directory 1998; Mohd Ali 1995). Table 2 shows the planning of franchising in Malaysia in the Ninth Malaysia Plan (from year 2006-2010), with actual growth of franchisees (individuals rather than outlets) towards achieving annual targets. To ensure that the above

target is achieved, the government through the Franchise and Vendor Development Division, Ministry of Entrepreneur Development implemented *seven* strategies (Malaysian Franchise Directory 1999).

TABLE 2: FRANCHISEE APPOINTMENT PLAN DURING THE NINTH MALAYSIA PLAN AND THE ACHIEVEMENT LEVEL UP TO YEAR 2005

Year	Appointment target	Appointment achievement	Appointment achievement % from target
1995	100	54	54.00 %
1996	100	144	144.00 %
1997	124	126	101.00 %
1998	292	146	50.00 %
1999	292	105	35.95 %
2000	292	311	106.50 %
2001	1000	579	57.09 %
2002	1000	823	82.30 %
2003	1000	934	93.40 %
2004	1000	1050	105.00 %
2005	1000	1151	115.10 %
2006	2000	-	-
2007	2000	-	-
2008	2000	-	-
2009	2000	-	-
2010	2000	-	-
<b>Total</b>	<b>2000</b>	<b>886</b>	<b>73.83 %</b>

*Source: developed for this research based on Malaysian Franchise Directory (2006)*

The first strategy used by the Franchise and Vendor Development Division Ministry of Entrepreneur Development (MeCD) in developing the franchise industry in Malaysia is identifying and developing potential business concepts and products as franchise businesses, in three ways. The first way is the Ministry undertakes to develop new concepts into viable franchise businesses. The second way is developing existing businesses into franchise systems, and the third way is identifying foreign franchise products with the potential to be franchised to Malaysian entrepreneurs (Malaysian Franchise Directory 1999; Mohd Ali 1995).

The second strategy used by the Franchise and Vendor Development Division is increasing public awareness and knowledge of franchise businesses by conducting promotional activities, trade road shows, and franchise exhibitions (Malaysian Franchise Directory 1999). The third strategy of the Franchise and Vendor Development Division is to increase the number of franchise consultants (Malaysian Franchise Directory 1999), that is, it cooperate with higher learning institutions in conducting training, seminars, and courses. As well, the Franchise and Vendor Development Division conducts studies and research of the franchise industry in Malaysia and has established a database on franchise businesses (Malaysian Franchise Directory 1999).

The Franchise and Vendor Development Division in developing the franchise industry enforces the Franchise Act 1998. The Malaysian Franchise Act was launched on 8 October 1999 by the Minister of Entrepreneur Development, Dato' Mustafa Mohamad (Marzaitul 1999; Mohd Ali 1995). The Act was not meant to stifle the franchise industry but to regulate and ensure its systematic growth. The Malaysian Franchise Act 1998 (table 2.12) will ensure better regulation and supervision of the industry. The Act is an indication of the government's willingness to facilitate the growth of the industry by legislating against problems, fraud, or other abuses of the franchising system (Abdullah 1999). The Act features the registration of the companies, procedures for documentation, the crimes and penalties, financial aspects, and problem solving methods (Marzaitul 1999). By providing the necessary guidelines, the Act will encourage bona fide and fiduciary practices and at the same time protect the franchisor's system and copyright from being illegally duplicated (Marzaitul 1999). Activities of bogus

franchisors are curbed through the proper disclosure of the background of the franchisors. Financial statements for three consecutive years must also be supplied (Marzaitul 1999).

The Malaysia Franchisee Act 1998 has several parts, as shown in table 3, including:

TABLE 3: THE ELEMENTS OF THE MALAYSIAN FRANCHISE ACT 1998

No.	Particulars in Malaysia Franchise Act 1998
Part 1	<ul style="list-style-type: none"> <li>• the appointment of the Registrar</li> <li>• others concerned as well as the proper registration methods of a franchise</li> </ul>
Part 2	<ul style="list-style-type: none"> <li>• details of the franchisee agreement</li> </ul>
Part 3	<ul style="list-style-type: none"> <li>• concerns the termination of a franchise</li> <li>• the acts of the parties involved</li> </ul>
Part 4	<ul style="list-style-type: none"> <li>• the setting up of a Franchise Advisory Board which offers its services to the Minister and the Registrar on franchise related matters</li> </ul>
Part 5	<ul style="list-style-type: none"> <li>• list of the crimes and penalties</li> </ul>
Part 6	<ul style="list-style-type: none"> <li>• touches on various elements such as: <ul style="list-style-type: none"> <li>○ obtaining approvals when intending to sell or to buy a franchise be it local or foreign;</li> <li>○ the power of the registrar to make a public inspection of disclosure documents;</li> <li>○ sale or purchase of franchise advertisements that need to be sent to the Registrar at least five days before the publication or circulation.</li> </ul> </li> <li>• the requirement to inform the Registrar of any sale to a non-Malaysian citizen and of foreigners intending to sell their franchises locally</li> </ul>
Part 7	<ul style="list-style-type: none"> <li>• the franchisor needs to submit various financial documents</li> </ul>

Source: developed for this research

- details on the franchise fee and its refundability. Any other fees to be included must be disclosed such as the advertising and promotion fees, training fee, and management fee (Malaysian Franchise Act 1998);
- the initial investment, which includes landed property, equipment, fitting & fixtures, fixed assets, and deposit (Malaysian Franchise Act 1998); and
- an undertaking by the franchisor to disclose the type of financial assistance provided, if any. Also if the franchisor is leasing any equipment and the charges relating to it (Malaysian Franchise Act 1998).

The Malaysian Franchise Act 1998 authorised the government to monitor the development of the franchise industry in the country, and ensures a more systematic and structured growth. As a result, it is hoped that more entrepreneurs will join the franchise bandwagon and become franchisees. In addition, it also requires franchisor companies to submit several important documents upon registration (Malaysian Franchise Act 1998; Marzaitul 1999; Salleh 1999).

All the documents that are required by the Malaysian Franchise Act 1998 need to be submitted by the franchisor upon the registration a new franchise system, as shown in table 4. In addition, the new franchisor also needs to include other relevant documents such as secretarial form 2 and form 49 (in Registrar of Company Malaysia). Both the forms describe the background of the director and the equity hold by each director (Malaysian Franchise Act 1998; Malaysian Franchise Directory 1999). Annually, all franchisor companies must submit their annual report to the Registrar of Franchise within 30 days of the registration anniversary. Registration for franchisor companies, master franchisees, and foreign companies is required only once throughout the life of the franchise business, except if the Registrar of Franchise issues notices or orders for suspension, termination, or rejection of registration (Malaysian Franchise Act 1998).



TABLE 4: THE DOCUMENTS REQUIRED BY THE MALAYSIAN FRANCHISE ACT  
UPON THE REGISTRATION OF A NEW FRANCHISE SYSTEM

No.	Documents	Malaysian Franchise Act 1998	Business and financial planning elements
1	Franchise disclosure document	✓	✓
2	Franchise agreement	✓	✓
3	Operation manual	✓	✓
4	Latest audited financial statements	✓	✓
	<b>Total</b>	<b>4</b>	<b>4</b>

Source: developed for this research

The next strategy used by the Franchise and Vendor Development Division Ministry of Entrepreneur Development (MeCD) to develop the franchise industry is cooperating with Malaysian Franchise Association (MFA) and other support institutions. This strategy seeks to facilitate the growth of franchise businesses especially in matters pertaining to the source of funds from financial institutions and securing good business locations from property developers, landlords, and complex management (Malaysian Franchise Directory 1999).

The last strategy using by the Franchise and Vendor Development Division is improving the Franchise Development Programme (FDP). This division should concentrate more and be aware of the selection criteria of franchisors and franchisees joining the FDP, so that only genuine businesses and entrepreneurs are selected to participate. This research was conducted with the FDP.

#### **The Franchise Development Programme (FDP)**

A Franchising Development Programme (FDP) was set up in 1992 (table 1), in the Implementation and Coordination Unit, of the Prime Minister's Department. With the establishment of the Ministry of Entrepreneur Development (MeCD) in mid-1995 (table 1), programmes directly related to the development of entrepreneurs including the Franchise Development Programme (FDP) were transferred to this new ministry. It is now known as the Franchise and Vendor Development Division (Abdullah 1999; Idris 1999; Mohd Ali 1995).

The Franchise Development Programme is a marketing plan based on the Malaysia Incorporated Concept which aims to develop small and medium entrepreneurs (SMEs) in the sector of commerce, service, and industry. The implementation of the franchise system will enable SMEs to enter a mass local and international business networks (Franchise and Vendor Development Division 1999).

- introduce franchising as one of the strategies to develop an advanced and sustainable entrepreneurial society in accordance with the National Development Programme (Idris 1998 /1999);
- increase the number of successful franchisors, master franchisees, and franchisees (Idris 1998 / 1999); and
- stimulate active participation of entrepreneurs, in particular in distributive trade and generally in the service industry, having potential for contribution towards national economic growth (Idris 1998 /1999).

By the end of year 2005, FDP had managed to develop a total of 59 franchisors (21 percent of the 287 franchisors) in various business sectors in Malaysia. All the franchisors in this programme managed to appoint their own franchisees to operate the franchise outlets and a total of 575 franchisees operating franchise outlets have been appointed in this programme. Table 5 shows the number of home-grown franchise businesses developed under FDP, by the business sector.

TABLE 5: HOME-GROWN FRANCHISE BUSINESS DEVELOPED UNDER THE FRANCHISE DEVELOPMENT PROGRAMME (FDP), IN ORDER OF NUMBER OF FRANCHISORS

<b>Business sector</b>	<b>No. of franchisors</b>	<b>No. of Franchisees</b>
Food	17	53
Computer education & computer/internet center	6	11
Clothing	4	17
Automotive	4	27
Home furnishing and electrical goods	4	191
Kindergarten & recreation/sports	3	3
Souvenir/gift shop	3	3
Jewellery	3	5
Clinic & pharmacy	3	10
Optometry	2	-
General business services	2	-
Renovation and building maintenance	2	3
Telecommunication	2	9
Book store	1	1
Beauty and health	1	3
Printing	1	11
Hospitality	1	16
<b>Total</b>	<b>59</b>	<b>363</b>

Source: adapted for this research from Malaysian Franchise Directory (2000)

To enhance the image and the effectiveness of the FDP, *four* initiatives have been taken up by the FDP (Malaysian Franchise Directory 1999). The first initiative is to provide incentives to franchise industry players. For example, in Malaysia there is a Franchise Award ceremony to recognise franchise achievers. The award is a symbol of recognition by the government (FDP) and the Malaysia Franchise Association of the commitment and effort by the franchisors and franchisees in the franchise arena locally. Among the factors considered for the awards are the growth rate of the outlets and the financial statements of the franchise operations, as investigated by this research (Awalan 1999b).

The second initiative is to introduce the usage of the franchise logo on all franchise outlets. This initiative will make the public aware of the image of home-grown franchise businesses in the FDP programme. The third initiative is that the FDP will assist in solving issues and other conflicts that may arise between franchisors and franchisees. The last initiative involves monitoring the businesses performance of both franchisor and franchisees. The process of monitoring the franchise industry in Malaysia is done in cooperation with the Malaysian Franchise Association (MFA) and will be discussed next. Note that all three franchise system cases in this research were home-grown and thus the MFA does need to be discussed here.

#### **The Role of the Malaysian Franchise Association**

A project paper on the status of the Malaysian franchising was issued in March 1992 by the Ministry of Entrepreneur Development (noted in table 1). From this project paper, guidelines were proposed and subsequently the Malaysian Franchise Association (MFA) was formed.

The main objective of the MFA is to support and promote franchising in Malaysia (Awalan 1998). The Malaysian Franchise Association (MFA) has a grand vision for the franchise industry in Malaysia. One part of the vision is to position Malaysia as the gateway to franchising in Asia (Adzmi 1999b). Although MFA assumes the franchise industry in Malaysia has been experiencing dynamic growth since its introduction in the late 1940s, there are still lack of complete understanding of the Malaysian franchise industry. As such, increasing the awareness of the industry and educating people on the various aspects of franchising remains among MFA's key responsibilities (Adzmi 1999b).

MFA plays different roles from other government bodies such as the Franchise and Vendor Development Division, Ministry of Entrepreneur Development, Malaysia (MeCD), and the Franchise Development Programme (FDP). These government bodies concentrate more on the policy and procedure matters, and aim to develop as many new franchise systems as possible to ensure the target achievement of 1200 franchisees (Franchise and Vendor Development Division 1999). In turn, MFA acts as a coordinating and arbitration body that promotes franchising in Malaysia as well as offering arbitration advice for franchisors and their franchisees. This research considers the franchisee's role in the franchise planning.

As part of its system of the matchmaking prospective franchises and established businesses, the MFA is constantly studying new market niches and helping develop new products (Awalan 1998). MFA together with the government have constantly been in the forefront promoting the franchise industry both domestically and globally to further develop the industry. MFA often provided input for the government and its agencies on matters concerning franchising and its application. Towards this end, MFA has identified strategic business opportunities to be developed either through the local industry or with foreign franchisors (Adzmi 1999b).

#### **The Role of Perbadanan Nasional Berhad (PNS)**

Perbadanan Nasional Berhad (PNS), formerly known as PERNAS, was incorporated on November 29<sup>th</sup>, 1969. Through a management buy-out process, a new acronym "PNS" has been adopted.

PNS is a wholly-owned subsidiary of the Minister of Finance Incorporated (MOF Inc.) and under a purview of the Ministry of Entrepreneur and Cooperative Development (Med). Its paid-up capital is RM751 million and authorized capital RM1 billion.

In June 2004, MeCD handed the Franchise Development portfolio to PNS and recently appointed it as the lead agency to promote the development of Malaysian franchise industry. PNS provide financial assistance to Bumiputera entrepreneur venturing into franchise businesses via equity investment and franchise business financing.

Equipped with relevant experience in franchise industry, PNS uphold the Government aspiration to develop Malaysian franchise industry and increase the number of Bumiputera entrepreneur as well as swelling the size of Bumiputera Commercial and Industrial Community (BCIC).

The vision of PNS is to be the leading corporation in providing Total Franchise Solutions. In addition, PNS's mission is to develop world-class franchisepreneurs through superior delivery of integrated services and comprehensive products. We cater to provide efficient services guided by our vision and mission statement. PNS is committed to develop franchisepreneur within the Bumiputera Commercial and Industrial Community (BCIC).

In summary, there are four main organisations involved as active supporters in the development of a franchise industry in Malaysia, including Malaysian Government, Ministry of Entrepreneur Development (MeCD), Franchise Development Program (FDP) and Malaysia Franchise Association (MFA) (Abdullah 1999).

## **PNS as Sole Government Agency in Franchise Development and Financing**

PNS have different roles to play towards the development of the Bumiputera franchising in Malaysia.

1. Key role - planning, decision making and full accountable for achievement outcomes. In this instance, PNS take full accountability for the specific outcomes, as an example in areas of planning and sometimes responsible for the delivery of specified programmes designed to achieve these outcomes.
2. Support role - facilitator, working with relevant agencies, contribute to decision making process but no exclusive ownership for decision making and Key Performance Index (KPIs).
3. Minimal Role – Provide feedback to relevant ministries/agencies, contribute to decision making (only upon request by relevant ministries/agencies) and accountable for ability to influence decision making. In this instance, PNS merely provides feedback for decision making by others or participate in collective decision making where required.

#### **What is Ninth Malaysia Plan (RMK-9)?**

The Malaysia Plan was designed to develop Malaysian economy and improve the quality of life of its people. Since independent, real gross domestic product (GDP) has grown by an average of 6.5 per cent per annum during 1957 to 2005, one of the highest growth rates achieved by sovereign nations of similar age and size. Within the same period,

GDP per capita in current prices grew by 7.0 per cent per annum, which has translated into substantial improvements in the people's quality of life.

Malaysia has moved into the Ninth Malaysia Plan which encompasses a five years period (2006-2010). The country is now an open trading economy participating in an extremely competitive and fast moving global marketplace. Given the changing domestic and global economic landscape, initiative to enhance national competitiveness and will continue to be given high priority. The Ninth Malaysia Plan period will see changes in the structure and improved performance of the economy with every economic sector achieving higher value added and total factor productivity new growth areas will gain in strength.

Under the Ninth Malaysia Plan, the Government Link Companies (GLCs) has been transformed with an aimed at infusing a culture of high performance and excellence in all GLCs. The implementation of the GLCs transformation programme will be intensified to further enhance shareholder value, including through the additional roll-out of key performance indicators (KPIs) and the introduction of performance-based compensation, operational improvements and cost reduction initiatives. The initial operational and financial result from the transformation programme is expected to be seen in the first half of the Ninth Malaysia Plan.

#### **PNS Role as the Lead Agency in Developing Malaysian Franchise Industry under the RMK-9 Period**

Under the Ninth Malaysia Plan, PNS is responsible in assisting the Government to increase the number of Bumiputera Commercial and Industrial Community (BCIC). The development of BCIC will remain a key thrust in the Ninth Plan to ensure effective Bumiputera participation in the economy and continue efforts at restructuring of society to eliminate the identification of race with economic function.

As such, PNS has been entrusted to spearhead the creation of Bumiputera entrepreneurs in new areas, particularly in sectors or activities where Bumiputera participation is minimal such as franchise businesses. PNS has been entrusted to develop Bumiputera franchisees and local franchise products through research and development, acquire selected franchises from overseas as well as increase public awareness in the business of franchising. The vendor development programme will be expanded to include more industries to generate new opportunities for competitive Bumiputera enterprises. The monitoring and coordinating mechanism will be reactivated to ensure effective implementation of the programme.

Since PNS has been mandated to develop national franchise industry and uphold the government aspiration of increasing the size of BCIC, various programmes have been developed to encourage Bumiputera participation in franchise businesses. In addition, PNS provides financial assistance and consultancy for these young Bumiputera franchise entrepreneur.

Apart from promoting franchise business programmes and schemes, PNS role under RMK9 also covers on increasing Bumiputera participation in retail and services by focusing on niche areas. The expansion of Bumiputera participation in the areas of retail and services is a direct result contributed by growing franchisable clusters, undertaking strategic acquisitions and identifying GLC-led franchises which are suitable for franchising. This will ensure greater success rate in growing Bumiputera franchisees and consequently enlarge the Bumiputera entrepreneur pool specifically in the retail and services sector.

PNS is also responsible in enhancing innovation in area of Bumiputera entrepreneurial capabilities as well as in developing new sectors and products. This outcome is vital in order to ensure that Bumiputera franchisors and franchisees will be in the forefront of innovation in new sectors and products so as to be competitive with firstly regional and ultimately global players.

The agency has also been mandated to develop new market. The objective of PNS in the franchising industry is to enable appropriate economic spin-off via providing advice on market positioning and product development. This economic spin-off can be in the form of Malaysian franchise to expand thereby creating the regional spin-off and the ability of Malaysian franchises to create and develop other local businesses such as vendors that can grow and expand together with them.

#### **Strategic Objectives for Growing Franchisable Business under RMK-9**

PNS aim to provide identify franchisable clusters and nurture them towards adopting the franchising model as a tool for expansion. PNS critical success factors include the ability to identify appropriate sectors/business groups that could be franchised, develop a commonly accepted business concept and format appropriate to all cluster

participants, the ability to subsequently convince individual cluster participants to adopt and use common business formats for their business operations and once the cluster is off a sufficient scale and maturity, the ability to subsequently convince individual cluster participants to convert fully to the franchising concept via a common ownership platform.

PNS critical success factors also lies on the selection of appropriate skilled franchise consultants, appropriate monitoring of quality services provided by franchise consultants, provision of financing to encourage potential franchisors to convert to formatted processes and skilled human resources to provide advice and consultancy in order to build credibility of information.

PNS aims at providing the necessary market intelligence support to be able to develop new ideas, products and processes. However, the agency's critical success factors lies on appropriate and credible content/data/information to support analysis for decision making by customers, and suitable skilled resources to conduct analysis of information and provide recommendations to customers.

PNS also aims at recognizing the weaknesses in branding of local franchisor and suggest that co-branding is a way to fast-track local brand recognition. The agency's critical success factors meanwhile, depends on strong network with established brands and have the potential as co-branding partners.

After being appointed as the lead agency to develop national franchise industry in 2004, PNS have moved forward and measures to aggressively develop the franchise industry for Malaysia, as follow:

1. Develop franchisable cluster – number of clusters/franchisable business created, size of individual clusters, rate of conversion from cluster to franchise
2. Facilitate GLC-led franchises – number of GLC-led franchises created and contribution of franchisees to GLC growth
3. Provide enterprise financing – rate of non-performing loans, percentage of loan growths and adequacy and cost of funds.
4. Undertake strategic acquisition – number of successful franchisees created per franchisor required and business growth of franchisors required.
5. Provide franchise conversion – number of businesses converted to franchises and business growth of franchises converted.
6. Provide comprehensive services and consultation – number of successful franchisees created per franchisors, percentage of man-day spent on advisory services and rate of utilization of facilities such as resource centre.
7. Develop new products/sectors and co-branding – number of new products commercialized, percentage of revenue from new product, number of articles in established publications, number of co-branding initiatives and percentage of revenue from co-branding initiatives
8. New market development – market positioning, number of franchises in prime location and level of brand recognition.
9. Facilitate cross-border expansion – number of home-grown franchisors penetrating regional market and percentage of revenue generated from cross border business.
10. Create strategic alliances and partnership – number of strategic alliances and partnership developed and business growth contributed by strategic alliances and partnership.

#### **How do PNS Push the Industry and Create Awareness Especially Among Bumiputera on the Benefit of Franchise Industry**

Various measures has been undertaken and implemented by PNS, part of its effort in pushing the Malaysian franchise industry and products to the forefront. Among others include participating in international talks and conference, participating in trade missions and exhibitions. The agency organized trade visits to overseas franchise company as part of its effort in sourcing international franchise products to Malaysia.

While looking for new products, measures has also been undertaken to create awareness among Bumiputera on the benefit of franchise businesses since it has yet to be fully tapped by Bumiputera entrepreneur. This has been undertaken via various road shows and seminars organized by PNS throughout the year. As earlier mentioned, PNS with the assistance from the Ministry of Entrepreneur and Cooperative Development (MeCD), has

developed special programmes aiming at making “Entrepreneur as the Career of Choice” especially among graduates and women.

#### **How PNS Make itself Visible in the Franchise Industry?**

Two methods have been used by PNS to make the organization visible in the franchise industry.

1. Participating in various entrepreneur-related exposition and exhibition locally and internationally
2. Lay out aggressive promotional activities to encourage active participation of Bumiputera entrepreneur in the franchise industry.

#### **Programs and Schemes Offered and Developed by PNS**

There are five main programmes and schemes offered by PNS for the Malaysia franchise industry.

1. Special programmes (for franchisee)
  - i. *Graduate Franchise Programme*

The programme was developed with an aim to develop caliber, competent and confident Bumiputera entrepreneur in franchise businesses among graduates. The objective of the programmes is to instill the compulsion of entrepreneurship among educated Bumiputera. This comprehensive programme includes six weeks intensive training and PNS provides financing of up to 90 per cent.
  - ii. *Woman Franchise Programme*

The programme was introduced with an aim to produce caliber, competitive and confident woman entrepreneur in franchise businesses. Similar to the graduate programme, it offers six weeks intensive training programme and provide up to 90 per cent financing.
2. Schemes (for franchisee)
  - i. *Executive Franchise Scheme*

To encourage more Bumiputera employees in public and private sectors to venture into franchise business. Focus would be given to those opting for voluntary separation scheme (VSS) or early retirement.
  - ii. *Youth Franchise Scheme*

To encourage Bumiputera youth to venture into franchise business by providing start-up financing
3. Schemes (for franchisors)
  - i. *Pre-Franchise Scheme*

This is a special schemes aiming at assisting Bumiputera entrepreneur interested in becoming franchisors. The scheme is designed to assist potential Bumiputera franchisors by providing financial assistance for start-up capital or the existing business expansion. PNS provide up to RM2 million financing and assist in consultation on becoming franchisor.
4. Franchise Investment and Financing Schemes
  - a. *Mezzanine*

The scheme is designed to cater for existing Bumiputera-owned franchise businesses seeking financial assistance for expansion purposes.
  - b. *Budding*

The scheme is designed to assist Bumiputera companies who are new franchisors or master franchisees to upgrade their existing businesses to franchise businesses.
  - c. *Smart partnership*

The scheme enables middle-level Bumiputera entrepreneur to own equity in non-Bumiputera companies and allows non-Bumiputera companies to collaborate with PNS in financing their business expansion.
  - d. *Financing Scheme for Franchisees*

The scheme is developed to provide financing to Bumiputera franchisees in starting and expanding businesses.
5. Equity Investment

i. *Mesdaq bound companies*

The scheme aims at promoting middle-level Bumiputera entrepreneur involvement in technology driven and high growth companies. PNS will provide financial assistance to the companies in getting listed on Mesdaq.

ii. *Mezzanine*

The scheme provides development stage financing of target companies/medium scale enterprises (MSE). It is intended to assist the companies to fulfill their growth potential within a period of between two and five years after which they will seek to be listed on Bursa Malaysia.

iii. *Strategic Alliance*

The scheme strongly supports the Government effort to increase Bumiputera equity and management participation in established non-Bumiputera medium scale enterprises (MSEs).

**The Problem and Challenges in Developing Malaysian Franchise Industry**

There are problems and challenges need to be faced by PNS in developing the franchise industry.

1. Experience derived from Graduate Franchise Programme and Woman Franchise Programme
  - i. Limited choice of franchise businesses and products
  - ii. Limited choice of affordable franchise package
  - iii. Limited individual capabilities of the potential franchisees in terms of financial and attitude (mental readiness)
  - iv. Difficulty in securing better business facilities and infrastructure – strategic location for premises and demand
  - v. Mentality of the potential franchisee – venturing into franchise business after fail to secure better job
  - vi. Lack of supports from franchisors during set-up/preliminary stage for example: not supporting or assisting the potential franchisees in identifying and securing viable business locations; and unwilling to accept scheduled installment payment of franchisee fee
2. General experience derived since PNS started its franchise financing in 2004
  - i. Not many borrowers take up the programme and financing that made available despite extensive promotional and awareness programmes. For example the equity financing which has yet to fully utilized due to lack of demand.
  - ii. Some of the potential franchisee/franchisor are not ready to commit full responsibility towards own business as they are not willing/fully ready face the risk.
3. How do PNS tackle the issue pertaining to the problem
  - i. *Promoting the development and registration of new franchise scheme*
    - Implementation of the Development Local Franchise Product (PPFT) and Franchise Products Integrated Scheme (SBPF)
    - Introduction of new scheme such as Pre-Franchise Scheme to allow more existing Bumiputera companies venturing into franchise business by becoming a franchisor or master franchisee
    - Collaboration with government-link companies (GLCs) and other relevant agencies/corporations to promote and encourage Bumiputera entrepreneur and potential franchisee to venture into franchise business
    - Acquisition of foreign franchise rights to allow variety in franchise businesses, for example acquiring franchise rights of a product which has huge potential to grow and up-to-date such as cafés and specialty shops  
Among international franchise products which has the local (Malaysian) franchise rights includes McDonalds, Kentucky Fried Chicken (KFC) and A&W Family Restaurant
  - ii. *Promoting the development & registration of the affordable franchise packages*
    - Closer working corporations with existing franchisors for the development of new affordable packages. Franchisors need to assist PNS on how to ease the burden of franchise fee among

potential franchisee. Franchisee is currently required to pay the franchisee fee in full and it become a set back for potential franchisors.

- Introduction of new financing scheme for the franchisors to cater for their new product development or new franchise package expenses. PNS is encouraging new product development via research and development, and the products is deemed franchisable to hit international market.
- Acquisition of foreign franchise rights with the affordable franchise packages. Although foreign franchise businesses has been seen as profitable for the past few decades, the fee is yet to be made affordable for local franchisee especially among potential young Bumiputera entrepreneur.

iii. *Addressing the issue of limited individual capabilities*

- Family members contribution – at PNS, we encourage individuals to set-up family businesses which involve participation from all members. Such support is required especially in the early stage of setting-up franchise business.
- Joint business ownership – PNS encourage individuals who have a problem of providing initial capital to create partnership with parties who can assist them.
- Reducing the entrepreneurs margin of contribution

iv. *Addressing the issue of securing better located business premises*

- Get the cooperation from relevant government agencies or authorities to provide information on property or premises that is suitable for businesses.
- Support from franchisors – assist franchisee in getting a strategic location to enable them to kick-start the business as soon as possible. Some of the franchisors prefer to keep the strategic locations to themselves rather than sharing it with franchisee.
- Develop closer rapport with owner of the business premises.

v. *Addressing the issue of attitude/perception*

- Review selection criteria, not only on the Graduate Franchise Programme and Woman Franchise Programme but on all schemes. This is encourage active participation of potential Bumiputera franchisor/franchisee
- Intensify awareness programme so it will hit the target market. This may be done by making full use of PNS Franchise Service Centre (FSC) as well as participating in programmes arranged by the Ministry of Entrepreneur and Cooperative Development (MeCD) such as Gerak Usahawan, SDSI, printed and electronic media promotions and interviews.

**The Challenge to Develop Home-Grown Franchise Products and Services**

PNS also need to face the challenges and problems in developing the home-grown franchise products and services.

1. Existing activities and programmes made available to support the initiatives
  - Franchise Product Development Programme
  - Franchise Integrated Programme
  - Pre-Franchise Scheme
  - Government-link companies led programmes
  - Cooperation with State Economic Development Corporations (SEDCs) and other relevant agencies/cooperation
2. Perceived current situation
  - There are many local products/businesses that have the potential to be converted into franchise format
  - The challenge is to identify them and then to convince the owners to agree to convert them into franchise format. Once they agreed, comprehensive development and support packages have to be made available and carried through diligently
  - Certain articles in the Franchise Acts might not be promoting or stimulating the efforts to promote the growth and registration of new franchisors
3. Strategies to “sell” Malaysian franchise products



- Participate in international franchise related exhibition, exposition or conference
  - Research and development on products that is deemed franchisable
  - Venture into international market by setting up an outlet or appoint master franchisee
  - Joint venture or form strategic partnership with local player of the respective countries they're venturing into
  - PNS play the role of providing local franchise information internationally to convince foreign franchises on the soundness and strong fundamentals of the local franchise industry
4. The needs for PNS to develop Malaysian franchise industry and the mileage for Malaysian economy
- To enhance Bumiputera participation and contribution towards Malaysian economy
  - To help increase the number of Bumiputera participation in business via involvement in retail industry such as franchising. This will create awareness among Bumiputera and at the same time educate Bumiputera on how to run a business without having to depend on others
  - To materialize government aspiration of having a sizeable Bumiputera Commercial and Industrial Community (BCIC)
  - To further enhance retail industry's contribution to the country's gross domestic product (GDP) growth via franchise businesses. Retail (biggest contribution comes from services industry) contribute about 5% of the total GDP per annum
  - To attract foreign direct investment (FDI) to Malaysia through franchise thus creating job opportunities in the country and expand job market

#### **Government and PNS Expectation on the Malaysian Franchise Industry**

PNS as semi- government agency and under the direction of The Ministry of Entrepreneur and Cooperative Development of Malaysia have targeted a dramatic growth for the Malaysia Franchise Industry in 10 years.

1. What to expect and achieve in the next five to 10 years
  - Under the Ninth Malaysia Plan (RMK9), we hope to develop 50 new local franchisors and 1,000 new franchisees. This will be achieved through various marketing and promotional programmes, and provide financial assistance to eligible potential Bumiputera entrepreneur
  - Increase the number of franchisors (established businesses converted to franchise)
  - Increase the number of Bumiputera franchisors
  - Increase the number of Bumiputera franchisees
  - Increase in the quality of franchisees
  - Increase in the number of franchisors listed on Bursa Malaysia
  - Increase in local content
  - Increase of home grown brands created
  - Increase of home grown brands penetrating regional market
  - A handful of foreign franchise products and master franchise fee
  - Decrease in failure rates of Bumiputera franchisors
2. How do PNS foresee the industry's growth?
  - Demand is increasing thus providing opportunity for retail businesses to grow. Baring unforeseen circumstances, the industry is expected to grow at 6% per annum. This is again due to demand and social culture.

In conclusion, PNS have a big role and responsibility in developing a Malaysia franchise industry. With the programmes and schemes have been planned and in the progress, PNS have a way forward to achieve the target of RMK9 as a sole agency in developing the Malaysia franchise industry.

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# Impact of Perceived Similarity on Member Exchange at Service Work

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## Abstract

In this empirical study, 101 service employees were asked to complete a survey about their current supervisors, peers, and feelings on the job. The purpose of this study was to investigate the role of service employees' perceived similarity as a potential moderator between LMX and workplace envy at work. Specifically, low level of LMX is proposed to lead to envy, in particular when the comparison referent is someone similar to one's self. The results from a hierarchical regression analysis partially support the moderating effects of perceived similarity on envy. The marginal interaction between perceived similarity and LMX provide some support for the notion that employees with high levels of perceived similarity and low levels of LMX experience are prone to workplace envy. This study highlights the importance of understanding how negative emotions, envy in particular, influence organizational effectiveness. Managerial implications to the service industry are briefly discussed. This study offers new insight to the service leadership and emotions literatures.

## Introduction

Typically, the supervisor's treatment (and hence LMX) varies across employees within the single work unit, thus giving rise to potential conflict among employees or workplace envy (McClane, 1991; Vecchio, 1995; Yukl, 2001). Especially when it comes to the service industry, such unfavorable, negative treatment by a leader has a more critical impact on employees than does favorable, positive treatment (Testa & Ehrhart, 2005). Despite this argument, LMX literature has only focused on the positive side of LMX such as enhanced job satisfaction and performance (cf. Gerstner and Day, 1997). Conversely, very little is known the negative effects of LMX on workplace performance (cf. Graen and Uhle-Bien, 1995). In general, workplace envy has a negative impact on employees. For instance, workplace envy tends to reduce overall group effectiveness while having an amplifying effect on absenteeism. Moreover, prior research suggests that managerial style may foster envy among coworkers (Duffy and Shaw, 2000). We argue that since LMX represents managerial styles, it can induce workplace envy. In LMX, the quality of dyadic relationships between the supervisor and the subordinate varies across employees (Sherony and Green, 2002). Such a differentiated treatment hints at a possible relationship between LMX and workplace envy.

Organizations are natural sources of envy, because employees can compare one another in terms of professional reputation, salaries or promotions (Cohen-Charash, 2000). Envy is driven by social comparison with similar others (Schoeck, 1987), and the higher the degree of perceived similarity, the higher the likelihood of envy (Cohen-Charash et al., 2004; Tesser, 1988). The purpose of this paper was to investigate the moderating role of perceived similarity on the relationship between LMX and workplace envy.

## Review of Literature

### Leader-Member Exchange

Traditional leadership theories assume that a leader acts in a relatively uniform way toward his/her subordinates. Conversely, LMX makes a different assumption in that the leader shows differential treatment towards his or her subordinates (Dienesch and Liden, 1986). LMX can be broadly defined as the working relationship between a leader and a subordinate (Schriesheim et al., 1999). According to LMX, leaders may develop close relationships with only a few employees due to limited time and resources (cf. Gerstner and Day, 1997). These in-group or high-

quality LMX employees get extra support from their leaders in terms of valued tangible and intangible resources such as information, trust, respect, and obligation. On the contrary, out-group or low-quality LMX employees, who have failed to develop close relationships with their leaders do not benefit from such resources (Dienesch and Liden, 1986; Liden et al., 1997; Liden and Maslyn, 1998). The differential treatment by the supervisor can sometimes result in conflicts among in-group and out-group members, thus further inducing feelings of envy (Deluga, 1994; McClane, 1991; Yukl, 2001).

#### **Envy in the Workplace**

The argument of the relationship between LMX and workplace envy can be found in Cohen-Charash (2000)'s study. In a job promotion context, she showed that an employee felt envious when a similar co-worker had something (e.g., promotion) that the target employee desired but lacked. Translated into the LMX context, we argue that when person A (out-group member) notices that a similar other B (in-group member) has a high-quality relationship with the supervisor, then envy is induced. In the service industry, where employees need to regulate their emotions required by their jobs (e.g., emotional labor), leader's different treatment will have greater impact on employees than employees in non-service industries (Testa & Ehrhart, 2005).

Envy can be defined as "a negative feeling occurring when a person lacks another's superior quality, achievement, or possession and either desires it or wishes that the other lacked it" (Parrott and Smith, 1993, p. 906). Envy is a complex emotion in that feelings of envy are hard to control or hide (Parrott, 1991). When envy is focused on one's disadvantage, then feelings of inferiority dominate. In opposition, when the focus is on another's advantage, then resentment is the dominant emotion (Smith, 2000). Envy also easily invokes unfairness or injustice perceptions (e.g., "I made an effort to achieve something more than s/he did, but s/he got more" Ben-Ze'ev, 2000; Miner, 1990; Smith, 1991). Yet, envy might be induced even without perceived unfairness. People often use envy to justify their emotions (e.g., "I feel envy because the situation is just unfair" Ben-Ze'ev, 1992; Cohen-Charash, 2001). Regardless of its source, envy tends to have a negative effect on an individual's self-worth. Such lowered self-worth is caused by an unflattering social comparison, which is driven by perceived similarity to the target person (Smith et al., 1994).

#### **Perceived Similarity as a Moderator between LMX and Workplace Envy**

By nature, envy is a condition driven by social comparisons with others (Schoeck, 1987). When a person perceives that another person who is similar to one's self obtains a valuable outcome the first person failed to obtain, it upsets the first person's sense of balance (Heider, 1954). This tendency to equalize lots can be recognized as a common form and source of envy. An upward comparison occurs when an individual compares his or her similarity with a more successful other (Wood, 1989). Such upward comparisons are likely to prompt negative affect, including envy, shame and hostility (Salovey and Rodin, 1984; Smith, 2000).

We incorporate the notion of upward comparisons in the following way: When a person X perceives that a similar person Y obtains a valuable outcome such as a higher-quality exchange that X has failed to obtain, it disturbs X's sense of balance (Schaubroeck and Lam, 2004). In this study, we propose that perceived similarity moderates the relationship between LMX and envy. Specifically, we suggest that envy is maximized when low-quality LMX employees perceive similar others having a high-quality LMX relationship with the supervisor. Similarity is measured by the individual's evaluations of his or her similarity with the more successful other, either on dimensions that directly pertain to the comparison (e.g., ability on a specific task on which one has been outperformed) or on dimensions that are indirectly related to the specific comparison but which partially define one's self-image (Woods, 1989). Based on the arguments above, we propose the following:

*Hypothesis:* Perceived similarity will moderate the relationship between LMX and envy in such a way those individuals with low levels of LMX and high levels of perceived similarity will experience higher levels of envy than individuals with low levels of LMX and low levels of perceived similarity.

## **Methodology**

### **Participants**

The level of analysis in this study is at an individual level, since in LMX leadership is viewed as being fairly heterogeneous across members within a work unit, (Graen and Uhl-Bien, 1995; Rousseau, 1985). Part-time service employees' perceptions of LMX, workplace envy, and perceived similarity were measured. The dependent variable was envy. One hundred and one part-time service employees were asked to complete the survey. Fifty two percent was female participants, while the average age was 23. The average number of years working with the current supervisor was 2 years.

### **Measures**

Consistent with previous LMX studies (cf. Gerstener and Day, 1997), a seven-point, seven-item LMX7 was used to measure the employee's overall working relationship with their immediate supervisors (e.g., "My working relationship with my supervisor is effective"). Vecchio's seven-point, seven-item scale was used to measure employee envy (e.g., "My supervisor values the efforts of others more than s/he values my efforts."). Perceived similarity was measured with a 7-item, five-point scale tapping into how much employees perceive themselves as similar to their peers (e.g., "My coworkers and I have similar work performance.") [Schaubroeck and Lam, 2004]

## **Results**

Before testing our research hypothesis, the relationships between LMX and demographic variables (e.g., age, gender, number of years worked in the job, and number of years worked with the supervisor) were examined (cf. Bauer and Green, 1996; Duarte et al., 1994; Tsui and O'Reilly, 1989). Since no significant relationships existed, these variables received no further consideration.

As shown in Table 1, all of the Cronbach alpha coefficients were over .75.

TABLE 1: MEANS, STANDARD DEVIATIONS, RELIABILITIES (CRONBACH'S A) AND PEARSON CORRELATIONS

	Mean	SD	$\alpha$	LMX	Envy	Work-PS#	Person-PS
LMX	5.46	1.02	.89	1			
Envy	3.08	1.10	.76	-.269*	1		
Work-PS	4.88	.91	.80	-.191	.247†	1	
Person-PS	4.95	.898	.85	-.201	.233†	.044	1

\* $\langle .05$  † $\langle .10$

To test the discriminant validity of the measures, exploratory factor analysis was conducted. LMX and workplace envy were submitted to a principal components analysis with oblique rotation:

TABLE 2: FACTOR ANALYSIS

Item	Factors			
	1 LMX	2 Envy	3 Work-PS*	4 Person-PS*
LMX1	<b>.590</b>			
LMX2	<b>.812</b>			
LMX3	<b>.869</b>			
LMX4	<b>.801</b>			
LMX5	<b>.814</b>			
LMX6	<b>.820</b>			
LMX7	<b>.681</b>			
Envy1		<b>.785</b>		
Envy2		<b>.797</b>		
Envy3		<b>.501</b>		
Envy4		<b>.718</b>		
Envy5		<b>.914</b>		
PS1 (work experience)			<b>.691</b>	
PS2 (work attitudes)			<b>.881</b>	
PS3 (work performance)			<b>.886</b>	
PS6 (relationship with the same supervisor)			<b>.570</b>	
PS4 (personalities)				<b>.835</b>
PS5 (opinions on most issues)				<b>.641</b>
PS7 (similar type of a person)				<b>.768</b>

\*PS: Perceived Similarity

As expected, envy and LMX emerged as separate factors with Eigen values greater than 1.0 and correlation coefficients at .50 or higher. Perceived similarity was composed of two sub-dimensions: work-related and person-related similarity.

Hierarchical regression analysis was conducted to test the hypothesis that perceived similarity moderates the relationship between LMX and envy. Since perceived similarity was composed of two sub-dimensions, we used a dummy coding for each dimension. Dummy variables are especially useful in regression analysis, because they enable us to use a single regression equation, while representing multiple groups (Trochim, 1999). Envy served as a response variable while LMX, work-PS (perceived similarity), person-PS, and the interaction between LMX and the two perceived similarity measures were predictor variables. Table 3 shows the results from the regression analysis.

TABLE 3: HIERARCHICAL REGRESSION ANALYSIS

	Base Model	Reduced Model	Full Model
LMX	-.269*	-.187*	-.197*
Work-PS		-.125†	1.525
Person-PS		-.119	1.455
LMX*Work-PS			-.787†
LMX*Person-PS			-.699†
$R^2$	.25	.342	.387

\* $\langle .05$  † $\langle .10$

In the first step, LMX was entered and it accounted for 25% ( $R^2 = .25$ ) of variance in envy. In the second step, the dummy codings representing perceived similarity were added, and the combined variables (i.e., LMX, work- and person- PS) accounted for 34.2% of variance explained (i.e.,  $\Delta R^2 = .092$ ). In the final step, the interaction between LMX and the two dummy codings were added to the regression, thus resulting in an R-square of 38.7% (i.e.,  $\Delta R^2 = .045$ ). As indicated in the full model in Table 3, the two interaction terms are marginally significant, ( $F = -.787$ ,  $F = -.699$ , for work-PS and person-PS respectively,  $p < .10$  for both). These results provide partial support for the moderation hypothesis. In other words, if a low LMX (i.e., an out-group) employee perceives a high level of overall working similarity to in-group employees, then envy will be higher. Similarly, if an out-group employee perceives a high level of overall personal similarity to in-group employees, then the likelihood of envy will be higher.

## Discussion and Limitations

The findings of this study suggest that perceived similarity might influence the impact of LMX on workplace envy. The marginal interaction between perceived similarity and LMX provided some support for the notion that employees with low levels of perceived similarity and low levels of LMX experience lower levels of envy than their high similarity counterparts. In other words, perceived similarity seems to amplify the negative relationship between LMX and envy. This finding is particularly important in light of the counterproductive influence of workplace envy in previous studies (Duffy and Shaw, 2000; Schaubroeck and Lam, 2004; Vecchio, 2001).

There is no doubt that workplace envy is harmful to an organization. For example, envy seems to reduce group performance while increasing perceptions of organizational injustice (Duffy and Shaw, 2000; Schaubroeck and Lam, 2004). Moreover, workplace envy might decrease employees' extra-role helping behaviors, which are critical for service organizations aiming at excellent customer service (Sammons, 1994; Waltz and Niehoff, 2000). Consequently, service managers need to learn how to deal with workplace envy.

There are many potential avenues for minimizing workplace envy. As previous research suggests, fair management practices can mitigate workplace envy (Cohen-Chrasah et al., 2004). For example, objective performance measures may be effective in reducing workplace envy and in increasing organizational justice (Dogan and Vecchio, 2001). Or, an open-door policy might decrease workplace envy. If an employee feels comfortable about discussing problems with their supervisors, then the quality of LMX is likely to increase. In a similar vein, informal meetings or social activities might enhance LMX among out-group employees by (Kim et al., 2004), thus having a mitigating effect on envy.

Despite such meaningful results for both practitioners and researchers, this study has several limitations. First, the sample was composed of part-time service employees. Future research should use full-time employees in order to extend the generalization of our results. Second, this study employed a cross-sectional design. Consequently, any inferences about causality must be made with caution. Third, only employees' perceptions of LMX were measured in this study. Future studies might want to include the supervisor's perceptions of the quality of LMX. Finally, future research should use multiple raters or multiple measures in order to minimize common-method bias as a potential threat in the current study.

In conclusion, the purpose of this study is make managers aware of the potential negative effect of low quality LMX in organizational health. The findings of this study suggest that perceived similarity influences the relationship between LMX and workplace envy among service employees. Feelings of envy might be maximized when employees in low LMX or out-group perceive themselves similar to high LMX or in-group employees.



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## **Section 10: Global Supply Chain Management and Logistics**

# Criteria for Performance Evaluation of Offshore Projects – The Changing Dimensions

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## Abstract

As the outsourcing industry matures, there is a growing recognition that a more holistic evaluation of outsourcing performance is required. The parameters and the criteria for evaluation would change in a long-term strategic oriented outsourcing partnership. This paper attempts to examine how performance measures used by customers change during a long-term partnership. It is an exploratory study to understand the evolution of metrics in a long-term partnership from a vendor perspective. In-depth interviews were conducted with key managers from vendor organizations in India who have been in the business of outsourcing for over 20 years. The findings indicate that there has been a change in the performance metrics and evaluation criteria over the period. While these changes in criteria have evolved over time in mature partnerships, many new partners are attempting to introduce the metrics into projects at an early stage resulting in a more holistic evaluation of outsourcing.

## Introduction

Much has been written about the phenomenal growth of the software services sector in India and its contribution to the national and the international economy. A Nasscom-Mckinsey study cites a 34% increase in software and services export from 2004-05 from \$12.8 billion to \$17.2 billion (Nasscom Mckinsey, 2005). This study also predicts that by 2010, the US IT and BPO off shoring market will be \$ 110 billion. It is also being recognized that Offshoring and outsourcing have been a source of competitive advantage for organizations (DiRomualdo and Gurbaxani, 1998).

The theoretical justification for outsourcing initially has been the transaction cost theory. The goal of an organization is to reduce cost and achieve efficiency. In the initial stages of outsourcing, labour cost arbitrage appears to have played a significant role to propel the growth of outsourcing (Arora and Athreya, 2002). It was also found that organizations would outsource non-core, low value, routine and highly modularized activities in the initial stages. These have typically been “lift and drop” processes—simple tasks with defined interfaces that can easily be taken from one location to another. However as firms look to extract more value from outsourcing, they will need to outsource more complex processes. These processes are more likely to be more deeply embedded in organizations and may be touching up on many other internal processes and relying on multiple IT systems (Chevalier and Robertson, 2005). Evidence from research studies suggests that it is often more profitable from the client perspective to outsource projects that are more complex and strategic in nature (Gopal, Sivaramakrishnan et al, 2003). Some authors have posited through simulations that, a significant value can be gained by off shoring tasks with an “optimal level of complexity that maximizes the return from off shoring at any given time period or experience level under given situation (Gupta, Seshasai and Mukherji, 2007). This will mean that outsourcing will need to be more strategic in nature and will have to build value drivers. Given the time differences, the concept of a 24-hour knowledge factory that attempts to establish a virtually seamless relationship between the vendor and the client is a growing reality. This would necessitate high interdependencies in processes and would require fostering a climate of long-term partnership between the client and the vendor instead of maintaining an arm’s length contractual relationship between them.

The relationship between the client and vendor is going beyond simple contractual obligations and deliverables. Both parties have started to invest in time, efforts and money in managing and maintaining relationships. In a study on managing outsourcing relationships dealing with essential practices for buyers and sellers, a survey of both buyers and providers of outsourcing services was done in April 2006 to better analyze the

link between the value achieved through outsourcing and the effective management of the outsourcing relationship. Out of surveys of nearly 200 experienced buyers, providers and influencers of outsourcing, nearly all of them agreed that at least 10% of the annual contract value of outsourcing deals is at stake when it comes to effective relationship management. 80% of buyers and 60% of providers said that relationship management can account for 30% or more of annual contract value. Effective relationship management creates increased customer satisfaction, delivery of value added projects on time and on budget, quick response time to requests, greater innovation and thought leadership and resources freed internally to do other work. The study quotes "In fact, our study found that buyers and providers alike realized that managing complex outsourcing relationships effectively - both between the buyer and the provider, and among myriad internal stakeholders on both sides - enhances the value to both organizations. But perhaps most importantly, good relationships don't happen by goodwill alone: they require good governance structures, effective relationship management processes, skilled individuals, and more." Some authors (Goes, 2001) propose that a high vendor-client alignment, teamwork, balance of control and process agility in the relationship will lead to more successful outcomes.

The outsourcing activities, which started out of labour cost arbitrage and cost reduction, have slowly started to mature into informal strategic alliances. Drawing on the body of existing literature on outsourcing, conceptualizing it as a strategic alliance between two or more partners would provide scope for examining the nature and role of performance objectives, parameters, criteria and metrics differently.

## **Field of Performance Management**

Performance management as an area of serious academic study at the firm level has gained recognition. It is often described as the "process of quantifying the efficiency and effectiveness of past actions through acquisition, collation, sorting, analysis, interpretation and dissemination of appropriate data" (Neely, 1998). Over time, the field of performance management has evolved from a measurement focus to a management focus (Otley, 1999). With the shift towards management focus, performance measurement systems based primarily on financial performance measures lack the focus and robustness needed for internal management and control (Atkinson, Waterhouse & Wells, 1997). With this changed emphasis, organizations are looking at measures that "effect positive change in organizational culture, systems and processes, by helping to set agreed upon performance goals, allocating and prioritizing resources, informing managers to either confirm or change current policy or programme directions to meet those goals and sharing results of performance in pursuing those goals" (Amaratunga & Baldry, 2002). In the context of manufacturing outsourcing, Lee et al (2003) point out that "unlike the past the performance of an enterprise now depends much on the performance of its partners in the value chain". We believe this comment is relevant in the context of outsourced environment, be it in manufacturing or services.

Some authors therefore propose that collaborative performance management may be the right direction in the realm of performance management (Busi and Bititchi, 2006). The outsourced environment is a "complex web of contracts, both explicit and implicit between two organizations". The explicit contracts are often market based, short term and financial in nature, but the implicit contracts tend to rely on trust, motivation and a learning relationship to deliver intangibles such as service, flexibility and innovation (Atkinson, Waterhouse & Wells, 1997). The contracts are executed through a plethora of relationships across two organizations. These relationships are at multiple hierarchical levels and often call for planning, designing, implementing and operating structures and process which would allow for effective managing. Performance measurement in such a context is therefore not only a function of evaluation of outputs (financial and material) but also the process of collaboration. Collaborative performance according to the authors (Busi & Bititchi, 2006) would consist of the use of the following measures:

- a. Extended process measures: How is the extended process performing?
- b. Collaborating measures: Are the enterprises able to work as a single unit?
- c. Collaboration management measures: Is the management of the companies providing and creating an environment to allow collaboration to flourish?

Such set of measures pose fundamental challenges for organizations: they require a deeper understanding of each other's future strategies and plans, greater and open sharing of information and finally an understanding of the range of qualitative and quantitative measurements that would be required.

## Objectives of the Study

As has been discussed earlier, conceptualizing outsourcing from a "strategic value adding alliance perspective", allows an opportunity to look at collaborative performance measures to assess the efficiency and effectiveness of an outsourcing partnership. The recent literature on outsourcing has greatly hyped the role of "strategic long term value added outsourcing". If this is the reality, then there is a need to examine whether the performance metrics have changed over time. Prior literature on control of outsourced projects (Choudhury and Sabherwal, 2003) suggests that in the initial stages of outsourcing, outcome controls and in particular output and scheduling of outputs are adopted. As the project progressed, behavior controls were introduced. Very few organizations use the self-control or clan control in the project performance assessment. While this is already happening at the level of the project, one would expect a similar trend to continue at the level of the strategic alliance.

To explore this relationship, it was decided to do in-depth interviews with heads of Quality and Customer Relationship Management in a vendor organization in India. The organization is one of the oldest IT services organizations in India and has experience of managing projects, which were as recent as a few months and also project relationships for over 20 years. The interviews focused on the following aspects:

- a. What is the nature of the kinds of outsourcing relationships? What have been the dynamics? How has the relationship between the vendor and the client changed?
- b. How did the projects evolve over a period in time with the long-term clients?
- c. What kind of metrics was being used to evaluate the effectiveness of the organization, in the initial stages of outsourcing and now?

Each interview conducted was for two hours and the above-mentioned themes were explored in an unstructured manner. The key aspects that emerged from the interviews are given below:

### Characteristics of the Industry Have Changed

Since the early days of outsourcing, five significant shifts have happened in the industry:

The shifts collectively can be described as three generations<sup>1</sup>

Characteristics	First generation	Second generation	Third generation
Period	1980's	Early 1990's	Early 2000 onwards
Key decision maker	Chief Information officer	Chief Technology officer	Chief Executive officer
Role of the Vendor	Code delivery	Project manager	Business value creator
Expectation from outsourcing	Cost, quality, delivery	Cost, quality, delivery and functionality	Cost, quality, delivery, functionality and value add
Key influencer	IT and technology personnel in house	Internal IT and line managers, IT consultants	Management consultants

In the early days of the outsourcing industry, the key decision makers in the client organizations were usually the IT departments or the Chief Information Officer.

When multiple projects with differing technologies and platforms began to be offshored, the Chief Technology officers began to play a critical role in influencing decisions, which were based on compatibility and functionality. In the last few years, it appears that the CEO's have become the drivers of outsourcing since IT has increasingly become a driver of strategic performance and a tool for effective management reporting and control.

The vendors have had to move from a functionality driven orientation to a performance driven orientation to a Value creating orientation. As one our respondents mentioned, “Most clients today outsource different modules to different vendors. The challenge for all of us is to understand inter-operability. It is inter-operability that you can bring value. It is not about being good at what you can bring to the table, but it is about being able to integrate what some one else is bringing to the table with what you have to offer”. The challenges of the transition include viewing IT as an enabler of business rather than a technology tool. This calls for a significant mind set change in the vendor organizations.

There is a need for capabilities, which are not just in the realm of technology; there is a need for increasing domain specialists who can bring value to the client beyond technology. One of the outsourcing vendor organizations started to maintain a team of experts who regularly study the client’s operations and business opportunities and advise the client on possible business strategies. In the case of the large third party vendors, there is also an expectation that since they work for multiple clients, they would be able to bring in the industry best practices in their offering. Thus, client-vendor relationship is evolving from providing service into an advisory or even a consultant’s role.

#### **The Role of Changing Metrics in the Evaluation of Outsourcing Success**

Given the context, the first generation outsourcing metrics broadly consisted of the number of deliverables, like design specifications, test plans, software modules, functional requirements etc), time schedules, work effort, number of service requests handled, number of defects per line of code and broad overarching customer measures related to customer satisfaction.

The second generation outsourcing metrics consisted of usability of the software by non IT users, maintainability which focused on the level of difficulty in the maintenance and support of the software and availability or uptime of the system. The perceptible shift in measures is reflective of the phase when IT was seen as a tool to increase efficiency.

The third generation metrics include all the above metrics, which have become a part of the contractual obligation of a vendor. No vendor today can be happy at having delivered on these metrics and most mature clients treat these metrics as “Business As Usual’ metrics. These metrics are taken for granted by the clients. Some of the emerging metrics in this space include:

a. Interoperability of solutions:

Most large complex outsourced projects have multiple vendors. Since most vendors have acquired capabilities in niche areas, it is in the interest of the client to bring in those vendors. In this context, most clients expect the vendors to not just understand their software delivery but also the requirements of the entire software and thereby incorporate features of compatibility with other vendor software.

b. Understanding the client’s customers:

In recent times, a number of clients have been investing in educating their vendors on the end customer. It has led the vendor to realize that what is of utmost importance is not the client’s immediate requirement but the needs of the end customer. This has provided opportunities for many vendors to build domain expertise in certain functional areas, which are relevant to the client. The belief is that a sound understanding of the customers of the client would enable the vendor to make innovations in service delivery. The increasing domain expertise of the vendors is enabling the client organizations to invite them in to strategic conversations, which otherwise would have been internal to the client. This is one of the key indicators of a collaborative performance

c. Repository of best practices:

The third party software vendors are increasingly being viewed as a repository of best practice. Their domain expertise, with an understanding of the client business has meant that they are often seen as possessing greater experience on an application than the client. It is believed that the knowledge and prior experience of the vendor will result in solutions that are state of the art and are best practices in the industry. There is also a belief that the vendors would bring in solutions that would allow productivity gains and mitigate both technical and managerial risks on projects. Increasingly, contracts with incentives for “gain sharing” have been entered into between vendors and clients.

d. Influencers:

Mature partnerships appear to have reached a stage where the client organization in its strategic planning process invites the vendor organization to act as a sounding board for its future policies. The vendor provides information related to their own partnership and also the possible opportunities for pilot testing, research and development. The percentage of investment on new areas for exploration is gradually increasing. This is believed to be the new wave in outsourcing management.

## Summary and Conclusions

This exploratory study indicates that the changes in the context have impacted the outsourcing relationships and this has resulted in differing shades of engagement between the vendor organization and the client. It also appears that increasingly vendor relationships are seen as platforms for collaboration and are viewed as strategic. This has resulted in changing metrics from delivery focus to functionality focus and finally business interest focus. The move to include many process metrics beyond output metrics appears. It is expected that more sophisticated metrics will evolve for measuring collaborations. In mature relationships, the trend seems to be around more holistic measurements of the partnership. Some authors (Misra, 2004) have suggested a life cycle approach to the use of metrics in an outsourcing engagement. This is consistent with our understanding of the current phenomenon. Appropriate metrics allow the parties to create conditions for successful performance.

The dominant role of IT consultants who appear to push these collaborative measurements in to early stage projects requires further exploration. Most of the third generation collaboration measures are measures of trust and a growing recognition and respect for the distinctive competencies that each party brings to the relationship. There is a need for further research on this dimension

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### **End Notes**

<sup>1</sup>This concept was described to the authors by Mr. Jagadish Krishnaswamy of Wipro Technologies



# Aligning Supplier Integration Practices with Time-Based Performance: A Conceptual Framework

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## Abstract

In view of the market demand variations and technological revolution have triggered manufacturers to implement the practices of supplier integration. Supplier involvement and collaboration is considered as an imperative strategy to sustain competitive advantage. The works of manufacturing strategy have verifies the truth that the degree of supplier integration facilitate the buying firms to effectively enhance time-based capability. The present study offers a framework for conceptualizing the relationship between supplier integration practices and time-based capability (e.g., delivery promptness, new product development time, delivery reliability/dependability, and manufacturing cycle time). Some hypotheses referring to those two elements are provided based on previous literature. Moreover, several supplier integration practices are discussed such as the degree of supplier involvement, the design of component responsibility, supplier commitment, information sharing, and supplier base reduction. Our study not only serves as a guideline for firms to implement different supplier integration practices for promoting specific kinds of time-based performance, but also makes a theoretical contribution towards further empirical research. **Keywords: supplier integration practices; time-based capabilities**

## Introduction

In last decade, the shorter product life cycle, intensive technology innovation, and dynamic global competition, the time-based capability in terms of the rapid delivery, quick new product development (NPD), and reduced manufacturing cycle time have become market advantage creation and sustaining weapons (Jayaram et al., 1999). Obtaining the time-based capability is to strengthen the critical supplier integration relationship in the supply chain (Ragatz et al., 1997). The supplier integration practices include limiting the supplier to play a simple role of purchasing product design consulter transforming into an active participator in the NPD, even more delegating responsibility in the design in the supplier outsourcing parts and constructing the information sharing mechanism among suppliers. Based on the effective execution of the supplier integration practices, the time-based performance in terms of the rapid NPD and delivery would be improved (Ragatz et al., 2002).

The past studies related to the supplier integration practices and time-based capability only limited to the early involvement degree of the supplier in terms of purchasing NPD. They focus on the supplier integration practices to the effects in the NPD performance or business performance (Carr and Pearson, 2002; Ragatz et al., 2002; Petersen et al., 2003; Ragatz et al., 1997). The supplier integration practices and time-based capability both have multi-dimensional characteristics nature. There are five dimensions of the supplier integration practices including the degree of supplier involvement, the design of component responsibility, supplier commitment, information sharing, and supplier base reduction (Chen and Paulraj, 2004; McIvor and Humphreys, 2004). The measures of the time-based capability comprise of the delivery promptness, new product development time, delivery reliability/dependability, and manufacturing cycle time (Droge et al., 2004). If we only focus on one single or aggregate dimension to conduct research, we would forgo the clarification and identification of each supplier integration practice to different time-based capability. The managerial application and the scope of the related studies would be restricted. We thus integrate the supplier integration practices and time-based performance to construct their own conceptual framework of the one-to-one relationships.

## **Practices of Supplier Integration**

The supplier integration practices are various practices for the manufacturers and suppliers to maintain long-term reciprocal highly cooperation (Droge et al., 2004). In order to respond to the international operating competitive demands and global supply chain function, in the issue of the supplier relationship management, many manufacturing strategy scholars have turned the traditional short-term profit orientation into the long-term cooperation strategy partnership. The operating flexibility and fast responsiveness to the market changes would be thus strengthened. The conventional supplier management selection was based on the price rather than the quality. Therefore, under the mutual short-term profit superseding base, there was few interaction between the supplier and purchasing manufacturer (Liker et al., 1998). Since Toyota and most Japanese manufacturers aggressively establish the long-term partnership with their suppliers and effectively improve the manufacturing advantages including the product quality level, rapid delivery, and fast new product development. How to maintain the highly collaboration relationship between the manufacturer and the supplier has become one of the imperative study issue of the contemporary supply chain management.

Clark (1989) and Clark and Fujimoto (1991) examine the case studies of Japanese manufacturers. They find the supplier adopting the early participation in the NPD, aggressively involving various quality improvement management programs, and maintaining the bona fine cooperation relationship. Funk (1993), Newman (1989), and Hartely et al. (1997a; 1997b) suggest the manufacturer delegating higher responsibility in terms of the outsourcing parts and adopting supplier base reduction strategy both construct the closer trust relationship with the suppliers. Derocher and Kilpatrick (2000) and Evans and Wurster (1997) indicate that the purchasing manufacturer and the suppliers utilize the information sharing mechanism established by the network technology. They apply the necessary information communication and maintain appropriate mutual trust. Lee and Billington (1992) and Kumar (1996) define the supplier commitment is the willingness to conduct critical investment in accordance with the purchasing manufacturer strategic development intention. They also advocate the supplier highly commitment is one of unavoidable important dimension of the supplier integration practices. We summarize the above mentioned scholars and conclude five dimensions of the supplier integration practices including: the degree of supplier involvement; supplier responsibility of the component design; supplier base reduction; information sharing, and supplier commitment.

### **Degree of Supplier Involvement**

The degree of supplier involvement indicates the aggregate participation level in terms of the new product development (product concept development, prototype design, pilot test, or production) and various quality improvement programs. Several studies advocate the early supplier aggressive participation in the purchasing manufacturer new product development would contribute positive shortening in the new product development cycle time (Takeishi, 2001; Swink, 1999). The aggressive involvement in various quality improvement programs would strengthen the time-based capability of the order manufacturing cycle (Liker et al., 1998). Narasimhan et al. (2004) suggest that the supplier involvement incorporating the early participation in the new product development procedure, various product development committees (such as design for manufacturability (DFM) or design for assembly (DFA)), and various quality management program.

### **Design of Component Responsibility**

Asanuma (1989) and Helper (1991) suggest that there are four kinds of parts productions including: in-house design and production, in-house design/supplier production, design and production with suppliers, or fully delegation of the supplier design and production. Traditionally, the outsourcing parts were designed in-house and transformed the part specifications to supplier for production. But recent a lot of manufacturing management literatures support that the Japanese automobile manufacturers have delegated their suppliers in terms of outsourcing design responsibility. The overall supply chain in the automobile industry quality level and competition have been improved. Based on the supplier professional competency and the reciprocal trust establishment, the delegation of the design of component responsibility to the supplier has become a common strategy approach in terms of supplier integration practice.

### **Supplier Base Reduction**

In the past due to the price competition and risk diversification, the manufacturer applied the multiple supplier strategy for purchasing parts (Newman, 1989; Shin et al., 2000). In recent practices, most manufacturers have turned from the traditional multiple supplier strategy into supplier base reduction. The major reason is the cost higher than the price benefit derived from the multiple supplier management. More importantly, the multiple supplier strategy won't establish the long-term cooperation and trust with the suppliers (Gadde and Hakarsson, 1994). Besides the supplier base quantity reduction, the immediate tier reduction of the supply chain is an imperative task of the supplier base reduction. That is the manufacturer as possible as to purchase the assembled system rather than the individual parts in order to reduce the supply chain supplying levels. In this kind of practice, the first tier supplier should directly provide products to the purchasing manufacturer. Compared to the second or third tier suppliers, the first tier supplier has closer relationship with the purchasing manufacturer. The mutual partnership is easier to establish.

### **Supplier Commitment**

The supplier commitment is the willingness and intention for the suppliers to match the operating strategy of downstream manufacturer. The suppliers devote their input resources continuously and maintain reciprocal long-term cooperation relationship (Dion et al., 1992). Lee and Billington (1992) find the effects derived from the overall supply chain performance or the operating advantage of the supply chain members most based on the highly trust and commitment. Several studies advocate that the purchasing manufacturer and their suppliers keep better reliability and commitment would construct the concrete supply chain integration practices (Heide and John, 1990; Handfield and Bechtel, 2002). Canon and Perreault (1999) measure the commitment based on the reciprocal technology investment level among the supply chain members. Prahinski and Benton (2004) apply the mutual trust, length of the long-term cooperation, and the willingness to solve the problems mutually to measure.

### **Information Sharing**

The information sharing is defined as the mutual degree in terms of critical, core, or professional information to exchange and sharing between the purchasing manufacturer and supplier (Towill, 1997). Recent supply chain management advocate that if the upstream and downstream members could establish a sound information communication and sharing mechanism, the rapid responsiveness capability to the market demand would be improved (Sahin and Robinson, 2002). In respect of the information sharing content, Mentzer et al. (2000) indicate the mutual information contents include: strategic information (business strategy plan and product development plan); activity information (production schedule plan and quality management information); market and customer demand information, and distribution information. Prahinski and Benton (2004) and Ward and Zhou (2006) adopt the information sharing channel perspective and suggest that the manufacturer and supplier enable to share reciprocal information through multiple approaches in terms of face-to-face communication, telephone, fax, or internet information technology.

### **Time-Based Performance**

As the highly dynamic customer demand change and shorter product life cycle, most manufacturers ponder how to apply time-based capability to improve their competitive advantage in the global or regional market (Stalk and Hout, 1990; Handfield and Pannesi, 1995). The Boston Consulting Group initially conceptualizes the time-based strategy and applies in the business practices. The strategy management of the time-based competition (TBC) is one of imperative issue for practitioners and academics. Several well-known case studies adopting the time-based capability strategy practices and result impressed performance. Jayaram et al. (1999) find 3M applying time-based strategy approach and shortened the new product development time from two years into two month. The time-based strategy application in Fuji Xerox has successfully reduced the R&D cycle time of the copier machine from four years into two years. Various time-based competition-oriented practices utilizing in Toyota have decreased the new car model R&D time to two years. Toyota has preceded the Big Three automobile manufacturers (GM, Ford, and Chrysler) in the new product development cycle time. Several successful business cases have substantially reduced the new product development time over 75 % (Trygg, 1993). Carter et al. (1995), Tunc and Gupta (1993), and Handfield (1993) find the well-know cellular phone maker- Motorola, the manufacturing cycle has dramatically

reduced to four hours instead of previous several weeks. For Toyota to manufacture an automobile, it only takes two days, compared to their North American counterparts in less than three days. For Johnson and Johnson, their popular Acuvue only takes less than three days to deliver the order and 99.9% prompt delivery rate. This kind of prompt delivery capability results their leading position in the contact lens market.

Carter et al. (1995) and Tersine and Hummingbird (1995) demonstrate the time-based capability showing the multi-dimensional characteristics. Various manufacturing management programs result distinct time-based capability performance. Roth and Miller (1990) explore the relationship between the manufacturing strategy and business performance, they measure the time-based capability by the delivery promptness, delivery reliability/dependability; and new product development time. Vickery et al. (1995) examine the determinants of business performance and suggest the manufacturers enabling to strengthen the time-based capability in terms of the new product development cycle time, the quantity of the new product introduction, manufacturing cycle time, and delivery time. Besides the delivery promptness, delivery reliability, delivery dependability, and new product development time to market, Roth and Maruchek (1993) and Safizadeh et al. (1995) also advocate that the responsiveness capability to the customer need or complaint should be included in the measures of the time-based capability. Therefore, the sound customer relationship would be maintained. When Jayaram et al. (1999) investigate the empirical study of the time-based capability in North American Automobile industry, they suggest that the manufacturing cycle time should be one of important indicator. The promptness of the manufacturing department upon receipt of order till the order completion should be honored. Droge et al. (2004) discuss the time-based capability to attribute the business performance in terms of the new product time to market, manufacturing time to product, and rapid responsiveness as measuring dimensions. The rapid responsiveness capability focuses on the strategy or approach to respond to the customer needs. We summarize the above mentioned scholars aspects and category the following time-based capabilities.

(1) New Product Development Time: the capability which the manufacturer can quickly modify current product quality or develop a new product (Vickery et al. 1995). We measure the numbers of new product introductions or the time required for the new product development.

(2) Manufacturing Cycle Time: the capability which the manufacturer can shorten the time upon receipt of customer's order, placing the production request to the manufacturing department, and the order production completion (Handfield and Pannesi, 1995). This is to measure the promptness of manufacturing department.

(3) Delivery Promptness: the capability which the manufacturer can shorten the time effectively in the receipt of customer order till the product delivery to the customer (Handfield, 1992; Droge et al. 2004).

(4) Delivery Reliability/ Dependability: the capability which the manufacturer can follow the customer delivery time request and deliver the products to the customers punctually and correctly (Handfield and Pannesi, 1995; Roth and Miller, 1990). The delivery dependability indicates the manufacturer can satisfy the order request in terms of the product quantity, type, and specification.

## Proposition

Applied the related research of the supplier integration practices and time-based capability, we demonstrate the following research propositions.

**P<sub>1a</sub>: The degree of supplier involvement leads to positive new product development time.**

**P<sub>1b</sub>: The degree of supplier involvement leads to positive manufacturing cycle time.**

**P<sub>1c</sub>: The degree of supplier involvement leads to positive delivery promptness.**

**P<sub>1d</sub>: The degree of supplier involvement leads to positive delivery reliability/dependability.**

**P<sub>2a</sub>: The supplier design component responsibility leads to positive new product development time.**

**P<sub>2b</sub>: The supplier design component responsibility leads to positive manufacturing cycle time.**

**P<sub>2c</sub>: The supplier design component responsibility leads to positive delivery promptness.**

**P<sub>3a</sub>: The supplier base reduction leads to positive new product development time.**

**P<sub>3b</sub>: The supplier base reduction leads to positive manufacturing cycle time.**

**P<sub>3c</sub>: The supplier base reduction leads to positive delivery promptness.**

**P<sub>3d</sub>: The supplier base reduction leads to positive delivery reliability/dependability.**

**P<sub>4a</sub>: The supplier commitment leads to positive new product development time.**

**P<sub>4b</sub>: The supplier commitment leads to positive manufacturing cycle time.**

**P<sub>4c</sub>: The supplier commitment leads to positive delivery promptness.**

**P<sub>4d</sub>: The supplier commitment leads to positive delivery reliability/dependability.**

**P<sub>5a</sub>: The information sharing leads to positive new product development time.**

**P<sub>5b</sub>: The information sharing leads to positive manufacturing cycle time.**

**P<sub>5c</sub>: The information sharing leads to positive delivery promptness.**

**P<sub>5d</sub>: The information sharing leads to positive delivery reliability/dependability.**

Based on above mentioned discussion between the supplier integration practices and time-based capability, we construct the conceptual framework shown in Figure 1. We would utilize the multiple regressions to verify the five supplier integration practices dimensions and four time-based capability indicators.

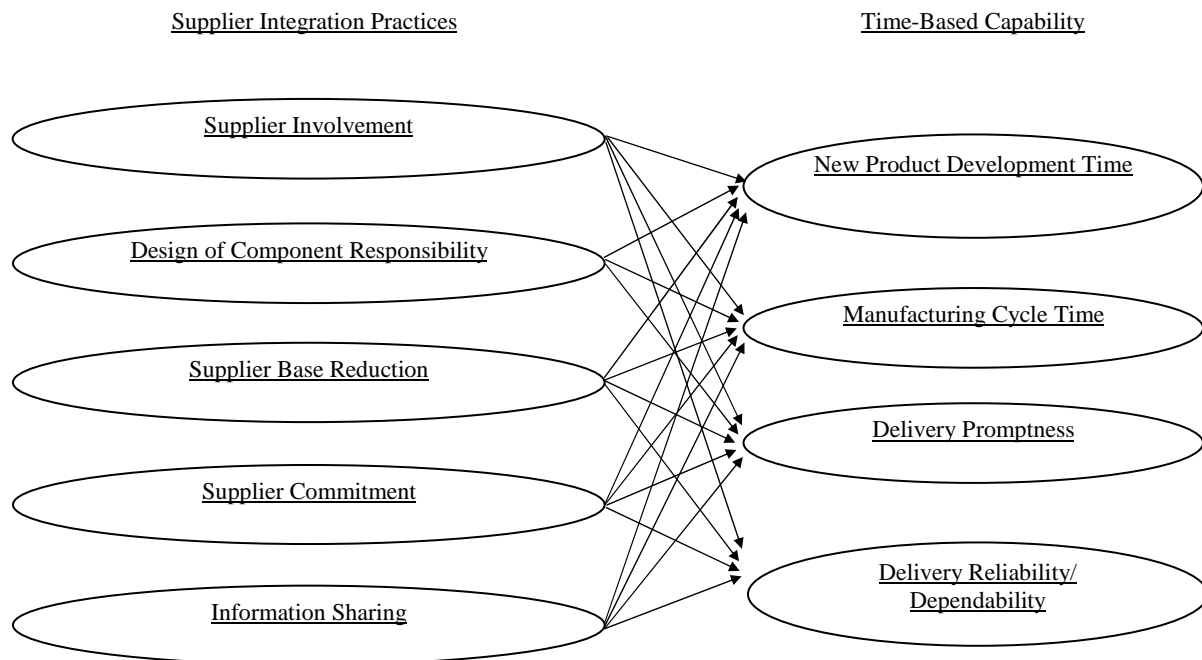


FIG1: CONCEPTUAL FORAMEWORK OF THE RELATIONSHIP BETWEEN SUPPLIER INTEGRATION PRACTICES AND TIME-BASED CAPABILITIES

## Conclusion

Several successful case studies applying time-based strategy and gaining competitive advantage have triggered the academics to explore the determinants of time-based capability. There are different approaches to explore the time-based capability including: (1) advanced manufacturing technology adoption and utilization (Millson et al., 1992; Cordero, 1991); (2) concurrent engineering R&D management mechanism application (Dixon and Duffery, 1990; Mertins and Jochem, 2005; Tan et al., 2006); (3) multi-disciplinary teamwork function (Carmel, 1995; Hershock et al., 1994; Cooper and Kleinschmidt, 1995); (4) modularity design principle and practices (Tu et al., 2004; Schilling, 2000); (5) just in time (JIT) practices implementation (Wang et al., 2003; Gehani, 1995); (6) the degree of the

supplier involvement in the new product development (Ragatz et al., 2002; Petersen et al., 2003). Therefore, the past literature focuses on the process technology, R&D management, cross-functional teamwork, modularity design, and JIT production practices perspectives to explore on how to improve the time-based capability. Therefore, our study proposes five dimensions of the supplier integration practices to affect four time-based capabilities. Our research has innovation and uniqueness compared to previous perspectives.

There were abundant studies regarding the supplier integration practices and time-based capability, but they only limited to the early involvement in the new product development, the effects to the new product development performance, or the business performance. There were scant studies related to the five supplier integration practices influence to the business performance. Obviously, the past research is not rigorous yet. Pertaining to the time-based capability determinants, most studies referring from the aspects of process technology, R&D management, cross-functional teamwork, modularity design, and JIT production practices on how to improve the time-based capability. There were few issues based on the supplier integration practices to conduct the influence to the time-based capability. In other words, we integrate the supplier integration practices and time-based capability to investigate their influential relationship exhibiting innovative and unique presentation.

There are multi-dimensional natures of the supplier integration practices and time-based capability. The past one single or aggregate indicator is not sufficient to delineate or discuss their insightful cause-and-effect relationship. In our study, we identify one-to-one perspectives from the five supplier integration practices to four time-based capabilities. We present a conceptual framework can serve a managerial decision direction. The manager can choose appropriate supplier integration practices for anticipated time-based capability improvement. Our study would be conducted in further investigation for related research.

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## Clusters and Cluster Performance Management

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### Abstract

**This contribution deals with some critical issues of cluster performance management. The first topic discussed is the use of clusters as a tool for increasing the performance of companies and regions in the conditions of globalization, followed by governmental and local policies and their impact on the development of clusters. Finally, some important factors of cluster performance management based on results obtained from surveys and structured interviews of managers of selected clusters are identified.**

### Introduction

There are a number of definitions of clusters in the literature. Cortright [3] concludes that one fixed definition of clusters cannot be made. It is necessary to modify one's definition depending on the purpose of the given study. For the purpose of this paper we will use the definition proposed by Porter. Porter [8] defines a cluster as *"a geographic concentration of mutually interconnected companies, specialized suppliers, providers of services, companies in similar fields and associated institutions, such as universities, agencies and associations of different orientations, which compete, but also cooperate."*

Clusters may represent forms of vertical as well as horizontal integration of companies.

Debate is ongoing as to whether globalization will make clusters more or less important, with the literature leaning towards greater regional importance. Some economists argue that regional specialization and clustering of related activities are becoming more important features of the world economy as a result of globalization.

### Clusters as a Tool for Increasing the Performance of Companies and Regions

The development of clusters seems to promise an answer to the challenges created by increased international competition and the growing importance of innovation in the knowledge economy. Clusters of interrelated firms can be an important source of competitive advantage and active membership of cluster can lead to increased performance of individual firms. Let's try to answer question what could be the reasons for that.

At the beginning, we have to identify possibilities for cooperation among members of cluster. There are several fields for cooperation, particularly:

- ❖ networking
- ❖ human resource management
- ❖ research and development, innovation processes
- ❖ marketing, public relations
- ❖ investments
- ❖ lobbying, etc.

**Networking** represents the creation of conditions for formal and informal flow of information and knowledge within the cluster. It increases the availability and rate of transfer of information and technologies due to the proximity of the companies, strong ties between them and the highly competitive nature of the cluster. It can have the form of short meetings of representatives of individual cluster members, information support by common web site, newspaper, setup information center etc. The management of a cluster may arrange contacts not only among the members of the cluster, but also with suppliers, customers, providers of financial capital, with



educational, research and other institutions, which are not members of the cluster. However, the creation of networks must not be an end in itself, it has to be useful for the companies and move them forward.

**Human resources**, their availability to the companies and the improvement of their qualifications, represent an important field for the cooperation within the clusters. This can be a common vocational guidance and education of employees by organizing courses, common seminars and conferences, by creation of educational centers. A cluster usually organizes these activities in cooperation with educational institutions; it can finance them from its own resources or can use financing from different supporting projects. Cooperation of the cluster with secondary schools, colleges and universities can be significant in creating cooperative networks, helpful in formulation of demands on graduates of these schools according to the needs of industrial practice (orientation of programs of studies, modification of curricula etc.). The presence of a strong cluster in a region may also attract talents from elsewhere.

The experience from the existence of clusters shows that for a dynamic growth of the cluster and of the companies in the cluster it is essential to pay attention to the sphere of **research and innovation**. Innovations maintain the viability and prosperity of companies in the marketplace; research and development create the condition for future growth. The support of innovation is directed towards the development of new products or the improvement of their properties or towards the process improvements. The support of research brings new know-how. These processes are interrelated even if they represent different activities of the cluster. The cooperation of the companies within the cluster may have the form of sharing information and ideas, mutual research projects, support of formation and expansion of spin-off companies etc. Companies may develop a mutual research infrastructure together or cooperate with research institutions (research institutes or universities), which have the necessary materials, technical facilities and equipments as well as properly trained personnel and which are often initiators and operators of „incubators“ and scientific and technical parks. Universities and research institutes can also greatly benefit from the cooperation with clusters - they can better move the results of their research into implementation in practice and commercialization. Skokan [9] shows in his publication that innovation processes are not perceived today as being linear, but as interactive, linked up, integrated and acting on a feedback. It is therefore absolutely essential to create a network environment for the cooperating subjects within the regional infrastructure, which allows the transfer of technologies and know-how to the environment of entrepreneurial subjects.

**The field of business cooperation and promotion** includes activities as joint purchasing and a possibility of a higher pressure on the quality of delivered goods and their pricing, or shared production. There is a possibility to fill large orders or possibility of greater specialization; a cluster may combine companies from different links of the value chain. This enables smaller companies to specialize and compete with larger, vertically linked companies. Additional benefits of cooperation are more effective logistic management; shared expenses for marketing research of trends and markets; joint participation in trade fairs; joint catalogue of products and services for the member of clusters; the possibility to utilize joint logo, trademark, advertisement etc.

Obtaining sources for **financing of investment projects** are very important for the strategic development of a cluster. Attracting investors with advantageous conditions of financing or joint financing can be a significant resource for reducing capital costs and risk. An access to financing can be easier for a cluster than for an individual company. Investors (often venture capital) may be attracted into the region due to positive image created by the presence of a strong cluster. Financing of necessary investment projects creates conditions for a further growth of the cluster.

Another no less important field useful for the growth of a cluster and its members is **lobbying** on behalf of building a necessary infrastructure, improvement of legislature, grant policy etc. A cluster magnifies the power and voice of smaller companies. They can urge the government or regional representation to make investments in specialized infrastructure. Thanks to the visibility of a cluster, cost effectiveness and higher return on investment represented by a cluster, its additional possible investments are more easily justifiable.

For the growth of a cluster, other supporting activities that the cluster management can offer to its members can be important. These activities can secure an effective collaboration in above-mentioned areas, such as *help with preparation and management of projects; securing service in the form of accounting a legislative consulting; banking services; insurance; benchmarking* etc.

From the above it follows that there are many activities that can be implemented within the cluster, which can contribute to the increase of efficiency of individual companies.

Preliminary results from the authors' own survey carried out by interviews of cluster managers in different countries are presented on Figures 1-6. This survey is continuing; in this phase; 20 cluster managers have taken part in this research.

Figures demonstrate shares of joint activities, which:

- (1) clusters currently offer to their members,
- (2) clusters currently do not offer, but plan doing so in few years,
- (3) clusters currently do not offer, but in case of need cluster managements are able to arrange,
- (4) clusters neither offer nor plan doing so.

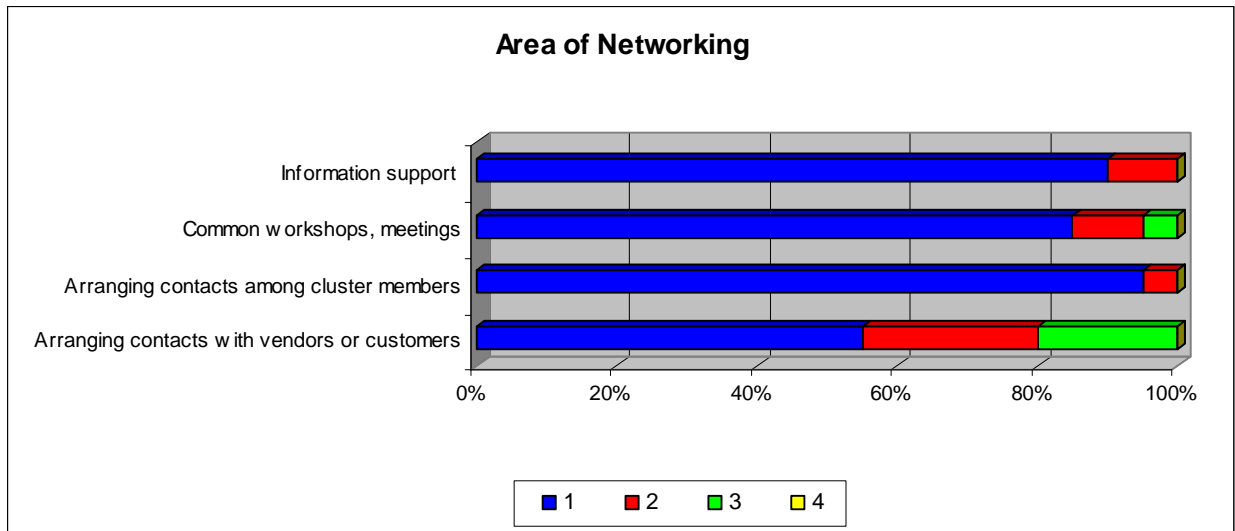


FIG. 1: ACTIVITIES OF CLUSTERS IN THE AREA OF NETWORKING

Almost all clusters involved in the survey offer information support in the form of joint website, newspaper, information center; common workshops and meetings; and management of clusters arrange contacts between the cluster members. More than a half of clusters arranges contacts with vendors or customers; others are planning to do so or cluster managers are able to arrange them if necessary.

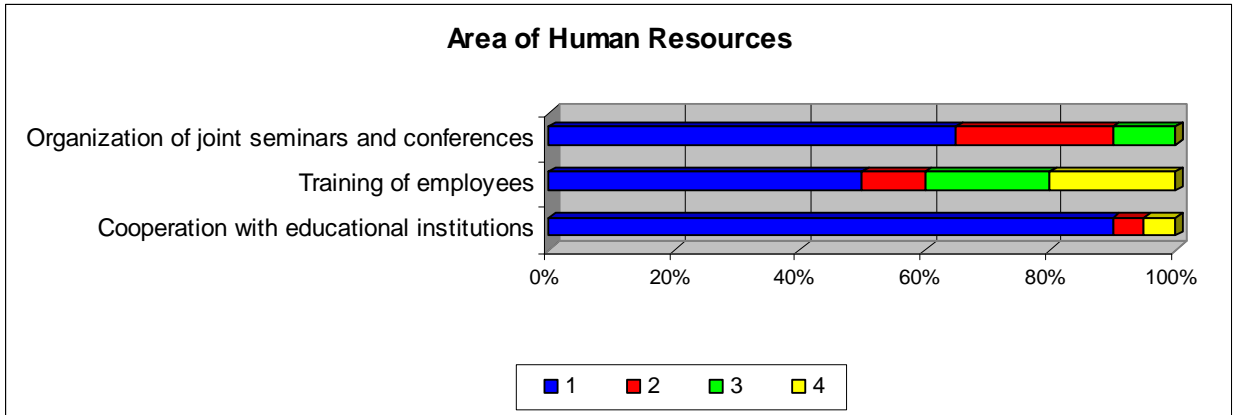


FIG. 2: ACTIVITIES OF CLUSTERS IN THE AREA OF HUMAN RESOURCES

All clusters involved in the survey organize (or could organize, if necessary) joint seminars and conferences, or plan doing so. Half of them offer common training of employees. Almost all of clusters providing these activities cooperate with educational institutions.

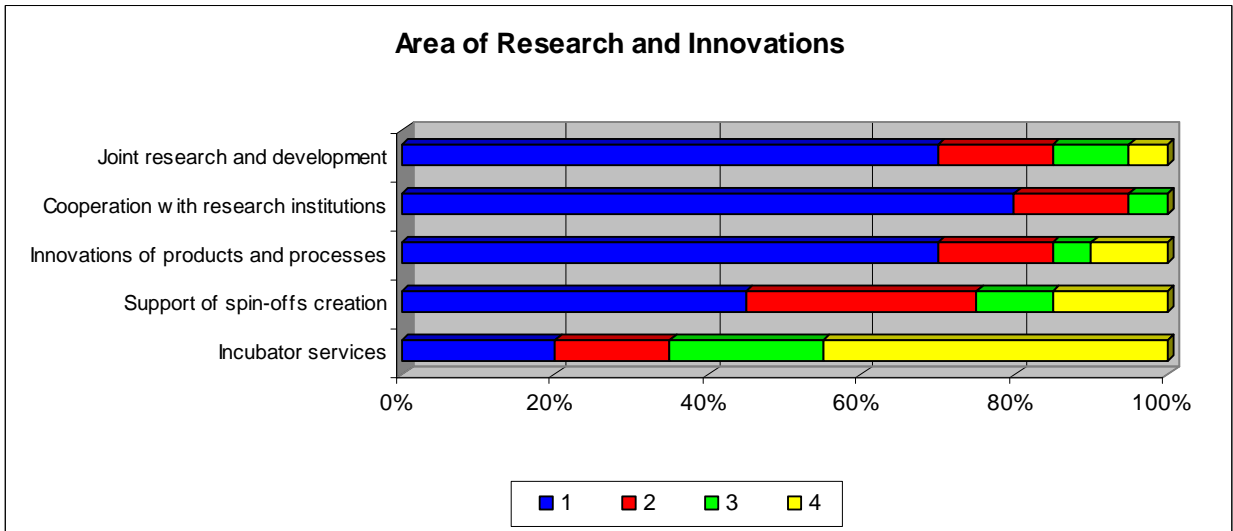


FIG. 3: ACTIVITIES OF CLUSTERS IN THE AREA OF RESEARCH AND INNOVATIONS

A good deal of the clusters involved in the survey carry out joint research, innovations of products and processes, and cooperate with research institutions. Almost half of them support spin-offs; further one third of clusters plan doing so in future. Incubator services are offered quite rarely, but additional clusters are able to offer them if necessary or plan them in future.

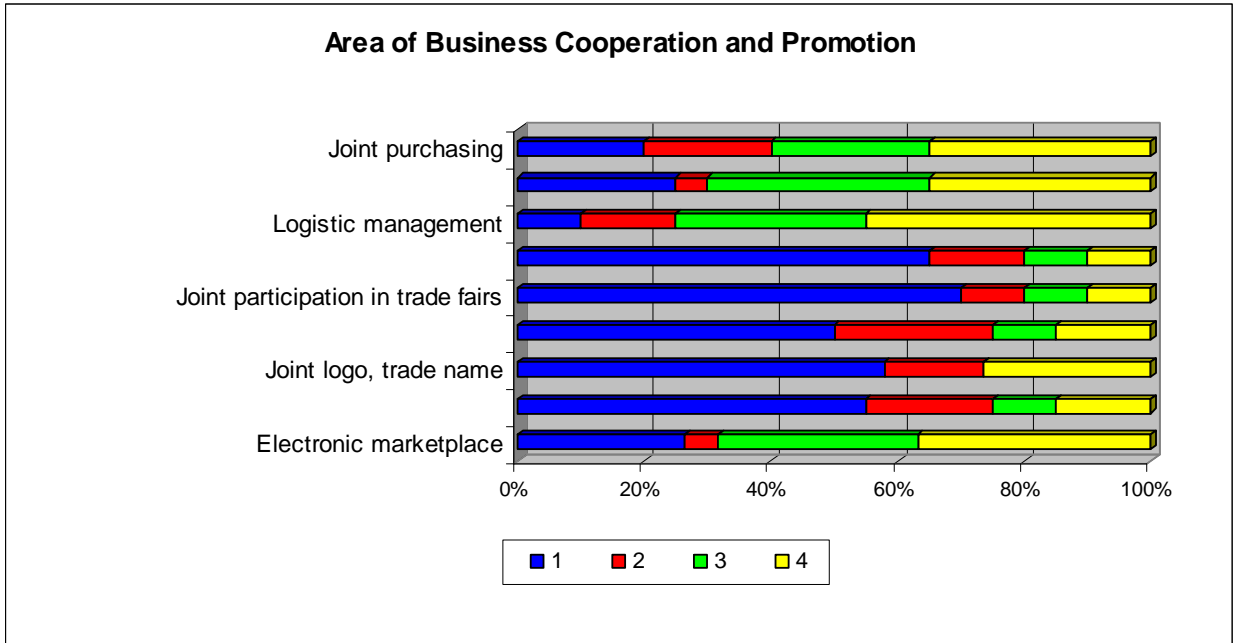


FIG. 4: ACTIVITIES OF CLUSTERS IN THE AREA OF BUSINESS COOPERATION AND PROMOTION

Most common activities in area of promotion are joint participation in trade fairs, marketing, research of trends and markets and joint logo, trade name or advertisement. Business cooperation in the form of logistic management, joint purchase or shared production are quite rare activities in the clusters, but in case of interest, clusters are able to ensure them in many cases.

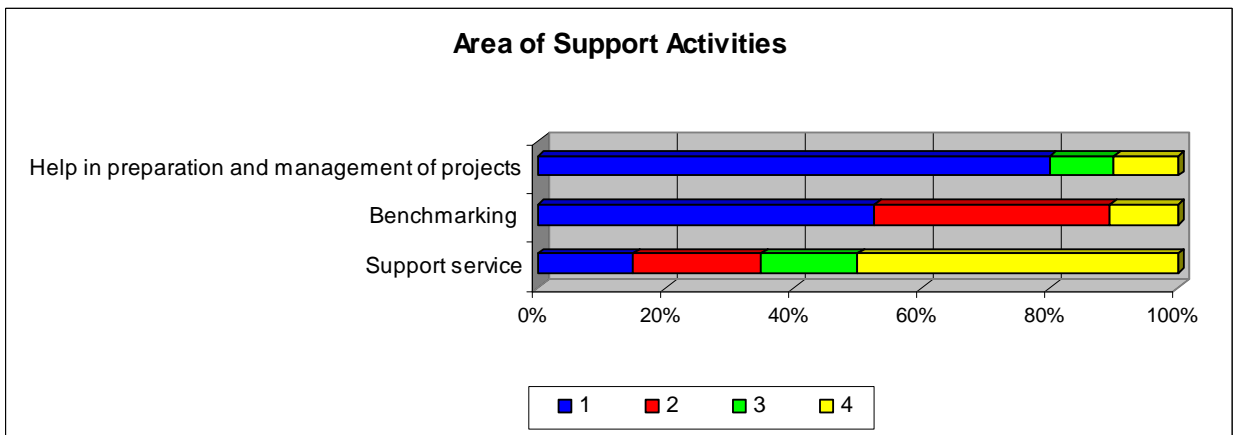


FIG. 5: ACTIVITIES OF CLUSTERS IN THE AREA OF SUPPORT ACTIVITIES

The most widespread support activity is a help in preparation and/or management of projects. Support services in a form of banking services/insurance/legal, accounting and tax consultancy and etc. are not provided commonly. Benchmarking is quite popular; almost all clusters use it or are going to use it in close future.

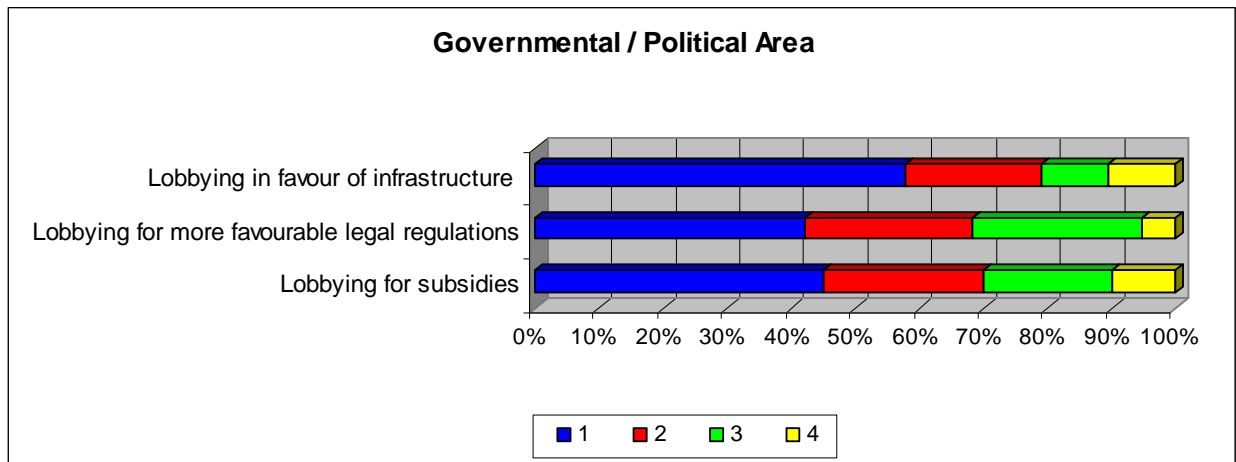


FIG. 6: ACTIVITIES OF CLUSTERS IN THE GOVERNMENTAL/POLITICAL AREA

Lobbying is quite common activity in clusters; almost all clusters involved in the survey consider it.

## Governmental and Local Policies and Their Impact on Cluster Development

Very often the formation of cluster and support of its development is connected with the so-called **cluster initiative**.

The cluster initiative is defined according to the Greenbook of Cluster Initiatives [10] as follows: „*The cluster initiative is an organized effort focused on the increase of growth and competitiveness of a cluster in the region with the participation of cluster companies, government and/or research community*“.

According to Andersen, Bjerre and Hanson [1], cluster initiatives are generally self-identified clusters which in many cases participate in national schemes.

Clusters and cluster initiatives are in a number of countries supported by governmental and regional institutions mainly in the following form:

- Informational support and education by means of „Guides“, seminars, and conferences,
- Grants supporting mapping of potential clusters,
- Grants supporting the implementation of selected projects.

Thus a well-thought-out policy can lead to the growth and competitiveness of selected industries and lines of business; a wrong choice of subjects of support may lead to wasting of public resources and to the limitation of the potential growth of the country and region. It is also important to identify those areas of cooperation of the companies in the cluster, which bring the highest added value and support them. From the foregoing reasons it is therefore unavoidable to set suitable benchmarks for monitoring the effectiveness of spending these resources. This is a very demanding task and there is a great amount of effort expended throughout the world to find an effective measurement and management of the cluster performance.

To achieve an effective allocation of financial resources for the support of growth of clusters, it is necessary to examine the following:

- The impact of subsidy on the performance of the individual companies (cluster member) and of the cluster as a whole,
- The impact of subsidy on the development of the region.

Individual countries and regions have different approaches to founding and development of clusters. Below are few examples of countries with intensive support of development of clusters and cluster initiatives.

Through the National Research Council of Canada (NRC), the Government of **Canada** has made a series of investments in clusters as a part of National Innovation Strategy. NRC is composed of 20 institutes located across Canada. Canada, given its vast geography, relatively small and dispersed population, and the predominance of SMEs, has taken a collaborative approach in building community innovation over the past decade. Increasingly, innovation has taken the form of community-based "technology clusters", a term that describes the growth of a significant concentration of innovative companies around a nucleus of R&D facilities. NRC cluster initiatives have focused on building science and technology-based innovation capacity in areas of local and regional strengths to foster economic growth and improve quality of life. The process involves: bringing the leadership needed to gather stakeholders together to define a collective vision; building trust within a cluster by fostering networking and collaborative R&D between firms engaging in community consultation; providing specialized research infrastructure and highly qualified personnel; supporting the creation, growth, and attraction of firms; facilitating the development of external linkages; and supporting the clusters in attracting new resources. Up to now, 11 cluster initiatives have been established and NRC has received over 300 million CAD in four rounds of funding to establish and reinforce cluster initiatives across the country.

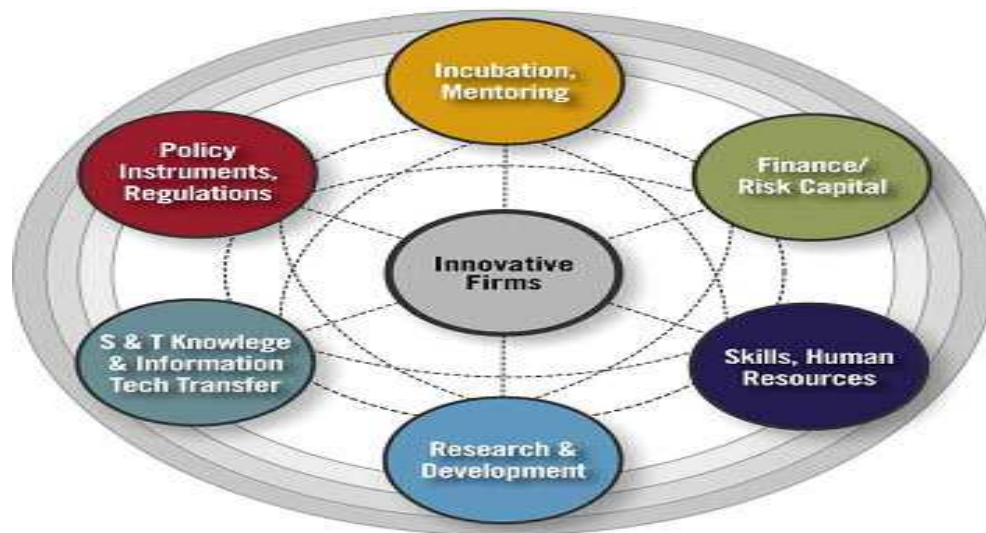


FIG. 7: MODEL OF THE NRC' CLUSTER POLICY [11]

In **Austria**, clusters have been supported from the early 1990s. Each cluster can count on public support in terms of cluster management and cluster funding. Cluster development in Austria operates at different levels: regional clusters, nationwide clusters, and industry-research linking competence centers. Regions are entitled to set their own innovation and technology policies. They take over the active part of building clusters, i.e., cluster management and co-operation platforms. However, national institutions provide a general framework for regional cluster policy: financial support; technology transfer programs; training plans; and R&D policies [6].

Since 1998, the Regional Government of Upper Austria has pursued a cluster-oriented economic and technology policy on the basis of the "Upper Austria 2000+" Strategic Program. The aim is to achieve a sustained improvement in the competitiveness of the location. TMG, the regional institution for the promotion of technology and marketing (owned by the Regional Government of Upper Austria) was given responsibility for cluster management. For period 2005-2010, new Strategic Program "Innovative Upper Austria 2010" was prepared. The focal point of the program is formed by a concentration of capacity on five main areas comprised by: R&D, networks, EU-networking, Upper Austria as an economic and technology location, and professional qualification. Upper Austria is the European leader with regard to economic networking. No other region has such a well-

established climate of cooperation. At present, approximately 1,200 companies, R&D bodies, and educational institutes are partners in the inter-branch network Clusterland Upper Austria, Ltd., as following: Automotive-Cluster, Health-Cluster, Plastics-Cluster, Furniture/Timber-Construction-Cluster, and Mechatronics-Cluster. Clusterland supports cluster and network initiatives. The Clusterland partners employ more than 219,000 people and have total annual sales of € 39.02 billion. The Clusterland sustained more than 220 co-operation projects and more than 500 training events.

Lower Austria's cluster policy has become an important part of regional innovation and technology policy as well. The trend in Lower Austria has turned around from step by step increasing independency for cluster initiatives (as planned in 2001 when the first initiatives started) to a clear mandate for the Regional Development Agency (RDA) to run cluster initiatives as an economic policy instrument to strengthen SMEs. The regional government provides the main part of financial resources to operate the cluster managements for a limited short period of time (5 - 10 years). Companies' financial participation in clusters should be generated from moderate membership fees, fees for workshops or events and sponsoring. Fees foster involvement of companies, but also a service orientation of the cluster team. The regional development agency Ecoplus explores and maps cluster potentials, implements cluster initiatives, provides the financial and information support and employs cluster managers. Ecoplus combines different economic instruments for a better cluster development like technology services, business location development, business parks, and support for start-ups, etc. Ecoplus has already established cluster initiatives in six next-generation sectors: timber, automotive, green building, wellbeing, plastics and food industry. 475 companies with more than 58,000 employees are already participating as partners in these clusters. Around 100 cooperation projects have already been completed, with more than 400 companies participating.

Cluster initiatives in the **Czech Republic** have been supported by the program "KLASTRY", which began in 2004 and has enabled identification and support of new sectors and sub-sectors with potential to improve competitiveness through collaboration and innovation. The program focuses on the financial support to regions demonstrating commitment to innovative clusters. The KLASTRY program is managed by the CzechInvest, an agency of the Ministry of Industry and Trade. The total budget for the program over the years 2004-2006 was approximately 12 million EUR (average of 4 million EUR per year). The budget per cluster may reach up to € 33,000 for activities connected with the creation of a cluster, not to exceed 75% of eligible costs. Eligible costs include items such as studies, meetings, or workshops and associated materials. The budget for the development of the cluster may range from approx. € 100,000 to 1.6million for management and development of clusters (for the total program period of up to three years). Reimbursement cannot exceed 50% of the total project cost based on the following schedule (maximum of 75% of eligible costs in year 1, 50% in year 2, and 25% in year 3). Eligible costs may include cluster staff, tangible and intangible assets for the cluster initiative, consulting services, benchmark studies, cluster promotion, evaluation of economic impact, and research (market, competition, and innovation). Supported clusters must be in the Czech Republic (but not in Prague), include at least 15 firms (min. 60% of members are SMEs), include at least one university or research institute. [5, 12]. Per CzechInvest, there are 51 different clusters or potential clusters across Czech regions. Prior to launching the program, CzechInvest offered a training and cluster awareness sessions to cluster facilitators, academics and regional government and private sector representatives. Periodic training sessions as well as the Annual National Cluster Conference are organized. CzechInvest also plans to develop a formal accreditation process for specific cluster facilitation skills. New program for supporting clusters, pole of excellence and networks – "Cooperation" (financed by EU funds) will be launched in the second half of the year 2007.

## **Cluster Performance Management**

What can contribute greatly to the progress of clusters and to the support of their performance? Since cluster performance is not a single-dimensional concept, it is necessary to look at a range of factors influencing this performance.

Generally, in order for a business to grow, it must be able to access the necessary external resources and operate within a supportive business environment. The macroeconomic framework for the growth of enterprise is the widest dimension influencing the performance of subjects acting here. Much innovation support focuses on individual or groups of companies, helping them address and improve internal competences, e.g. technology, skills, funding. Even if companies have addressed all their internal issues, but they cannot readily access finance to grow, or if there is a lack of suitably skilled staff available, this will limit their development.

National or regional policies can to a high degree contribute to the formation of clusters (mapping of potential grouping) and their growth, as has been mentioned and demonstrated in selected countries. However, clusters can be formed and developed even without a special set-up cluster policy of a government or region.

An organization of cluster activities and mutual communication between the members of clusters can be done by the professional management or by representatives of individual cluster members. The efficiency of cluster management may play a significant role in the development of a cluster and its members, as well as of cooperating institutions.

According to Breschi and Malerba [2], the key feature of successful clusters is related to the high level of embeddedness of local firms in a very thick network of knowledge sharing, which is supported by close social interactions and by institution building trust and encouraging informal relations among actors. The possibility for individual firms to tap into the body of localized knowledge and capabilities depends on the fundamental way on the ability to establish and maintain effective social links and lines of communication. Besides offering an industrial atmosphere favorable to innovation and entrepreneurship, and a social capital supporting trust and a cooperative relationships, the additional key feature of technology-intensive clusters is related to the availability of a common set of resources, some endogenously given, like universities and public research centers, and some others endogenous to the cluster development, like a pool of specialized and skilled labor.

These propositions have been preliminary confirmed by authors' own survey carried out by interviews of cluster managers in different countries (as mentioned above). The following aspects were identified as being essential for the cluster development and cluster performance management:

- Networking and mutual communication among cluster members;
- Professionalism of the cluster management;
- Mutual confidence and communication among cluster members;
- Strong entrepreneurial spirit in companies;
- Joint research or cooperation with a research institutions;
- Access to finances;
- Access of companies to information;
- Cooperation with educational institutions;
- Education of human resources;
- Innovative technologies,
- Subsidies from government/region during the growth of cluster.

Cluster managers do not consider a presence of a company with a foreign owner or of a multinational company and competition rivalry among companies in the cluster as very important factors for cluster development.

More detailed results of survey of cluster managers opinions can be seen in Fig. 8.



## DEVELOPMENT OF THE CLUSTER

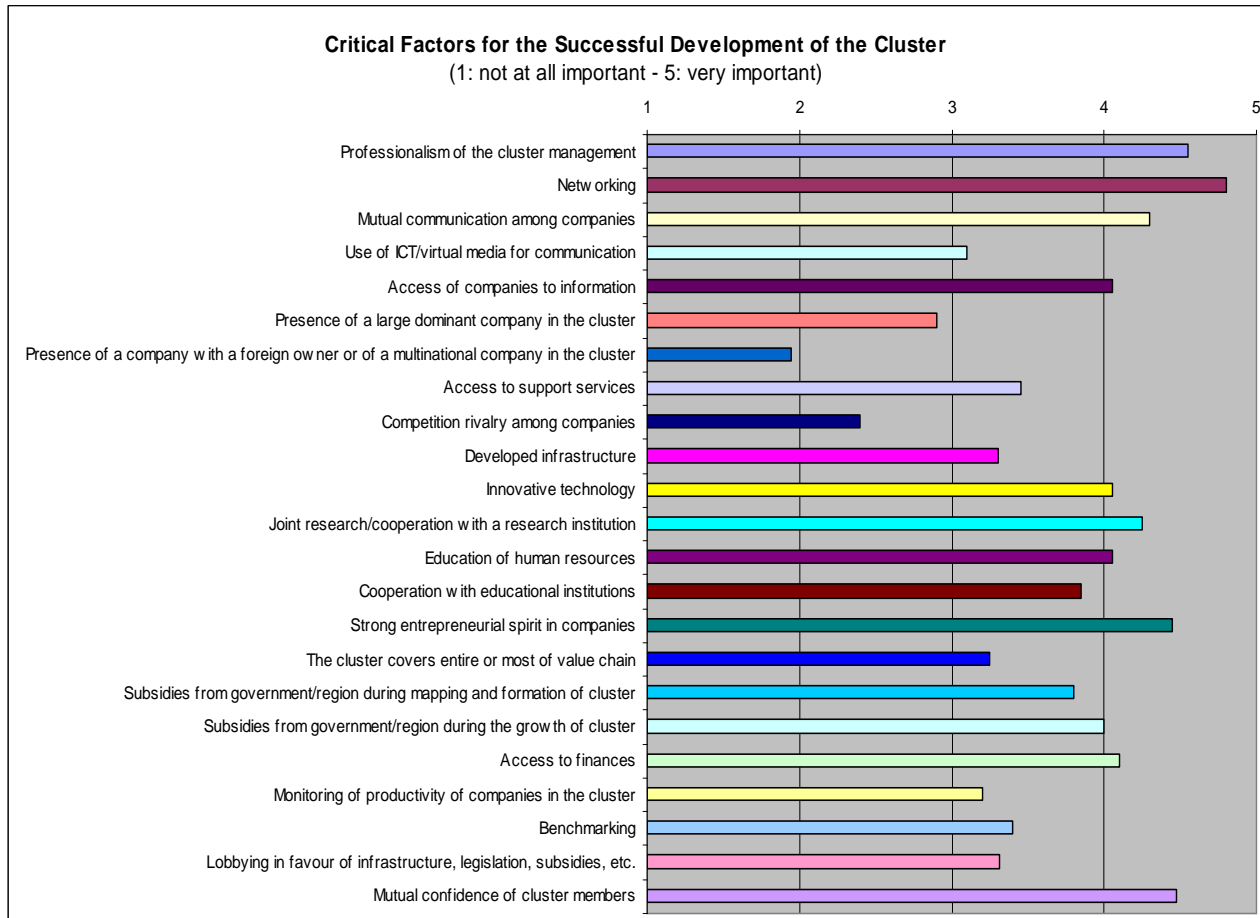


FIG. 8: CLUSTER MANAGERS' OPINION ON THE CRITICAL FACTORS FOR THE SUCCESSFUL

## Conclusion

This article has addressed some of the issues pertaining to clusters and the management of their performance. The main areas of cooperation of the cluster members, which can increase their performance and the performance of regions, have been identified. Based on own investigation using interviews with cluster managers, the preferences of individual activities have been evaluated.

In a number of countries, the government implements a cluster policy that has varied forms of support of identification, formation and development of clusters. Selected examples of such policies are presented in this article. At the same time, the necessity of evaluation of effectiveness of investment of financial means for the support of cluster development as well as problems inherent in cluster policies was discussed.

In the last part of the contribution, the factors influencing the performance of clusters, from macroeconomic conditions, through the cluster policy of the government to the actual activities of the cluster management have been discussed. The results obtained from the literature search have been expanded by the results of authors' own investigation among cluster managers, which confirmed the identification of the selected factors significantly affecting the performance on the very level of clusters alone.

## Acknowledgement

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# Determinants on EU-5<sup>1</sup> and USA Apparel Imports: A Gravity Model Analysis Approach

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## Abstract

EU and USA are the major apparel importers by virtue of their strong demand for apparels and the high purchasing power. In 2005, the value of world's apparel imports to EU and USA amounted to US\$ 120 billion and US\$ 80 billion respectively, which together represented 70 per cent of the world's total apparel imports. Specifically, the apparel import values of top five member countries of EU, namely Germany, UK, France, Italy and Spain, amounted to US\$ 85 billion, which represented 74 per cent of the region's total apparel imports. This paper is intended to identify the effects of economic and specific social factors that underpinned the apparel imports of the major consuming countries of EU, focusing on the top five importing member countries as well as USA and their top five apparel suppliers. A gravity model analysis with panel data estimation approach is conducted with the exploration at aggregate level. Taking the data from 1990 - 2005, the economic indicators and the country-specific factors are analyzed statistically to investigate the impacts of these determinants that have affected the apparel imports and the expenditure patterns of EU and USA.

## Introduction

EU and USA are the two largest global apparel consumers because of their sheer size in terms of population, income, high average purchasing power and strong demand for quality apparels at best price. In 2005, the value of world's apparel imports to EU and USA markets amounted to approximately US\$ 120 billion and US\$ 80 billion respectively, which together represented about 70 per cent of the world's total apparel imports. Specifically, the apparel import values of top five member countries of EU, namely Germany, UK, France, Italy and Spain, amounted to US\$ 85 billion, accounted for 74 per cent of the region's total apparel imports.

## Apparel Imports for EU

In 2005, EU-25 was the largest importer of apparel products, the value of apparel imports to this region amounted to approximately US\$ 120 billion, representing 45 per cent of the world's total share of apparel imports. Apparel imports from world to EU-25 were observed rising continuously during 1990-2005, except the slight declines in 1992-1993 and 2000-2001 (Fig.1). Outgrowth in apparel imports resumed and a dramatic increase was witnessed in 2002, when imports expanded substantially from US\$ 84 billion to US\$ 170 billion between 2001 and 2002 due to the influx from relatively low cost Asian suppliers, especially China. This spectacular surging of apparels into EU-25 occurred after the phasing out of quotas on certain apparel products at the third stage of the Agreement on Textiles & Clothing (ATC) since 2002.

## Trends in EU-5 Apparel Imports

For EU-5, their apparel imports amounted to US\$ 85 billion in 2005. As shown in Fig.1, EU-5 apparel imports increased markedly in value after the late 1990s and continued to grow in recent years after the ATC implemented the gradually removal of quota since 1995, although imports fell slightly in 1992-1993 and 2000-2001. In 2002, growth resumed with an increase of 7 per cent to US\$ 59 billion. In value terms apparel imports have continued to increase over the years. In 2005 the import value again rose by 7 per cent when compared with the previous year, reaching US\$ 85 billion. By then, apparel imports by EU-5 have exceeded that of USA and became the largest apparel importers.

## Trends in USA Apparel Imports

USA is the second largest apparel importer in the world and accounted 27.5 per cent of the global apparel imports in 2005. As shown in Fig.1, the continuously upward trend of USA apparel imports was observed in the past sixteen years. The rise in apparel imports was conspicuous from US\$ 27 billion to US\$ 80 billion from 1990 to 2005, reflecting strong demand for apparel products in USA and also illustrated its position as one of the major apparel markets globally. China, HKSAR, Korea and Indonesia were the main clothing suppliers to USA during 1990-2005. Specifically, China is by far the dominant US importer of apparel products with low labor cost, huge manufacture set up and the benefits related to certain categories of non-quota items. Except the Asian countries, Mexico's apparel exports to USA has been increased since the formation of NAFTA in 1994 and also benefited from the preferential treatments of exports to the USA market

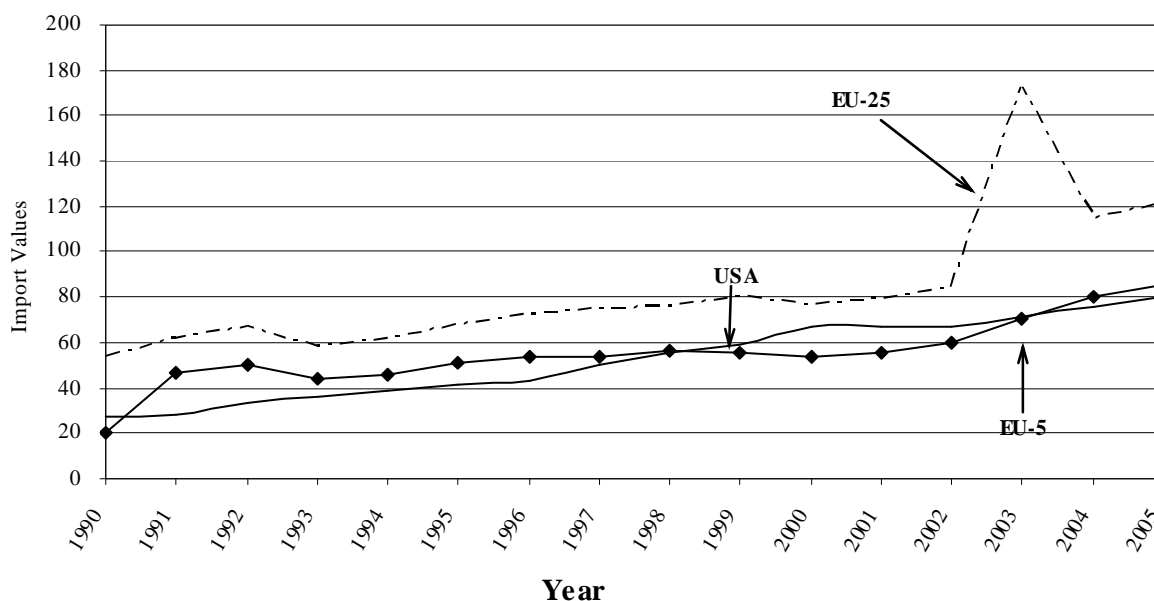


FIG. 1: WORLD APPAREL IMPORTS TO USA AND EU-5, 1990-2005 (VALUE IN US\$ BILLION)  
Source: Compiled from *International Trade Statistics Yearbook*, United Nations, various issues.

The major objective of this paper is to explore the impacts of economic and specific social factors that had underpinned the apparel imports of the major consuming countries of EU, focusing on the top five importing member countries<sup>2</sup> as well as USA and their top five apparel suppliers<sup>3</sup> for the period from 1990-2005. The year 1990 is chosen because it was intended to portray the effects before and after the phasing out of quota for apparel items under the Agreement on Textiles and Clothing (ATC) in 1995. In addition, EU-5 and USA are selected since they are the two largest importers of apparel products by virtue of their large population, income and their high purchasing power. The export values of the top five apparel suppliers to EU-5 and USA markets were US\$ 43 billion and US\$ 35 billion respectively in 2005 (Fig.2). Together they accounted for one-third of world's total apparel imports.

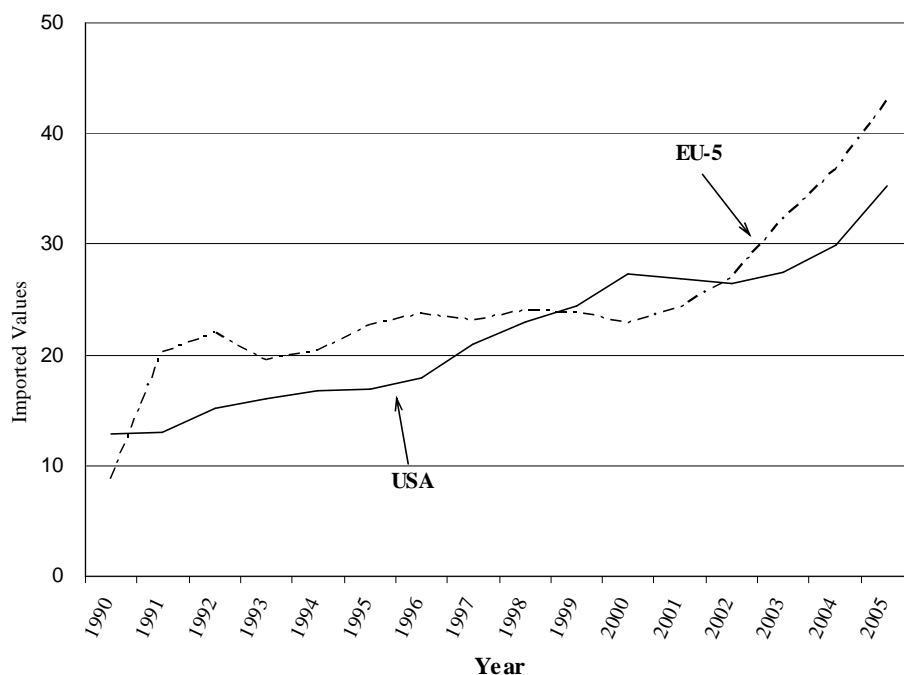


FIG. 2: VALUES OF APPARELS DELIVERED TO USA AND EU-5 BY TOP FIVE SUPPLIERS, 1990 -2005  
(VALUE IN US\$ BILLION)

Source: Compiled from *International Trade Statistics Yearbook*, United Nations, various issues.

### Empirical Analysis by the Gravity Model

The gravity model has a long history in social science studies as well as in international trade research. The model has been used to provide empirical explanations for spatial interaction behaviors of human populations including migration, information and trade flows (Sen and Smith, 1995).

For empirical analysis and verification, the gravity model with the panel data estimation approach is used to determine whether EU-5 and USA apparel imports can be explained by certain economic indicators and the country-specific factors including GDP, per capita GDP, real exchange rate, labor wage, value added, geographical distance and population growth rate. These factors were analyzed statistically to investigate their impacts of principal economic and social determinants that have affected the apparel imports and consumers' patterns of the EU-5 and USA.

Most of the previous trade analyses that employed the gravity trade model have only adopted a cross-section or time-series analytical technique (Matyas, 1997, Glick and Rose, 2002, Anderson and Van Wincoop, 2003). The use of panel data modeling estimation approach in this paper is intended to provide an extensive analysis and to obtain a meticulous study on apparel trading. Also, past investigations were generally related to the general trading scenarios and not clothing specific. Thus, this study aims to fill the research gap and provide insights for the major determinants that have driven major apparel suppliers' exports to EU-5 and USA markets from 1990 to 2005.

## **Theoretical Foundation for the Gravity Model of Trade**

In the 1960s, the gravity model of trade was first introduced by Tinbergen (1962) and Poyhonen (1963) independently in the economic literature to analyze bilateral trade flows between countries in Europe and successfully proved that trade between two countries is proportional to the product of their masses (GDP) and inversely related to the distance between them. Later, Linnemann (1966) added more variables and explored a theoretical justification in terms of a general equilibrium. It was further adopted by Anderson (1979) and Bergstrand (1985 and 1989) together with Armington's (1969) assumption for explaining international trade.

Moreover, Deardorff (1998) reconciled the gravity model with the classical theories of trade, the factor proportions model, which emphasizes differences in factor endowments across trading countries (Huang & Labys, 2001). Similarly, Eaton and Kortum (2002) derived the equation from random technological differences between countries in a Ricardian structure. Apart from these, Evenett & Keller (1998) showed that the gravity model can be adopted from the H-O model under both perfect and imperfect product specializations. They argued that the increasing return of scale model was more applicable than the perfect specialization version of H-O model to explain the success of the gravity equation. In 2002, Harrigan conducted a comprehensive review of the gravity model with reference to different major trade theories, including the Armington model, the monopolistic competition models and the general equilibrium model. Given its parsimony and the often acclaimed empirical robustness, the gravity model of trade has never lost its attractiveness over the past four decades in international trade analysis.

## **Panel Data Estimation with Fixed Effects**

Although the gravity model was popularly used for bilateral trade analysis, Cheng and Wall (2005) indicated that the estimation of the gravity model by OLS has some disadvantages such as multicollinearity effect as well as it cannot detect the invisible factor which may bias the estimation. In order to avoid the weaknesses, the econometric test, the panel data estimation approach is applied in the following estimation.

To conduct the panel data analysis with fixed effects and by taking the difference between the subsequent years, the invisible effect can be eliminated prior to the estimation and any time-constant explanatory variables are also removed along with it (Wall, 2002 and 2003). While import, export and geographical factors are presented in the gravity equation but these factors are not random as they are associated with countries' specific characteristics, the use of the fixed effects method can obtain a more reliable result (Egger, 2000).

Panel data estimation approach has become one of the rising topics of interest in the econometrics literature because of its advantages. It can explore the dynamics of change over time and to enlarge the quality and quantity of data (Gujarati, 2000). Furthermore, it also allows the capturing and disentangling of the time invariant country-specific effect (Egger, 2000) and to monitor the possible unobservable trading-partner-pair individual effects (Martinez-Zarzoso and Nowak-Lehmann, 2003).

Since the previous gravity model studies were concentrated on the general commodity but not specific for apparel trade. The use of panel data estimation approach in this paper is intended to extend an exhaustive analysis and provide an insight into the principal determinants that have affected EU-5 and USA apparel imports.

## **Econometric Analysis**

The initial estimation was analyzed by Best Linear Unbiased Estimator (BLUE) ordinary least-square (OLS) as it is the basic analytical technique and provides estimation about the different independent effect of each factor on the apparel import values (Hufbauer et al, 1997). Unfortunately, it yields a biased estimator because of the multicollinearity effect. In this case, the independent variables, importers' GDP and their per capita GDP are highly correlated that violates the assumption of OLS.

Therefore, in order to get rid of the constraint of OLS estimator as well as to avoid the problem of high multicollinearity between independent variables and specially to negate the effect of unobserved variables, the panel data estimation approach with fixed effects is applied in this analysis.

## Standard Gravity Equation

The gravity model with panel data estimation approach for the import function of apparel to EU-5 and USA can be modeled by the following equation.

$$\ln(IM_{ij}) = \alpha + \beta_1 \ln(GDP_j)_t + \beta_2 \ln(GDP_i)_t + \beta_3 \ln(PCGDP_j)_t + \beta_4 \ln(PCGDP_i)_t + \beta_5 \ln(D_{ij}) + \beta_6 POPGRATE_{it} + \beta_7 REXRATE_{ijt} + \beta_8 WAGE_j + \beta_9 VALADDED_j + U_{ijt}$$

Where,

t (t=1...16) starting from the year 1990 to 2005 represent the time at which trading transaction took place;

$\ln(IM_{ij})$  = Log of import value of apparel in million of US dollars from the top five suppliers to EU-5 and USA,  $i$  represents EU-5 and USA,  $j$  denotes the suppliers' variables;

$\alpha$  = unobserved effect or fixed effects and it does not change over time, it captures all unobserved time-constant factors that affect  $IM_{ij}$ ;

$\ln(GDP_j)$  = Log of GDP of top five apparel suppliers in million of US dollars;

$\ln(GDP_i)$  = Log of GDP of EU-5 and USA in million of US dollars;

$\ln(PCGDP_j)$  = Log of per capita GDP of suppliers in million of US dollars;

$\ln(PCGDP_i)$  = Log of per capita GDP of EU-5 and USA in million of US dollars;

$\ln(D_{ij})$  = Log of the geographical distance (in km) between Washington, the capital of USA, the individual capitals of EU(5) and the capitals of their top five suppliers;

$POPGRATE_i$  = the population growth rate of EU-5 and USA;

$REXRATE_{ijt}$  = the real exchange rate of foreign currency per unit in US dollar;

$WAGE_j$  = Log of the wage of top five apparel suppliers in million of US dollars;

$VALADDED_j$  = Log of the value added amount in apparel industry of top five apparel suppliers in million of US dollars;

$U_{ijt}$  = the time-varying error, because it represents unobserved factors that change over time, and affects  $IM_{ij}$

In order to identify the major determinants of EU-5 and USA apparel imports from their top five apparel suppliers, various factors have been considered. The dependent variable is imported value of merchandise trade, in log form, between pairs of countries from 1990-2005. For the independent variables, based on the gravity principle, per capita GDP of the exporting country is a proxy of capital intensity, since apparel industry is a labor-oriented industry, per capita GDP (PCGDP<sub>j</sub>) of the top five suppliers is used to indicate the impact of monetary condition of the workforce in those countries on apparel exports. Additionally, the economic sizes of the exporting and importing countries are usually measured by gross domestic product, therefore the importing countries and their top five apparel suppliers' GDP (GDP<sub>j</sub>) are considered in order to highlight the economic masses and the effect of apparel exports on the economy as well as the supply capability of labour-intensive products of those exporting countries. To satisfy the curiosity about the situation of EU-5 and USA economy on the apparel imports from those countries, per capita GDP (PCGDP<sub>i</sub>) of the importers are included in the list of independent variables.

According to Leamer and Levinsohn's (1995) survey of the empirical evidence on international trade, the identification of distance effects on bilateral trade have been proved as one of the clearest and most robust empirical findings in economics. Thus, Distance ( $D_{ij}$ ) is considered in the equation. Population growth rates of EU-5 and USA would have a direct relationship with the consumption of manufactured commodities, therefore population growth rate (POPGRATE<sub>i</sub>) is taken into consideration so as to obtain a better understanding of this variable on apparel imports.

Apparel production is considered as a labor-intensive industry, a lot of manual handling is required for garment manufacturing. Moreover, the price competition among apparel suppliers has intensified nowadays as trade liberalization has progressed since the phase out of the ATC in 2005. Therefore, wage of workers (WAGE<sub>j</sub>) in the

top five suppliers is one of the decision factors to relate its importance to the whole apparel trade flow. Lastly, the value added variable refers to the additional value created at a particular stage of production. In modern neoclassical economics, especially in macroeconomics, it adverts to the contribution of the factors of production, i.e., land, labor, and capital goods, in enhancing the value of a product and corresponds to the incomes received by the owners of these factors. The factors of production provide "services" which raise the unit price of a product relative to the cost per unit of intermediate inputs used in the production. Therefore, value added (VALADDED<sub>j</sub>) of apparel suppliers is used to examine whether the additional value of materials and supplies for apparel production has the contribution to the exports.

## **Data Sources**

The model is estimated with data for EU-5, USA and their top five apparel trading partners over the period 1990-2005. Since EU-5 is regarded as a group, we have considered the common apparel suppliers to these EU countries for a single time in the sample so as to avoid repetition. For example, China is the common apparel supplier to various EU countries, and the entire imports from China to EU-5 are counted once in the data. Therefore, in this analysis of EU-5, there are 192 observations (12 exporting suppliers x 16 years). For USA, the size of the sample is 80 observations (5 suppliers x 16 years). Trade data were obtained from UN COMTRADE (import values in US dollars). Data on real GDP, per capita GDP, real exchange rate and population size of countries were secured from International Financial Statistics (IFS) database. The value added and labour wage of top five apparel suppliers were extracted and compiled from the UNIDO Industrial Statistics Database. Finally, distance between countries was obtained from the web site: <http://www.indo.com/distance/index.htm>

## **Empirical Findings**

### **Gravity Equation with Panel Data Estimation**

The panel data estimation approach with fixed effects was applied and used to reduce the multicollinearity among explanatory variables and to improve the efficiency of econometric estimates. The fixed effect model is used because the import, export and geographical factors are not considered random but depended on the countries' characteristics. Another advantage of using fixed effects model is that the error term which is correlated with the individual effects, unlike the OLS approach, would not bias the estimator.

The gravity equation with fixed effects method is a full model that include all the independent factors as discussed in the previous section. The estimation result (presented in Table 1) is more plausible and offers a better explanatory capacity because the R<sup>2</sup> values are quite high which indicate that 80% and 85% of apparel imports to EU-5 and USA can be accounted for the independent variables. The variables tested are highly significant and all showed significance at 95% with many at 99% significance level.



TABLE 1: ESTIMATED VARIABLES FOR THE DETERMINATION OF EU-5 AND USA APPAREL IMPORTS

<b>Dependent Variable: ln(IM<sub>ij</sub>)</b>		
<b>Independent Variables:</b>	<b>Coefficient (EU-5)</b>	<b>Coefficient (USA)</b>
Constant	-9.72***	3.17**
Ln(GDP <sub>j</sub> )	2.34***	2.18***
Ln(GDP <sub>i</sub> )	0.69***	0.89***
Ln(PCGDP <sub>j</sub> )	1.09**	1.19**
Ln(PCGDP <sub>i</sub> )	2.1***	1.1***
Ln(D <sub>ij</sub> )	-0.53***	-1.21***
(POPGRATE <sub>i</sub> )	0.85**	0.83**
(REXRATE <sub>ij</sub> )	-0.11**	-0.08***
(WAGE <sub>j</sub> )	-0.73***	-0.95**
(VALADDED <sub>j</sub> )	1.31***	0.95***
<b>Adjusted R<sup>2</sup></b>	<b>0.8</b>	<b>0.85</b>
<b>N=192(EU-5)/80(USA)</b>		

\*\* Significant at .05 level, \*\*\*significant at .01 level

The analytical result was in alignment with other gravity model studies (Tinbergen, 1962; Poyhonen, 1963 and Glick & Rose, 2002) of bilateral trade, GDP of importers and exporters would positively and significantly affect apparel trade. This conforms to the theoretical expectation; a higher GDP has a higher demand for apparel imports and would also create a larger supply for exports. Interpretation of results indicates that with a 10% increase in GDP for EU-5 and USA there would be 6.9% and 8.9% increases in their apparel imports respectively. The same phenomena is expected when per capita GDP of importing countries improved reflecting that they have higher purchasing power and leading to a greater demand for imports, in this case EU-5 and USA apparel imports. These findings suggest that when there are increases in both importers' GDP and their per capita GDP, apparel imports will boost as well.

The result also indicates that apparel exports would increase by 23.4% and 21.8% to the EU-5 and USA markets respectively as a result of a 10% increase in exporters' GDPs. This implies that a larger amount of exports would contribute to a higher GDP growth by apparel suppliers and boost the economy of the countries. Similarly, a rising trend in apparel suppliers' exports would increase their per capita GDP.

Next, physical distance ( $D_{ij}$ ) shows statistical significance and has a negative impact on apparel trading, reflecting that an increase in distance does lead to reduction in apparel imports of EU-5 and USA. This matches with the general prediction which suggests that the farther the distance between bilateral trading destination the lesser the business takes place (Linnemann, 1966; Bergstrand, 1985 & 1989; Frankel & Rose, 2002). Transportation costs would add to the price of a good in the importing country and increase the cost of trade. Therefore, proximity is definitely an essential factor for encouraging trade between countries. European suppliers, such as Italy, Poland, Turkey, France, Portugal, Germany and Romania are located much closer to EU-5 and Mexico is the neighboring country with USA when compared with the Asian suppliers. Lower transportation cost is beneficial for exporting apparel items from European countries to EU-5 and Mexico to USA, which in turn increases the profit and boost the trade between these countries. Proximity helps to reduce the cost of doing business especially in the case of apparel,

since distance is correlated with time to market, as timeliness is also a significant determinant in the fashion retailing business. Garment manufacturers must be able to respond quickly to the change in demand of the consumers. Thus, for EU-5 and USA apparel markets, proximity still count as an important variable in the apparel trade.

The results reveal that real exchange rate plays a crucial role in determining the volume of EU-5 and USA apparel imports. Whenever a real depreciation/appreciation of foreign currencies against US dollars there would be an increase/decrease in apparel exports and vice versa. The population growth rate also demonstrates a positive effect on trade flow between countries. As shown in the analysis, apparel imports would be increased by 8.5% and 8.3% with a 10% increase in importers' population growth rate. This supports the view of Brada & Mendex (1983) that the higher the population growth rate, a greater import value is anticipated.

For the wage variable ( $WAGE_j$ ), the coefficients showed negative signs indicating the variable is significant for apparel trade. This implies that the lower the labor cost with the apparel suppliers, the higher the attractiveness for EU-5 and USA to import apparel products from them. As the consumers always search for the quality apparel products at the best price, once they realize that the competitive advantage of certain countries is lost, the consumers will shift to another production site which provides lower cost and owns a productive workforce. Base on this, Asian countries such as China, India and Indonesia have become the leading and highly competitive suppliers to EU-5 and USA apparel markets. The reason is they possess productive and cheap labor force, a large stock of technical manpower and manufacturing base.

For the variable ( $VALADDED_j$ ), it presents a positive significant impact on the apparel import trends of EU-5 and USA. Result indicates that with a 10% increase in ' $VALADDED_j$ ' of suppliers, there would be 13.1% and 9.5% increases in apparel exports to EU-5 and USA respectively. This shows that the customers are more willing to pay for the apparel items which possess extra value such as an established brand image or relationship marketing. Some Asian apparel suppliers, such as China and Korea have been improving the manufacturing and marketing power to produce higher value-added apparel products as well as investing in apparel production in Central America so as to compete with European and Mexico suppliers for quick response supply to the market.

## Conclusion

This empirical study yields a number of noteworthy findings. The analysis result provides a vigorous support for the gravity model. The estimated coefficients for the variables,  $\ln(GDP_j)$ ,  $\ln(GDP_i)$ ,  $\ln(PCGPD_j)$  and  $\ln(PCGPD_i)$  are positive and statistically significant, indicating that positive GDP growth rate in EU-5 and USA would lead to a greater demand for apparel imports because of their higher purchasing power. Moreover, a greater amount of apparel exports would also contribute to a higher GDP for the suppliers and boost the economy of these countries. Similarly, a rising trend in apparel suppliers' exports would increase their per capita GDP.

The result also suggests that the distance variable remains statistically significant and has a negative impact on apparel exports since the short lead time is the most determining factor in the fashion sector. The study also indicates that the devaluation of the US currency would reduce apparel imports due to the fact that the buyers have to pay higher price for apparel products. The analysis also shows that population growth rates of EU-5 and USA both have direct impact on the consumption of apparel items and trade flows. Moreover, the lower the wages of the apparel suppliers, the higher the attractiveness for EU-5 and USA to import apparel items from those countries because the products are cheaper. Thus, developing countries would be in a better position in the international free trade environment imputable to their asset of a large number of workers with comparatively lower labor cost.

Finally, the ' $VALADDED_j$ ' factor presents a positive impact on the apparel import since the value added apparel products will increase the unit price through brand image or marketing or create innovative features for the apparel products. Thus value adding in apparel products would contribute to a rise in apparel exports.

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## End Notes

<sup>1</sup> EU-5: EU has 27 member countries in 2007. The significant apparel importers are EU-5 including Germany, United Kingdom, France, Italy and Spain.

<sup>2</sup> The top five apparel consuming countries among EU-5 are including Germany, United Kingdom, France, Italy and Spain.

<sup>3</sup> The overall top five apparel suppliers to EU-5 from 1990-2005 included China, Italy, HKSAR, Poland, Turkey, France, Portugal, Morocco, Tunisia, Germany, Romania and India.  
The overall top five apparel suppliers to USA from 1990-2005 were China, Mexico, HKSAR, Korea and Indonesia.

## Design and Analysis of Decision Support Systems

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### Abstract

Since their creation in the early 1960's, Decision Support Systems (DSSs) have evolved over the past four decades and continues to do so today. Although DSSs have grown substantially since its inception, improvements still need to be made. New technology has emerged and will continue to do so and, consequently, DSSs need to keep pace with it. Also, knowledge needs to play a bigger role in the form of decision making. We first discuss design and analysis methods/techniques/issues related to DSSs. Then, the three possible ways to enhance DSSs will be explored.

### Introduction

Over the four decades of its history, decision support systems (DSSs) have moved from a radical movement that changed the way information systems were perceived in business, to a mainstream commercial information technology movement that all organizations engage. This interactive, flexible, and adaptable computer based information system derives from two main areas of research: the theoretical studies of organizational decision making done at the Carnegie Institute in the 1950's and early 1960's as well as the technical work on interactive computer systems which was mainly performed by the Massachusetts Institute of Technology (Keen & Morton, 1978).

DSSs began due to the importance of formalizing a record of ideas, people, systems and technologies implicated in this sector of applied information technology. But the history of this system is not precise due to the many individuals involved in different stages of DSSs and various industries while claiming to be pioneers of the system (Power, 2003; Arnott & Pervan, 2005). DSSs have become very sophisticated and stylish since these pioneers began their research. Many new systems have expanded the frontiers established by these pioneers yet the core and basis of the system remains the same. Today, DSSs are used in the finance, accounting, marketing, medical, as well as many other fields.

### Background

The basic ingredients of a DSS can be stated as follows: the data management system, the model management system, the knowledge engine, the user interface and the users (Donciulescu, Filip, & Filip, 2002). The database is a collection of current or historical data from a number of application groups. Databases can range in size from storing it in a PC that contains corporate data that has been downloaded, to a massive data warehouse that is continuously updated by major organizational transaction processing systems (TPSs). When referring to the model management system, it's primarily a stand-alone system that uses some type of model to perform "what if" and other kinds of analysis. This model must be easy to use, and therefore the design of such model is based on a strong theory or model combined with a good user interface.

A major component of a DSS is the knowledge engine. To develop an expert system requires input from one or more experts, this is where the knowledge engineers go to work, who can translate the knowledge as described by the expert into a set of rules. A knowledge engineer acts like a system analyst but has special expertise in eliciting information and expertise from other professionals (Laudon & Laudon, 2005).

The user interface is the part of the information system through which the end user interacts with the system; type of hardware and the series of on-screen commands and responses required for a user to work with the system. An information system will be considered a failure if its design is not compatible with the structure, culture, and goals of the organization. Research must be conducted to design a close organizational fit, to create comfort and reliability between the system and user. In a DSS, the user is as much a part of the system as the hardware and software. The user can also take many roles such as decision maker, intermediary, maintainer, operator and feeder. A DSS may be the best one in its industry but it still requires a user to make the final decision.

Power (2003) introduced a conceptual level of DSSs, which contains five different categories. These categories include model-driven DSS, communication-driven DSS, data-driven DSS, document-driven DSS, and knowledge-driven DSS. Defining DSS is not always an easy task due to the many definitions available. Much of this problem is attributed to the different ways a DSS can be classified. At the user level, a DSS can be classified as passive, active, or cooperative.

Essentially, DSS is a computer-based system that provides help in the decision making process. However, this is a broad way of defining the subject. A better way of describing DSS is to say it is a flexible and interactive computer-based system that is developed for solving non-structured management problems. Basically, the system uses information inputted from the decision maker (data and parameters) to produce an output from the model that ultimately assists the decision maker in analyzing a situation. In the following sections, we first discuss design and analysis methods/techniques/issues related to DSSs. Then, the three possible ways to enhance DSSs will be explored.

## **Design and Analysis Methods/Techniques/Issues Related to DSSs**

### **Design Methods**

Today, DSSs hold a primary position in an organization's decision making by providing timely and relevant information to decision makers. It has become a key to the success or survival of many organizations. However, there is a high tally of failure in information systems development projects, even though they are a focal point of industrial concern (Goepf, Kiefer, & Geiskopf, 2006). Designing methods have become an important component that assures a successful information system design. This issue is in relevance to the design of a DSS.

There have been many different strategies employed for the design of a DSS. Current research on DSS design has witnessed the rapid expanding of object-oriented (OO), knowledge management (KM), structured modeling (SM), and design science (DS) approaches.

*Object-Oriented approach.* The characteristic of OO approach is to use object-oriented software engineering with unified modeling language (UML) in the design and implementation of a DSS. OO approach involves basically three major steps. The user's requirements are first captured by using a set of use case diagrams. These diagrams indicate all the functionalities of the system from the user's point of view. Then classes and their relationships are identified and described in class diagrams. Finally, sequence diagrams or collaboration diagrams are developed, which describe the interaction between objects (instances of classes). Tian, Ma, Liang, Kwok, & Liu (2005) designed a DSS with the OO approach for an organization, which was implemented successfully.

*Knowledge Management approach.* In some environment (non-preprogrammed applications), end-users, especially the less experienced end-users, need to have certain knowledge guiding them how to use the system. The KM design approach supports end-users by embedding declarative and/or procedural knowledge in software agents. This approach provides better assistance to inexperienced users of spatial DSS, which requires a design approach that will prioritize knowledge support of the end-users' decision making activities (West & Hess, 2002).

*Structured Modeling approach.* SM approach "uses a hierarchically organized, partitioned, and attributed acyclic graph to represent models" (Srinivasan & Sundaram, 2000, p. 598). It is consisted of three levels: elemental structure, generic structure, and modular structure. The elemental structure intends to capture the details of a specific model instance. The generic structure targets at capturing the natural familial groupings of elements. The modular structure seeks to organize generic structure hierarchically according to commonality or semantic relatedness. The leveled structures allow the complexity of a model to be managed and ranked according to its hierarchies. The graph

feature allows modelers and decision makers to understand the model better. A key advantage of SM is the ease with which structured models can be visualized.

*Design Science* approach. The functionality of a DSS evolves over a series of development cycles where both the end-users and the systems analyst are active contributors to the shape, nature, and logic of the system (Arnott, 2004). Yet system developers have little guidance about how to proceed with evolutionary DSS development. DSS developers are facing the fact that insufficient knowledge exists for design purpose, and designers must rely on intuition, experience, and trial-and-error methods. Design science approach, on the other hand, can facilitate developers to create and evaluate information technology artifacts that are intended to solve identified organizational problems (Hevner, March, Park, & Ram, 2004). Vaishnavi and Kuechler (2006) proposed a design science methodology with the major process steps of awareness of problem, suggestion, development, evaluation, and conclusion. Arnott (2006) proposed a five steps approach, which was adapted from Vaishnavi and Kuechler, for designing evolutionary DSS: problem recognition, suggestion, artifact development, evaluation, and reflection. A research project by Arnott indicates that design science approach can tackle problems of both theoretical and practical importance.

#### **Design Techniques**

As we are advancing in information technologies, business decision makers can now have access to vast amount of information. On one hand they may gain necessary and important information for making informed decisions, but on the other hand they may also become overloaded by the information irrelevant to what they need. Thus, there is a pressing need for decision aiding tools that would effectively process, filter, and deliver the right information to the decision makers. Proper combination of DSSs and agent technologies could prove to be a very powerful tool for rendering decision support (Vahidov & Fazlollahi, 2003/2004).

A software agent performs interactive tasks between the user and the system. The user instructs the system what he/she intends to accomplish. The software agent carries out the task. By analogy, a software agent mimics the role of an intelligent, dedicated and competent personal assistant in completing the user's tasks (Bui & Lee, 1999). In the DSS environment, software agents have been more formally described as autonomous software implementations of a task or goal that work independently, on behalf of the user or another agent (Hess, Rees, & Rakes, 2000). As the traditional, direct manipulation interface of our computing environment is much limited (Maes, 1994), software agents would seem to be a suitable and most needed solution for providing procedural assistance to end-users (West & Hess, 2002). These 'robots of cyberspace' can be effectively utilized in automating many information processing tasks (Vahidov & Fazlollahi, 2003/2004).

In some DSS environment, such as spatial DSS (Sikder & Gangopadhyay, 2002; West, & Hess, 2002), Internet-based DSS (Bui & Lee, 1999), and Web DSS (Vahidov & Fazlollahi, 2003/2004), a multi-agent system should be designed and implemented in the DSS to facilitate the decision makers since decision making involves complex set of tasks that requires integration of supporting agents (Bui & Lee, 1999), and these agents should have behaviors to work in team (Norman & Long, 1994). Vahidov and Fazlollahi (2003/2004) developed architecture of multi-agent DSS for e-commerce (MADEC), in which Intelligence Team (Agents); Design Team (Agents); and Choice Team (Agents) were composed. The multi-agent system was implemented in a prototype of MADEC, which received higher user satisfaction.

### **Three Possible Ways to Enhance DSSs**

#### **Creating Knowledge Warehouses (KW)**

Nemati (2002) proposed that a new generation of knowledge-enabled systems that provides the infrastructure required to capture, enhance, store, organize, leverage, analyze, and disseminate not only data and information but also knowledge (Nemati, 2002). Expanding data warehouses to encompass the knowledge needed in the decision making process is the creation of knowledge warehouses (KW). An important component of KW is a very complex process known as knowledge management. Knowledge management allows for knowledge to be converted from tacit to explicit through such processes as filtering, storing, retrieving, etc., thus allowing it to be utilized by decision makers.

The goal of KW is to give the decision maker an intelligent analysis standpoint that enhances all aspects of the knowledge management process. The main drawbacks of KW are the amount of time and money that need to be invested as well as some of the same problems that are found in successfully implementing DSSs. Among these factors are the users' involvement and participation, values and ethics, organization and political issues within the company, and other external issues. The development and implementation of KW still has much work to be done, however, DSSs seem to be headed toward knowledge enhancement in the future and KW looks to have a promising outlook in the upcoming years as a result.

#### **Focusing on Decision Support**

While knowledge management systems seem like a logical way to advance the shortcomings of DSSs, another view also exists. By removing the word "system" from DSSs and focusing on decision support, decision making might cause some interesting, new directions for research and practice. Decision support (DS) is the use of any plausible computerized or non-computerized means for improving sense making and/or decision making in a particular repetitive or non-repetitive business situation in a particular organization (Alter, 2004).

DS embodies a broader perspective that seems logical in environments where the user does not necessarily need the technical aspects of DSSs. This is based on the belief that most work systems of any significance include some form of computerized support for sense making and decision making. The difference between DSSs and DS is not too drastic but DS is a sensible option for many companies due to the increase in technology since the creation of DSSs; DSSs may not fit the needs of a business as it had in the past.

#### **Integrating DSSs & KMSs**

In line with Bolloju (2002), integrating decision support and knowledge management may correct some of the deficiencies of DSSs. The decision-making process itself results in improved understanding of the problem and the process, and generates new knowledge. In other words, the decision-making and knowledge creation processes are interdependent. By integrating the two processes, the potential benefits that can be reaped make the concept seem more worthwhile.

Integrating DSSs and KMSs seems to be the best choice out of the three possible ways to enhance DSS. The reasoning behind this selection is that integrating the two seems to provide a way for including both options without sacrificing one for the other. More importantly, while KW appears to have a very bright future, KW currently requires a great amount of time and money. The combination of both areas allows for a better overall utilization in the present. In time, KW may not be as time consuming and costly as it is now. However, to achieve a better balance of usefulness and efficiency, the integration of DSSs and KMSs appears to be the smartest choice.

## **Future Trends**

The future of DSSs, Angus (2003) argued and supported by SAS (2004), is in the field of *business analytics* (BAs). BAs differ from that of the recently and previously more common business intelligence (BI). With the fast pace of business and life today it would only make sense for a shift to BA because it does focus on the many possibilities and the future outcomes for production and service.

BAs focus on the future of operations. Opposed to that of BI where it focuses on the past and what can be done to change the past if things were done wrong or repeat if things were done right. However, BAs let managers center on what future trends are developing, which allows them not to accumulate a surplus of inventory of outdated products. It also enables managers to change their prices before the market does, or introduce their new product before anyone else gets the chance to. This is known as first-to-market (Gnatovich, 2006). BAs give the companies that use it a tremendous advantage over their competitors in the market place.

## **Conclusion**

Since their creation in the early 1960's, DSSs have evolved over the past four decades and continues to do so today. Although DSSs have grown substantially since its inception, improvements still need to be made. New technology

has emerged and will continue to do so and, consequently, DSSs need to keep pace with it. Also, knowledge needs to play a bigger role in the form of decision making.

Shim (2002) emphasized that DSSs researchers and developers should (i) identify areas where tools are needed to transform uncertain and incomplete data, along with qualitative insights, into useful knowledge, (ii) be more prescriptive about effective decision making by using intelligent systems and methods, (iii) exploit advancing software tools to improve the productivity of working and decision making time, and (iv) assist and guide DSSs practitioners in improving their core knowledge of effective decision support.

The prior statement sums up the courses of action that need to be taken very well. The successful integration of DSSs and KMSs could revolutionize DSSs and propel it to even greater heights in the future. In closing, DSSs have a storied history that spans the course of four decades; however, the greatest mark may be made in the not so distant future as DSSs continue to evolve.

## **References**

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# Designing a Dynamic Buyer-Supplier Coordination Model in Electronic Markets Using Stochastic Petri Nets

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## Abstract

In the era of globalization and fierce competition, internet based market place has provided a coordination mechanism between two different business entities in supply chain activities. Functional relationship between supplier and buyer in an open market place, leads to investigate the role of both quantifiable and non-quantifiable parameters in coordination mechanism with the aim of achieving higher performance in supply chain activities. In this paper, we develop an e-based supply chain model and a new agent for designing mass-customized on-line services. A cooperative game theory framework is utilized between buyer and supplier in order to increase the supply chain performance. The supply chain is modeled with proposed method and its performance is evaluated by simulation using stochastic Petri nets (SPNs). The model provides a more realistic optimization process by taking into consideration the dynamic information flows in uncertainty environment. **Key words:** Supply chain coordination, e-SCM, Agent, Game theory, SPNs

## Introduction

Globalization of market competition, reducing gap between product in terms of quality and performance are compelling the researchers to rethink about how to manage business operations more efficiently and effectively (Sarmah, acharya and goyal; 2006). Electronic market has added a whole new dimension to the investigation of the business relationship more meaningfully. Electronic markets are defined as a network information system that serve as enabling infrastructure for buyer and sellers to exchange information, transact and perform other activities related to transaction before, during and after transaction (Lancastre and Lages; 2006). The benefits of electrical environments motivate the researchers to align and coordinate the business processes and activities of the net members dynamically as well as to improve the overall performance of supply chain strategies. Threats from competition and other market forces are driving changes in supply chain management (Flynn and Flynn; 2005).

A supply chain can be viewed as a network which the entities maybe owned to geographically diverse locations. Supply chain management (SCM) benefits from a variety of concepts that were developed in several different disciplines as marketing, information systems, economics, system dynamics, logistics, operational management and operation research. In the literature, supply chains are usually described as multi-echelon inventory systems. However, most existing model can only describe a restricted class of supply chains with simplifications (Chen, Amodeo, Chu and labadi; 2005). For instance, most multi-echelon inventory models don't explicitly take account of transportation operations and capacity constraints in supply chain by simply assuming a constant lead time between any two adjacent stocking locations (Tayur et al.; 1998). These models lack flexibility and generality in describing real-life supply chains. The coordination, however, is quite difficult because of the inherent complexity and uncertainty of the supply chains. In fact the use of information systems to ensure visibility of item demand, location and status to all parts of the SC network was identified over a decade ago as an important attribute (Boyson, Corsi and Verbraeck; 2003).

There are large and growing numbers of research efforts on integration of SC since the business firms have commitment in cost reduction and timely response. García-Sánchez, Valencia-García and Martínez-Béjar (2005) applied a methodology that integrates different advanced information technologies with the aim of building a

framework for developing e-commerce application in transaction process (buyer/seller). Thus, electronic exchanges of information lead to the reduction of errors and the increase in the efficiency of the processes involved. Additional challenges are presented by the availability of electronic links with a strong potential to improve the supply chain performance (Poulmenakou and Tsironis; 2003). García-Dastugue and Lambert (2003) survey the role of internet in an integration of business process across the supply chain by facilitating the information flows necessary for coordinating business activity. E-procurement also offers several new advantages to industrial buyers as many of them stem from the ability to reach a wider set of suppliers than before (Hazra and Mahadevan; 2006).

The goal of this study is to provide the mathematical model that can describe material, information and financial flows of a decentralized supply chain in an integrated way as well as provide a tool which can help industrial practitioners to model, evaluate performance and optimize operational policies of their supply chains. In the next section, we provide a brief literature review about coordination mechanism.

## **Coordination Mechanism**

Several strategies such as credit option, buy/back return policies, quantity flexibility and commitment of purchase quantity are used to align the business process and activities of diverse members of supply chains in terms of cost, response time, timely supply and customer service (Sarmah, acharya and goyal; 2006). Supply chain coordination is concerned with the development and implementation of such strategies. There is no universal coordination strategy that will be efficient and effective for all supply chains as the performance of coordination strategy in SC characteristics is dependent (Sarmah, acharya and goyal; 2006). They particularly investigate SC coordination models that have used quantity discount as coordination tool under deterministic environment as well as some integrated buyer-vendor models that improves the performance of the SC.

The concept of dynamics of whole supply chain in order to propose some coordination mechanisms will reduce the bullwhip effect while taking into account operational constraints and maintaining service level. The advent of new information systems and technologies (IS and IT) such as electronic data interchange(EDI), Internet, Intranet, and Extranet, in particular, and inter-organizational communication and coordination mechanisms cast unprecedented opportunities for the integration of supply chains (Mahdavi, Cho and Mohebbi; 2007). Thus, Dynamic and timely information flows in uncertainty environment plays an important role in coordination mechanism. The interested reader may refer to Pant, Sethi and Bhandari (2003) to have better understanding of creation and implementation of e-supply chain systems. The authors draw on research in the areas such as web-based information systems and inter-organizational information systems. Averbakh, Xue (2006) also pointed to supply chain scheduling problems in off-line environment and proposed on-line environment, whose future is unknown.

An interesting development in the field of e-SCM is to exploit the benefits offered by coordination mechanism on functional relationship between buyer and supplier. The buyers in an electronic market fundamentally are faced with supplier selection. Moreover, the presence of multiple suppliers will require the buyer to set-up a competitive mechanism for capacity allocation among the selected suppliers (Hazra and Mahadevan; 2006). The supplier's willing is also to maximize their profit among the net. In this case, a collaborative strategy that can allocate the benefits of coordination among the supply chain members should be applied to align their objectives of coordination. Such a system is regarded as a decentralized supply chain system.

Three dimensions are introduced by Li and Wang (2007) on which the operational activities of a supply chain can be coordinated in order to maximize system profits. First, order quantities that optimize individual performance are often not able to optimize system performance. There is a vast literature on discount policies that suppliers can use to entice buyers to increase their order quantities so as to improve profits (Wang; 2005). Second, orders can be synchronized to reduce system inventory. If the buyers are coordinated to place orders at the same point in time, the supplier may adopt a lot-for-lot policy and carry no inventory. If the buyers aren't coordinated on the timing of their orders, the supplier inventory replenishment cost is double that under the lot-for-lot policy (Wang et al.; 2006). Finally, accurate, timely and easily accessible information can improve decisions. In the context of

SCM, a supplier is able to better match inventory supply with demand when information is available on the buyers' inventory status. Although, the benefits of information depends on how it's used.

The literature on coordination of supply chain inventory systems exist under a framework that is based on supply chain decision structure and nature of demand. The literature in each category will be further reviewed based on time coordination and/or demand and information structure (Li and Wang; 2007). In the next section, we review the concept of centralized and decentralized supply chains as well as the role of supply chain coordination.

#### **Centralized Supply Chain**

A centralized supply chain system is viewed as one entity that aims to optimize system performance. Various production/inventory policies have been developed to optimize the performance of a centralized supply chain system. There are two main categories in centralized supply nets: a) deterministic systems b) stochastic systems.

The objective of deterministic systems is to develop a production/inventory policy to minimize system cost. It's typically assumed that demand occurs at a buyer/retailer continuously at a constant rate. Early studies have focused on the existence and development of optimal policies. However, such policies are usually difficult to implement. Comprehensive review of such models can be found in Li and Wang paper (2007).

In reality, a stochastic model that specifies demand as a stochastic process is often more accurate than its deterministic counterpart (Zheng, 1992). However, a barrier to the application of a stochastic model is that the optimal policy doesn't have a simple structure. This implies that appropriate coordination mechanism are especially necessary (Li and Wang; 2007). Moreover, information sharing contributes another dimension for coordination when demand is stochastic. As the time and cost to process orders are substantially lowered, impressive improvements in supply chain performance have been obtained. It is now a common belief that capturing and sharing real-time demand and stock information is the key to improve supply chain performance (Li and Wang; 2007).

#### **Decentralized Supply Chain**

A decentralized supply chain differs from a centralized system in that members act independently to optimize their individual performance. Although more and more firms have realized that collaboration with their supply chain partners can significantly improve their profit, the centralization of inventory and production decisions for a decentralized is often unrealistic (Li and Wang; 2007). Therefore, the challenge is to devise coordination mechanisms that aren't only able to coordinate the activities but also to align the objectives of independent supply chain members (Chen et al.; 2000). Previous research on the coordination of decentralized deterministic systems has focused on using quantity discount to induce independent buyers to increase their order quantity. Other researches investigate the case of single/heterogeneous retailers and suggest different nearly optimal solutions.

In view of the difficulties in managing centralized stochastic multi-echelon inventory systems, it's an understatement that is a challenge to coordinate a decentralized supply chain with stochastic demand (Li and Wang; 2007). A few important studies fall into this category. Cheung and Lee (2002) discuss the value of sharing information about the retailers' inventory positions which could be used to coordinate shipments from the supplier to enjoy economies of scale in shipments, and for eventual unloading of the shipments to retailers to rebalance their stocking positions. In view of previous studies, for a decentralized supply chain system which the members belong to different firms a coordination mechanism should include at least three components: (i) an operational plan to coordinate the decisions and activities of supply chain members, (ii) a structure to share information among the members, and (iii) an incentive scheme to allocate the benefits of coordination so as to entice the cooperation of all members (Li and Wang; 2007).

In this paper, we have introduced the concept of dynamic supply chain information flows. An agent is designed to analyze and simulate the players' behavior in SC network. We consider price and quality jointly as coordination parameters of decentralized supply chain in order to obtain both the optimum supplier selection for individual buyers and to maximize supplier's profit. We also show how non-quantifiable parameters can affect the price. A cooperative game theory framework is also utilized between the actors in order to increase the supply chain performance.

## Game Theory

Traditional research in operation management focused on providing tools in order to analyze corresponding problems. The tools relied largely upon dynamic programming and other optimization techniques. In the last several years, the evolution of SCM recognized that a business process consists of several decentralized firms and operational decisions of these different entities impact each other's profit and thus the profit of the whole SC (Nagarajan and Sosic;2006). In decentralized supply chain where the members belong to two different firms, the method of bargaining and negotiation solution which is dynamic in nature may result in a better coordination in SC as it compared to static coordination solution in a centralized supply chain. To effectively model and analyze decision-making in such multi-person situation where the outcome depends on the choice made by every party, game theory is a natural choice (Nagarajan and Sosic; 2006). More comprehensive literature review on game theory among supply chain agents can be found on Nagarajan and Sosic' paper (2006).

Game theory is a branch of mathematics devoted to the logic of decision-making in social interactions. The principle objective of game theory is to determine through formal reasoning alone, what strategies the player ought to choose in order to pursue their own interests rationally and what outcomes will result if they do so.

There is a broad division of game theory into two approaches:

- 1) cooperative
- 2) non-cooperative

In non-cooperative game, the intention of the players is to maximize their individual gain while, in a cooperative game both buyer/seller would consider maximizing system profit.

Different types of game models have different solution concept. The bargaining game in cooperative game theory addresses the problems in which a group of two or more agents faced with a set of feasible outcomes, any one of which will be the result if it's specified by unanimous agreement of all participants. In the event that no unanimous agreement is reached, a given disagreement outcome is the result.

In the Stackelberge game, the player who holds more powerful position is called the leader and the other player who reacts to leader decision is called the follower and the solution obtained to this game is the Stackelberg solution (Sarmah, acharya and goyal; 2006). When two players negotiate, it's reasonable to expect that the player with the higher bargaining power receives a larger share of the pie than his weaker counterparts.

Our model of supply chain is composed of three main players: a) supplier b) buyer c) control/optimization service agent. The word supplier is used to represent the upstream member in the supply chain who sells the items to the buyers. An agent facilitates the communication between customers and suppliers and allows us to design, simulate and analyze our collaborative strategies.

## The Proposed Model

Assume that suppliers are located in different nations with a vast network of clearing and forward agents. The integration of these geographically separated supplier locations and the fulfillment of demands of different customer centers are a big challenge. Indeed, Consider a family of products that a buyer would like to procure from an electronic market for which there are some pre-qualified suppliers available to supply as per specification. The information for a rough-cut capacity planning will be carried out at different supplier locations based on actual shift time, total actual time available during the planning period, and the average break-down by supplier-agent interaction. We assume the inventory system of supplier with periodic review ( $s, S$ ) policy which the inventory replenishment decisions are based on position. The agent mediates the interaction between buyers and suppliers in an electronic marketplace. It computes the optimum solution by considering the whole SC profit under game theory frame work.

### Transaction Agent for Control and Optimization

Agent technology provides the distributed environment and great promise of effective communication (Lee, Chang and Lee, 2000; Swaminathan, Smith and Sadeh; 1998). According to Wooldridge (2002) and García-Sánchez, Valencia-García and Martínez-Béjar (2005), agents make the second generation e-commerce systems possible, in

which many aspects of a customer's buying behavior is automated. A comprehensive review of agent-based approaches in supply chain can be found in Parunak paper (1999).

This section describes the functionality of this transaction agent (TA). It plays the most important role in our proposed supply chain system.

**Agent Architecture**

The major components and functions of an agent are as follows:

- a) Offered prices of buyers, quantitative and qualitative attributes related to customers' evaluation (table I),
- b) Desired prices of suppliers based on capacity and inventory carrying cost, quantitative and qualitative attributes related to suppliers' perception (table I),
- c) Preprocessing and building customer profiles and computing the optimum solution with no cooperation in SC net,
- d) Preprocessing and building supplier profile and computing the optimum solution in order to satisfy relevant demand and capacity, and
- e) Preprocessing, building and computing the model based on cooperative game theory framework.

In the next section, we will illustrate the manner of acquisition of rich and accurate profiles in an electronic supply chain system.

TABLE I. QUANTITATIVE AND QUALITATIVE ATTRIBUTES RELATED TO BUYER AND SELLER

	Buyer	Seller
Quantitative Attribute	Lead Time, Transportation Cost, ...	Sales Volume, Capacity, Product Life Cycle,...
Qualitative Attribute	Service Level, Aesthetics, Management,...	Customer Satisfaction, Technological Standard, Geographical Benefit,...

**Buyer Profile**

The agent receives all necessary information about the quantitative and qualitative attributes related to each product from  $m$  customers electronically. Then the agent assigns  $n$  key attributes for each aspect of customer's perception. By obtaining all information from customers we create the vector of comprehensive key attributes as  $CK = \{k_1, k_2, \dots, k_n\}$ . The agent also designs the customer-key attributes incidence matrix as  $CKIM = [c_{ij}]$ , where  $c_{ij}$  represents the frequency value of  $i^{th}$  customer on  $j^{th}$  supplier ( $i = 1, 2, \dots, m$  and  $j = 1, 2, \dots, k$ ) for each elements of  $CK$ . This value indicates the priority and evaluation of the buyers with respect to suppliers on a special aspect of a product. We can also calculate the weight of each attribute as a priority of corresponding key attribute for each buyers view by using formula (1):

$$[W^B]_{l \times 1} = \left( \sum_{j=1}^n \left( \frac{o_{ij}}{\sum_{i=1}^n o_{ij}} \right) \right) / n \quad \begin{matrix} \forall l = 1, \dots, n \\ \forall i = 1, \dots, n \end{matrix} \tag{1}$$

Where,  $o_{ij}$  represents the value of reciprocal matrix for the relative importance of comprehensive key attributes with respect to each buyer.

With this weight we can calculate the weight mean of  $CKIM$  matrix to obtain the buyer profile matrix as given in below:

$$MCKIM = \begin{matrix} b_1 \\ b_2 \\ \cdot \\ \cdot \\ b_m \end{matrix} \begin{bmatrix} a_{11} & \cdot & \cdot & a_{1k} \\ a_{21} & \cdot & \cdot & a_{2k} \\ \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot \\ a_{m1} & \cdot & \cdot & a_{mk} \end{bmatrix}$$

Where,  $a_{ij}$  represents the final priority of buyers on suppliers.

It is evident that, based on the association between the elements of final priority matrix and cost elements, the lower the probability of buying from a supplier, the higher the costs will be. Hence, we have to modify the elements of MCKIM as:

$$[MCKIM'] = [a'_{ij}]_{m \times k}$$

So that  $a'_{ij} = 1 - a_{ij}$  for all entities of the corresponding matrix. This modification produces a matrix that represents the non-desirability of buying from a supplier for individual buyers.

The agent also constitute price matrix separately as follows:

$$[P_{ij}^b] = \begin{bmatrix} p_{11} & \cdot & \cdot & p_{1k} \\ \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot \\ p_{m1} & \cdot & \cdot & p_{mk} \end{bmatrix}$$

The final prices should be adjusted to reflect non-quantifiable factors. Thus, In order to obtain the interaction between price and relevant attributes matrixes, independent multiplication as a relative matching method can be applied as follows:

$$[PA^b] = T_{ij}^b$$

So that,

$$T_{ij} = P_{ij}^b * a'_{ij} \quad \forall i = 1, \dots, m \quad \forall j = 1, \dots, k \quad (2)$$

Therefore, the  $[PA^b]$  matrix introduces the priority of matching between prices and attributes in an electronic supply chain environment.

Finally, we can use this matrix in the following model to obtain optimal solution for buyers with no cooperation in SC network:

$$P(b) = \text{Min}Z = \sum (T_{ij}^b * X_{ij})$$

s.t

demand and supply should be satisfied.

Where,  $X_{ij}$  represent the quantity of commodities which  $i^{\text{th}}$  buyer can buy from  $j^{\text{th}}$  suppliers.

#### Supplier Profile

The agent forwards all information related to each product in the customer profile to all suppliers electronically. Then agent obtains the value of each supplier on key attributes of customers. By obtaining all information from supplier-side we create the supplier-key attribute incidence matrix. The agent designs the supplier-key attribute incidence matrix as  $SKIM = [s_{ij}]$ , where  $s_{ij}$  ( $i = 1, 2, \dots, k$  and  $j = 1, 2, \dots, m$ ) represents the frequency value of  $k$  suppliers on  $m$  buyer for corresponding attributes. This value indicates the priority of suppliers on buyers to satisfy the specific attribute of customers. We can also calculate the weight of each attribute as a priority of corresponding key attribute for each Supplier as shown in the formula (3):

$$[W^S]_{k \times 1} = \left( \sum_{j=1}^n \left( \frac{o_{ij}}{\sum_{i=1}^n o_{ij}} \right) \right) / n \quad \forall l = 1, \dots, n \quad \forall i = 1, \dots, n \quad (3)$$

Where,  $o_{ij}$  represents the value of reciprocal matrix for the relative importance of comprehensive key attributes with respect to each supplier.

With this weight we can calculate the weight mean of *SKIM* matrix to obtain the supplier profile matrix as given in below:

$$MSKIM = \begin{matrix} s_1 \\ s_2 \\ \cdot \\ \cdot \\ s_k \end{matrix} \begin{bmatrix} a_{11} & \cdot & \cdot & a_{1m} \\ a_{21} & \cdot & \cdot & a_{2m} \\ \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot \\ a_{k1} & \cdot & \cdot & a_{km} \end{bmatrix}$$

Where,  $a_{ij}$  represents the final priority of supplier with respect to buyers.

It is evident that, based on the association between the elements of final priority matrix and price elements, the higher probability of selling to a customer, the higher the revenues will be. Hence, we have to modify the elements of *MSKIM* as:

$$[MSKIM] = [a'_{ij}]_{k \times m}$$

$a'_{ij} = 1 + a_{ij}$  for all entities of the corresponding matrix. The agent also constitutes the suggested price matrix of suppliers as follows:

$$[p_{ij}^s] = \begin{bmatrix} p_{11} & \cdot & \cdot & p_{1m} \\ \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot \\ p_{k1} & \cdot & \cdot & p_{km} \end{bmatrix}$$

The adjusted prices of supplier can be calculated as:

$$[PA^s] = T_{ij}^s$$

So that,

$$T_{ij} = P_{ij}^s * a'_{ij} \quad \begin{matrix} \forall i = 1, \dots, k \\ \forall j = 1, \dots, m \end{matrix} \quad (4)$$

The  $[PA^s]$  matrix introduces the priority of matching between prices and attributes in an electronic supply chain environment.

By using this matrix in the following model, the optimal solution for suppliers with no cooperation in SC network will be obtained.

$$P(s) = MaxZ = \sum (T_{ij}^s * X_{ij})$$

s.t

demand and supply should be satisfied.

#### Supply Chain Optimal Solution

In non-cooperative game playing independently, the intention of the players is to maximize their individual gain. On the other hand, in a cooperative game both buyer/supplier would consider maximizing system profit subject to buyer's total annual cost at cooperation should be greater than or at least equal to those at non-cooperation. Similarly, supplier's total annual profit at cooperation should be less than or at most equal to those at non-cooperation. The objective function for this game from the general model can be written as:

$$Max = -\lambda * P(b) + (1 - \lambda) * P(s)$$

*s.t.*

$$p(b) \geq p^*(b)$$

$$p(s) \leq p^*(s)$$

*and*

*demand and supply should be satisfied.*

Where  $p^*(b)$  and  $p^*(s)$  represent the cost and revenue of buyer and supplier before cooperation. Depending upon the bargaining power of supplier and the buyer the value of  $\lambda$  varies between 0 and 1.

## **Simulation and Performance Evaluation of an Industrial Supply Chain**

Petri nets are a powerful tool for modeling and analysis of discrete event systems such as manufacturing systems (Wang; 1998). Since supply chains are also discrete event systems from a high level of abstraction, it's possible to develop a Petri net tool for modeling and analysis of supply chains (Chen, Amodeo, Chu and labadi; 2005). Although the literature of Petri nets is comprehensive, very little work applied Petri net to modeling of supply chains. Supply chains are modeled by using colored Petri net, where each supply chain entity is modeled as a block with action, resource and control which is a subnet of colored Petri net model (Chen, Amodeo, Chu and labadi; 2005). Supply chains are also modeled by using generalized stochastic Petri nets (GSPNs) (Viswanadham and Raghavan; 2000). For inventory systems with independent demand, a basic supply chain entity, they are modeled by using first-order hybrid Petri nets that combine fluid and discrete event dynamics (Furcas et al.; 2001).

### **Implications for Practice**

In the present study, we first apply proposed model to an industrial supply chain and then evaluate its performance through simulation which is based on stochastic Petri net (Java program). The Java script and HTML programs can be used to implement our model on web pages in order to process large amount of information. Fig.1 shows the Petri net model of the SC. The interpretation of the places and the transitions in the model are given by table II and table III, respectively. In the model, the material flow is represented by timed transition t1, t2 (inventory replenishment of suppliers), t3 (delivery preparation) and their associated places and arcs. The information flow is represented by immediate transition t4, t6, t7, t9, t11, their associated places and arcs. The financial flow is represented by transition t10 and their associated places and arcs. For simplicity's sake, we assume a scenario in which supply net is composed of two different suppliers and special family of product will be dealt on supply chain net. We also consider the inventory system of suppliers with periodic review ( $s, S$ ) policy in which the inventory replenishment decisions are based on position. The inventory carrying cost for each part of family is deterministic for suppliers and is based on historical data.

Buyers demand is assumed to be poisson process with ( $\alpha = 2500$ ) whose firing time is subject to an exponential distribution with mean value 0.0355. The demands will be filled if there is sufficient on-hand inventory. Otherwise, the demand will be removed. The inventory policy parameters of two suppliers are taken as ( $S_1=5000, s_1=2000$ ) and ( $S_2=5500, s_2=2300$ ). For financial flow, buyers pay to suppliers within a given time period after receiving finished products. We run the model under this strategy that buyer has more bargaining power than supplier by taking  $\lambda = 0.6$  in SC model.



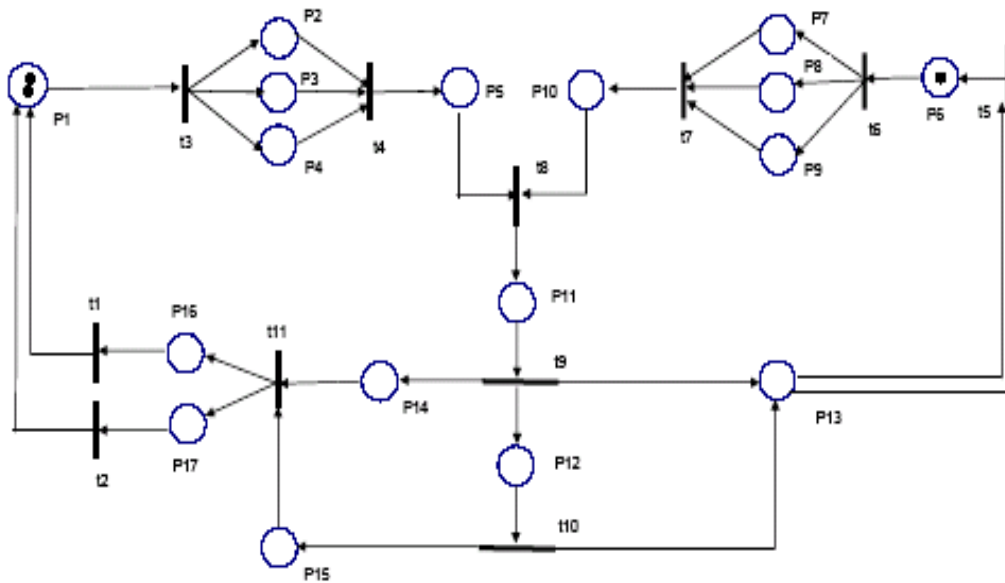


FIG.1: STOCHASTIC PETRI NET MODEL FOR SUPPLY CHAIN

TABLE II: INTERPRETATION OF TRANSITIONS

t1	Inventory replenishment of seller1
t2	Inventory replenishment of seller2
t3	start of delivery preparation
t4	Seller profile
t5	Demand
t6	start of order placement
t7	Buyer profile
t8	Loading of solutions on input buffer
t9	Start of loading information flows
t10	Payment from buyer to seller
t11	Loading sales information

TABLE III: INTERPRETATION OF PLACES

P1	Record of available inventory of stocks
P2	Record of offered price (seller)
P3	Record of quantitative attributes (seller)
P4	Record of qualitative attributes (seller)
P5	Minimization of corresponding model
P6	Pending customer orders
P7	Record of offered price (buyer)
P8	Record of quantitative attributes (buyer)
P9	Record of qualitative attributes (buyer)
P10	Minimization of corresponding model
P11	Minimization of cooperative model
P12	Final stocks order in delivering preparation
P13	Updated buyers profile in SC network
P14	Updated sellers profile in SC net work
P15	Record of financial flows
P16	Record of remainder stocks (seller 1)
P17	Record of remainder stocks (seller 2)

Fig.2 and 3 illustrate the lay out of related knowledge definition for buyer/supplier profiles as well as optimal solution. The final result of simulation as SC optimal solution and remainder stocks diagram for each supplier are given in Fig.4. Because of stochastic nature of the model, multiple replication of simulation over a long time horizon should be performed to obtain a reliable estimation of the performance indexes. For the industrial case, the number of replications is taken as  $N=25$  and the simulation horizon is taken as  $T=T_0+10T_0$  time units with  $T_0=200$  (Chen, Amodeo, Chu and labadi; 2005). In this study, we have shown the model with 10 iterations. These outcomes clarify the role of real-time information flows to manage the inventory system for suppliers according to buyers demand as well as the negotiation results in the profit of whole supply chain network.

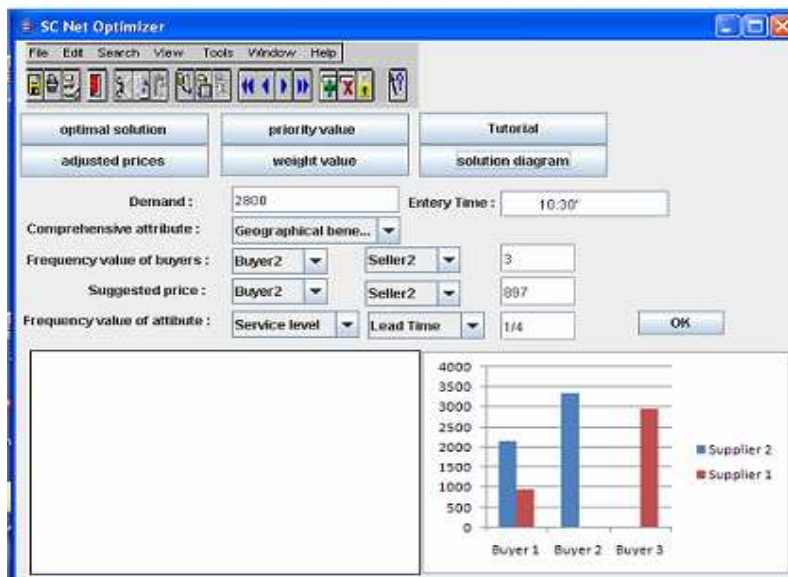


FIG.2: BUYER PROFILE IN SC NET OPTIMIZER

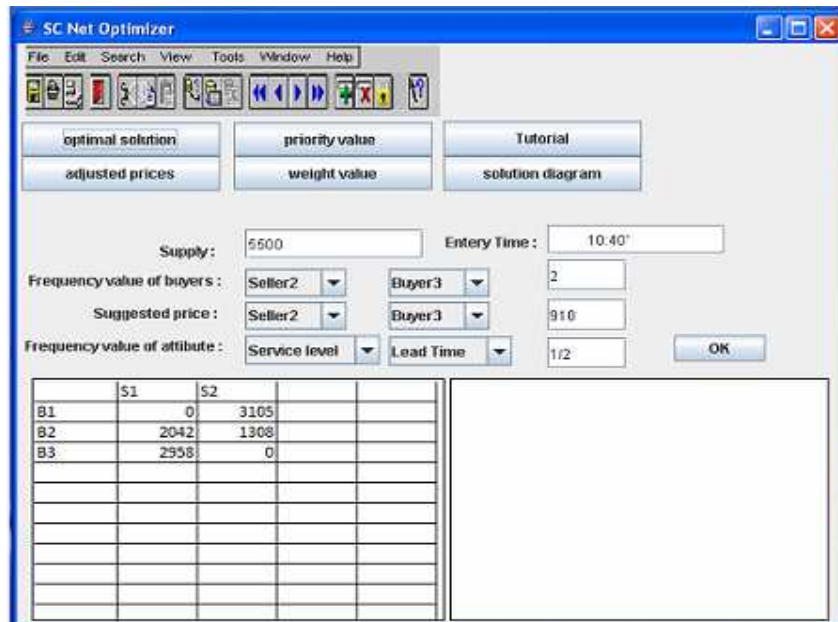


FIG.3: SELLER PROFILE IN SC NET OPTIMIZER

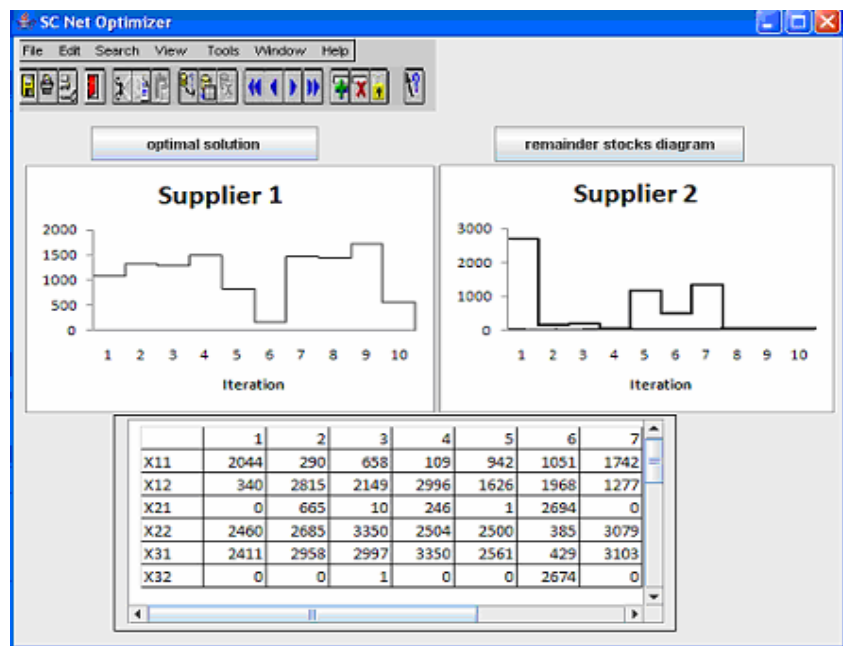


FIG.4: THE SC OPTIMAL SOLUTION

## Performance Evaluation

The performance criteria of the supply chain can include average inventory level and service level for each stock, where the service level is defined as probability that customer orders are filled on time. The first criterion is easy to obtain since it corresponds to average number of tokens in the discrete place representing the stock. For the evaluation of service level, we need to know the total time that the discrete place has no token while the place representing customer orders isn't empty in each simulation. Our SC net simulator provides the graphical results for average inventory level of each supplier and also the visibility of orders for determining inventory policy. The point estimation of each performance index and the standard error of estimation obtained by the simulation can be calculated. Given the point estimation and the standard error, a confidence interval for each performance index can be calculated for any given level of confidence under the condition of the independence of replications (Chen, Amodeo, Chu and Labadi; 2005). A  $100(1-\alpha)\%$  confidence interval for performance index  $\Theta$ , based on t-distribution, is given as follows:  $\bar{\theta} - t_{\alpha/2, N-1} S / \sqrt{N} \leq \theta \leq \bar{\theta} + t_{\alpha/2, N-1} S / \sqrt{N}$

Where  $\bar{\theta}$  and  $S$  are the point estimation and the standard error of the estimation of  $\Theta$ , respectively.  $N$  is the number of independent replications, and  $t_{\alpha/2, N-1}$  is the  $100(1-\alpha/2)$  percentage point of a t-distribution with  $N-1$  degrees of freedom.

## Conclusions

The advent of internet based market places motivate the researchers to investigate the conceptual buyer/supplier coordination models to save the system costs and ultimately improves the performance of the supply chain. A coordination mechanism for decentralized supply chain whereby members are separate economic entities has to include a collaborative strategy to optimize system performance and incentive scheme to distribute the benefits of coordination so as to entice their cooperation. Moreover, the coordination of a supply chain also requires that accurate and timely information about their operational decisions and activities be shared among all members to reduce uncertainties.

Due to the complexity of supply chain systems, we have introduced the concept of dynamic supply chain information flows. An agent is designed to analyze and simulate the players' behavior in SC network. The basic information is obtained in the form of customer-key attribute incidence matrix to achieve real-time customer profile. The supplier profile is designed to analyze the possibility of interaction between two main actors in SC, suppliers and buyers. The interaction between suggested price and comprehensive attributes in each profile is computationally derived to produce more realistic model. To improve the SC performance, these profiles are applied under cooperative game theory framework to give rise to the SC optimal solutions. This approach presents a great potential to resolve several problems in real-world SC systems which are in conflict with each other. The simulation-based approach to an industrial supply chain demonstrates that proposed model and associated methods can solve important supply chain issues such as evaluation of inventory policies and parameters. The use of our model for an extensive empirical analysis on web pages as well as extension of supply chain coordination model will lead to an interesting area of further research.

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# Productivity Improvements of Port Operations through Outsourcing – a Case of Cochin Container Port

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## Abstract

Port Sector in India is going through rapid expansion and modernization. Currently, the operations at Indian ports are characterized by low capacity, internal inertia and resource constraints leading to low efficiency levels. The efficiency of port operations depends on the extent of modernization and containerization of port operations. The productivity levels of Indian ports fall short as compared to international (Europe and Gulf countries) standards. One way to enhance the productivity improvements in Indian ports is through outsourcing of port operations. One such experiment is already in progress where operations of container port at Cochin are outsourced to Dubai Port Authority. Such strategy need not be limited to Dubai Port Authority only. It could be replicated by other port authorities, which are known for their efficiency in the region. This paper discusses the experience of outsourcing container operations of Cochin port.

## Introduction

India has a long coastline of 5600 kms with twelve major ports and 140 minor ports currently in operation. Major ports are under the administrative control of Ministry of Surface Transport at National level and respective state governments control the minor ports. The recent high-growth rate achieved by Indian Economy (GDP) is reflected in increased international trade in the recent past. This growth trend is likely to continue over the medium term and possibly in the long run. The growth of traffic since 1950 is presented in Table 1. During 1950, the total traffic handled was a mere 22.51 million tones, which had gone up to 568 million tons by 2005-06. The Compound Annual Growth Rate during the last five years at major ports was about 10.63 percent.

TABLE 1: GROWTH OF TRAFFIC THROUGH PORTS (MILLION TONS)

Year	Major ports	Minor Ports	Total
1950-51	20.01	2.50	22.51
1960-61	39.63	4.4	44.03
1970-71	58.14	7.9	66.04
1980-81	80.51	10	90.51
1990-91	152.85	12.78	165.63
1995-96	215.34	25.71	241.05
2001-02	287.59	98	385.59
2004-05	283	120	500
2005-06	423	145	568

Source: Ministry of Road Transport, Government of India

Current growth trends suggest that the Indian ports sector would require a significant increase in capacity to meet future cargo demand. Accordingly, Indian ports have developed expansion plans. Many major ports in India have adopted the build-operate-transfer (BOT) model for the creation of additional capacity.

Global shipping trends indicate that new ships of larger capacity are being increasingly used for international trade. The carrier capacity has increased from 75,000 DWT during 1970 to 183,000 in 2005. Thus, there is a need at major ports in India to upgrade to receive vessels of larger size.

The traffic distribution of principle commodities handled at major ports during 2005-06 is as follows:

POL	-	33%
Iron ore	-	20%
Coal	-	14%
Container	-	14%
Fertilizer	-	3%
Others	-	16%

Thus, the container traffic accounts for a mere 14% across major ports [KPMG 2007]. Containerization of cargo has become the order of the day across the world for easy handling, increasing throughput at the port and its adoptability for multi-modal transportation between sea, road and rail. India is no exception to these phenomena. A number of steps were initiated at all major ports to receive container ships and their handling. The capacity of container ships has also grown steadily from 2000 TEUs in 1970 to 10,000 TEUs during 2005. Container traffic at Indian Ports is growing rapidly and has increased by 102% in the last five years to 3.9 million TEU in 2003-04. It is expected that the growth will continue to be dramatic and by 2016-17, the country may need to handle 15.64 million TEU. The growth of container traffic in Indian ports vis-à-vis global picture is presented in Table 2.

TABLE 2: COMPARATIVE PICTURE OF CONTAINERIZATION

Year	Million TEU (Global)	Million TEU (India)	Percentage Share
1980	37.30	0.13	0.35
1992	85.60	0.65	0.76
1993	112.40	1.20	1.07
1995	130.00	1.45	1.12
1996	144.50	1.55	1.07
1997	195.90	1.70	0.87
2001	379.00	2.41	0.64
2006	750.00	3.9	0.52

Source: Statistical Profile, *Indian Ports*, 2004, 2005 and 2006

The growth of container traffic at different Indian ports is presented in Table 3. However, this needs huge investments in handling facilities, multi-modal transport terminals and GPS systems to locate and identify a specific container within the port area to meet world standards.



TABLE 3: CONTAINER TRAFFIC IN INDIAN PORTS

Port	2004-05		2005-06		Increase (%)	
	Container		Container			
	Tonnage	TEUs	Tonnage	TEUs	Tonnage	TEUs
Kolkata	2357	159	3234	203	37.21	27.67
Haldia	2029	128	1911	110	-5.82	-14.06
Paradip	31	2	45	4	45.16	100.00
Visakhapatnam	635	45	630	47	-0.79	4.44
Ennore						
Chennai	9864	617	11757	735	19.19	19.12
Tuticorin	3205	307	3428	321	6.96	4.56
Cochin	2315	185	2488	203	7.47	9.73
New Mangalore	136	9	149	10	9.56	11.11
Mormugao	117	10	105	9	-10.26	-10.00
Mumbai	2571	219	2145	156	-16.57	-28.77
J.N.P.T	28747	2371	33777	2667	17.50	12.48
Kandla	2754	181	2311	148	-16.09	-18.23
All Ports	54761	4233	61980	4613	13.18	8.98

India would also need to focus on multi-modal transport to facilitate movement of goods from inland locations to ports and vice-versa. This would require development of road and rail infrastructure, improvement in multi-modal transport, and modifications in procedural arrangements to allow smooth flow of traffic.

In the order to meet huge investment needs of port sector, the Government of India has initiated a number of steps to encourage private participation in port sector. The Indian Government has already announced a series of measures to promote foreign investment in the port sector (Ministry of Surface Transport, 2002-03). These are:

- No approval is required for foreign equity up to 51 percent in projects providing supporting services to water transport
- Automatic approval for foreign equity up to 100 percent in construction and maintenance of ports and harbors.
- Open tenders are to be invited for private sector participation on a Build-Operate- Transfer (BOT) basis.

These measures are aimed at attracting new technology, fostering strategic alliances with minor ports to create optimal port infrastructure and enhancing private sector confidence in the funding of ports.

The Government has announced guidelines for private/foreign participation that permit formation of a joint venture between major ports and foreign ports, between major ports and minor ports, and between major ports and companies.

The guidelines permit the formation of a joint venture between:

- i) A major port and foreign ports for the purpose of constructing new port facilities within existing ports, improving productivity of existing ports, and development of new ports.
- ii) A major port trust and a company or a consortium of companies where;
  - A company or a consortium of companies, selected through BOT bidding under the guidelines of private sector participation alliances with a major port trust for improving the viability of the scheme and/or to enhance the confidence of the private sector.

- A company or a consortium of companies is selected under the scheme of innovative/ unsolicited proposals.
- Oil PSUs/a joint venture Company of oil PSUs are/is selected for oil related port facility as a port-based industry.

Through these policies and guidelines, private sector participation is made attractive in port expansion plans.

## History and Development of Cochin Port

Cochin port is situated in Wellington island just 4 kms away from Cochin city. It is strategically located on the East-West trade route at Latitude 9 degrees 58' north and longitude 76 degree 14' East on route west coast of India. Cochin port is only 10 nautical miles away from the direct sea route to Australia and the Far East from Europe. No other Indian port enjoys this proximity to the maritime highway. This port is 930 km away from Bombay and 320 kms away from Kanyakumari.

The Cochin Container Terminal was in the making since 1990s. In order to expand and increase the operations through BOOT route, the first global bids were called in 2002-03, but only one bid from Peninsular and Oriental was received and hence the bid was not accepted. Subsequently, the bids were called again in 2004 and Dubai Port Authority (DPA) won the bid (DP World, 2007). The salient feature of the contract is that the DPA had agreed to share 1/3<sup>rd</sup> of the gross revenues with the government. The agreement was signed in Feb. 2005. On 1 April 2005, Dubai Port International has taken over the operations of Container berth at Cochin.

A separate SPV called India Gateway Terminal (IGT) was set up. The partners are DP World (76%), Container Corporation of India (15%), Chakiat Group (5%) and Transworld Shipping (4%). The concession agreement between Cochin Port Trust (COPT) and IGT has two parts.

The first part includes taking over the operations of existing container berth at Cochin Port, which is referred to as Rajiv Gandhi Container Terminal (RGCT) for 4 years. The second part involves the development of International Container Transshipment Terminal (ICTT) at Vallarpadam and operates the same for 34 years on BOT basis. It is estimated to cost about Rs.2400 crores. There are five conditions precedent to the construction of the ICTT at Vallarpadam.

1. Declaration of the project site as a Special Economic Zone (SEZ)
2. Environment clearance
3. Capital dredging for 14.5 meter draught
4. Rail connectivity to the main line
5. Road connectivity to the National Highway

The throughput of Cochin Container Port had shown significant change in its operations after the takeover by DPA where the throughput has increased from 185,000 TEUs in 2004-05 to 201,000 TEUs in 2005-06 and finally to 226,808 TEUs in 2006-07. Thus in two years, the productivity increased by was about 25%.

The future plans for the container terminal are as follows:

- Plan to increase the throughput to 280,000 TEUs by 2007-08 and 350,000 by 2008-09
- Plan to achieve 1,000,000 TEUs within five years of moving to Vallarpadam island
- April 2009 is the target date for moving to Vallarpadam

The current status of the project is as follows:

1. The project site has already been notified as a SEZ (Special Economic Zone)
2. Environmental clearance has been obtained
3. The first part of the capital dredging of RGCT has been completed
4. The rail alignment, funding and the agency have been finalized
5. The road alignment has been finalized and land acquisition is underway
6. The soil excavation survey and test piles at the project site have been completed
7. The project schedule will be structured as to complete the construction by December 2008.

### Improvement in Operations

It is expected that the efficiency of the container port at Cochin will increase as a result of the takeover by Dubai Port Authority. There are many parameters such as number of moves, number of TEUs handled, tonnage, vessel turn around time etc. for measuring the efficiency of a container port. The average number of vessel calls made per month had increased from 26.00 in the year 2004-05 to 35.33 in the year 2005-06, accounting for a 36 percent increase. At the same time, the standard deviation had increased from 2.73 calls to 7.04 calls during this period indicating a wide variation across the months. During the same period, the average turn around time of the vessels had come down from 39.00 hours to 22.11 hours. The number of moves is also maximum at 13,867 during the same month. During the year 2005-06, the port managed to achieve a maximum throughput of 19,239 TEUs (October 2005). The details of some of these parameters are presented in Table 4.

TABLE 4: DATA WITH RESPECT TO VARIOUS PARAMETERS OF RGCT FOR THE YEAR 2005-06

Month	Moves	TEUs	Vessel Calls	
			Current Year	Previous Year
Apr '05	10957	14742	24	25
May '05	11832	15104	29	22
Jun '05	11797	14892	29	31
Jul '05	13704	17960	30	26
Aug '05	13701	17534	33	27
Sep '05	11567	15394	32	28
Oct '05	13867	19114	41	23
Nov '05	12476	16756	42	26
Dec '05	13848	18344	44	29
Jan '06	14844	19239	47	28
Feb '06	10740	13802	36	24
Mar '06	13512	17362	37	23
Total		200243		
Average/Month			35.33	26.00
Standard Deviation			7.04	2.73

While the data presented in Table 4 indicates a significant improvement in the working of the RGCT, a comparison with the other major container ports presents a different picture. Table 5 presents the data for the two years namely 2004-05 and 2005-06, for the major container ports in India.



TABLE 5: OPERATIONS OF MAJOR CONTAINER PORTS IN INDIA (2004-05 AND 2005-06)

Port	Year	Container		Total	% of Container to Total
		Tonnage '000 tons	TEUs		
Kolkata	2005-06	3234	203	10806	29.93%
	2004-05	2357	159	9945	23.70%
Haldia	2005-06	1911	110	42337	4.51%
	2004-05	2029	128	36262	5.60%
Paradip	2005-06	45	4	33109	0.14%
	2004-05	31	2	30104	0.10%
Visakhapatnam	2005-06	630	47	55801	1.13%
	2004-05	635	45	50147	1.27%
Ennore	2005-06	-	-	9168	
	2004-05	-	-	9480	
Chennai	2005-06	11757	735	47248	24.88%
	2004-05	9864	617	43806	22.52%
Tuticorin	2005-06	3428	321	17139	20.00%
	2004-05	3205	307	15811	20.27%
Cochin	2005-06	2488	203	13887	17.92%
	2004-05	2315	185	14095	16.42%
New Mangalore	2005-06	149	10	34451	0.43%
	2004-05	136	9	33891	0.40%
Mormugao	2005-06	105	9	31688	0.33%
	2004-05	117	10	30659	0.38%
Mumbai	2005-06	2145	156	44190	4.85%
	2004-05	2571	219	35187	7.31%
J.N.P.T.	2005-06	33777	2667	37836	89.27%
	2004-05	28747	2371	32808	87.62%
Kandla	2005-06	2311	148	45907	5.03%
	2004-05	2754	181	41551	6.63%
<b>All Ports</b>	2005-06	61980	4613	383625	16.16%
	2004-05	54761	4233	383746	14.27%
% increase	ALL	13.18%	8.98%		
	Cochin	7.47%	9.73%		

The container operations in terms of tonnage handled by the RGCT have marginally increased from 16.42 percent to 17.92 percent. Even this increase is marginally less than the increase of all the ports put together. More important is the increase in tonnage. The total container tonnage in the country has increased by 13.18 percent where as the increase at RGCT is almost half of this at 7.47 percent. In other words, while there was a generic overall increase in the container operations in the country, the RGCT was not able to achieve similar levels of increase in its operations, even after improving its infrastructure. The percentage increase in TEUs at RGCT is higher as compared to the total. A comparison of this with the increase in tonnage indicates that RGCT is handling

more TEUs but, achieving a lower tonnage. In other words, while the growth in the overall container traffic in the country was in the order of 7219 million tons, RGCT was able to attract only 173 million tons. As a matter of fact, RGCT's proportion of container traffic (as a proportion to the total container traffic in the country) has actually come down from 4.22 percent in 2004-05 to 4.01 percent in 2005-06. In comparison, the JNPT accounted for more than 69 percent of the overall growth in the container traffic between 2004-05 and 2005-06. JNPT's proportion of the total container traffic has increased from 52.5 percent in 2004-05 to 54.5 percent in 2005-06, implying that JNPT managed to attract a larger proportion of the growth than its average share of container traffic.

In order to estimate the relative efficiency of RGCT as compared to other major container ports, a simple data envelopment analysis (DEA) was carried out. Only five ports are considered for the analysis. These are JNPT, Visakhapatnam, Tuticoran, Chennai and RGCT. Two different measures of outputs, namely TEUs and Tonnage were considered for the analysis. The inputs considered were mainly related to infrastructure available at the ports such as cranes, trailers, forklifts, reefers etc. the data with respect to each of the ports is obtained from "Seaports of India (<http://www.indiaseaports.com/isp/indexie.jsp>)". Generally, an analysis like DEA is not attempted with only five items and few outputs and inputs. The very nature of the DEA techniques will normally ensure that all the items (ports in this case) are on the boundary of the data envelop when the number of alternatives (items) considered are very few, especially as compared to the number of constraints (number of outputs and inputs). This is more likely to happen in this particular case because there are only two outputs under consideration. But, the analysis showed that the relative efficiency of RGCT is only 0.667 while all the remaining four container ports are on the boundary of the envelope. This actually indicates that the relative efficiency of RGCT is significantly lower than that of the other container ports.

One of the advantages of DEA is that it indicates the ports that are nearest to RGCT in terms of efficiency. In addition, it also provides the sensitivity analysis which in turn indicates the direction and quantities required to improve the efficiency levels of RGCT. The two ports that come nearest to RGCT in terms of efficiency are Visakhapatnam and Tuticoran. In order to reach the comparable efficiency levels of these two ports, RGCT will have to increase the tonnage by about 700 thousand tons or TEUs by about 100. This is based on the present infrastructure available at RGCT, since a considerable amount of investment had already gone into improving the infrastructure,

## **Reasons for Low Levels of Efficiency**

There a number of factors which contribute to the low levels of efficiency, in spite of the significant increases in the infrastructure brought about by the Dubai Port Authority. The foremost reason is the culture of the businesses and shipping agents in Cochin. The RGCT has started operating 24 hours a day on all the 7 days of the week. This had improved the turnaround time for the vessels and also resulted in a significant increase in the number of vessels calling at the port. Unfortunately, the culture of the businesses in the Cochin area is that they operate only for 6 to 8 hours a day for 5 days a week. Consequently, there was no significant improvement in the throughput. Not only there was no significant improvement, the mismatch in vessel handling and movement of containers in and out of the storage yard has created a situation of overcrowding in the storage area.

As a part of the agreement with the Cochin Port Authority, all the employees working in the container port earlier are made to join RGCT. This is the first time it has happened where neither the employees nor the organization had any choice. There are 352 employees who are transferred to RGCT. Only after migration to the Vallarpadam terminal, these employees as well as IGT, which is the SPV for RGCT and Vallarpadam terminal, will have the right to continue or discontinue their services. At present IGT has no control over the service conditions of these employees. The work culture in Kerala is very different and the most difficult part for the RGCT is to change the work culture.

The existing hinterland of the Cochin port is not conducive to strong economic growth. The hinterland of Kerala consists of a predominantly consumer society. There is a decline in the trade of commodities such as cashew, coir, and other agricultural products. Even the neighboring districts of Tamilnadu (industrial areas such as Coimbatore and Tiruppur) prefer Tuticoran or Chennai even though the distance is longer to these ports as compared

to Cochin. The main reason is the uncertainty involved with Cochin port (Kerala state in particular) based on the work culture, militancy of the workforce etc.

Quick delivery (especially delivery outside the port) is important in the container terminal. At Cochin, even today, the delivery is being made inside the terminal premises. The delivery time in Cochin is 10 days at present as compared to 5 days in Tuticoran, one day in Chennai, ½ a day in JNPT.

## Strategies for the Future

Various strategies are being put in place to improve the efficiency and viability of RGCT. Some of them are already working. These strategies are aimed at (i) increasing the throughput at RGCT in the short run and (ii) increasing the effectiveness of Vallarpadam in the long run.

The first and most important short run strategy is the redeployment as well as re-skilling of the legacy employees who were earlier with Cochin Port was carried out. The objective is to change the work culture. Training programmes which were specially designed for this purpose were organized. A total of 6800 hours of training was given to 410 employees. The new management has largely succeeded in sending right signals that pressure tactics by the unions will not work. They managed to create an open culture where the employees are encouraged to carry a dialogue rather than resorting to strikes or go slow tactics. There had been not a single instance of loss of day's work due to industrial unrest in the past one year.

The management IGT is trying hard to send signals to the customers (clients) that things are different now. Implementation of a queue system for the clients is very important. Show that first-come-first-served will always work.

A number of initiatives are put in place in order to overcome congestion at the terminal. Some of these are:

- \* Dis-incentivizing longer stay of container inside the port.
- \* Reduce the number of "Free Days"
- \* Incentives for clearing the container in "off-peak" hours
- \* Developing holding area outside the port
- \* The Container Freight Terminal to develop additional area for holding
- \* Developing a separate Container freight Station

RGCT is in the process of creating a single window Customer Support System. The client can send the "complaints" through any route, namely, through SMS, telephone, e-mail, internet etc. It will be handled within a stipulated time with appropriate escalations to higher levels already built in. The client will be able to trace the status of the complaint through the web itself.

Steps have been initiated by IGT for ISO 27000 certification. The initial processing is completed and the award is expected in matter of few days.

RGCT has leveraged IT to improve its efficiency. It has implemented special software called "NAVIS". The software takes care of the entire container operations both on the shipside and shore-side. The data with respect to the ships calling and the cargo is uploaded directly through EDI. Similarly, the data on containers to be loaded into the ships is also uploaded into the software. The software keeps track of the containers and their destinations. The allocation on the ground is still done manually. The software helps in identifying the available slots and the destinations of the existing containers so that a better match could be made and the number of moves and shuffles could be minimized. The entire container operations are paperless completely. Only paper is what are required statutorily. It used to take 2 to 3 days for the billing to reach the client. Now it is done immediately on loading.

At present, Indian exports are transshipped mainly through Singapore or Colombo. The strategy is to take the transshipment business at the new container port at Vallarpadam. It can happen if larger vessels that go directly to US or China start calling at IGT. This will save additional handling at transshipment locations as well as time to reach the destination. IGT can also function as transshipment port for cargoes moving in the Indian Ocean shipping lines.

The low productivity and relative inefficiencies of RGCT are not unexpected. At the same time, for the success of the experiment of outsourcing the port operations in India, it is imperative that the Vallarpadam terminal

has to become commercially viable. The following factors are likely to work in favor of the new Vallarpadam terminal.

1. After the completion of the proposed container port at Vallarpadam, its proximity to international east-west sea routes and the deep draft available at the port, saving in total Origin-Destination cost of movement of containers to/from foreign destinations can be achieved in several cases if containers move through this port. The hinterland of the port may thus be said to extend to not only the southern India but also western and even northern India. This will considerably increase the potential for traffic at the Port.
2. The strategic location of the new terminal will make it an ideal transshipment port for inter-coastal movement of domestic Indian containers through coastal shipping. The volumes derived from such transshipment will augment the volumes projected based on export/import trade along.
3. It is estimated that total container traffic at this terminal may reach 3.5 to 4 million TEUs per annum. Thus it will be the largest container terminal in the country.

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# Outsourcing and Global Supply Chain Management

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## Abstract

As a result of globalisation, supply chains of many large business organizations nowadays tend to become very long and complex. The traditional simple linear supply chains are quickly replaced by extended supply chain networks comprising not only suppliers, manufacturers, distributors, and end customers, but also service providers. With the increasing use of third-party logistics (3PL) service by international firms, many global 3PL providers are forming partnerships with large corporations to take care of the latter's logistics operations in different regions. The management of global supply chains therefore involves not only the maintenance of relationships with suppliers and distributors but also third-party logistics providers. This paper investigates the role of 3PL providers in global supply chain management and proposes a framework for evaluation of 3PL providers as global logistics partners for international firms. The framework focuses on the core competencies of the 3PL provider and its abilities to achieve economies of scale for its users so as to assist them to achieve their outsourcing goals and objectives.

## Introduction

Rapid advancements in information and communication technology (ICT) in recent years, coupled with the collapse of entry-to-market and other trading barriers, have changed significantly the way organizations operate in terms of business model and operating scale [32]. Globalisation, lead-time reduction, customer orientation, and outsourcing are some major changes contributing to an increasing interest in advanced logistics services and global supply chain management [16]. Successful global logistics depends heavily on communication and transportation. Improved communication between different business partners through the use and sharing of real-time information facilitates the logistics of production and inventory over wider geographic areas. Efficient transport arrangement such as volume consolidation and cross docking makes possible the actual transactions between nodes [8]. Owing to the increased levels of resource requirement, complexity, and risk in running global logistics, many firms tend to outsource their logistics operations to third-party logistics (3PL) providers and focus on their core businesses. Successful management of global supply chains therefore requires radical changes in supply chain structure, business processes, and relationships with business partners particularly logistics service providers.

Traditionally, supply chain is relatively linear in structure (Fig.1). A typical manufacturing supply chain involves a few tiers of suppliers, the manufacturer (the focal company), a few tiers of distributors (including wholesalers and retailers), and finally the end customers. Materials mainly flow from upstream to downstream (*i.e.*, from suppliers to end customers) with a small reverse flow of returns while information tends to flow in both directions. Transportation is provided either in-house by the different parties separately or outsourced to different 3PL providers [37]. With globalisation and disintermediation as a result of advancement in ICT, the linear supply chain model and the associated uncoordinated logistics operations can no longer meet the demand of customers for higher efficiency, shorter lead time, and wider geographic coverage. The supply chain tends to become networked (Fig.2) with the focal company as the hub and a major 3PL provider looking after the logistics operations of the whole supply chain for the focal company in different regions [32, 36].

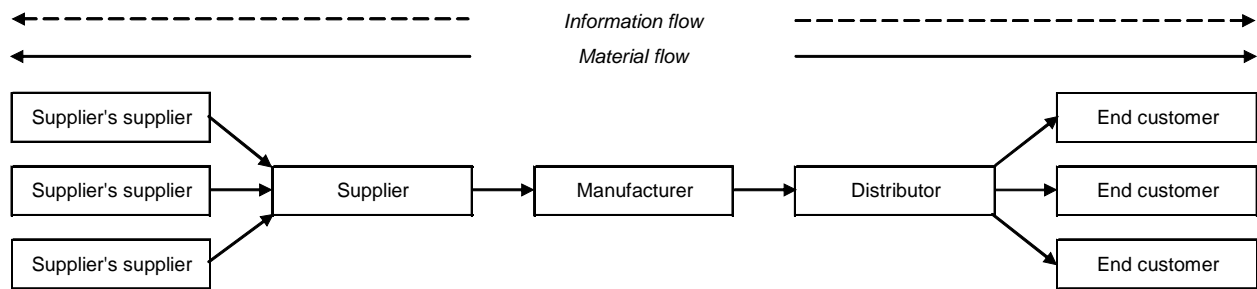


FIG.1: A TRADITIONAL LINEAR SUPPLY CHAIN MODEL

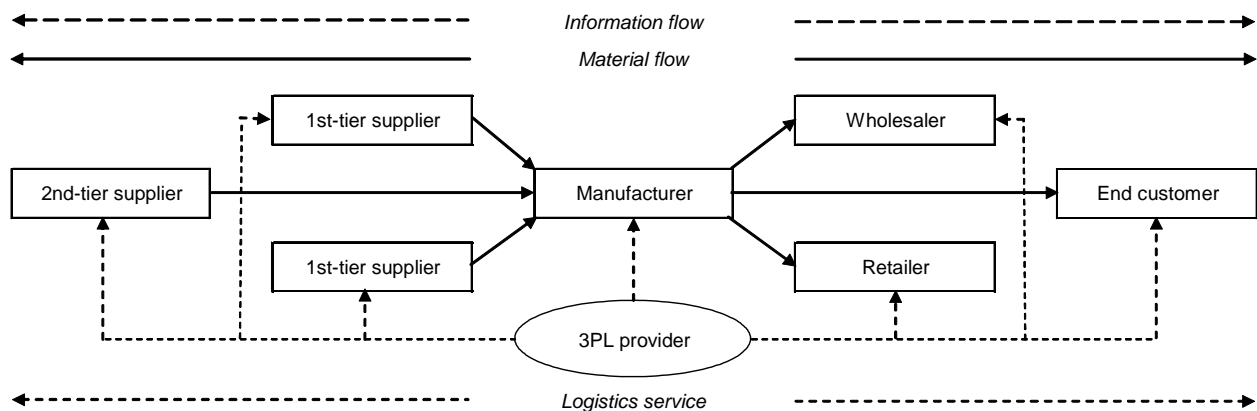


FIG.2: A NETWORKED SUPPLY CHAIN MODEL

The importance of logistics and supply chain management and the increasing use of 3PL providers are clearly indicated in the latest global third-party logistics survey conducted by Georgia Institute of Technology, Cap Gemini LLC, SAP, and DHL [22]. The 2006 survey findings show that 85% of the North American respondents, 89% of Western Europe, 88% of Asia-Pacific, and 95% of Latin America agree that “logistics represents a strategic, competitive advantage for our company” (p. 6). Across all the four regions surveyed, the most frequently outsourced services include transportation (90%), warehousing (74%), customer clearance and brokerage (70%), and forwarding (54%). The survey also reveals a growing trend for outsourcing as the spending in 3PL services (2006 against 2009-2011) is projected to increase by an average of 8% from 48 to 56% in North America, 7% from 64 to 71% in Western Europe, 6% from 63 to 69% in Asia-Pacific, and 8% from 39 to 47% in Latin America. Furthermore, there is a continuing trend of 3PL users to rationalize or reduce the number of 3PL providers they use suggesting that 3PL users are seeking integrated logistics services. This finding ties in with the frequent mergers, acquisitions, and consolidations in the 3PL sector in recent years leading to the emergence of ‘global 3PL providers’. Prominent examples include DHL and Exel; Kuehne & Nagel and USCO; UPS and Fritz and Menlo Forwarding; Deutsche Bahn and Bax Global; Uti Worldwide and Standard Corporation; and PWC Logistics and Geo-Logistics [22].

The practice of outsourcing can be explained using resource-based theory [3, 26] which proposes that a firm can achieve sustained competitive advantage if it has resources with the attributes of value, rareness, imperfect imitability and non-substitutability. Outsourcing enables a firm to focus on its core business to develop the four attributes of its resources to form the basis of its future competitiveness [17]. There are many advantages in outsourcing. The most common benefits are saving in cost, increase in capacity, and improvement in service quality. Others include time savings, cash infusion, free in-house staff, focus on core activities, talent availability, access to

specialists, business process re-engineering, greater flexibility, greater productivity, and bigger geographical coverage [12]. In theory, outsourcing should enable firms to access their 3PL providers' expertise and specialist skills. It should also bring cost savings to firms through economies of scale achieved by their 3PL providers via transaction bundling and volume consolidation [4, 6, 30]. In other words, firms are making use of their 3PL providers' core competencies and cost efficiencies to achieve outsourcing goals and objectives. This belief is supported by the study of five big European companies by Brandes *et al.* [9] on the reasons and process of outsourcing. 'Core competencies' generally refer to what a company is specialized in or good at [19, 29]. 'Economies of scale' commonly refer to efficiency gained from increasing scale of operation [10, 14, 18]. Therefore, core competencies of 3PL providers and their abilities to achieve economies of scale can be regarded as two of the major critical determinants of outsourcing success. Table 1 lists some of the major objectives of outsourcing and the outcomes expected from the activity. It can be seen that the success of the first objective depends on the 3PL provider's ability to achieve economies of scale for its user while the remaining ones rely on the expertise and capabilities of the 3PL provider. In other words, the underlying assumption for successful outsourcing is that the service provider is competent in its business. That is to say, providing the service should be the core competencies of the 3PL provider that complements its user's deficiency in this area. This is particularly significant for international firms in managing their global supply chains. Competent 3PL providers are able to pool skilled professionals and other useful resources at low costs and execute the same services repeatedly for their users over the globe. The generation of cumulative experience through scale and scope economies resulting in better, varied, and faster services at lower costs is essential to efficient global supply chain management. Such accrual of advantages would not have been possible had the clients executed the activities in their own premises [17].

TABLE 1: MAJOR OBJECTIVES OF OUTSOURCING

<b>Objective of outsourcing</b>	<b>Expected outcome</b>
To reduce costs of logistics operation	Reduction in capital investment in infrastructure, assets, human resources, and other related costs
To reduce management time and resources for logistics operation	Release of management to focus on core business; reduction of human resources and related administrative costs
To enhance reliability of delivery	Provision of on-time delivery and accurate order fulfillment to customers
To improve quality of customer service	Provision of better and higher quality of customer service than what was provided prior to outsourcing
To access best practices in logistics operation	Use of best practices and latest technologies in carrying out the outsourced activities
To enhance flexibility to changes initiated by changing customer demand and market condition	Provision of flexible service for varying scale of operation and change management capability to meet the need of customers
To achieve innovation and continuous improvement in logistics operation	Availability of IT technologies to enable coordination, synchronization and optimization of logistics operations

In view of the importance of finding a compatible 3PL provider in the management of a global supply chain, this paper aims to propose a framework that helps to evaluate the core competencies of a potential service provider in the selection process. It is admitted that a successful outsourcing contract and relationship depends on many factors, such as strategic fit and cultural compatibility, other than core competencies and economies of scale. However, a comprehensive discussion will be beyond the scope of this paper and this study will therefore focus on these two factors only. Through the analysis of a longitudinal case study of repeated outsourcing failures, this paper examines the roles of core competencies and economies of scale in outsourcing and uses the findings to help to develop a 3PL provider evaluation framework. Section 2 of the paper reviews the literature on a few areas including vertical and horizontal logistics alliances, international outsourcing partnerships, and strategic development of 3PL

providers, as well as the latest studies in the evaluation of 3PL providers. Sections 3 and 4 discuss the methodology and the implications of the case study findings. Section 5 proposes a framework that builds upon the works of previous research and the current case study. It is hoped that the proposed evaluation framework can assist 3PL users in making better outsourcing decisions through proper assessment of the core competencies of the potential 3PL providers and their abilities to achieve economies of scale. The paper concludes in Section 6 with a discussion on the limitation of the study and the direction for further research.

## Literature Review

As the 2006 global third-party logistics survey reveals, the use of 3PL providers by international firms will continue because of the ever-increasing globalisation of their businesses. As a result, most 3PL providers desire to move their customers from a conventional customer-supplier relationship to a true “partnership” [22] (p. 5). Taking the definition by the European Commission, third-party logistics is defined as “activities carried out by an external company on behalf of a shipper [or client] and [they] consist of at least the provision of management of multiple logistics services. These activities are offered in an integrated way, not on a stand-alone basis. The co-operation between shipper and the external company is an intended continuous relationship [lasting for at least one year]” [11] (p. 496). For a global supply chain, the major 3PL provider can take over the entire logistics management as well as operations from its user. These include management, analysis, and design of activities associated with transport and warehousing such as inventory management, information related activities such as tracking and tracing, as well as value-added activities such as secondary assembly of products and supply chain management [21].

As a result of globalisation, the international market for logistics and transport services becomes larger and complex. International firms rely more and more on 3PL providers for logistics solutions. According to the 2006 global third-party logistics survey, 3PL users are sometimes frustrated with apparent differences in doing business with specific 3PL providers from one region to another. The use of a “global 3PL provider” not only rids the user of the management headache but also enables the user to capture local benefits such as low labour costs so as to help reduce the net landed cost of its products [22] (p. 16). Therefore, there is a growing trend of vertical logistics alliances in which the provider and the user maintain a long-term formal or informal relationship to render all or a considerable number of logistics activities. The 3PL provider sees itself as a long-term partner in this arrangement to provide a comprehensive range of services to the user [2]. A vertical alliance includes planning and overseeing the inbound and outbound freight flows in the nodes of the logistics network. In the alliance, the 3PL provider looks for improvements to the service levels, inventories management and order processing for the user company [27].

To acquire the necessary capabilities and a global presence required for vertical alliances, many 3PL providers pursue horizontal alliances through horizontal cooperation, merges and acquisitions. Horizontal alliance can be a means to spread costs and risks and to increase the scope of services. It is attractive when costs of developing new services and solutions for complex problems facing customers in dynamic markets are too high for a single 3PL provider [11]. Horizontal cooperation is defined by the European Union [13] as concerted practices between companies operating at the same levels in the market. Short-term horizontal alliances can be formed between 3PLs, IT consultants, and software vendors. The search for higher capability of offering “global consulting” in supply chain management is seen by some as evidence of evolution from 3PL to 4PL – a term coined by Accenture to refer to “a supply chain integrator that assembles and manages the multiple resources, capabilities, and technology of its own organization with those of complementary service providers to deliver a comprehensive supply chain solution” [11] (p. 506). Permanent horizontal alliances through merges and acquisitions enable the 3PL provider to have wider geographic coverage and control of major traffic flows through the creation of efficient transport chains. The alliances also provide sufficient size to cope with high investment cost in physical infrastructure and ITC for efficient operation. Economies of scale are also permitted through business process re-engineering and entry into new market segments. Through the acquisition of specialist capabilities, especially higher value-added services, strategic and operational synergies can also be achieved [28].

With closer cooperation between 3PL provider and the user, the role of 3PL provider also changes from provision of standard logistics services to development of customer solutions. Based on the balance between general

problem solving capability (GPSC) and the degree of customer adaptation (DOCA), Hertz and Alfredsson [16] (p. 141) propose four different development strategies for 3PL providers as follows:

- *Standard 3PL provider* (relatively high GPSC and relatively high DOCA): The 3PL provider offers a highly standardized modular system to customers with relatively simple combination of standardized services such as warehousing, distribution, pick and pack, *etc.*
- *Service developer* (high GPSC and relatively high DOCA): The 3PL provider offers an advanced modular system of a large variety of services such as specific packaging, cross-docking, track and trace, and special security system, *etc.*, and a common IT-system used for all customers.
- *Customer adapter* (relatively high GPSC and high DOCA): The 3PL provider offers totally dedicated solutions involving the basic services for each customer. For example, the service provider might take over the customer's total warehouses and the logistics activities. The 3PL provider is seen as a part of the customer organization.
- *Customer developer* (high GPSC and high DOCA): The 3PL provider develops advanced customer solutions for each customer by handling the entire logistics operations. Value-adding services and enhancement of knowledge are common and the role of the 3PL provider is more like a consultant.

In vertical alliances, the role of the 3PL provider will be a customer developer involving a high integration with the user often in the form of taking over its whole logistics operations. It acts as a logistics integrator to provide integrated logistics solutions to the user and share the risk and rewards of the logistics management with the user.

Similarly, Kedia and Lahiri [17] also look at international outsourcing of service (IOS) as a form of partnership that can be classified into three different types: *tactical*, *strategic*, and *transformational*. With the increase of value proposition from low to high to highest and the involvement of provider from arm's length to deep to intense, the IOS partnership moves from tactical to strategic to transformational. Tactical IOS partnership is basically transaction oriented aiming at cost reduction. Involvement of the service provider is rule-based and contract oriented. Strategic IOS partnership emphasizes on value enhancement required to enable a company to remain locally responsive as well as globally integrative. It is usually achieved through building long-term relationships with a few best-in-class integrated service providers that possess cumulative experiences and scope of organizational learning for their users. In vertical alliances, a transformational IOS partnership is the ultimate goal. From the user's point of view, the partnership helps to share the user's risk with the provider because of reduced need for capital expenditure on infrastructure and manpower development. It also enhances the user's flexibility as the logistical competencies of the provider assists in providing faster response in a globalized business environment. Finally, transformational IOS partnership provides opportunities for the user to redefine its businesses through transformation or business process re-engineering. The success of the relationship depends on the trustworthiness of partners and the culture distance between the two parties.

As vertical alliance impacts significant on successful global supply chain management, the selection of the right 3PL provider is of utmost importance. Studies in this regard are quite abundant [4, 6, 8, 22, 23, 31, 33]. Jharkharia and Shankar [20] reviewed the literature and summarized some of the most commonly used criteria for the selection of 3PL provider as follows: compatibility with the users, cost of service, quality of service, reputation of the company, long-term relationship, performance measurement, quality of management, information sharing and mutual trust, operational performance, IT capability, size and quality of fixed assets, delivery performance, financial performance, market share, geographical spread and range of services provided, and flexibility in operations and delivery. Among these criteria, many are related to the core competencies of the provider as well as its ability to achieve economies of scale and pass the cost savings back to the user.

Despite the fact that core competencies and ability to achieve economies of scale are critical to the success of outsourcing, there are few studies in the literature focusing on what the core competencies of 3PL providers are and how they can achieve economies of scale in practice for the benefit of their users. For example, Arnold [1] proposes an outsourcing model with design alternatives for manufacturing firms combining transaction cost economics with a core competency approach. His main objective, however, is to develop a "de-materialized company" (p. 28) for optimizing outsourcing design and management. Similarly, Hafeez *et al.* [15] provide a structured framework for determining the key capabilities of a firm using the analytic hierarchy process.

Nevertheless, the framework is used mainly for identifying competency gaps within the firm with a view that the result might facilitate the making of outsourcing decisions.

Momme [24] proposes a framework for outsourcing manufacturing in which competence analysis is the first of the six phases outlined. However, the analysis focuses more on identifying the client's own core activities than that of the supplier's. It appears that there is little attempt to explore the core competencies of the supplier, which are supposed to complement the client's non-core business skills. Also, the issue of economies of scale has not been addressed in the proposed framework. It has yet to be proven that economies of scale achieved by the supplier, if any, would bring cost savings to its client. Similarly, Vaidyanathan [34] recommends a framework to establish a set of criteria for the selection of 3PL provider using IT as the focus to peruse the core functionalities of 3PL provider such as inventory management, transportation, and warehousing. Nonetheless, core competencies and economies of scale are again not the centerpiece of discussion. In view of the above inadequacy, this research aims to fulfil the existing gap by evaluating and assessing the significance of the two foregoing critical factors in their contribution to the success of the logistics service outsourcing.

## Methodology

This research is founded on a longitudinal case study of the outsourcing experiences of a global company focusing on the service providers' core competencies and abilities to achieve economies of scale. In general, case studies are less vigorous than empirical studies. Furthermore, because of the use of small sample, the case study approach also faces a limitation in generalizing the findings to reflect the situation of the whole industry. Nevertheless, the approach is suitable for exploratory and explanatory research like the one described in this paper to provide a preliminary in-depth investigation of a problem [5, 35, 38]. The intention is not to generalize the findings but to use them to better understand the crux of a problem and to propose recommendations for solution as well as directions for further research.

The case in this study is a global company providing information services to clients all over the world. As the core activity of the company is information gathering and dissemination, it relies on outsourcing to handle its non-core activities such as logistics operations. Between 1989 and 1999, the company changed three 3PL providers. Through the logistics manager of the company who oversaw the entire outsourcing process and managed the three 3PL providers during the period, detailed first-hand information about the case was collected for analysis which helps to determine if core competencies of the 3PL providers and any achievement of economies of scale existed. The information comes from the company's outsourcing analysis reports, proposals submitted by the 3PL providers for the outsourcing contracts, performance records of the 3PL providers during their respective contract periods, cost figures and other statistics provided by the 3PL providers, and performance evaluation reports at the end of the contract periods.

To facilitate analysis, an ideal situation of outsourcing, *i.e.*, the 3PL provider being a customer developer [16] and the outsourcing relationship being transformational [17], is used as a basis for comparison to gauge the performance of the three 3PL providers in the case. It is assumed that logistics functions such as transportation, inventory management; capacity planning, *etc.* should be coordinated and managed by the 3PL provider with logistical competency. Information and material flows should be streamlined and integrated by the 3PL provider to achieve economies of scale through consolidation of transactional and physical movement activities. Furthermore, the 3PL providers should be able to develop unique customer solutions and redefine business processes for its user through transformation or business process re-engineering so as to help its user to gain efficiency and cost effectiveness. Through the comparison, it can be established whether core competencies of the 3PL providers and their abilities to achieve economies of scale for user existed.

The parties involved in the case study are the user company X and its three logistics service providers (A, B, and C). For reason of commercial confidentiality, pseudonymous names are used. X is a leading international information service provider supplying news and financial information to its clients worldwide. The company installs computers and terminals at clients' premises to provide the subscribed data and information. With regional headquarters set up in Singapore, X has outsourced its logistics operations to freight forwarders since 1989. In the

1980s, outsourcing practice in Singapore was still in its infancy. Many 3PL providers were actually freight forwarding companies. The services that X outsourced include warehousing, inbound and outbound logistics, inventory management, local transportation, international freight delivery, and regional distribution of subscriber equipment.

All the three freight forwarders used by X are international freight forwarding companies with global presence and local offices in Singapore (Table 2). X awarded the logistics service contracts to the 3PL providers on a ‘2+1’-year basis, *i.e.*, two years initially with a scope for extension of one year. The contract required the 3PL provider to manage all the logistics operations of X including the provision of warehouse space, facilities, manpower, equipment and tools necessary for the activities. The service was charged at a fixed price (*i.e.*, a lump sum) and a variable price scheme according to the type of service and activity performed. X hoped that it could reduce its investment in resources and achieve flexibility through outsourcing. It expected the 3PL provider to deliver the subscriber equipment from the point of receipt to its clients in the most efficient and economic manner. In other words, X expected the 3PL provider to achieve economies of scale for its logistics operations and reduce its logistics expenditure.

TABLE 2: PROFILES OF THE 3PL PROVIDERS IN THE CASE STUDY

3PL name	Country based	Contract period	Specialization	Service provided to X
A	UK public-listed company	1989 – 1994	International airfreight forwarding and local transportation	<ul style="list-style-type: none"> <li>▪ Day-to-day management of X’s logistics activities including warehousing, inbound and outbound logistics, local transportation, international airfreight forwarding, and inventory management</li> <li>▪ Order processing and customer service</li> </ul>
B	US public-listed company	1995 – 1997	International freight forwarding and heavy weight movement	Same as above
C	Singapore-based private company	1997 – 1999	International air and sea freight forwarding	Same as above

## Case Study Findings

Analysis of the case reveals that the three 3PL providers failed to bring efficiency gains to X as expected despite of a full outsourcing of logistics operations. Problems with the 3PL providers identified in Table 3 show that they did not operate, coordinate, or manage X’s logistics activities customer developers. Their IOS relationships with X were mainly tactical. Apart from C, the other two 3PL providers did not provide complete centralized coordination and management of logistics activities for X leading to duplicated effort and wasteful operation on some occasions. The lack of logistics information systems and other IT support from the 3PL providers also prohibited them from integrating and streaming the material and information flows of X to achieve higher efficiency. These outcomes can be attributed to a few common practices. First, all the three 3PL providers did not invest adequately in resources to develop their capabilities and competencies. They did not possess their own warehouses to achieve economies of scale or logistics information and other systems to enable better planning, coordination, and management of logistics activities for X. Second, the quality of their staff was less than satisfactory (*e.g.*, untrained staff) and their management of X’s logistics operations was ineffective (*e.g.*, no quality or ISO9000 compliant process). Finally, they provided little or no IT support to manage X’s supply chain to maintain efficient information flow or to coordinate material flow.

TABLE 3: PROBLEMS WITH THE 3PL PROVIDERS IN THE CASE STUDY

Area	Problems with A	Problems with B	Problems with C
Warehousing	<ul style="list-style-type: none"> <li>▪ Did not possess own warehouse. Used leased private warehouse for X.</li> <li>▪ Cost of usage all charged to X and not shared among other customers. Did not achieve economies of scale.</li> <li>▪ Did not possess own WMS to optimize warehouse operation.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Did not possess own warehouse. Used private warehouse especially leased for X (<i>i.e.</i>, subcontracting).</li> <li>▪ X solely funded the leased warehousing and the related services. No consolidation of cargo with other customers of B or sharing of fixed cost to achieve economies of usage.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Did not possess own warehouse. Used private warehouse especially leased for X (<i>i.e.</i>, subcontracting).</li> <li>▪ Cost of usage all charged to X and not shared among other customers. Did not achieve economies of scale.</li> </ul>
Staffing	<ul style="list-style-type: none"> <li>▪ No pooling of staff from other business units to share the fixed staff cost of the Customer Service Department. No sharing of warehouse transaction cost and to achieve economies of scale.</li> <li>▪ Inexperienced warehouse operation staff. X had to train the staff of A to use its MRP II system.</li> <li>▪ Staff lacked basic logistics knowledge. X had to provide on-the-job training to the staff of A. No in-house training program in place.</li> <li>▪ High staff turnover rate (&gt;40%).</li> </ul>	<ul style="list-style-type: none"> <li>▪ B's logistics team for X comprised full-time and part-time staff with a 40% turnover that seriously affected service continuity and performance (<i>e.g.</i>, 20% variance found in annual stock take).</li> <li>▪ X had to provide training to the staff of B to use its MRP II system.</li> <li>▪ Much time was spent in re-training new comers and handing over job duties as a result of frequent staff changes.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Staff either pooled from internal units or through external recruitment. No sharing of costs.</li> <li>▪ X had to provide on-the-job trainings on inventory management and order processing to the logistics team members of C.</li> <li>▪ High staff turnover of 50% occurred mainly at the supervisor level. Poor staff stability seriously affected day-to-day operation. Unsatisfactory performance and low customer service level were reported throughout the contract period.</li> <li>▪ 10% variance was found in annual stock take.</li> </ul>
Transportation	<ul style="list-style-type: none"> <li>▪ Did not possess own vehicle fleet. Used subcontractors for delivery service. Little control and no economies of scale.</li> <li>▪ Did not possess own TMS for efficient scheduling and route planning.</li> <li>▪ Poor tracking system (used telephone only). Failed to provide high level of on-time delivery service to customers as required by X.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Used a combination of own and leased vehicle fleets. Economies of scale were achieved through consolidation of cargos for X and other customers of B. However, the benefit gained was not passed back to X as cost savings.</li> <li>▪ Did not possess own TMS for efficient scheduling and route planning.</li> <li>▪ No monitoring of performance of subcontractors to ensure</li> </ul>	<ul style="list-style-type: none"> <li>▪ Possessed own transport fleet and full-time staff to handle all transport activities with a dedicated team to serve X. However, capacity was not fully utilized and economies of scale were not achieved.</li> <li>▪ Possessed own TMS with GPS technology to track and trace its transport fleet resulting in faster turnaround time.</li> </ul>



		they worked up to the service level required by X.	
Management	<ul style="list-style-type: none"> <li>▪ No one-point solution to problem.</li> <li>▪ Vertical control in each department created unnecessary delays in communication and action.</li> <li>▪ Lack of unity of control. Fragmented management of inventory and distribution resulted in duplicated effort and wasteful operation.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No major problems identified.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No major problems identified.</li> </ul>
IT support	<ul style="list-style-type: none"> <li>▪ Service not provided.</li> </ul>	<ul style="list-style-type: none"> <li>▪ B possessed own team of IT professionals but failed to develop a logistics information system to integrate with X's legacy system for end-to-end management of the supply chain as stated in the proposal submitted to X.</li> <li>▪ Technical complexity, prohibitive cost, and inadequate numbers of participating customers for cost sharing were the main causes of failure.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Did not possess own IT staff but hired external consultants for any IT system project.</li> <li>▪ In the outsourcing contract, C proposed to provide a low cost IT solution to replace X's own MRP II system but the project had never taken off.</li> </ul>

The lack of own warehouses and the reliance on leased facilities have limited the capabilities of the three 3PL providers to offer cost benefits to X through economies of scale. Since X spent a significant portion of its logistics cost in warehousing and related activities, its objective to reduce cost and to gain considerable savings through outsourcing was not realized basically. Apart from some bulk freight rate savings obtained through volume consolidation, the major benefit X enjoyed in outsourcing was a reduction in staff cost. However, the savings were offset by the poor and unsatisfactory service performance of the 3PL providers manifested by their high staff turnovers, incompetent management, and inefficient services.

X's case unfolds the following common issues with the three 3PL providers which suggest that they did not actually possess core competencies in all the services they provided and they were not able to achieve economies of scale as expected:

- Performance of the 3PL providers was good for international freight forwarding but only average or even poor for other logistics activities. Apart from freight forwarding, the three 3PL providers acted more like a resource provider than an integrated logistics service provider with little capability to add value to their user's supply chain. They were more like generalists providing little specialist skills or specialized equipment or systems for the outsourced services.
- Workers of the three 3PL providers were incompetent due to poor training and high turnover rate. Many of them lacked the basic knowledge or skills to perform their jobs well. The main role of the three 3PL providers in most activities was to supply manpower resources. As a result, the three 3PL providers failed to reduce the management responsibility and time of their user because of ineffective communication and lack of problem-solving and decision-making skills.
- Owing to the lump sum payment arrangement for warehousing service, there was no cost benefit arising from economies of scale through the sharing of use of facilities. In general, the services were not provided

across the whole customer bases of the 3PL providers and were charged at fixed price instead of a cost-sharing basis.

- The three 3PL providers were generally weak in IT capability to provide support to X. Their scale of operation and financial strength did not permit the provision and sharing of such service across all their users.

The above issues are all related to the amount of resources invested by the 3PL providers, the capabilities of utilizing their resources, the competencies in providing efficient logistics services, and the abilities to bring cost savings to their users through increasing scale of operation and size of customer base. They boil down to the 3PL providers' core competencies and abilities to achieve economies of scale. The findings of the case study suggest that although the 3PL providers might have the resources and capabilities to offer different logistics services, they were not necessarily competent in all the logistics activities they performed. Core competencies developed in one area as a result of long establishment, large investment, accumulated skills, and cumulative experience did not automatically translate into core competencies of other logistics services. To the 3PL providers, core activities might be the businesses they could do best or make the greatest profit. To their users, however, the 3PL providers' core competencies should be their unique expertise and experiences that could assist their users in conducting the outsourced logistics activities in the most efficient and cost effective manner. This mismatch might be the root of the disappointment and the cause of the repeated outsourcing failures in the case of X. As a logical conclusion, the analysis suggests that prior to outsourcing more careful and detailed examination of the actual core competencies of the service providers in relation to the user's expectation is important.

### **A Proposed 3PL Provider Core Competencies Evaluation Framework**

X's case presented in this paper reveals the significance of examining the core competencies of the potential 3PL providers and their abilities in achieving economies of scale before making the final decision. To a large extent, X should be responsible for its outsourcing failures. The company has an obligation to understand what core competencies of the 3PL providers are required and whether they actually possess the competencies in order to achieve the company's outsourcing objectives prior to signing the contracts. X might understand well its own logistics costs and service levels. However, evidence suggests that it has not fully examined the 3PL providers' capabilities and core competencies before requesting proposals. X selected its 3PL providers on the basis of price, range of services offered, and technical competency to provide facilities, equipment, and tools necessary for the running of its logistics operations. Using the Request for Proposal (RFP) approach, X aimed to shop for the best 3PL providers among its freight forwarders hoping that the 3PL providers could take over a wide range of its logistics functions at lower costs. However, most of the outsourcing benefits that X hoped for did not materialize because of a sharp disparity between X's expectation and the actual performance of each of the three 3PL providers.

In outsourcing its logistics functions, X did follow closely the standard procedures of outsourcing as outlined in Fig.3. The company conducted its competence analysis and mapping of activities properly (Stages 1 to 3) before requesting proposals from the 3PL providers (Stage 4). It also developed its own set of performance measures and cost parameters to evaluate the performance of the 3PL providers (Stages 5 to 7). The repeated termination of outsourcing contracts (Stage 8) therefore suggests that simply following the standard procedures might not be adequate. More detailed guidelines would be required for the most critical stage (Stage 4) in which the potential service providers are evaluated and the most compatible one is selected.

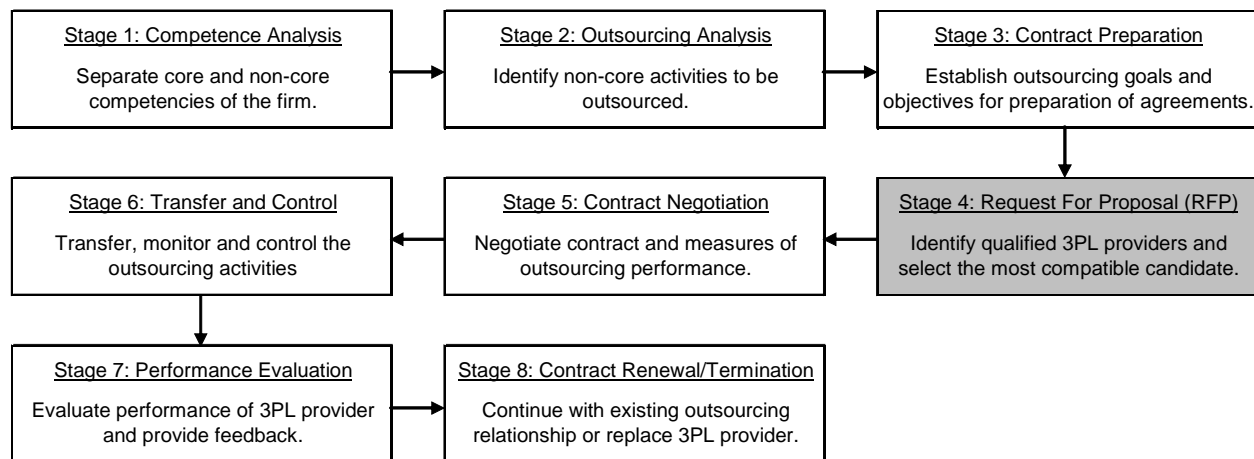


FIG.3: STANDARD PROCEDURES OF THE OUTSOURCING PROCESS

X's case reveals that resources and capabilities of the 3PL providers are essential elements of their core competencies in providing logistics services to their users. This finding is in line with the competencies hierarchy proposed by Javidan [19] in which he contends that core competencies of a firm build upon its competencies which, in turn, depend on its capabilities to utilize its resources. Javidan [19] defines the four levels of his competencies hierarchy as follows (p. 62):

- *Resources* are the inputs into the firm's value chain;
- *Capabilities* refer to the firm's ability to exploit resources;
- *Competency* is a cross-functional integration and co-ordination of capabilities; and
- *Core competencies* are skills and areas of knowledge that are shared across business units and resulted from the integration and harmonization of strategic business unit competencies.

The difficulty in rising from one level to another (*i.e.*, *Resources* to *Capabilities* to *Competencies* to *Core Competencies*) increases with the ascent but the value to the firm also inflates in increasing magnitude.

Javidan's [19] competencies hierarchy is a relatively simple and generic framework used mainly to relate a firm's core competencies to building blocks like resources, capabilities, and competencies. The framework is not especially designed for identification of core competencies by itself. Instead, it is used to show the linkages between the building blocks with the firm's strategic hierarchy comprising functional strategy, business strategy, corporate strategy, and mission statement. Nevertheless, the concept of competencies hierarchy does provide a useful reference for an evaluation framework to access the core competencies of 3PL providers. The issues identified in X's case presented in this paper help to define the dimensions of the array and supply the individual cell of the framework with ingredients.

As X's case reveals, quantity and quality of resources committed by the 3PL providers, capabilities to exploit the resources and directly control the outsourcing operations, and competencies in integrating and coordinating the logistics functions for users are critical determinants of success in renewing the outsourcing contracts. As such, some of the issues identified in the case study, such as the use of owned or leased assets, full-time to temporary employee ratio, staff turnover and stability, and the use of subcontractor and consultant, *etc.*, can in fact be translated into criteria to evaluate and assess the core competencies of the 3PL providers. Basically, a successful 3PL provider should process certain amount of resources and capabilities in order to attain core competencies in providing logistics services and to transfer cost benefits derived from economies of scale to users. These resources and capabilities include fully controlled assets such as warehouse and transport vehicle fleet, qualified personnel and well-trained staff, specialized handling equipment for service such as warehouse automated storage system, track-and-trace system, *etc.*, and a large customer base with sufficient volume of transactions to enable cost sharing.

Based on the above discussion, this paper proposes a 3PL provider core competencies evaluation framework as shown in Fig.4. The framework makes use of the findings of the case study to develop a list of evaluation items grouped under 'resources', 'capabilities' and 'processes' – the building blocks of core competencies – and use them to examine if the 3PL provider's core competencies are present. The 'processes' building block in the proposed evaluation framework is akin to the 'competency' building block in Javidan's [19] competencies hierarchy. While 'competency' in Javidan's [19] hierarchy refers to a cross-functional integration and coordination of capabilities (p. 62), the 'processes' building block in the proposed evaluation framework focuses on the availability of processes that show the presence of certain capabilities of the 3PL provider. The proposed framework is not meant to replace any existing 3PL provider evaluation models such as the ones proposed by Momme and Hvolby [25] and Vaidyanathan [34]. In making outsourcing decisions, there are many factors such as cost, quality, service, and performance to consider and different aspects such as strategic fit, compatibility of organization culture, and financial stability to look at other than core competencies and ability to achieve economies of scale [4, 34]. Therefore, the proposed framework only attempts to supplement the evaluation process upon the completion of the normal assessment procedure in the RFP stage.

In using the proposed framework to evaluate the available resources of a 3PL provider, it is recommended that staff qualification, staff turnover and stability, ratio of full-time to temporary staff, percentage of assets owned or leased, *etc.* should be examined. Similarly, to evaluate the service provider's capabilities, it is necessary to consider whether the 3PL provider has IT capabilities developed in-house or by consultants, whether logistics is truly its core business or just the main source of revenue, and whether the 3PL provider is a recognized leader in the industry, *etc.* To evaluate the 3PL provider's ability to achieve economies scale and to pass the benefits back to its users, the presence of flexible price models should be examined. Scale of operation and size of customer base usually affect a 3PL provider's ability to help its user to cut cost through economies of scale. Although cost savings can be achieved through multiple offering of services to different users, order consolidation hence volume discount, and sharing of usage of resources and assets, users will not be benefited if the costs of usage of facilities are not shared across the 3PL provider's customer base. Therefore, the availability of variable price models that permit the spreading of fixed costs across multiple users forms another evaluation criterion under the proposed framework.

It is believed that the categorical item-by-item evaluation under the proposed framework should help to identify the 3PL provider as a resource owner or a resource provider, a specialist or a generalist, and a problem solver or only a process provider. This will enable the 3PL user firm to better understand what outsourcing relationship (*i.e.*, tactical, strategic, or transformational) and what role the 3PL provider will play in the outsourced activities (*i.e.*, a standard 3PL provider, a service developer, a customer adaptor, or a customer developer). The categorization also helps to determine the strengths and weaknesses of the 3PL provider in terms of its investment in resources and innovation, proven skills and knowledge, and ability to coordinate and integrate logistics processes. This will facilitate the 3PL user firm in checking whether the 3PL provider has the capabilities and competencies to actually meet its user's outsourcing needs as well as the cumulative experience and scope for organizational learning that are necessary for forming vertical logistics alliance. Despite the fact that logistics is usually not the core business of 3PL user firms, the step-by-step approach proposed in the framework should enable the recognition of the 3PL provider's core competencies in a more systematic and objective manner. By applying the proposed evaluation framework in the RFP stage together with other evaluation processes to all the potential 3PL providers, the outsourcing firm would be able to determine which 3PL provider could help the company to achieve its outsourcing goals and objectives and provide the best scope for long-term transformational IOS partnership through vertical logistics alliance.

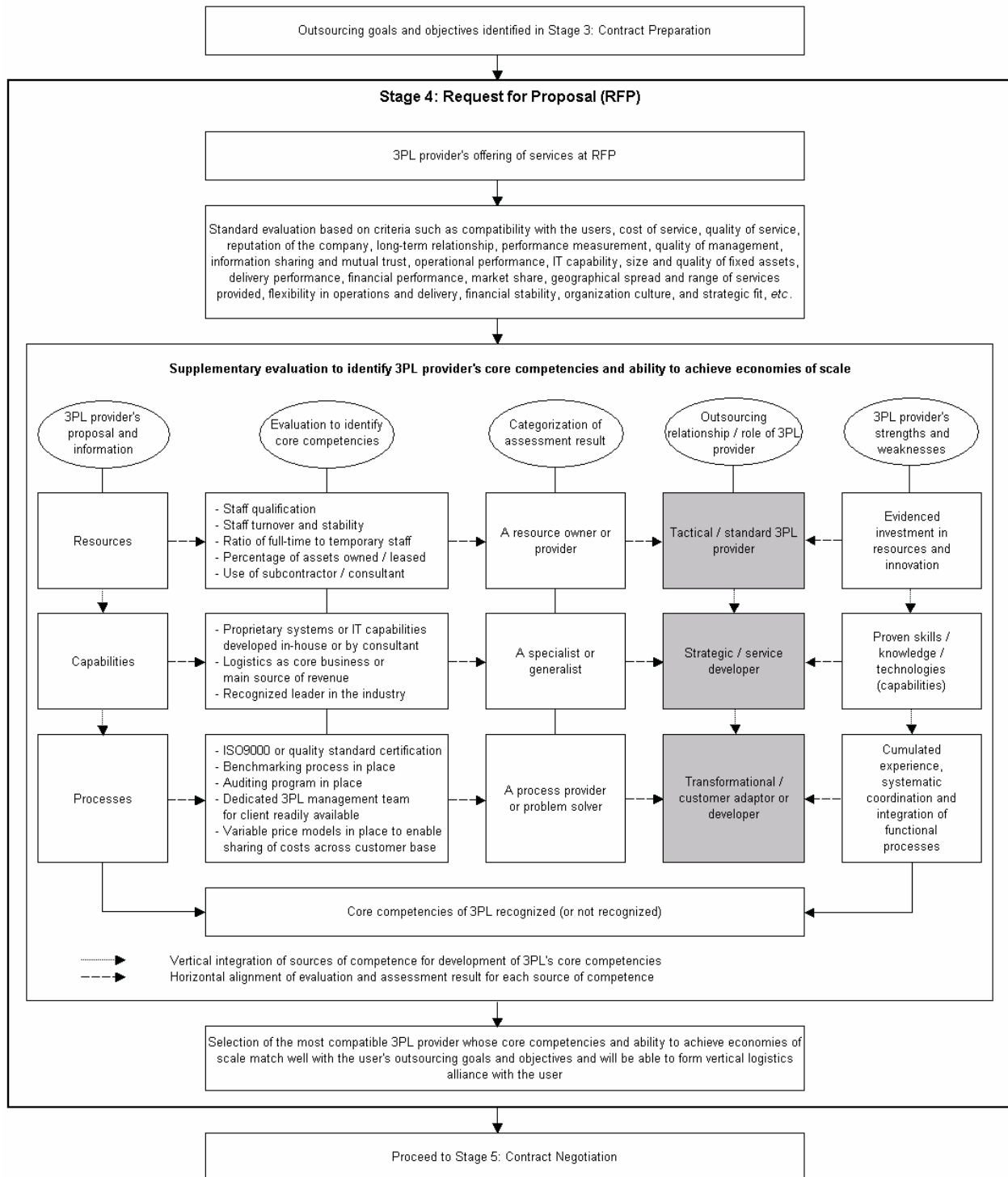


FIG.4: A PROPOSED 3PL PROVIDER CORE COMPETENCIES EVALUATION FRAMEWORK

## Conclusion

This paper argues that ‘core competencies’ and ‘economies of scale’ are two critical factors, among others, that contribute to the success or failure of outsourcing which is paramount to modern-day global supply chain management. Core competencies of a 3PL provider build on the amount of resources it possesses, its capabilities to fully exploit these resources, and its competencies in utilizing the capabilities to provide efficient and cost effective integrated logistics services to users.

The proposed evaluation framework presented in this paper can assist outsourcing firms to assess the core competencies of potential 3PL providers in the RFP stage. The framework is meant to supplement the standard evaluation process instead of replacing any procedure. It provides a systematic method to determine if core competencies of a 3PL provider are present and whether they match with the firm’s outsourcing needs. Through a categorical item-by-item evaluation process, the framework could assist outsourcing firms in determining what outsourcing relationship would be formed and what role the 3PL provider would play in the partnership. The evaluation would not only help to determine whether the 3PL provider could achieve the outsourcing goals and objectives of its user but also reveal if there is scope for vertical logistics alliance that is critical for successful global supply chain management.

As this study involves only one case with three 3PL providers, the findings might not be entirely representative although they have helped to establish parameters for the proposed evaluation framework. To fully investigate the impact of core competencies and economies of scale on outsourcing success, more studies are needed to explore the current practices of 3PL providers in different industries and regions for comparison. This might be incorporated into annual global outsourcing surveys like the one currently conducted by Georgia Institute of Technology, Cap Gemini LLC, SAP, and DHL [22]. The findings would be useful in improving the proposed evaluation framework to extend its applicability to the practitioner community.

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# Global Supply Chain Management: An Analytical Framework

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## Abstract

Research on international subcontracting has been policy-oriented and industry-focused. There is a lack of understanding of the phenomenon from management and organization perspectives. This paper conceptualises international subcontracting as a type of relational contract formed by buyers and suppliers from different countries, sitting between arm's length outsourcing arrangement and vertically integrated multinational enterprises (MNEs). It builds a transaction cost model for studying the choice of international subcontracting and for examining the complex nature of subcontracting relationships. The conceptual model provides an analytical framework for supply chain managers to choose strategically between outsourcing, subcontracting and vertical integration with overseas suppliers.

## Introduction

International subcontracting has been an effective means of accelerating industrial development since 1960s, fostering the specialisation among countries that reflects comparative advantages (Germidis 1980). Through such measures as the establishment of free trade zones, developing countries encourage local firms to undertake subcontracting jobs for foreign firms to earn hard currency and to accumulate technological know-how (Hamada 1974). Firms from developed countries are frequently attracted into subcontracting arrangements to exploit low labour and production costs in developing countries. The studies of international subcontracting are mainly policy-oriented (Cohen 1975, Riedel 1975, Sengenberger & Pyke, 1991) and geography or industry-focused (Lawson 1992, Kashyap 1992, Rogerson 1995). Few have examined why firms from developed countries choose to use subcontracting arrangements in the first place. Moreover, despite some classifications of international subcontracting activities according to functional or market criteria (Holmes 1986, Gereffi 1993), the nature of subcontracting relationships remains unexplored due to the lack of theoretical underpinning of international subcontracting as a form of investment. Grounded on transaction cost economics (Williamson 1975, 1979, 1985; Buckley & Casson 1976; Rugman 1981; Hennart 1982), this paper aims to provide a firm-level analytical framework for analysing the subcontracting choice and the nature of subcontracting relationships, complementing the existing literature's emphasis on studying international subcontracting as a macro-economic phenomenon.

## The Concept of International Subcontracting

There is no generally accepted definition of subcontracting in the existing literature (Hovi 1994). However, there are some essential features about the international subcontracting as a form of investment. First, international subcontracting involves two independent units located in different countries, reflecting a type of cross-border inter-firm relationship. But the fact that a firm is legally independent does not necessarily mean that it will be economically independent. The relationship between subcontracting parties is defined as 'quasi-integration', in which subcontractors from less developed countries are often dependent on principals from developed countries, where the demand of subcontracting is derived (Germidis 1980). Second, in a subcontracting arrangement, the subcontractor provides the principal with products or services on agreed terms and conditions set by the principal, where certain business activities such as marketing or product design may not be carried out by the subcontractor (Halbach 1989). The goods produced are required to conform to specifications intended for a definite principal, making it impossible or very difficult to sell them to other customers (Germidis 1980). Third, the principal usually



provides specialised physical equipment and/or ongoing technical assistance to the subcontractor to assure product specifications and quality (Sharpston 1977). The enforcement mechanisms are usually between principals and subcontractors themselves and no third party oversees the execution of the contract. The bond linking them together is thus out of market (Germidis 1980). Consequently, a significant level of transaction-specific investment has to be undertaken both by subcontractors to meet the specifications set by principals and by principals to ensure the performance of subcontractors. These basic characteristics reveal that the nature of international subcontracting conforms to Williamson's (1979, 1985) notion of a relational contract with a bilateral governance structure. Casson (1987) identified subcontracting as a distinctive type of intermediate contractual arrangement, an alternative to the vertically integrated multinational enterprises (MNEs).

## **The Choice of International Subcontracting**

The above conceptualisation allows us to examine the choice of international subcontracting as an intermediate relational contract, lying between market outsourcing arrangement and internalised MNEs.

### **Subcontracting vs. Outsourcing**

In transaction cost framework, the choice of a relational contracting form is made when transactions between buyers and suppliers are characterised by mixed asset specificity, recurrent exchange and a low degree of uncertainty (Williamson 1979, 1985). Central to the framework is the concept of asset specificity, which refers to durable human and physical investments undertaken to support particular transactions (Williamson 1985), the value of which will be lost in alternative uses. The requirement for specific assets creates potential costs in the market execution of transactions. When the asset specific feature involved in business transactions is low, buyers and suppliers keep their relationship at arm's length.

A common industrial outsourcing activity refers to market transaction of standard products or components, with both buyers and suppliers capitalising on their comparative advantages of trading and realising economies of specialization. While outsourcing may involve a long-term relationship between buyers and suppliers, it does not require the support of long-term contract. The products and components in common outsourcing activities are non-specific and there are many buyers and sellers. Some buyers and suppliers may be engaged in the trading of standard goods for a long time. But they are not bonded by contracts requirement and each side can switch to other trading parties easily due to the low asset specific investment in their trading relationship.

When products or components contain some degree of product specifications and are not 'off the shelf', they can no longer be bought on spot market. Buyers look for long-term contractual arrangements to assure the supply of the specialised inputs and products. Subcontracting is a kind of long-term contract that aims to facilitate the sourcing of products or components with buyer-specific requirements. This clarification is important because the term 'subcontracting' is often misunderstood as an exclusive portrait of buyer-supplier relationship and therefore the distinction between common outsourcing and subcontracting is blurred. As such, asset specificity is an important reason for making long-term contracts (Kay 1995), explaining the choice of subcontracting over outsourcing. To protect themselves from exposure to transaction costs arising from making asset-specific investments, both parties involved in subcontracting relations have incentives to form a long-term relational contract.

### **Subcontracting vs. Vertical Integration**

The economic rationale of international subcontracting is to realise economies of specialisation through externalising non-core production activities (Sharpston 1977) to achieve cost advantage. But firms can acquire existing low-cost suppliers in developing countries as their subsidiaries or set up plants in low-cost regions and relocate non-core activities to the new ventures. On the other hand, if the aim is to access technology expertise or other proprietary know-how held by suppliers, the buyer firm could still acquire them through equity integration with suppliers. Therefore, other than achieving production cost economies and acquiring complementary assets, there must be additional reasons for firms to choose subcontracting rather than vertical integration through acquisitions or greenfields.

Engaging vertical integration to exploit low production costs or to access complementary assets overseas would entail significant transaction and information costs, which justify the choice of subcontracting. First, the desired assets of the acquired firm are hard to disentangle from the non-desired ones, which impose a high cost on acquiring suppliers (Hennart 1988). Under this circumstance, purchasing the target overseas firm would force the buyer to enter unrelated fields or to expand suddenly in size, with the attendant management problems. This cost is particularly high for firms that rely mostly on cost rather than differentiation to survive.

Second, management costs after the acquisition make subcontracting preferable. Acquisition of a foreign supplier means the buyer also takes over an existing labor force and a well-established administrative structure. Considerable difficulties might be expected by the buyer in managing the foreign supplier firm that has cultivated its own organizational routines and corporate culture, in addition to the national culture distance. Hence, a subcontracting arrangement may be desirable as it avoids the post-acquisition management costs by leaving the management of supplier firm to the overseas subcontractor itself.

Third, information costs in assessing the value of the target firm inhibit the acquisition. Buyers may not acquire overseas suppliers for the purpose of establishing low-cost supply bases but for the potential gain from complementary assets held by suppliers. But it may be difficult to assess the true value of these complementary assets due to the intrinsic bounded rationality constraint and the expectation that overseas suppliers may opportunistically exaggerate the value of their assets. A subcontracting arrangement retains the possibility for principals to gather information on the value of overseas subcontractors' complementary assets without financial exposure in an equity relationship, and may be used as a transitional arrangement for future acquisition of the overseas supplier.

Fourth, high exit barriers in an equity relationship may jeopardize the flexibility valued by the buyer firms. In contrast, a subcontracting arrangement allows buyers to rescind the contractual relationship with suppliers at a relatively low exit cost. Finally, impediments to acquisitions arise from governmental and institutional barriers. Many developing countries discourage and restrict the foreign equity control of local companies while the pervasive anti-trust legislation in developed countries also acts against acquisitions.

When making the choice between subcontracting and building new plants (greenfield) in low-cost countries, the following factors need to be considered. First, relocating low value-added operations to newly established greenfield plants may achieve a similar level of cost reduction in labor and other production factors. But relocation to another country through greenfields requires additional knowledge in managing labor and production in an unfamiliar environment, and becoming acquainted with the specific local cultures and environment is a time-consuming process. Greenfield investments may be necessary for companies that aim to develop foreign markets for their products, but not for firms that simply seek a low cost supply base overseas.

Second, even when the buyer firm plans to develop the foreign market in the future, subcontracting may still be a preferred entry mode as it allows the firm to acquire knowledge of local market before the subcontracting arrangement is replaced by a wholly-owned subsidiary (Kogut 1988). In this case, the choice of subcontracting economises on the cost of acquiring local knowledge, allowing the prospective entrant to test the potential of the local market while exploiting the foreign country as a low cost supply base in the mean time.

## **The Nature of Subcontracting Relationship**

Transaction-specific investments bond principals and subcontractors in a relational long term supply arrangement, but it also leaves room for parties to bargain, shirk or break the relationship for short-term gains. Whether such a contractual arrangement can be preserved is primarily a matter of the nature of the subcontracting relationship concerned.

There is a whole range of international subcontracting relationships in terms of the degree of interdependence and bargaining power between principals and subcontractors. The perceived dependence and bargaining power are the function of the combination of many factors, including the degree of asset-specific investments, frequency of transactions and uncertainty between parties (Williamson 1979, 1985). Variations along

those transactional dimensions determine the degree of interdependence and bargaining power between subcontracting parties, which in turn constitute a variety of subcontracting relationships.

A loose subcontracting relationship denotes a low interdependence degree between principals and subcontractors, the switching cost for both parties is low as neither side makes significant asset-specific investments. The principal does not rely on a particular subcontractor or subcontractors for supply and the subcontractor also has a broad customer base. The principal only need to provide minimal technical assistance to the subcontractor and the subcontractor does not need sophisticated machinery and skills to perform subcontracting jobs. The frequency of orders has little impact on the relationship since both sides are loosely tied to each other and the exit costs are low for both sides when facing market demand fluctuations. Examples abound in commercial subcontracting (Gereffi 1993).

A subcontractor is more dependent when the principal has stronger bargaining power. This occurs when asset-specific investments made by the parties are asymmetric. The buyer commitments are usually confined to specific physical capital, including specific dies, moulds and tooling for the manufacture of a contracted product (Nishiguchi 1994). The subcontractor, on the other hand, has to invest in special-purpose equipment, employ skilled workers and engineers who are devoted to customer-specific operation; expand production capacity to meet the principal's requirement. The industry structure is such that many suppliers from developing countries are competing for relatively few buyers from developed countries. It is difficult for a subcontractor to diversify its customer-base and its sales revenue. However, such an unbalanced subcontracting relationship may not be unstable. Although buyers from developed countries have much leverage among many suppliers in developing countries, stable long-term relationships with their suppliers can enhance performance certainty by reducing the costs in seeking suitable overseas suppliers, in drawing up multiple contracts, and in monitoring multiple suppliers in different countries. All of these benefits would be lost in a frequent shift of suppliers. These are also the reasons why arm's length outsourcing may involve a long-term relationship. But the higher degree of asset specificity points to a more inter-locked pattern of relationship in subcontracting than in outsourcing.

The situations where a principal is more dependent on a subcontractor are less common. They happen when the overseas subcontractor holds know-how crucial to the principal's production cycle. Some once-off and occasional large purchasing orders that involve sophisticated work such as in aerospace (Esposito & Storto 1994) and shipbuilding industries (Smitka 1991) might qualify as examples, since they require highly specialized expertise and more importantly there are more buyers than suppliers in the global market. Subcontractors enjoy stronger bargaining power when they are not merely producing certain products or components, but serve as intermediates for transferring knowledge of the local market to foreign buyer firms. In this case, a local subcontractor's bargaining power stem not from the transaction characteristics, but from the foreign buyer's strategic purpose in developing the local market with the help of the local supplier. Nevertheless, the subcontractor may be unaware of the principal's strategic motive and fail to materialise its power advantage in dealing with the foreign principal firm.

When the principal and the subcontractor are mutually and heavily dependent on each other, the demand for equal collaboration is high. Subcontracting of this type requires highly specialized investments from both sides and the relationship is balanced. In such a subcontracting relationship, the principal typically contracts out the assembly of a final product. The principal commitments contain a high degree of asset specificity since complete assembly requires the highest integration of contract-specific physical facilities, including dedicated assembly lines, tooling and testing equipment (Nishiguchi 1994). Moreover, the principal will incur human asset-specific investments in the form of managerial training and technical assistance to the overseas subcontractor to attain the production specifications (Sharpston 1977). For subcontractors, end-product assembly for a particular overseas buyer will require specific investments both in human capital (e.g. employ highly skilled workers or provide special training) and in physical assets (e.g. purchase specialised machinery and equipment). Therefore, principals and subcontractors commit a similar level of asset-specific investments, which support an equal collaborative relationship characterised by common interest, mutual obligations and trust (Smitka 1991, Morris & Imrie 1992).

## Conclusion

International subcontracting is often studied as an important instrument for industrial development at the policy level. Few studies have looked at the phenomenon from a management perspective. The paper does not attempt to provide a precise definition of international subcontracting. Rather, building rigorously on the transaction cost economics, the paper conceptualises international subcontracting as a relational contract between buyers and suppliers from different countries, sitting between arm's length outsourcing arrangement and vertical integrated MNEs.

A transaction cost analytical framework is proposed for investigating the choice of international subcontracting over its market and hierarchy alternatives. The framework also allows us to examine the specific nature of a range of subcontracting relationships. Theoretically, the paper offers a conceptually coherent foundation for future research to analyse international subcontracting as a form of international business organization at the firm level. Empirically, the paper provides an analytical framework to help international firms' managers to make strategic choice between outsourcing, long term subcontracting and vertical integration with overseas suppliers for their companies' supply chain management across borders.

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# Logistics and Supply Chain Management for Hungarian Mid-Size Companies: Effect on Competitiveness

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## Abstract

An empirical survey of 117 SMEs (examining logistics practices and the relationship of information systems such as the existence and use of an ERP - or related logistics information systems) was carried out under the leadership of the author. Our goal was to prove the relationship between the quality of the logistics processes (functionality, agility, process measures) and their effect on the position of SMEs on the market. On the basis of the survey we have received detailed information on how logistics processes and information systems affect the competitiveness of these enterprises. While large (multinational) companies are better in terms of economic competitiveness due to their size and the financial benefits they enjoy as a result of the global market, this does not work for SMEs. The path to SME-competitiveness – even when fixing and streamlining their logistics processes and installing their logistics information systems – begins with flexibility and adoptability: they must meet the unique needs of their customers by constantly improving the quality of their customer service and by adapting to customer standards. Although the paper discusses the Hungarian case, the problems can be similar in the newly joined EU member countries as well.

## Introduction

The aim of this paper is to highlight the logistics strategies and practices used by small enterprises in Hungary, with view through a “supply-chain-approach”, where it is usually a large firm as a “dominating” channel member. The need to survive and to grow forces SME-s to adapt to the rule of competition (which are changing rapidly).

We agree on the interpretation that logistics is defined as the process of controlling physical flow and connecting information flows (Colin-Fabbe-Costes, 1993). It is a major contributor to economic performance in large corporations, and it will be accepted as a tool for economic efficiency. [Kearney, (1984), Chow, G.-Heaver, T.-Henriksson. L. (1994)] The company gets efficient, if – together with its partners – it is able to reduce the costs of the logistics activities (procurement, warehousing, inventory management, transportation, distribution, etc.) and if it satisfies the customers.

Small enterprises – similarly – have and are able to implement logistics procedures to improve their performance. Despite of that, few researchers have considered logistics as a strategic tool in small firms. Researchers of this field in Hungary tend to look at SME-s as “logistics beneficiaries”, who are on the passive side, while large corporations do the majority of logistics works (within the supply chain).

We do not agree on that, because the percentage of jobs (of all competitive sectors) generated by SME-s cumulates to 51 %, and in manufacturing it is even higher (55 %).

Business interest in logistics began around 1950 and has developed since progressively. Researchers speak about stages, as the logistics functions have been integrated into the organizational structures of companies. [McGinnis, M.-Kochunny, C.M.-Ackermann, K.B. (1995); Inkalainen, A.-Vepsalainen, A. (2000)].

Figure 1 shows the development of logistics in firms by Inkalainen (2000)

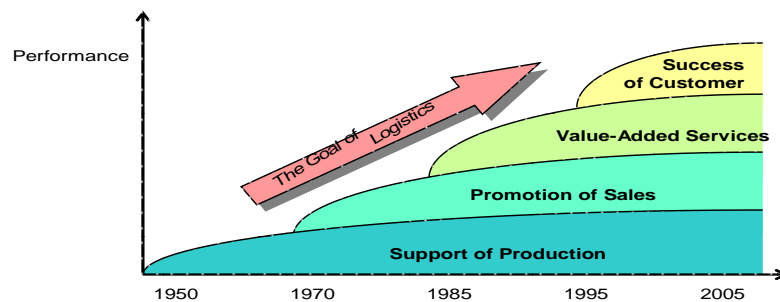


FIG. 1: CHANGING MISSION OF LOGISTICS/SCM

When having a deeper look on this development, we should be aware of the fact that researchers focussed on large enterprises. Even previous surveys usually focussed on big firms (among them subsidiaries of multinationals) with less attention paid to medium-sized ones. Nevertheless, in our opinion, the changing role of logistics affects SMEs similarly.

This paper is the result of a survey conducted at St. Stephen University, consisting of over forty in-depth-interview questions, the purpose being to survey the logistics and supply chain “situation” in Hungary. Most of the 117 companies surveyed were mid-sized manufacturing, service and commercial firms. When possible, top managers/business owners, logistics managers or logistics employees were the respondents. . In addition, this survey sought information regarding “inter-company logistics”. Information such as: To what extent inventory optimization within the supply channel is achieved, what information relationships can be found between different members of the chain, and whether a member of the chain has an overview of the whole logistics chain.

Supply chain issues have come to the forefront in developed economies. As customers demand more complex solutions, competition exists less between products, and more between management of respective supply chains. In other words competition is not between independent companies, rather groups of companies supported by their suppliers, customers and logistics service providers.<sup>1</sup> In addition to price and quality, logistics-related services play an important role in the value of a product. In order to provide quick responses to customer needs, product availability has become a strong competitive factor throughout the chain. It will come more and more true that “Relationships are not only a way to acquire resources, but also a way to develop resources” (Schary - Skjott-Larsen, 2001, p. 73). This is increasingly true in Central and Eastern Europe as well; according to several existing surveys, logistics as an independent discipline has become more accepted among Hungarian companies since the political transformations.

The main goal of the survey was to obtain information regarding the supply chain management (SCM) situation in Hungary. A summary of the findings is below. The responses generally confirmed our hypotheses of a gap existing between best and current management practices.

## Breakdown of Data

### Characteristics of the Surveyed Companies and their Place within the Channel

A breakdown of the 117 surveyed companies by scope of business is shown in Table 1. Around half of the companies have their major activities in manufacturing. A quarter belongs to sales (wholesale and retail), and roughly another quarter belong to service- and logistics service providers.

TABLE 1: BREAKDOWN OF SURVEYED COMPANIES BY SCOPE OF BUSINESS

Manufacturing	34
Manufacturing & trade	26
Service provider	20
Trade (wholesale & retail)	18
Logistics service provider	9
Wholesale (pure)	5
Retail trade (pure)	4
No data	1
Total	117

Fig. 2 shows the distribution by industries. Although the sample has been not “ideal” nevertheless it represents all areas of importance at the current state of economic development.

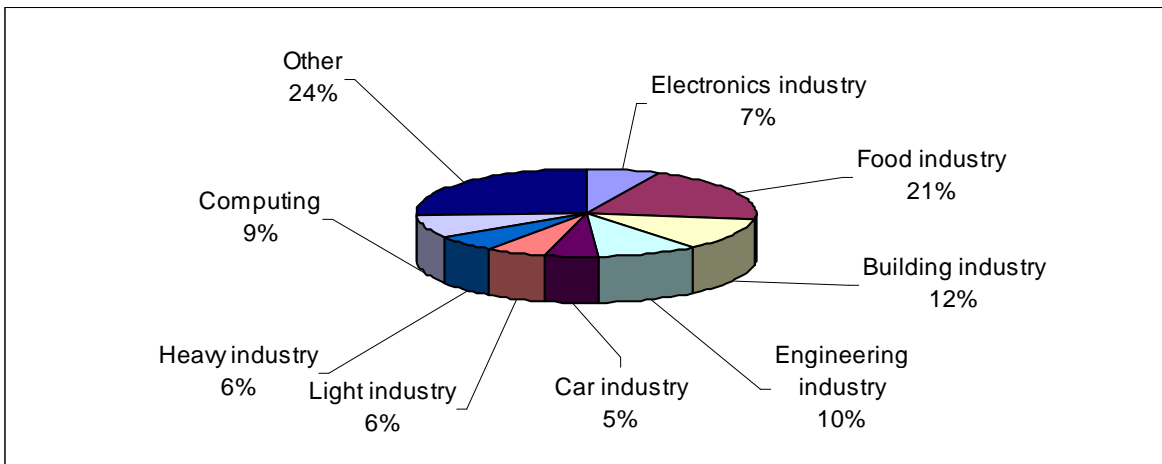


FIG 2: BREAKDOWN OF THE SAMPLE BY INDUSTRY

The **transport intensity** and/or **inventory intensity** of the activity was of great importance to our analysis. 78% of the interviewed companies claim they are strongly or critically transport intensive. The majority of the companies carry over 500 articles, probably the result of product diversification generated by increasing customer demand.<sup>2</sup> Every respondent in the electronics industry carried over 500 articles, while the building and food industries carried the lowest numbers.<sup>3</sup>

Breaking down the proportion of **input/manufacturing/output** logistical activities, output logistics has the most important role. This is in accordance with international trends. Output (69%) is mentioned almost twice as

often as manufacturing (34%) or input (43%) logistics in the survey responses. The breakdown by scope of business also reveals output dominance everywhere outside the manufacturing sector. This means, among other things, that **typically the selling party** undertakes the logistics services.

#### Types of Operation of the Supply Chain (Push or Pull?)

**Pull-type operations** surveyed significantly higher than expected (69%). Hungarian and foreign literature describes the pull system as on the increase, and considers the transformation of push systems into pull systems as the primary task.<sup>4</sup> The number may even be low as the survey question referred to supply chains and not companies. Input-output inventory was analysed on a company-by-company basis. If the proportion of input inventories exceeded output inventories by more than 10%, it was assumed that the company produced for stock.

### Changes in Logistics Costs

Logistics costs have increased for 85% of the respondents, by an average of 48%. A decrease, seen in 15% of the cases, is 14% on average, so **there is an average increase of 39%** over the whole sample. As the period for this survey question was five years, this proportion is not extreme as it is just above the inflation rate. Table 2 shows the changes in logistics costs. Upon examination, two things are significant. First, a higher proportion of companies performing manufacturing and trade together show an increase of costs (100%) than those performing them separately; and second, the service sector shows extreme values both in increasing and decreasing costs.

TABLE 2: DEVELOPMENT OF LOGISTICS COSTS BY SCOPE OF BUSINESS

Logistics costs	Increased	Percentage	Decreased	Percentage
Trade	85%	21,66%	15%	10,25%
Manufacturing	73%	21,69%	27%	12,14%
Manufacturing and trade	<b>100%</b>	27,20%	0%	0,00%
Services	85%	<b>157,05%</b>	15%	28,33%
Logistics service providers	88%	27,42%	13%	10,00%

We are currently in the process of analysing this data.

### Use of Logistics Service Providers (LSPs) for the Different Activities

A general **willingness to outsource** is shown in Table 4. The table shows the activity least likely to be outsourced is warehousing (78.6% using no LSP's), while forwarding is outsourced most often.

TABLE 4: USE OF LOGISTICS SERVICE PROVIDERS

	Exclusively	Partly	Do not use any	NA (or no such activity)
Transportation	23,08%	11,97%	62,39%	2,56%
Warehousing	8,55%	8,55%	78,63%	4,27%
Forwarding	29,91%	5,98%	43,59%	20,51%

These are low rates compared to Austrian and German figures<sup>5</sup> requiring deeper analysis. We believe it can be partially explained by a lack of capacities of complex logistics service providers as well as past practices of the earlier command (planned) economy where shortages created an unreliable supply chain. We expect a large increase in the use of LSP's after EU accession.

### Performance Indicators of Logistics Activities



Indicators for comparison with a survey performed five years ago were asked<sup>6</sup>. The open-ended questions resulted in a wide range of answers. In addition to the verbal and pre-printed answers, a range of answers are grouped below in Table 5:

TABLE 5: FREQUENCY OF THE DIFFERENT TYPES OF PERFORMANCE INDICATORS

Order processing time	92
Monitoring of faulty orders	83
Other order filling indicators	31
Turnover	28
Time and motion monitoring	19
Examination of inventory	14
Cost analysis	10
Capacity utilization	6
Availability	6
Monitoring customer service levels	6
Wastage	4
Supplier Performance	2

The **indicators** vary widely. Many mentioned indicators, which are connected to time (e.g. inventory turnover time), as well as lead-times of different activities for comparison. Other indicators are connected to faulty order filling, typically concerning the type or reason for the fault.

In our questionnaire we focused on a special indicator, the inventory turnover time. With this we tried to measure the speed of the economy, similar to the way “The Economist’s ‘Big Mac’ Index” is used to measure currency valuation. The results were not totally in accordance with our expectations.

### Change of Inventory Turnover Time

Surprisingly, 38% of companies reported an **increase in inventory turnover time**. This may be due to either (a) input inventories still under the production/manufacturing director; or (b) output inventories still under the supervision of the sales director, who may accumulate a large inventory of finished goods in order to guarantee quick service or balance demand. A similar imbalance can be observed in the case of changes in order processing time. While ERP systems favourably influence the proportion of increase-decrease, increases in turnover time are significantly higher among companies having an ERP system<sup>7</sup>.

It is worth noting that the manufacturing sector has performed very well in both the reduction of inventory turnover time and order processing time. ERP system use is highest in this sector, which might provide an explanation. However, it remains to be explained why growth in both order processing time and inventory turnover time (seen at companies having ERP systems) is generally higher than companies with no ERP systems, while growth is very low in the case of the manufacturing sector. The reasons for this may be; (a) it is not only the use of ERP systems which is more intense in the manufacturing sector, but their use is more efficient, or; (b) during the introduction of ERP systems, in the case of inventory turnover, companies may have suddenly noticed the negative effects of backorders due to too low inventory levels. Alternately; (c) costs may have incurred due to too high customer service levels.

### Place of Logistics and Supply Chain within the Organization, Directions of Development

Nobody in the survey responded by saying “Logistics? We don’t have that”, even though the survey conducted five years ago had several examples of it. The position of logistics within organizations is shown in Fig 3.

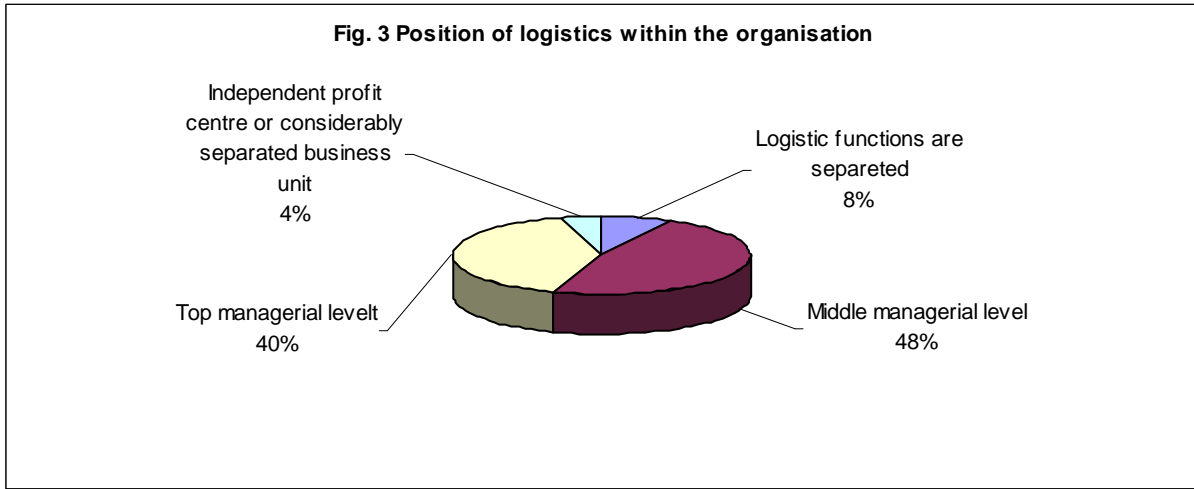


FIG. 3: POSITION OF LOGISTICS WITHIN THE ORZANIZATION

From the survey data, it appears that very few companies consider logistics functions as separate, isolated or uncoordinated activities. However, we think it preferable that more companies consider these functions at the top managerial level. The car industry, as in many other fields, has performed outstandingly in this area. The building industry - though a high proportion delegates logistics to the top managerial level - also lead in the isolated use of logistics functions. The worst situation can be observed in light industry, where only 20% perform logistics functions as separate activities, 80% at a mid-managerial level.

### Logistics Approaches

In this question we were eager to learn about using up-to-date management techniques in logistics. These techniques are not all thoroughly discussed in Hungarian logistics journals for practitioners yet. In the case of the four **logistics approaches** selected, respondents were not always fully aware of definitions of “VMI” (Vendor Managed Inventory) and/or “Postponement”. Fig 4 is below:

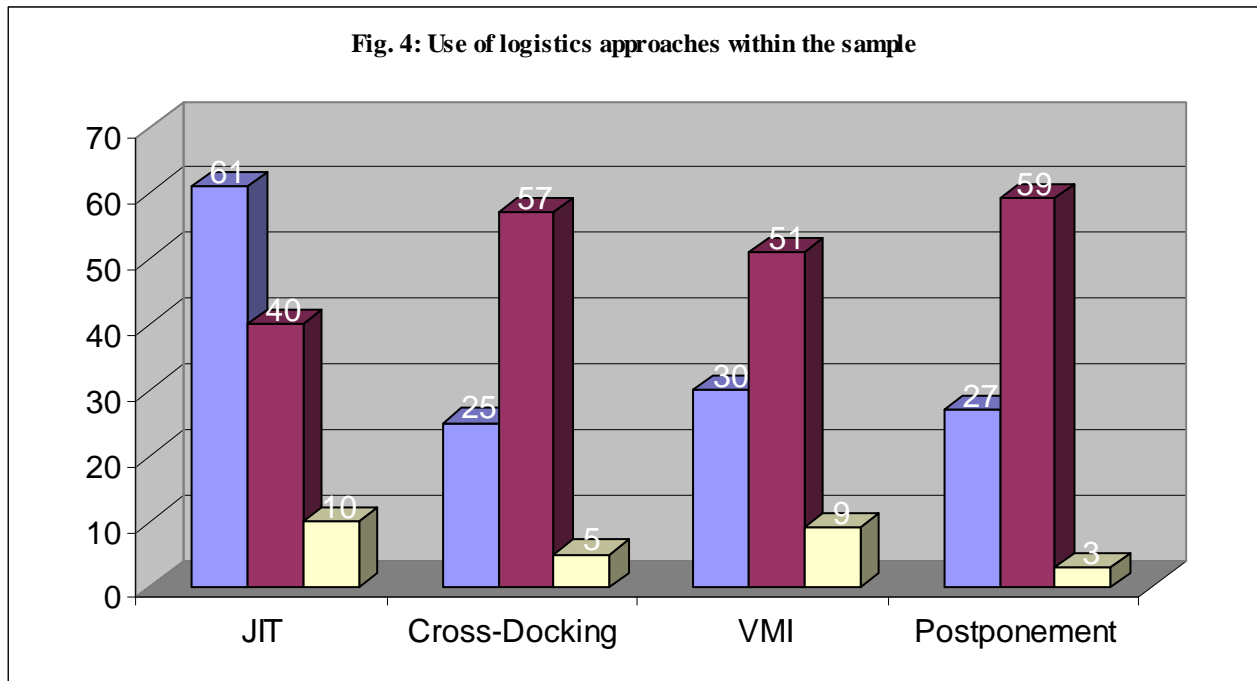


FIG. 4: USE OF LOGISTICS APPROACHES WITHIN THE SAMPLE

**LEGEND:** blue - yes, pink - no, white - planned. The figures show the number of companies responded.

Many of the respondents indicated the use of the JIT method, with a further ten percent planning to introduce it. However, this high number is questionable as only 28 of the 61 companies giving a “yes” answer had an ERP system and only 16 of them used EDI. We assume that if they did use a JIT system, they should have already had these tools. If any of their partners used a JIT system, communication should have been maintained through an EDI or an integrated system. A good example is the car industry where answers given to different questions fit consistently. The low number of answers given to “postponement” is surprising as its application has lower infrastructure requirements than JIT systems.

### Planned Logistics Developments

Multiple answers were possible on this question though respondents typically gave only one or two answers. Most of them considered;

- a.) the development of partner relationships, or **strategic alliances**, as most important (69%), followed by
- b.) the development of logistics information systems (55%), introducing modern logistics methods (40 %) and
- c.) the introduction of an ERP system (16%).

A 55% response for developing logistics information systems and 40% response in favour of introducing modern logistics methods we believe are very good proportions. They show that a considerable number of companies are paying attention to their logistics situation.

The proportion is 12% for logistics approaches, 25% for logistics information systems, and 19% for ERP. From these figures the question arises whether these companies have marked partner relationships because they feel themselves highly developed in other fields, or they do not feel the need to develop other fields. The latter is concluded for the following reasons:

- a) ownership of ERP is only 25% versus 43% in the whole sample in the case of companies making up a third of the sample,
- b) logistics functions are isolated in 14% of the cases, versus 8% in the sample, and
- c) 83% of them provide services only upon orders (versus 72% in the sample).

Consequently, it is an assumption from our side that companies who plan to improve only their partner relationships are less developed from a logistics point of view. A more intensive use of information networks and up-to-date logistics approaches play an important role in turning simple partner relationships into strategic alliances.

### General Use of ERP Systems

Regarding the **penetration rate of ERP systems**; the proportion within the sample is significantly higher than shown in the national statistics. Forty-three percent of the companies have ERP, 16% are planning its introduction.

The penetration of ERP systems is highest within the manufacturing sector (61%). Moreover, the difference compared to the proportion of second-placed logistics service providers is almost 38%. Service provider companies are the ones with the lowest ownership of complex company management systems, but this tendency may change in the future as 25% of the companies are planning to introduce such a system. ERP system use between different types of businesses are expected to grow wider, the manufacturing sector increasing its advantage over trade based on planned introductions.

The penetration of integrated company management systems is highest among the electronic industry (100%), as well as heavy industry (66%). The building industry and other categories need to be developed more intensively, their lack of penetration made worse by their low level of planned introductions. The **agricultural sector**, which has already been cited as a negative example, is also underrepresented in the field of ERP systems (the penetration of ERP systems is 0%, the proportion of planned introductions also 0%). With a penetration rate of 33%, both light industry and the computer industry are aiming for the most intensive development.

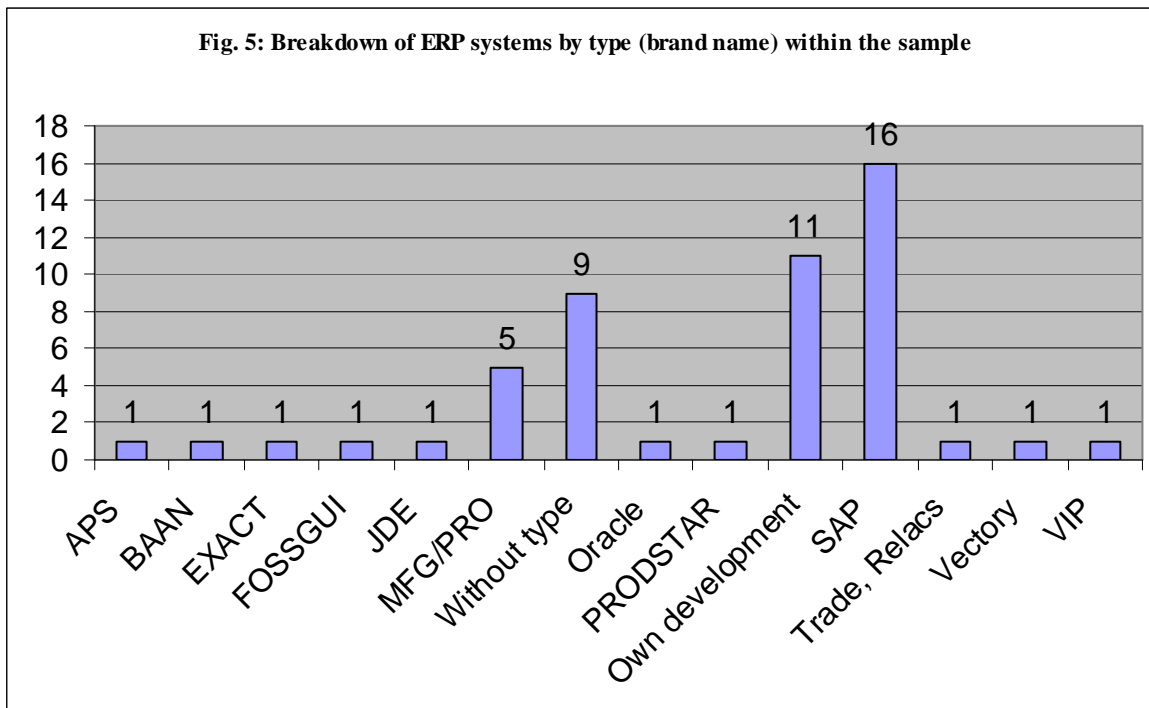


FIG. 5: SHOWS THE BREAKDOWN OF ERP SYSTEMS BY TYPE

The sample shows the dominance of SAP systems. MFG/PRO is the only system mentioned more than once, with its 5 industry-specific company management systems. Certainly, SAP also has industry specific systems, but they are not disclosed here. The proportion of own systems (22%) is not remarkably high and it would be interesting to know what proportion of no-name ERP systems are own developments.

### Connections within the Channels

The questionnaire had no box to signify communication via (postal) mail (Fig 6). However, in-depth interviews revealed many companies required written confirmation of customer orders.

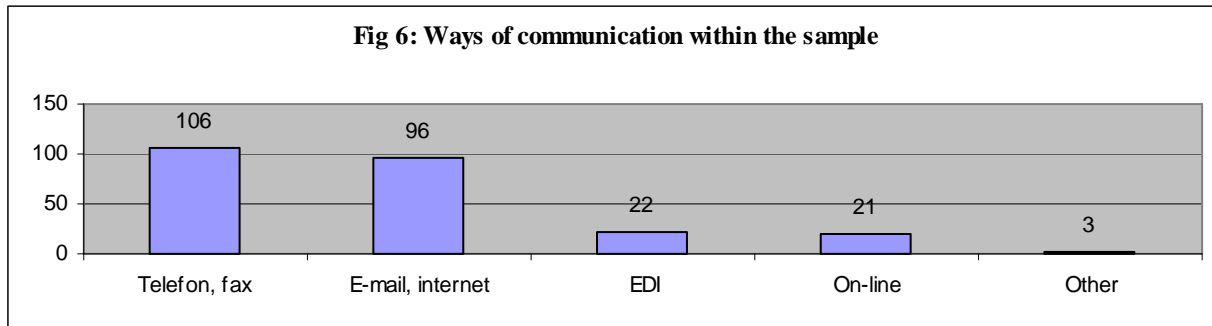


FIG. 6: WAYS OF COMMUNICATION WITHIN SAMPLE

Communication via telephone and fax are most common, but e-mail and the Internet with 106 responses (96%) is also very high. EDI and on-line communication (with 22 and 21 answers) equalled expectations.

### Degree of Co-operation

72% of companies provide services for orders. Eight percent operate with common interfaces and 16% are connected to an integrated information system. We consider this proportion to be very low. The reasons being; a) over half of the companies have marked the use of JIT systems (in the case of own company or direct partners), though JIT systems assumes a very close strategic partner relationship, and; b) a high penetration of ERP systems would also make closer cooperation possible. Likely reasons for less close cooperation may be; a) historical - the desire in Hungarian companies to “go it alone” without partnering; b) lack of trust, perhaps more typical in the Hungarian economy than other developed economies, or; c) lower average age of the companies, strategic alliances typically being formed over many years. A comparison to similar surveys completed in other countries is being planned.

### The Dominant Member(s) in the Channel

In logistics literature, usually **OEM’s<sup>8</sup> or wholesalers are the dominant member** (which might be called the “system integrator” as well) of the supply chain. Ballou (1999) distinguishes among different types of channels: The dominant member in the channel – within members of the upstream channel it can be the OEM, within the members of the downstream channel it can be the wholesaler. The answers stated the situation in Hungary is similar to the European trend.

However, here we had some difficulties, because only 28% of the respondents gave an answer to this question. Interestingly, from the respondents the “business owners” did not typically know – or did not want to mention - the dominant member of the chain. The most answers came from the “logistics middle managers” and the “managing directors”. Apart from them, the lowest proportion of answers came from the “logistics managers” themselves. This was somewhat surprising. We should consider this for a moment:

There can be several possible explanations for this phenomenon: a) Development of the logistics-SCM strategy is performed mostly by parent companies of Hungarian subsidiaries of multinational companies; b) lack of a strategic approach by logistics managers. Hungarian companies that have by now secured a stable market position probably still handle logistics as a subsidiary activity. As a result, warehouse heads may have moved into logistics managerial positions, or; c) dealing with inventory may be a confidential activity, so in many cases a less skilled relative of the owner performs these tasks.

Based on the above we conclude that developing supply channel awareness will be a crucial task of Hungarian companies after EU accession.

## Summary of the Findings

Below are findings, which show in nutshell the logistical situation of mid-size Hungarian companies.

- **Logistics costs have mostly increased**, the rate of growth not significantly exceeding the inflation rate. The respondents mentioned **pull-type operations** to a considerably higher degree, though the survey of **inventory levels has not confirmed it** in all cases. Inventory levels are not adjusted to the system operations in all cases.
- The **dominant member** can be a **manufacturer** (e.g. car industry), or a **wholesaler/trader**. The former is typical of production chains, the latter of sales chains (e.g. FMCG sector).
- The use of logistics service providers differs mainly by industry; the scope of business not being as significant. The use of LSPs differ in fields of different logistics activities. Nearly **50%** of companies have no **connection to a logistics service provider**.
- **Turnover time has increased significantly**, the difference between industries and scopes of business being more significant than expected.
- In most cases **logistics functions are done on a mid-managerial level**. Few examples of separate management of logistics functions were found.
- A considerable shortage of **logistics approaches** can be seen compared to more developed economies. Some of the respondents presumably do not have accurate information about the exact definition and contents of different approaches.
- **Planned logistics developments** have shifted towards approaches, which, in the respondent's calculations, do not involve considerable costs.
- The **penetration of ERP systems is relatively high** leading to the conclusion that Hungary is over the first big ERP wave, the life cycle of this product having passed its peak.
- The use of **ERP systems does not necessarily result in positive changes** in indicators. Rather, it helps system optimization through a higher-level planned information processing method. The **influence of the German economy** can also be seen on the use of ERP systems as well.
- **Strategic partnerships do not constitute a considerable proportion** of co-operation at present. The process has started, though behind the level expected.

## Conclusions

Supply chain management in Hungary can currently be divided into two levels; classic logistic systems and advanced supply chain management. Classic logistics systems, which aim to minimise costs and maximise customer service levels, are gaining in importance in Hungarian companies, mainly through exposure to multinational organizations as well as modern supply chain software and methods. Much work needs to be done to upgrade systems and educate professionals, particularly Managing Directors, of the importance of supply chain management. As more products reach the marketplace and consumers become more quality and service conscious, SCM will become an ever more important component of branding a product.

The next and more challenging level will be that of integrating supply chains between companies; e.g. between manufacturing, distribution and retail outlets. This will by necessity include proprietary data being shared within companies inside the supply chain, including more information sharing, which may create some resistance from traditional Hungarian companies. While multinational companies have a considerable lead on development and maintenance of such systems, Hungarian mid-size companies have yet to realize the critical nature of such a strategy. This is in part an education process. It will be increasingly important to stress to Hungarian managers and directors the importance of strategic partnerships in distribution. If company executives fail to realize not only the advantages, but the necessity of such partnerships, they will find themselves at a considerable disadvantage when markets open following EU accession in May 2004. At that time companies may find themselves not only lagging behind but short of options for suitable supply chain partnerships.

We agree with Schary & Skjott-Larsen (2001), that competition in the future will be less between “product vs. product”, but more between “supply chain vs. supply chain”. As more products reach the marketplace, service and distribution become ever more critical to a product’s success. While some Hungarian companies are well on their way in the development of both classic logistics systems and even integrated systems, others have yet to even see the importance of such systems. Companies who fail to familiarize themselves with modern integrated supply chain systems do so at their peril.

Finally, a macro-logistics phenomena outside of the scope of this survey should be mentioned. While Hungary’s accession to the EU means considerable challenges, it also presents great opportunities. After accession, Hungary will be at the eastern (Schengen) border of the EU. Because duties paid by non-EU member companies remain in the very EU-member country that collects it, an excellent opportunity exists to create freight villages for trade flowing from both the East and the Southeast. This is a one-time opportunity for Hungary (and other Central-Eastern countries as well). Failure to take advantage of this opportunity would be a loss for the Hungarian economy.

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## End Notes

<sup>1</sup> “Management Attention has moved from competition between firms to competition between supply chains, encompassing all firms from raw materials to the end customer” Schary, P.B. – Skjott-Larsen, T. (2001), p. 73

<sup>2</sup> Number of articles: 0-50 17%, 51-500 30%,  $500 \leq$  53%.

<sup>3</sup> Martin Christopher speaks about an upcoming „logistical chaos” because of the diversity and the complexity on this field (Christopher, 2002)

<sup>4</sup> For details see: Simchi-Levi – Kaminsky – Simchi-Levi, 2000, and Szegedi-Prezenszki, 2003.

<sup>5</sup> e.g. Baumgarten-Wolff, 1998

<sup>6</sup> An earlier survey conducted 1998 at Budapest University of Economic Sciences. (Szegedi, 1998)

<sup>7</sup> with other words, the flow of the materials at the company will be slower(!) after the introduction on an SAP-system

<sup>8</sup> Original Equipment Manufacturer

# **A Conceptual Framework of Factors Affecting Collaborative Supply Chain Management for Agricultural Produce between Thailand and China**

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## **Abstract**

China and ASEAN countries established ASEAN – CHINA Free Trade Agreement in December 2002. After that Thailand and China established an agreement on accelerated tariff elimination under the early harvest program of the framework on comprehensive agreement in June 2003 in Beijing. And then, the two countries started an FTA program on all vegetable and fruit products on October 1, 2003. The main objectives of this studying are to present the literature reviews of fresh fruits export process, especially the current longan export of Thailand to China, and to propose the conceptual framework of factors affecting collaborative supply chain management of agricultural produce. From the report of Department of Trade Negotiation of Thailand on the international trade between Thailand and China, we found that Thailand has a surplus trade volume to China in agricultural produce from 2004 to 2006. It is increasing every year during 2004 to 2006 (38.5%, 44.14%, and 49.6%).

## **Introduction**

The world economy is gradually becoming globalized, fueled by the World Trade Organization's support on the establishment of free trade areas. As a consequence, numerous trade sanctions and constraints in taxes have been deregulated. The change of business environment affects business processes in various dimensions. This necessitates firms to adjust their business processes appropriately to the altered environment, for example, outsourcing of production, outsourcing of distribution, and transformation to high value-added economy. Collaborative alliance among businesses, such as collaborative supply chain management, represents an increasingly-important and favorable alternative for all affected by globalization.

China possesses a mega-scale market. Many countries, including Thailand, are interested in expanding their trade volumes with this country. In 2003, Thailand and China established agreements on accelerated tariff elimination in accordance with the framework on comprehensive economic cooperation. There are two main agreements as follows:

- (1) The parties shall eliminate tariffs on all vegetable and fruit produce as soon as possible, *and in any case, no later 1 October 2003.*
- (2) The parties shall apply the rules of the origin and establish a close cooperative mechanism between the concerned authorities responsible for customs administration and supervision.

As necessitated by this bilateral agreements, China and Thailand need to comply with the mutual agreements. Numerous questions on who gains or loses, what industries are favorably or adversely affected from the agreements arise. A study on collaborative supply chain management is thus conceived to shed lights on how the two nations may promote trade and collaboration in both public and private sectors. Research findings may bring about knowledge for improving the collaborative supply chain management of agricultural produce between the two countries under the FTA framework.

## **Objectives of Research**

This paper is aimed at fulfilling the following:

- 2.1 To investigate the current states situation of China and Thailand Free Trade Agreements on agricultural and fruit produce from 2003 to 2006.
- 2.2 To identify factors influencing a successful collaborative supply chain management and the conceptual model of collaborative supply chain management between Thailand and China on agricultural produce according to FTA.

## Scope of Research

The research focuses on longan, which is a kind of tropical fruits popular among Chinese consumers. It also ranks the highest in trade volumes among all agricultural produce between China and Thailand. The research is applicable to trade transactions, when FTA was reached between both countries in October 2004. Analyses were conducted on data collected between 2003 and 2006. The area scope covers northern and central provinces in Thailand and the provinces of Kunming, Guangzhou, and Hong Kong in China.

## Literature Review

### General Statistical of Trade Between Thailand and China after FTA

TABLE 1 STATISTICAL TRADE OF AGRICULTURAL PRODUCE BETWEEN THAILAND AND CHINA DURING 2004-2006 : UNIT (BAHT)

	2004	2005	2006	Change (%)	
				2005	2006
Export	13,792.31	18,203.73	22,115.67	32.25	21.30
Import	6,126.31	7,053.81	8,643.25	15.13	22.53
Trade Balance	7,666.00	11,149.92	13,472.42	45.94	20.54
Total Trade	19,910.62	25,257.54	30,758.92	26.85	21.78
(%)Trade balance /Total Trade	38.50	44.14	43.80		

Source : Information and Communication Technology center of Ministry of Commerce Thailand with cooperation of the customs department

The statistics from table 1 show that total trade of agricultural produce after FTA increase every year, it is 26.98 %,21.65 %. Next, Thailand has over trade balance to China during 2004 to 2006 , it is 38.50%,44.14%, and 43.80% respectively.

### Longans Trade Volume between China and Thailand

Statistics of international trade between Thailand to China shows an increasing trend on agricultural produce from 2004 to 2006. The report reveals high, however declining, volume of fresh longan export from 2004 to 2006. The percentages change is 288.5% and 30.4% in 2004 and 2005, respectively. The volume became negative in 2006 at -18.5%. The export of dried longans is steadily decreasing from 2003 to 2006 at -3.5%, -18.3%, and -32.9%, respectively. See Tables 2 and 3.

TABLE 2: EXPORT SALES VOLUME OF FRESH LONGANS TO CHINA

Year	Export Volume		Change ( %)	
	Quantity (Kilograms)	Value (Bahts)	Quantity	Value
2003	12,722,460	225,968,425	0	0
2004	49,426,953	803,964,791	288.5	255.8
2005	64,431,853	1,026,624,225	30.4	27.7
2006	52,522,863	925,372,873	-18.5	-9.9

TABLE 2: EXPORT SALES VOLUME OF DRIED LONGANS TO CHINA

Year	Export Volume		Change ( %)	
	Quantity (Kilograms)	Value (Bahts)	Quantity	Value
2003	56,787,976	2,268,973,098	0	0
2004	54,786,866	1,031,716,841	-3.5	-54.5
2005	44,764,049	1,000,939,145	-18.3	-3.0
2006	30,051,073	440,226,392	-32.9	-56.0

Source : Information and Communication Technology center of Ministry of Commerce Thailand with cooperation of the customs department

#### **Demand Chain of Export Fresh Fruits from Thailand**

Fresh fruits export from Thailand to other countries has shown a declining trend in recent years. Nevertheless, longans, durians, and mangosteens showed high export potential due to large export volumes and strong competitive positions in destination markets. Among them, longans top the export both in value (1,698 M bahts) and volume (81,924 tons)

The demand chain of the export fruits from growers to customers is described in five dimensions, including lead time, physical flow, information flow, shrinkage, and systems/ technology. Lead times from growers to packers, packers to distributors, and distributors to retailers were 3, 3, and 10 days, respectively. This results in the total lead time of 16 days from growers to retailers. The minimum lead time on shelf life of longans is 21 days, while the maximum is 35 days .

Typical threats imposed on exporters include high reliance on wet markets (local markets), growing power of supermarkets, a relatively low awareness of Thai fruits among Chinese importers and consumers, and liquidity of importers. An advantage from FTA is the reduction in import taxes, but there are still limited import licenses.

Consignment is commonly used between Chinese importers and Thai exporters to bring in Thai fruits into China for sale to other wholesalers in all key cities. Importers pay exporters after selling off the consignment. Apart from consignment, fixed-price contracts may also be adopted. Typical payment terms between Chinese importers and exporters are full sum payment in USD before shipments can be arranged.

Wholesalers play a major role in buying fruits from importers and distributing them further to retailers. The fruits demand chain in China is complex with multiple tiers of entities present. There is little integration in the supply chain. Each entity will focus on its core competency and outsource the rest of the operations to commercial transport providers.

The transportation industry in China is very fragmented. Most transport companies have competitive advantages only within certain geography. A large percentage of imported fruits come via Hong Kong. They are subsequently transported to Guangzhou, Beijing and Shanghai. Lead times from Guangzhou to Beijing and from Guangzhou to Shanghai are 4 and 3 days by highway transportation, respectively.

#### **Lastly, they propose the future state envisioning in two points:**

**Driver 1 : Supply Chain Integration** , Strong supply chain integration leads to achievement of the following strategic objectives:

- *Improving Demand-Supply Synchronization and Effective Customer Response* through the vertical integration of supply-side and demand-side partners as well as collaborative forecasting, planning and order management.

- *Increase Asset Utilization, Economics of scale & scope* by capturing synergies and optimizing resources through horizontal integration of growers and exporters at the Post Harvesting Centers and strategic sourcing of transportation services.

**Driver 2 : Quality assurance and demand chain practices**, Adoption of customer-linked quality assurance and demand chain practices lead to achievement of the following strategic objectives:

- *Minimize Shrinkage and Shorten Lead time* Through the adoption of GAP-based pre-and post-harvesting practices and technology and streamline Post harvesting operations.
- *Assure Consistent Quality and Enhance Customer Value* through customer-linked Quality Assurance accredited by international certifying bodies as well as effective plantation design.

### Current Longan Export System

The longan plantation area around Thailand, the northern area is the main area , it was 828,529 rai, and yield area was 579,627 rai, . Eastern area, in Chantraburee, it was 55,041 rai, and yield area was 32,159 rai. (Statistics in 2003:from Department of Academic, Ministry of Agricultural and Cooperative).

Next, there are many parties which involve the current export longan system (Fresh and Dried) such as government , private section. It is shown in table 4.

Tables 4 ACTIVITIES AND STAKEHOLDER OF FRESH AND DRIED LONGAN FOR EXPORTING TO CHINA

Activities	Thailand			China	
	Preparing GAP, GMP in Thailand	Pre and Post harvesting Period	Auditing for Pesticide , Phytosanitary and Transportation	Register the plan quarantine permit at AQSIQ	CIQ checking , Transportation
<b>Stakeholder</b>					
Growers	0	0			
Consolidators	0	0			
Chemical and Fertilizer Shop	0	0			
Exporters		0	0	0	0
Government' service units	0	0	0		
Logistic Providers			0		
Custom , AQSIQ				0	0
Importers				0	0
Wholesaler					0
Logistic Providers					0
Retailers				0	0

From Table 4 we found that there are four sections of stakeholders in Supply Chain of Longan , and we conclude in each sections below :

Production section : Growers, Consolidators, Packers  
 Marketing section : Consolidators, Wholesalers, Exporters  
 Transportation section : Logistic Providers , Department of Custom unit, Exporters  
 Abroad section : Exporters, Importers, Department of Custom , Wholesaler & Retailer

**Standardization of Export Longan**

Ministry of Agricultural and Cooperative is the host unit for distribution the knowledge and regulation of GAP, GMP to growers, consolidators , and exporters in 14 provinces in northern area. In 2006, the number of registration for longan ‘ growers are 90,115 persons, plantation area is 595,675.26 rai ,and the longan production is 596,502.10 tons during July to August (in season) ,and out season during January to February (active weight by potassium chlorate).

In 2005, Office of Agricultural Research and Development Region 1 set up the GAP promotion project to growers in Chiang Mai and Lamphun approximated 66,021 cases, plant area 85,637 units. The growers will received the know ledges and training program for plantation process, and post harvest. After that, during the collecting periods and transport to market, the products have to be sampling checked quality of products only 10 % of volume, and free of charge. On the other hand, the non GAP members have to be sampling checked 100% of volume, show in Fig 4.

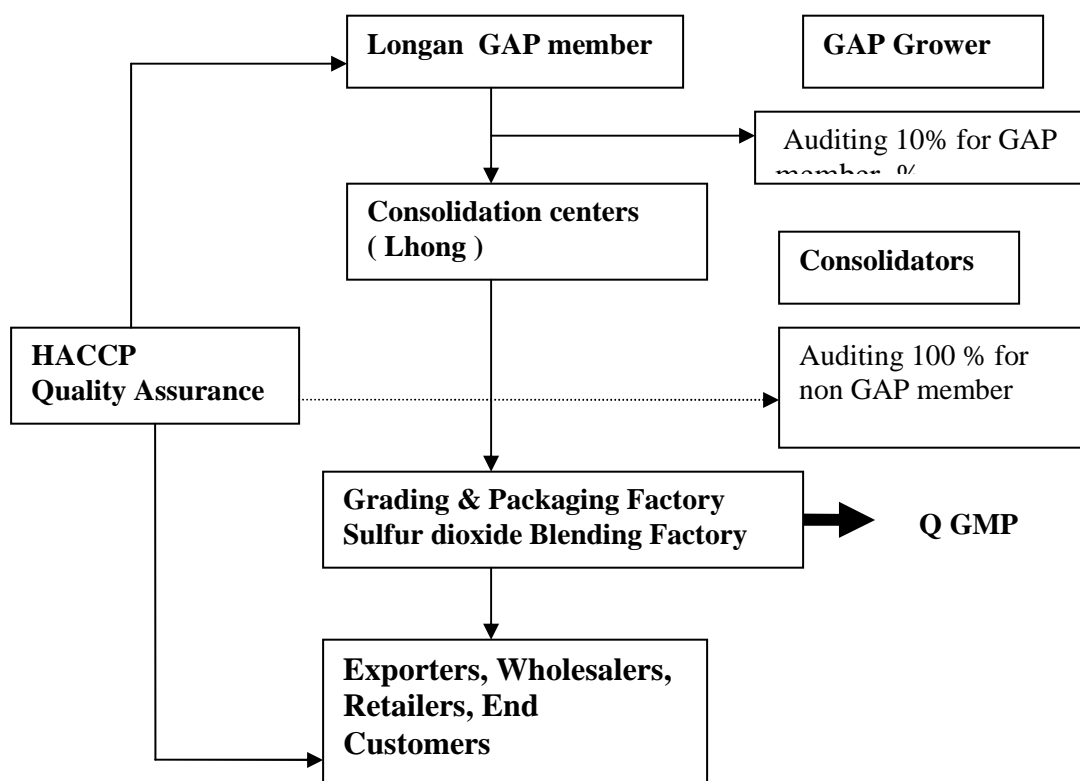


Fig 4. FLOW CHART OF PLANT QUALITY ASSURANCE  
 Source: Auditing and Quality assurance system for exporting longan  
 Office of Agricultural Research and Development Region 1

### Quality Longan Production System

Thai government has announced the Food Safety Project in 2004. The project cover food and plant in four areas such as raw material and production factors, production farming, factoring, and agricultural produces.

Fresh and Dried Longan is the economic plant which high value market, it is 5,000 Million Baht per year. In the last five year during 1999-2003, the export proportion of longan extended from 50 % to 80%. China Singapore and Canada is important export market. In 2004, There are longan produces 565,062 tons, it serve to domestic market 18.7%, export market 81.3 %. For export market, it was dried longan 72.7 %,fresh longan 25.1% , caned longan 1.9%, and free zed longan 0.3% respectively. The statistics was shown in Table 5

Table 5 CONSUMTION OF LONGAN PRODUCE IN 2004

Production Types	Volume(ton)	Fresh Longan (ton)	%
Total	565,062	565,062	100
Domestic consumption	105,605	105,605	18.7
Export consumption	459,457	459,457	81.3
<b>- Dried Longan</b>	<b>71,562</b>	<b>333,953</b>	<b>72.7</b>
- Fresh Longan	115,480	115,480	25.1
- Caned Longan	11,321	8,608	1.9
- Free zed Longan	708	1,416	0.3

Source : Northern Economic Development and Social Office

- Note :
1. fresh longan per dried longan all units proportion equal 10:3
  2. fresh longan per dried longan only flesh units proportion equal 10:1
  3. fresh longan all unit per flesh unit proportion equal 2:1
  4. proportion of dried longan all unit per dried longan only flesh unit equal 2:1

As a results, Ministry of Agricultural and Cooperative has the process direction for quality longan management system in two parts :

- (1) The quality production longan process has operated in three points.
  - Auditing and Certification Longan produces under Good Agricultural Practice (GAP) regulation
  - Auditing the chemical and pesticide products shops
  - Certificated the consolidator factory and sulfur dioxide blending factory under Good Manufacturing Practice (GMP) regulation
- (2) The certificate quality of longan for export process has operated in two points.
  - Phyto-sanitary certified process
  - Sulfur dioxide auditing and certified process

Conclusion, There are two main stages of the export longan to China

*First stage in Thailand*, it has three steps:

- (1) The exporters have to register at One Stop Service Centre at Department of Academic for longan exporting list.
- (2) The export longan produces have to be GAP, GMP certification
- (3) Passed and Approved Certificate of Pesticide Residues and Application for Phyto-sanitary Certificate by Department of Academic

*Second stage in China* , there is two main stages:

- (1) To apply the Plan Quarantine Permit at AQSIQ unit which located at sea port city such as Guangzhou , after that CIQ unit will audit five documents : Phyto-sanitary Certificate, Certificate of Pesticide Residues, Certificate of Origin, Invoice, and B/C application

- (2) CIQ will check volume and quality of products by sampling check, waiting the result from laboratory 1-4 days, but it takes time only one day in normal case. If it does not approve, it may be rechecked again or destroy pass, it depend on the regulation of each city.

### **Supply Chain Management and Collaborative Supply Chain Concepts**

Supply Chain Management (SCM) has been a major component of competitive strategy to enhance organizational productivity and profitability( A. Gunasekaran et al, 2004). Jame R Stock Douglas M. Lambert (2001) describe the meaning of SCM is the integration of key business processes from end user though suppliers that provides products, services, and information that add value for customers and other stakeholders. Next, SCM aims to increase sales, reduce costs and make full use of assets by streamlining the interaction and communication of all participants along the supply chain . And SCM solutions use networking technology to link suppliers, distributors, and business (Sarika Kulkarni and Ashok Sharma, 2005).

Supply Chain collaboration facilitate the cooperation of participating members along the supply chain to improve performance (Togar M et al,2005;Bowersox,1990). Micael Dell, and CEO of Dell Computer and Industry Week's CEO of the Year for 1998 declare " Collaboration is the new imperative". Collaborative and alliance relationships for the procurement of noncommodity items and services tend to result in the lower total costs than do transactional relationships for several reasons. Then, Stanley and Person found the three most important factors in a successful buyer-supplier relationship are (1) two-way communication, (2) the supplier's responsiveness to supply management's needs, and (3) clear product specification. Both collaborative and alliance relationships require a quality of management not common in the 1990s.(David N . Burt et al.2004)

Collaborative Supply Chain (CSC) has purposed to gain competitive advantage ,by improving overall performance through taking a holistic perspective of the supply chain. The model of CSC has six constituents: *stakeholders, processes, business strategy, enabling technology, level of collaboration, technology*. The four core supply chain processes are *plan, source, make, deliver* , their performance influences the performance of the whole collaborative supply chain. And each of the four core processes is influenced by the changes in the other constituents as well. For example better collaboration may improve information visibility and effect the core processes. Then, collaborative supply chain performance will depend on the nature of the specific CSC by selecting variables which affect in any of the six constituents such as cost, capacity utilization, customer demand customer satisfaction, time to market etc.(Berhard J. Angerhofer al et, 2005). Moreover, Ponchai(2002) find that Information technology(IT) , information sharing and trust are positive related to effective collaboration.

In addition, there are two main factors which affect to CSC, it is trust and communication. Trust is the degree to which partners perceive each other as credible and benevolent and is expected to have a positive effect on the degree of collaboration in supply chain relationships( Niklas Myhr et al.,2005;Doney and Cannon,1997;Ganesan,1994;Kumar et al.,1995). Communication between partners help boost mutual understand and trust. So , The excellent communication quality and frequent communication help improve mutual understanding , and also increase trust.And then affect to Cooperative supply chain relationships. (Yin-Pin Yeh,2005; Kumar,1996).

Finally, we present a potential conceptual framework for collaborative supply chain performance measurement by developing from the previously conceptual framework in Fig 2 and purposed conceptual framework in Fig 3.



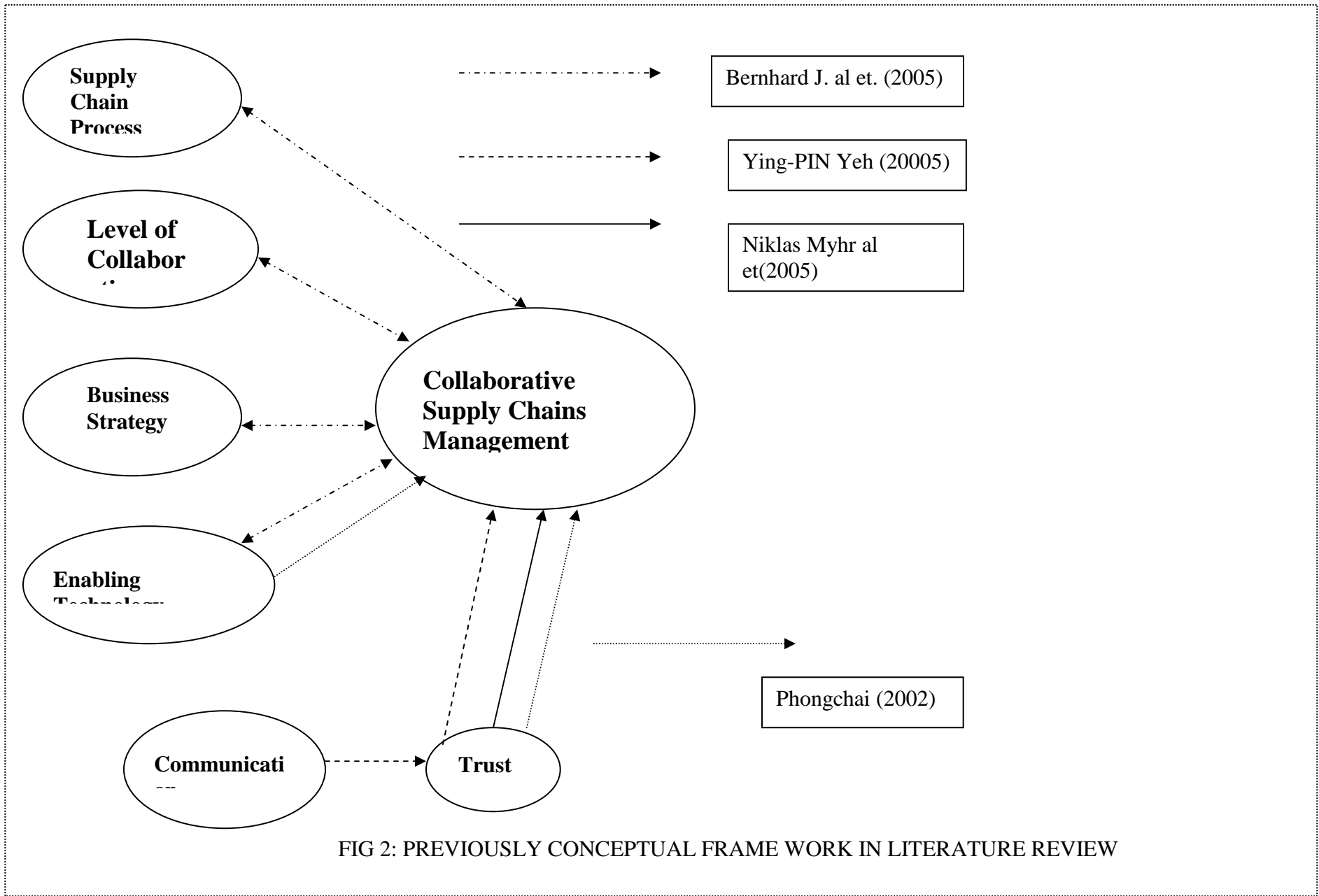


FIG 2: PREVIOUSLY CONCEPTUAL FRAME WORK IN LITERATURE REVIEW

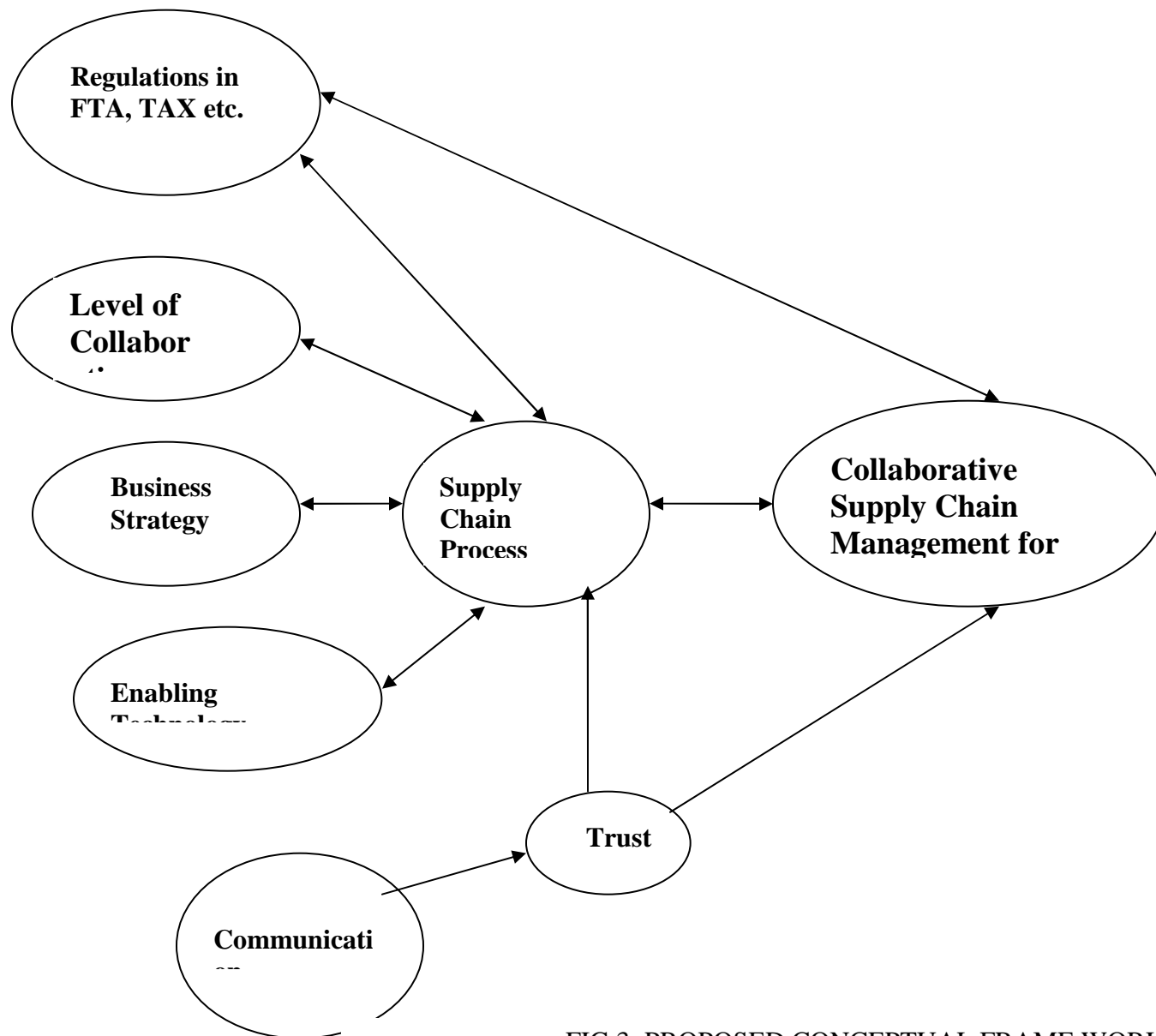


FIG 3: PROPOSED CONCEPTUAL FRAME WORK

### **Research Methodology in the future**

From literature review above , we follow the objectives of research by working on process below :

- (1) Define the target of study and searching secondary data of exporter database from private sectors, and government sectors likewise.
- (2) To analyze secondary data and set up the process flow analysis and build a model collaborative supply chain (CSC) and derive the suitable performance indicator for measurement.
- (3) Auditing the model of CSC and performance indicators with academic experts and field experts for approving the suitable model and then pretest by pilot study.
- (4) Collecting data by questionnaire survey , interview personnel from stakeholder
- (5) Analyze data and Testing model by *Structural Equation Model (SEM)*
- (6) Validation test the CSC model, conclusion, implication and reporting.

### **Expected results**

We hope that the results of study will bring the high benefits conducive for two countries in three points:

- (1) A strategy to make the collaborative supply chain work for expansion of export market and decrease the problems in each process. And also, this strategy is applicable to other products under FTA module.
- (2) To upgrade the standardization of agricultural produces of Thailand and China for competition in the world class agricultural business, such as, USA or European countries in the future.
- (3) The government organization such as Ministry of Agriculture and Cooperatives , Ministry of Commerce, Ministry of Industry, Ministry of Education, and Ministry of Transportation, etc. will use the results of studied for set up the cooperate plan , and strategy for development countries simultaneously.

### **Conclusion**

From the general information of FTA situation above, in the review literature part 4.1 to 4.4 , we find that Thailand and China have expanded the trade volume every year, approximately 20% per year . Although there are not any tariff barriers, there are still other barriers such as marketing system, transportation system, auditing product system , payment system etc. However, Thai government announced a food safety policy in 2004 , especially the food for export product. Therefore, the stakeholders of agricultural produce exporting in Thailand are interested to follow the GAP , GMP and HACCP programs . As a result, the current longan export of Thailand is qualified product for international markets , and it makes importers in China more confident. But, Thailand has to consider the cooperate plan for all stakeholder in Thailand and China by selecting optimal exporting plan and business strategy for exporting longan because longan's yield are over supply in domestic markets , 80% of longan's yield per year are export product, and China is the biggest international market. In addition, the study of demand chain of fresh fruits export from Thailand suggests the future state for development of fresh fruits export system for competition in global market in two points : supply chain integration method, and quality assurance and demand chain practices. Therefore, the supply chain technique should be applied to fit developing export systems. We find that the collaborative supply chain concept is a new business strategy in 2000s , and there are many factors which affect collaborative supply chain . In addition, from the review literatures of supply chain management practices only business sectors such as retail hyper market, and E-commerce. Therefore, we should study how to apply the technique in agricultural produce , especially the international trade under the FTA condition. We expect that the results of this study will highly benefit all stakeholders of Thailand and China, and also other countries which are in the process of similar FTA program.

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# Supply Chain Collaboration in a Vendor Managed Inventory Environment

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*Integrated Logistics Berhad*

## Abstract

Simatupang and Sridharan (2005) contend that a collaborative supply chain requires a reciprocal approach to capture five interacting features: a collaborative performance system, information sharing, decision synchronization, incentive alignment, and integrated supply chain processes. They argue that chain members need to educate each other about their needs in the joint development of a mutually beneficial collaborative process. This paper furthers that thesis by asserting that the extent to which the reciprocal approach could effectively contribute to heightening the interactions of the five key features is, in turn, dependent on the power regime in the supply chain. It will demonstrate how a reciprocal approach could be facilitated in practice in a Vendor Managed Inventory (VMI) environment by citing the case of PCM, a computer manufacturer, which utilized the services of a third party logistics service provider to successfully manage its VMI operations.

## Introduction

Vendor managed inventory (VMI) is one of many forms of strategic supply chain collaboration. Its main benefits can be generalized into reduced inventory costs and improved customer services (Yao et al., 2005). Though it has been demonstrated that VMI is beneficial for both the buying and selling parties (Dong and Xu, 2001), there are limitations to this form of supply chain collaboration. One of the most common concerns is the uneven distribution of the beneficial spin-offs resulting from inventory reduction among buyers and suppliers (Yao et al. 2000). There is also the risk that the total supply chain cost is never reduced, as the powerful buyers could have pushed the cost to the upstream parties. Dong and Xu (2001) reaffirm this risk, stating categorically that there must be lower overall inventory levels before the benefits of VMI could be dispersed to all parties involved in the arrangement.

Power plays and opportunistic behavior emerge in situations where either suppliers participate out of lack of choice, putting the VMI sponsor in a position of power in the relationship (Kumar, 1996), or material shortages occur, giving suppliers little incentive to participate in a VMI system (Wright, 2002). The former is especially prevalent in a depressed economy when demand is low and supply runs high. The latter is typically the case in a burgeoning economy. Other things being equal, the buyer or manufacturer, through its dominant position, would usually be the sole beneficiary in the short term, and all other parties involved would bear the costs (Dong and Xu, 2001).

A supply chain in which the benefits are not “equitably” distributed cannot be sustained in the long term. To ensure that a VMI arrangement could be sustained sufficiently long to disseminate its benefits to all parties involved, suppliers must be given the necessary inducement to entice them to participate in a VMI program regardless of economic outlook. Yao et al. (2005) note that in some operations extra or additional side incentives are dispensed to appease the suppliers and to garner their cooperation. In addition, some suppliers are also allowed or encouraged to leverage their inventory positions at the VMI hub to explore alternative benefits.

The limitations of a VMI program are not insurmountable. They can be mitigated if the factors underpinning supply chain collaborations are understood. For instance, suppliers do stand to benefit from a VMI program if their original holding costs are high. Because VMI requires the participation of external parties, the key challenge is to ensure that all parties derive benefits from this arrangement. The key issue is whether the VMI program sponsor has the

tenacity and the will to implement all the processes and changes necessary to bring benefits to all parties of the supply chain at the outset.

Simatupang and Sridharan (2005) contend that a collaborative supply chain requires a reciprocal approach to capture five interacting features of collaboration: collaborative performance system, information sharing, decision synchronization, incentive alignment, and integrated supply chain processes. They argue that chain members need to engage each other in a dialogue about these key collaborative features and to educate each other about their needs in the joint development of a mutually beneficial collaborative process. This paper furthers that thesis by asserting that the extent to which the reciprocal approach could effectively contribute to heightening the interactions of the five key features is, in turn, dependent on the power regime in the supply chain. It will demonstrate how a reciprocal approach could be facilitated in practice in a VMI environment by citing the case of PCM<sup>1</sup> a computer manufacturer, which utilized the services of a third party logistics service provider (3PL) to successfully manage its VMI operations.

The next section will discuss the five key features of supply chain collaboration based on the framework of Simatupang and Sridharan (2005) and why the reciprocal approach needs to be juxtaposed in the context of the supply chain power regime. This will be followed by the presentation of PCM's VMI program drawn from Yang (2006). The paper will conclude by examining the implications of supply chain collaboration in a VMI environment.

#### **Collaboration and Power Regimes in Supply Chain Operations**

Collaboration has been hailed as the driving force of effective supply chain management (Horvath, 2001). Barratt (2004) notes that supply chain collaboration can be divided into two main categories: vertical and horizontal. The former refers to collaboration with suppliers, between different internal divisions of the organization (across functions), and with customers. The latter signifies collaboration with competitors, between internal organizational divisions, and with non-competitors. Simatupang et al., (2002) provides an even simpler viewpoint, suggesting that supply chain collaboration means two or more chain members working together to accomplish some specific tasks. Since supply chain activities involve the participation of multiple parties, all supply chain operations, in a sense, would require some forms of collaboration.

The basic premise of supply chain collaboration is that chain members could effectively fulfill customer demand at less cost (Simatupang and Sridharan, 2002). To ensure the success of their collaborative efforts, collaborating chain members would typically create a common strategic objective, followed by building commitment to, and maintaining alignment of, their interface processes with the strategic objective (Simatupang and Sridharan, 2002). Invariably referred to as integrated supply chain process, this is one of the five features in the supply chain collaborative framework of Simatupang and Sridharan (2005). Business process improvement, for instance, is one key element of collaboration to deal with the bullwhip effect (Lee *et al.* 1997). Building process alignment to reduce uncertainty and variability of supply chain processes requires two closely interwoven ingredients: information sharing and joint decision making (i.e., the allocation of decision rights) in managing supply chain activities, which include demand forecasting, order batching, product rationing, and product pricing.

Information sharing, which refers to the ability to mutually access data among chain members' systems, enables the tracking of products as they pass through the supply chain (Simatupang and Sridharan, 2002). This activity, which constitutes one of the five features of the Simatupang and Sridharan's framework (2005), covers data acquisition, processing, representation, storage, and dissemination of demand conditions, end-to-end inventory status and locations, order status, cost-related data, and performance status. Data visibility, be it key performance metrics or process data, is critical to the decision process: it enables participating members to purview the bigger picture of situations to ensure that important factors could be taken into account in decision making (Simatupang and Sridharan, 2005).

Simatupang and Sridharan (2005) further argue that information sharing is glue that integrates other features into a whole. If supply chain operations are the outcomes of informed decisions, action becomes visible too when chain members understand and appreciate the underlying principles that drive performance. Information sharing thus facilitates decision synchronization, another of the five key features identified by Simatupang and Sridharan (2005), through providing relevant, timely, and accurate data for supply chain planning and execution. Relying on demand and inventory visibility to eliminate stock-outs by accurately replenishing hot products exemplifies the role of information sharing in synchronizing decisions (Fisher, 1997). Likewise, noted supply chain

initiatives, such as the Quick Response Programme (QRP), Continuous Replenishment (CR), Efficient Consumer Response (ECR), and Collaborative Planning, Forecasting and Replenishment (CPFR), are outcomes of informed joint decision making in process improvements to minimise variability, waste, and costs along the supply chain (Barratt and Oliveira, 2001; Frankel et al., 2002; Ireland and Bruce, 2000).

Like all outcomes of decision processes, the effects of supply chain collaboration require tangible appraisals. Because supply chain performance relates to intercompany, rather than individual organizational, performance (Lambert and Pohlen, 2001), collaboration in developing a common performance metric system, e.g., process metrics like perfect order, cash-to-cash cycle, and new product development which span the supply chain (Lapide, 2000), is the fourth key feature propounded in Simatupang and Sridharan's (2005) framework. Since performance metrics drive behaviour, a collaborative performance system could thus direct chain members to take actions that complement each other's role, thereby contributing to mutually beneficial outcomes.

While performance metrics may drive behaviour, an incentive mechanism is needed among chain members to reward the attainment, and punish non-conformance, of agreed-upon performance targets (Narayanan and Raman, 2004). Corbett et al. (1999) empirically illustrated that process improvement, such as inventory management and order fulfilment, has a higher probability of success when chain members become involved in aligning joint optimisation rules with logistics and commercial benefits. On the strength of these findings, Simatupang and Sridharan (2002) argue that incentive alignment, which includes cost, risk, as well as benefit sharing amongst participating members, is the fifth key element for successful collaboration. Incentive alignment motivates chain members to act in a manner consistent with their mutual strategic objectives, and to make decisions optimal for the overall supply chain.

According to Simatupang and Sridharan (2005), the above five features - a collaborative performance system, information sharing, decision synchronization, incentive alignment, and integrated supply chain processes - underpin the core of a collaborative supply chain. Each feature is an enabling factor that facilitates collaborative actions. It is the interactions of the five features that create the synergy that contribute to successful supply chain collaboration, which Simatupang and Sridharan (2002, 2005) term the reciprocal approach. For instance, monitoring and regular evaluation of collaborative performance determines what must be changed in the features of information sharing, decision synchronization, and incentive alignment in an attempt to enable chain members to continuously create or re-create integrated supply chain processes. Likewise, incentive alignment, which links collaborative performance systems to incentives, could motivate chain members to ally their actions, including the willingness to share critical information and synchronizing decisions to the mutual purpose of collaboration, further reinforcing the desired level of performance.

The merit of Simatupang and Sridharan's framework (2005), as distinct from other models of supply chain collaboration, is that it promotes reciprocal linkages among the five features, as outlined earlier. The reciprocal approach captures the interacting effects of the five elements in ways that contribute to the achievement of collaborative performance. It is the thermostat in the collaborative supply chain, identifying and regulating enablers that facilitate collaborative actions.

The reciprocal approach, unfortunately, is not an organically evolving and adapting agent. Its prowess in effectively orchestrating the interacting process required of the five features to produce the synergy needs facilitation in the first instance. This is because all supply chains, which involve the contribution of multiple team members, are underscored by specific power regimes (Cox et al., 2000; Cox et al., 2001).

Power regimes exist in supply chains because the relationships between participating members in a supply chain are not necessarily always interdependent in their business dealings. The possibility that any one member may dominate over other members as well as members may have come together merely because of a convenient arrangement could give rise to a complex web of power relationships between participating members in a multiple dyadic exchange scenario. As illustrated by Cox et al., (2001) in a dyadic exchange scenario between two members (A and B) in a supply relationship, there are four plausible regimes: A dominates over B; B dominates over A; A and B are interdependent; and A and B are independent of one another.

The structure of the power regimes existing within a supply chain dictates the ownership and control structures of the chain, carrying significant implications for its operations. This is because organizations do not participate in supply chain operations to create products and services to provide value to customers, but to make

money for themselves and for those involved in the chain through production and delivery (Cox et al., 2001). Cox et al. (2001) contend that there are three sets of value in the context of supply chain operations:

- customer's value proposition: this refers to the utility that customers derive from acquiring the products or services rendered by members of the chain;
- value-adding process: this refers to the transformation process that takes place within member organizations as they convert less valuable supply inputs and into more valuable supply outputs; and
- value appropriation: this refers to the amount of money extracted by each member organization from participating at a particular stage in the supply chain.

Inevitably, the manner in which value is appropriated among supply chain members in their attempts to add value to supply inputs to meet customer value propositions would be linked to the structure of the power regime existing within the chain. A supply relationship in which one member dominates over another is likely to lead to an inequitable distribution of benefits, or incentive misalignment as per one of the five features of Simatupang and Sridharan's framework (2005). If incentive alignment is an enabling factor that supports the promulgation of the other features (Simatupang and Sridharan, 2005), incentive misalignment would not, in all likelihood, lead to information sharing and decision synchronization. The collaboration, in short, is less likely to survive.

Understanding the extent to which the enabling effect of the reciprocal approach could be manifested would, therefore, require an appreciation of the ownership and control structures of particular supply chain resources, including the relationship between physical properties and the flow of value that occurs in the chain (Cox et al., 2001). In short, supply chain collaboration must further incorporate a holistic and inclusive understanding of the financial, in addition to physical, properties of supply chain networks based on the structure of the power regimes existing within it: how all participating members could derive sufficient benefits from their contribution to sustain their continual participation. The existence of alternative power regimes suggests that, for the five features that underpin the supply chain collaboration architecture discussed in Simatupang and Sridharan (2005) to work, a supply chain needs to be grounded within the context of its power relationship. This point will be illustrated in the case of PCM, which follows.

### **The PCM's VMI Program (based on Yang 2006)**

PCM, a leading computer manufacturer, implemented a VMI program involving over 12,000 active parts at its operations base in an economic free zone in the Peoples Republic of China in 2000. Over 220 plus suppliers were involved in the program. Though the 220 plus suppliers dealt with different parts, they assumed similar roles and responsibilities. By collectively referring them as the vendors, the VMI operations of PCM would comprise three parties: PCM (the manufacturer), the vendors (220 suppliers), and a third party logistics provider (the 3PL). One of the distinctive features of PCM's VMI program, therefore, was the presence of a 3PL, which is not usually the case in a conventional VMI model.

#### **Contractual Relationships**

The triadic relationship was bounded by three separate sets of contractual agreements. These agreements defined the objectives and responsibilities upfront of the parties involved in supporting PCM's round-the-clock production activities.

PCM had a warehouse service agreement with the 3PL governing the production space rental from the 3PL and also the picking and delivery-to-production services. The agreement between PCM and each of the 220 suppliers covered the 'Statement of Works' concerning the availability of the raw materials for production. Based on this statement, the suppliers would compute the required production and send their raw materials and parts to PCM, according to the production requirements and the rules stipulated in the statement. Inventory management was under the responsibility of the 3PL, which was to ensure the integrity of the cargo information.

Between the 3PL and the suppliers was a standard agreement for warehouse storage, handling charges and use of the warehouse management system (WMS) operated by the 3PL for inventory management and supply chain visibility. Once the suppliers signed up for the VMI operations, they would bear the logistics costs as they arose in accordance with their usage. The billing function, receiving of cargo, quality checking, repackaging (certain parts)



and remarking of cartons were done by the 3PL on behalf of the suppliers.

#### **The VMI Flow Process**

PCM's VMI program supporting its 24 hours a day, 7 days a week production line can be divided into two flow processes: operations flow and commercial flow. The former involved information flow and physical cargo movements and the latter, the financial responsibilities of the parties involved.

PCM's VMI operations flow can be explained in the following sequenced process:

1. Flow 1 – Based on the online customer demand information, PCM would compute a rolling 12-month production forecast on all its products. This production forecast would be updated and transmitted to suppliers every two days. In each production forecast released, it would confirm the 2-day forecast, and indicate that the 2-week forecast would most likely be confirmed unless notified otherwise.
2. Flow 2 – This forecast would be shared instantaneously with both local and overseas suppliers. Based on this forecast, suppliers would send the required parts to the VMI warehouse (also known as the VMI hub).
3. Flow 3 – At the commencement of the production assembly lines, PCM, through its enterprise resource planning (ERP) system, would issue a pull ticket to the VMI hub for the picking process to begin.
4. Flow 4 - Warehouse personnel would pick and pack the parts into specific product kitting boxes and would send them up to the production line via an automated conveyor system.
5. Flow 5 – The inbound and picking information of the parts would be updated instantly into the warehouse management system (WMS) run by the 3PL. Both suppliers and PCM would be alerted on all inbound and outbound parts and could check inventory levels at any time.

Lastly, suppliers would then compare production forecast with actual usage, plus existing inventory levels – to make replenishment orders into the VMI hub. Information on the physical movement of inventory would be captured by the 3PL's WMS and then updated to the PCM's ERP.

PCM's VMI commercial flow operated on a consignment stock basis. All suppliers would place their stock at the VMI hub on consignment. Only when PCM took physical receipt of the parts at the production assembly line was the ownership of the parts transferred from the suppliers to PCM. Suppliers were required to underwrite the following costs:

- VMI hub (i.e., warehouse) storage charges, which included warehouse inbound loading and handling charges;
- transportation charges from their factories to the hub; and
- all logistics costs incurred by the parts before arriving at the production or assembly line.

PCM would only pay for picking and special kiting services, plus any logistics costs incurred in the production or assembly process. The costs of the IT systems were borne jointly by the suppliers and PCM, based on a cubic meter unit rate on the parts throughput via the VMI hub.

Under the consignment stock arrangement, PCM was not obligated to pay its suppliers until the part was consumed during production. In addition, suppliers would usually extend a credit term of 30 – 45 days to PCM. Most of PCM's products were sold freight on board. Therefore at the time when PCM recognized its supplier's liability, it would have already collected money from its end customers and have a positive cash flow of 30 to 45 days before having to pay its suppliers.

#### **Information Systems**

Central to the flow of information in PCM's VMI operation were the ERP system and the WMS. The ERP system was owned and managed by PCM and was used to administer the production function. The WMS was owned and managed by the 3PL. The WMS managed the entire physical movement of the operation and also all information flows related to logistics activities. Both the ERP and WMS were connected via a set of communication protocols to ensure inventory balances were identical in both systems.

The WMS stood at the core of the VMI operation. It was the 'command center', issuing all instructions that triggered the activities in the VMI operation. The system performed three major functions: maintaining inventory visibility; issuing operation signals; and managing billing processes. By maintaining inventory visibility, the WMS ensured that the supply chain was visible to the manufacturer and all suppliers. It supplied information, such as current inventory status, receiving reports, and parts picked to all concerned parties.

The WMS also managed the pick and replenishment signals. When the PCM production line required the parts, its ERP system would issue a pull signal to the 3PL's WMS. The WMS would then issue a pick list for the warehouse staff to pick the cargo and place them into a kitting box, which was designed ergonomically to ensure that the production line could use the parts in sequence for assembly. In turn, when the inventory level in the warehouse was below the pre-determined threshold, the WMS would also transmit replenishment signals to the suppliers. As its third major function, the WMS managed the billing aspect of the VMI program, assuring all transactions to be paid according to the contractual rules set up in the triadic relationship.

In addition to the ERP and WMS housed in the same physical facility, PCM's VMI operation also used an Internet web portal provided by the 3PL to act as an information consolidator, extracting information from the WMS and offering instant visibility to all parties, facilitating communication and information sharing with the multiple suppliers.

Due to a variety of reasons, not all suppliers were able to interact with the Internet portal. This was especially true for suppliers of low value items, such as plastic cases and parts, who might not have the communications technology infrastructure but nevertheless supply quality products at low prices. There were, however, also suppliers more advanced in their technology uptake, and would require dedicated line access to the WMS and automated push-pull signaling of information. PCM allowed information connectivity with the suppliers at three levels:

- i. A premium dedicated line access interface;
- ii. Internet portal access (used by most suppliers); and
- iii. Conventional telephone line access via fax and human interface, accessible by non-critical, lower value suppliers.

#### **Centralized Production and Warehouse Facility**

Another distinctive feature of PCM's VMI program was that it did not own any physical facilities. The entire facility, comprising the warehouses and the production lines, were housed in three buildings located within the same compound provided by the 3PL. Besides warehouse storage and production line activities, the facilities were also used for modular assembling. Some minor assembly activities were required for some of the parts. The warehouse facilities also provided the space needed for some suppliers to finish their products before entering the production line. This was particularly popular among suppliers who required external parts to be attached to their products. These suppliers would arrange for the external parts to be delivered to the VMI warehouse where minor assembly or packing was done to finish the product. Examples included attaching power cables to disk drives.

Once the products were assembled at the production line, they would be routed to the quality control section on the production floor. After quality checks, they would be immediately brought to the loading bay to be loaded directly onto waiting trucks for shipment. Finished goods thus required no post-production storage at the VMI hub.

#### **Roles of the 3PL**

The 3PL was the linchpin of the entire VMI operation. At the operational level, the 3PL carried out the physical logistics activities of the VMI program. At a functional level, it managed and controlled both the information and physical flows. At the strategic level, the 3PL was responsible for overseeing the continuous supply of parts to the production line to ensure that it would not be disrupted due to unavailability of stock. This means that the 3PL was fully responsible for ensuring suppliers' participation meet all targets of customer fulfillment.

The 3PL was also tasked with managing and implementing minor assembly and quality checks, such as finishing works on computer keyboards and assembly of computer cases. For pre-production quality checking, the 3PL was tasked with ensuring the quality of memory chips, processor chips, and hard disk drives. Prior to delivery of parts to the production line, the 3PL would ascertain the quality of these parts to avoid production stoppages due to quality issues.

#### **Benefits to PCM**

The VMI program was launched to enable PCM to embrace a full postponement strategy for its manufacturing activities. Because of the VMI program, PCM would only take parts or raw material ownership when it was used for production. This allowed PCM to only commence production when it received confirmed orders. Because of the involvement of over 220 plus suppliers, assuring the receipt of quality parts on-time and in-full would be extremely

difficult, if not impossible, without the engagement of the 3PL. The engagement of a 3PL had also indirectly helped PCM to adopt a limited logistics speculation strategy (Pagh and Cooper, 1998) for its finished goods logistics activities in its distribution channels.

For PCM, after the manufacturing process, the finished goods were not stored in the VMI facility but immediately shipped out to its extensive network of product retailers and resellers. The resellers and retailers were retained mainly to serve PCM's main business servers and industrial computing division. PCM would keep its inventory at geographically dispersed reseller and retailer locations only to a level sufficient to serve as a temporary buffer for short-term availability to customers. This limited logistics speculation strategy required the support of a well-coordinated production line where the production of goods was demand-driven.

#### **Benefits to Suppliers**

One of the critical pre-requisites for a successful VMI operation is to maintain the dedicated participation of suppliers. Suppliers, which agree to put raw materials on consignment to manage inventory on behalf of the manufacturer, need to benefit from their efforts.

Under the PCM's VMI program, all storage costs were paid by the supplier themselves. This provided the suppliers with the contractual rights to utilize the VMI hub to store their goods, including the raw materials intended for other manufacturers. PCM's hub location, being located in the Free Zone where other manufacturers had also embarked on their own VMI program, also offered PCM's suppliers, who also counted on other manufacturers as their clients, to mitigate the costs that had been pushed to them. Besides costs savings, suppliers could also put more stock in the VMI hub for multiple customers, thus improving inventory availability for PCM's production.

The VMI hub might be a convenient storage place for some suppliers. Certain suppliers, primarily those supplying 'proprietary' parts such as processor chips, Liquid Crystal Display (LCD) screens, and hard disks had little or no incentive to participate. To maintain a 100% supplier participation, PCM engaged the 3PL to be a temporary buyer. The 3PL would buy from these 'proprietary' suppliers and would re-supply to PCM on a VMI basis, with commercial payment made based on the open book cost-plus model. As a result, PCM mitigated the problem of non-supplier participation and was able to be assured of 100% supplier participation in its VMI program.

## **Interpretation and Conclusion**

The PCM's VMI program has presented a case in which the power relationship is one of dominance. A big manufacturer, like PCM, typically has the leverage to persuade its suppliers into accepting the terms of its contract due to its immense purchasing power and the intense competition the suppliers face. Under situations in which one of the participating members is able to leverage on the assets of others, there is always the tacit understanding that the dependent members participating in the supply chain operations would stand to become preferential suppliers for future contracts issued by the dominant member. Suppliers in the PCM's VMI program were no different. By satisfying the requirements of PCM, PCM's suppliers were hopeful of developing a stronger relationship with PCM in the long run. This, however, would not be feasible if the current collaboration did not provide sufficient incentives for them to cultivate such plausible future relationships. As has been noted in the case of PCM's VMI program, the collaborative arrangement would not have enabled the suppliers to derive any special incentives without the 3PL involvement: providing the physical facilities to serve as the VMI hub and playing the role of a temporary buyer. In turn, PCM had been able to embark upon a postponement strategy for its manufacturing operations at very competitive terms.

In terms of reflecting the five features of Simatupang and Sridharan's (2005) supply chain collaboration framework, PCM's VMI program had shown no collaborative performance system in which the performance of all participating members could be gauged according to some mutually agreed objectives. However, the program did enjoy a high degree of information sharing through the ERP, WMS, and Internet portal communication system, which facilitated the synchronization of decisions between PCM and its 220 plus suppliers. It constituted a key element in ensuring appropriate decisions were made at the supplier locations, 3PL, and PCM. Most importantly, the case has demonstrated that incentive alignment is feasible, so long as the VMI program sponsor has the tenacity and

the will to implement all the processes and changes necessary to bring benefits to all parties of the supply chain at the outset.

Another aspect of the VMI implementation that enabled a more equitable sharing of benefits was that suppliers could use the warehousing facilities to supply to other manufacturers within the region, thereby benefiting from storage scale economies. While it is not common to see a more equitable sharing of incentives in a VMI program, this PCM case has been unique. The PCM's VMI program also ensured that suppliers and the 3PL streamlined their inventory management processes until the materials were used in production at PCM. Again, without the participation of the 3PL, this would not have been feasible.

The PCM's VMI case has revealed that the 3PL's role was pivotal in sustaining a VMI operation. It strongly supports the view that supply chain collaboration must start from an understanding of the bases of the power relationships that exists in the supply chain. This would enable the VMI sponsor to appreciate the circumstances it is in and the scope that exists for it to augment its power relative to suppliers. It also reinforces the importance of the reciprocal approach in facilitating the interactions of the features advanced by Simatupang and Sridharan (2005).

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### **End Notes**

<sup>1</sup> For reason of confidentiality, the true name of the company has been disguised.

# **Green Supply Chain Management System Complying with European Union Environment Law**

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## **Abstracts**

Considering the future implications of EU environmental laws such as REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) and EuP (Directive on Eco-Design of Energy-using Products) as well as RoHS (Restrictions of the Use of Certain Hazardous Substances in electrical and electronic equipment) Directive, they have been acquired to advance GSCM (Green Supply Chain Management) more and more. The aim of this paper is to introduce the construction of GSCM system that improves collaborative relationships between an EEE manufacturer and its suppliers. The study is conducted in three steps. Firstly, the four elements, which are necessities to form collaborative relationships between an EEE manufacturer and its suppliers, are described. Secondly, the condition and construction of GSCM system including the four elements is proposed. Finally, we presented the method that the GSCM system is constructed as a practicable tool in the initial stage by a case study held in Shimadzu Corporation.

## **Introduction**

The RoHS (Restrictions of the Use of Certain Hazardous Substances in electrical and electronic equipment) has driven the implementation and development of GSCM (Green Supply Chain Management) for Japanese EEE manufacturers who produce EEE products that are exported to the EU market. The EEE manufacturers have pressed their parts suppliers to participate in various activities for compliance with the directive and for meeting the demands of EU market. The three common environmental activities are; (1) obtaining certification of EMS (Environmental Management System), (2) sharing knowledge of substances presence in EEE parts, and (3) warranting RoHS substances not included in EEE parts. However, the activities are likely to have been promoted without suppliers' sufficient acknowledgement and abilities. Moreover, many Japanese parts suppliers do not directly face with EU market. It is necessary that the demands of an EEE manufacturer to its suppliers should be balanced with suppliers' capacities for an effective advancement of the GSCM. The suppliers' capacities for complying with EEE manufacturer's demand depends on their acknowledgement on RoHS directive and environmental problems, financial status, technical and human resources. Therefore, the EEE manufacturers have been faced with the fact that they must form collaborative relationships between the EEE manufacturer and the parts supplier to improve GSCM performance.

This research presents the construction of GSCM system to promote collaborative relationships between an EEE manufacturer and its parts suppliers. The GSCM system is also a standard to organize and systemically operate environmental activities. In this paper, we described the construction of the GSCM system including the four elements to form collaboration and introduced the method to apply the GSCM at the initial stage in the case study of Shimadzu Corporation.

## **The Four Elements for Forming Collaborative Relationships**

To correspond to environmental problems related to end-products, EEE manufacturers implement GSCM for the next three stages. To improve environmental problems related to the product, EEE manufacturers set the GSCM policy and purpose as the first stage. Then EEE manufacturers set the environmental requirement based on the GSCM policy and purpose as a second stage. As the third stage, EEE manufacturers promote the supplier's cooperation to cope with the environmental requirement in the GSCM implementation. Here, to promote the

cooperation of the supplier in the GSCM implementation, EEE manufacturers need to share the GSCM policy and purpose with parts suppliers in the second stage. Moreover, EEE manufacturers are requested to advance joint action with the supplier up to the second stage and the third stage. To advance sharing the GSCM policy and purpose and joint action, EEE manufacturers should share the knowledge and information with supplier. Activities for supplier support have to be implemented to effectively advance the sharing of GSCM policy and purpose, and its joint action. Therefore, we suggest four elements to form and develop collaborative relationships between an EEE manufacturer and its parts suppliers. The four elements are: (1) sharing GSCM policy and purpose, (2) joint action, (3) sharing knowledge and information, and (4) activities for supplier support.

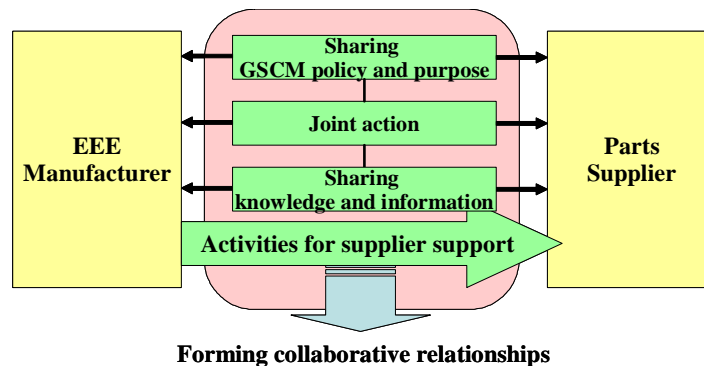


FIG.1: ELEMENTS FOR FORMING COLLABORATIVE RELATIONSHIPS

#### Sharing GSCM Policy and Purpose

B.S. Sahay (2003) described that building up mutual trust was indispensable in the collaborative relationships between the organizations. He said that the mutual trust between organizations is improved when they shared policy and purpose to advance some business activities [1]. For acquiring competing domination in the market, manufacturers who produce end-products have to promptly correspond to the trend of the market that is affected by environmental regulation. The manufacturers have to set up 'GSCM policy and purpose' to comply with the change of new environmental regulations and the market. This necessitates the sharing of the GSCM policy and purpose with their suppliers who produce parts composing end products. Parts suppliers have to be provided with information and knowledge about environmental regulations and market trends to understand the background of the GSCM policy and purpose by buyers who are end-product manufacturers. After the necessity of measures promotion consents, the supplier can accept the GSCM policy and the purpose. After the suppliers recognized the necessity for accepting the GSCM policy and purpose, the GSCM policy and purpose are included in the policy of production and environmental activity of suppliers. The suppliers will then advance their production and business activities with the ability to adapt and cope with the market demands and regulations.

#### Joint Action

The joint action is a necessity for improving collaborative relationships between a manufacturer and its suppliers in the GSCM implementation [1] [2] [3]. Danny P. Claro et al . (2006) pointed out that the GSCM implementation without joint action is likely to lead formation of adversarial relationships between a manufacturer and its suppliers.

He introduced that joint action should be consisted of joint planning and joint doing [4]. Tage Skjoett-Larsen(2000) described that joint action was operated through the process of joint planning, joint doing and joint monitoring [5]. The joint monitoring checks the status of implementing joint action. In this study, joint reviewing is included in the process of the joint action. Joint reviewing is a necessity for applying the result of joint monitoring to improve continuous performance of the whole joint action. Therefore, the joint action is implemented through a continuous cycle process of joint planning, joint doing, joint monitoring and joint reviewing.

#### **Sharing Knowledge and Information**

Louise Canning et al., (2001) identified the uncertainties on environmental aspect, the method of improving environmental performance, the capacity of resource or technology for advancing environmental activities in GSCM implementation [6]. Many suppliers have a lack of information about what kind of hazardous substances are in their products, whether such substances restricted by RoHS are in their products or not, because of uncertainty on environmental aspect. They do not have any idea how to solve or improve the environmental problem even though they understand the environmental aspect in their production and business due to the uncertainty on the method of improving environmental performance and the capacity of resource or technology for advancing environmental activities. The uncertainty between a manufacturer and its suppliers has to be lessened to improve the mutual trusts among organizations and to promote the formation of collaborative relationships between them. Sharing knowledge and information is an essential element to decrease the uncertainty between a manufacturer and its suppliers. EEE manufacturer should share knowledge and information for GSCM implementation with its suppliers to lessen various uncertainties which are obstacles in GSCM implementation.

In this research, sharing knowledge and information between an EEE manufacturer and its supplier for GSCM implementation are classified into sharing knowledge and information: (1) for sharing GSCM policy and purpose, (2) for process of joint planning, (3) process of joint doing and joint monitoring, and (4) process of joint reviewing.

#### **Activities for Supplier Support**

Many suppliers have suffered from the difficulties coping with environmental requirement from manufacturers because of lack of environmental knowledge, environmental consideration and financial or technological resources [2] [7]. The problem in these suppliers causes the supplier's cooperation in the GSCM implementation to be obstructed. In this research, therefore, activity for supporting suppliers by manufacturers who try to improve GSCM performance is classified into three; (1) providing knowledge and information on the trend of environmental regulations and the market, (2) technical assistance, and (2) providing human and financial resources.

## **The Construction of GSCM System**

#### **Requirement for Systematic Management**

Systematic management for GSCM implementation means that a manufacturer works together with its suppliers to advance the activities for GSCM on a standardized tool in this study. The standardized tool is based on the concept of PDCA cycle, which flows the four-step process of 'Plan', 'Do', 'Check' and 'Act' to improve GSCM performance continuously. The details of each process have to be documented or recorded in order to share and confirm the process and the result of GSCM implementation.

#### **Application of Environmental Management System Standard**

ISO 14001 which is the international standard of environmental management system satisfies the two requirements of systematic management operated by PDCA cycle and documentation. It has become as one of the worldwide accredited EMS certification of organizations because "it is intended to apply to all types and sizes of organization and to accommodate diverse geographical, cultural and social conditions". Table 1 and Figure 2 show the situations of the acquisition number of ISO 14001 in the world from December 2001 to December 2005. The cases of organization obtaining the certification of ISO 14001 have totaled to 111,162 in December 2005. And there is a continuous increase in acquisition counts all over the world. The widely used ISO 14001 was applied to the construction of GSCM system used by both manufacturer and supplier in this study [8].



TABLE 1: THE SITUATION OF THE ACQUISITION OF ISO 14001 IN THE WORLD

The acquisition number of ISO 14001 in the world (year)	2001	2002	2003	2004	2005
The number of acquisition	36,464	49,440	64,996	89,937	111,162
The number of countries introducing ISO 14001	112	116	113	127	138

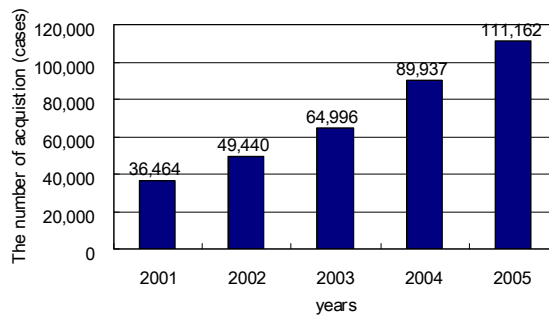


FIG.2: THE SITUATION OF THE ACQUISITION OF ISO 14001 IN THE WORLD

**Comparison of the Requirements for GSCM System and ISO 14001 Standard**

The GSCM system includes four elements for forming collaborative relationships between a manufacturer and its suppliers, and two requirements for systematic system.

1) PDCA cycle and Documentation

ISO 14001 is a standard based on the concept of improving management performance continuously by PDCA cycle. It is described that ISO 14001 is to cycle the processes of ‘Plan’, ‘Do’, ‘Check’, and ‘Act’ in annex A.1. ‘Environmental management system requirements’ of ISO 14001 include ‘Documentation’ (4.4.4. of ISO 14001) and ‘control of documents’ (4.4.5. of ISO 14001). Organization shall report and document the main elements of the environmental management system and their interaction, and reference to related documents (4.4.4 of ISO 14001). The documents have to be controlled and maintained for implementation of environmental management system (4.4.5. of ISO 14001).

2) The four elements for forming collaborative relation

Environmental policy shall be defined by top management, and then documented, implemented and maintained within the defined scope of its environmental management system (4.2 of ISO14001; 2004). The environmental policy is communicated and shared among all members from the top management to the bottom management related to the construction and operation of EMS. The environmental policy which is described in ISO 14001 corresponds to ‘GSCM policy and purpose’. ‘Joint Action’ is a significant element for forming collaborative relationships among all person or organization related to some common activities. The processes of joint action are joint planning, joint doing, joint monitoring and joint reviewing. The four processes correspond to the processes of EMS described in ISO 14001. ‘Joint planning’, ‘joint doing’, ‘joint monitoring’ and ‘joint reviewing’ correspond to ‘planning’, ‘implementation and operation’, ‘checking’ and ‘management review’, respectively. ‘Sharing knowledge and information’ is an essential element to implement effectively the EMS. All workers for EMS implementation have to share knowledge and information to advance the environmental activities. Sharing knowledge and information is described in ‘communication’ (4.4.3 of ISO 14001:2004). “The organization shall ensure that any person performing

tasks for it or on its behalf has the potential to cause a significant environmental impact identified by the organization and is competent on the basis of appropriate education, training or experience” as described in 4.4.2 of ISO 14001. As activities of education and training are to support members in charge of EMS, and program of education and training is to support suppliers in charge of GSCM [9].

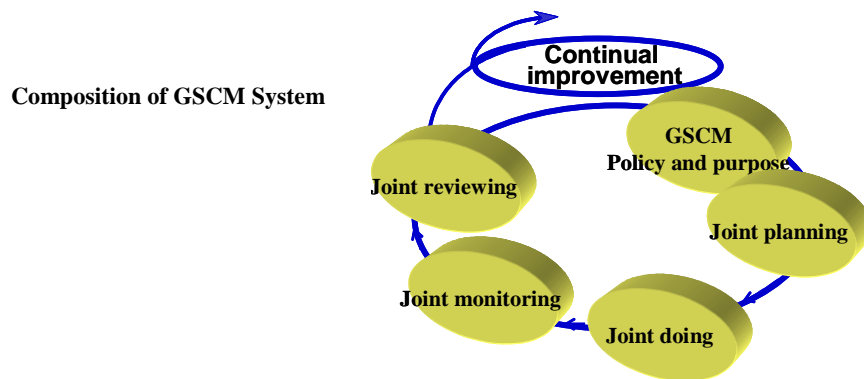


FIG.3: THE FRAMEWORK OF GSCM SYSTEM

The previous paragraphs describe the ISO 14001 standard including the four elements for forming collaborative relationships and the requirement for systematic management. Moreover, the ISO 14001 standard is the prevailing international standard of environmental management system in the world, and an applicable tool for any kind of organization. For these reasons, the contents and composition of ISO 14001 are applied to the composition of GSCM system in this study. The GSCM system shall then be an applicable tool for any suppliers. The GSCM system consists of ‘Definition’, ‘GSCM policy and purpose’, ‘scope and application object’, ‘joint planning’, ‘joint doing’, ‘joint monitoring’, and ‘joint reviewing’. Moreover, this system intends to implement and operate GSCM through the continuous cycle process of ‘joint planning’, ‘joint doing’, ‘joint monitoring’ and ‘joint reviewing’.

1) Scope and application object

For the purpose of complying with environmental regulations or market demands, and strengthening competitiveness, the GSCM system is applied as a management tool for the supply chain. ‘The cooperation for GSCM system’ means an organization in which a manufacturer and its suppliers are combined to implement GSCM. The cooperation for the GSCM system is composed of a ‘leader of GSCM system’ and the ‘cooperators of GSCM system’. The leader of GSCM system shall establish the GSCM policy and purpose and share it with the cooperators of GSCM system. In this research, an EEE manufacturer is regarded as the leader of GSCM system.

2) Joint planning

The joint planning based on GSCM policy and purpose is implemented in the processes of listing up GSCM aspects, evaluation of GSCM aspects, specifying remarkable GSCM aspects, setting up goals, and GSCM program. Firstly, a leader of GSCM system lists up GSCM aspects that seem to be related to the achievement of GSCM policy and purpose. Secondly, the leader of GSCM system evaluates whether the GSCM aspects have an important influence on the achievement of GSCM policy and purpose or not, and then specifies remarkable GSCM aspects. The remarkable GSCM aspects shall be announced to and understood by the cooperators of GSCM system.

Thirdly, the GSCM goals are set up to improve the remarkable GSCM aspects. The GSCM goals are set up for long-term achievement. The GSCM detail/ (or SPECIFIC?) goals are for short terms. These goals are expressed numerically as much as possible for the quantitative evaluation, and documented to be maintained and controlled. Furthermore, the goals shall be set up as practicable as possible through evaluating the capability of cooperators of GSCM system to achieve such goals. Finally, the GSCM program should be settled to achieve the GSCM goals and specific goals.

### **The Measurement Survey for Understanding the Situation of Cooperators**

It is significant that joint planning is practically established to achieve the GSCM goals and improve the GSCM performance. Understanding the situations such as how much capacity does cooperators have for complying with GSCM system is needed to set up GSCM goals and GSCM program in the stage of joint planning. The Measurement Survey for Understanding the Situation of cooperators (MSUS) is to be carried out in the stage of joint planning, and then the result of MSUS is to be reflected for setting the GSCM goals, GSCM specific goal and then overall GSCM program. Therefore, MSUS is presented as a method for constructing practical GSCM system in this chapter. The MSUS was conducted for Shimadzu Cooperation Assembly that is organized by Shimadzu Corporation itself and its 115 suppliers providing EEE parts to Shimadzu Cooperation from the period of August 29, 2006 to October 1, 2006. Shimadzu Corporation and 115 suppliers correspond to ‘leader of GSCM system’ and ‘cooperators of GSCM system’, respectively. The method of MSUS was through the development of questionnaire for the 115 ‘cooperators of the GSCM system’. The respondents were 63 among 115. The questionnaire aimed to grasp the conditions of GSCM policy and purpose shared with supplier, and the GSCM aspect as understood by the suppliers. Furthermore, the questionnaire also tried to estimate the practicality of the GSCM goals and to set up a practical GSCM program.

#### **The Situation of Sharing ‘GSCM Policy and Purpose’ and ‘GSCM Aspect’**

**TABLE 2: THE SITUATION OF SHARING GSCM POLICY AND PURPOSE**

The situation of sharing GSCM policy and purpose	Answered cooperators
Notified	53
Not notified	2
No memory	8
Total	63

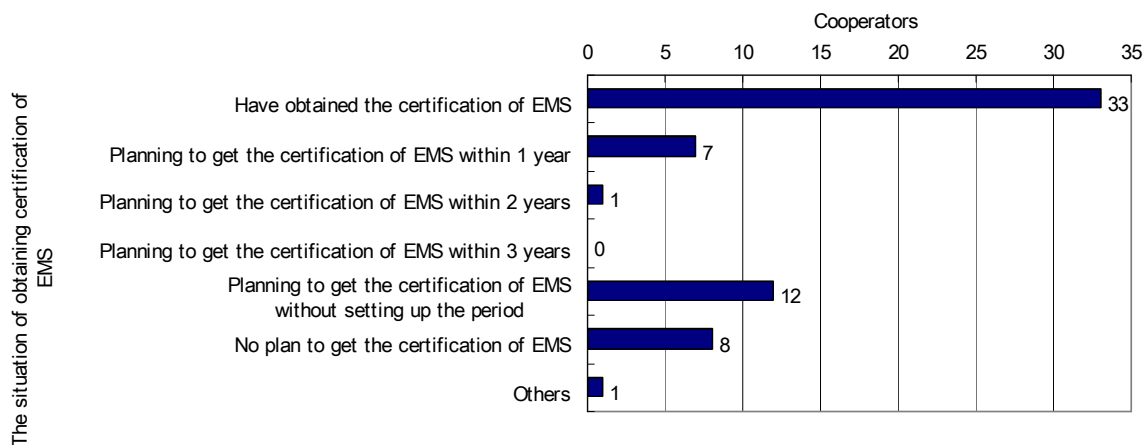
The table 2 shows the situation of ‘GSCM policy and purpose’ expressed in number of notified ‘cooperators of the GSCM system’. (i.e., 53 among 63 companies). On the other hand, eight cooperators answered they have no experience or any sort of idea whether they have been informed about the ‘GSCM policy and purpose’. Moreover, two cooperators answered that the explanation of ‘GSCM policy and purpose’ had not been informed to them. From this result, it is clear that there are cooperators who lack understanding of the ‘GSCM policy and purpose’. The cooperators who do not understand the ‘GSCM policy and purpose’ need to be provided with information and knowledge and repeatedly done by the leader of GSCM system to achieve the GSCM goals.

**TABLE 3: THE SITUATION OF SHARING GSCM ASPECT**

The situaion of sharing GSCM aspect	Cooperators
Notified	42
Not notified	20
Total	62

Shimadzu Corporation who is the leader of GSCM system in this study has set up the ‘obtaining certification of EMS’ for its suppliers as a GSCM aspect. Table 3 shows the situation whether cooperators have recognized ‘obtaining certification of EMS’ as a GSCM aspect. Twenty cooperators have not recognized ‘obtaining certification of EMS’ as a GSCM aspect. Therefore, the leader of GSCM system needs to help the cooperators to understand the GSCM aspect by sharing information or supporting their programs.

**Estimating Practicable GSCM Goal and Detail Goal**



**FIG.4: THE SITUATION OF OBTAINING CERTIFICATION OF EMS**

Figure 4 shows the condition of the cooperators who have obtained or planned for obtaining certification of EMS. Thirty three cooperators among 62 have already got t EMS certification. The cooperators operating EMS have to be further trained and supported to advance the activities based on EMS by the leader of GSCM system. The GSCM goal and specific goal for ‘obtaining certification of EMS’ are targeting 29 cooperators who have not yet obtained the certification of EMS. Seven (7) cooperators answered that they had planned to get the certification within 1 year. A cooperator (1) answered that it has a plan to obtain the certification within 2 years. Twelve (12) cooperators have a plan to obtain the certification in the future, although they did not make sure the period for obtaining the certification. However, eight (8) cooperators answered that they did not have any plan to get the certification of EMS. From the results, we can consider the setting up the GSCM goal to be in the span of 3 years and specific goal for 1 year. Among the 29 cooperators who have not obtained the certification of EMS, 20 cooperators have positively thought about operating EMS and obtaining the certification. Although 12 cooperators have not yet determined the period of acquiring the certification of EMS, they are likely to introduce and implement

EMS to their companies within 3 years through the leader's supports. The result therefore provides the standard to set up practicable GSCM goals and GSCM program.

**Grasping the Point of Setting up GSCM Program**

MSUS aims to have understood the situation of the support service to cooperators by the leader of GSCM system for setting up practical GSCM program. GSCM program is to schedule process and selecting method for achieving GSCM goals. This paper is only limited to presenting the selection method for supporting the cooperators.

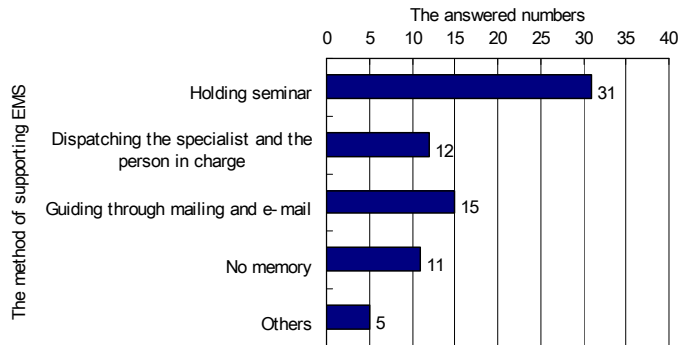


FIG.5: THE SUPPORTING METHOD FOR EMS

Figure 5 shows the supporting method that helps cooperators to understand what EMS is and how EMS is implemented or operated. The methods are 'holding seminar', 'dispatching the specialist and the person in charge' and 'guiding through mailing and e-mail'. The selection of more than one answer to these survey questions had been allowed in this case study. The answered results of 'holding seminar', 'dispatching the specialist and the person in charge' and 'guiding through mailing and e-mail' were respectively 31, 15 and 12. These results are based on the limited knowledge of the respondents. Here, it is assumed that 'holding seminar' is easily recognized as a supporting method by the cooperators. 'Holding seminar' has a merit of the leader of GSCM system being the educator and trainer and positively influences many cooperators at the same time. On the other hands, 11 cooperators answered that they have no experience or knowledge whatsoever about the need of support by leader and its continuous support from the leader of GSCM system.

**Conclusion**

The application of GSCM system was presented in this paper to improve the effectiveness of GSCM implementation and operation. The GSCM system consists of 4 elements and 2 conditions. The elements are sharing GSCM policy and purpose, joint action, sharing knowledge and information, and the activities for supplier support. All these are aim to improve the collaborative relationships between a manufacturer and its suppliers. The 2 conditions are the 'application of PDCA cycle' and the documentation to systematically advance the GSCM implementation. These identified elements and conditions must be integrated within the worldwide-applied ISO 14001 for the construction of GSCM system, since the ISO 14001 is the most applicable EMS for any organization. Here, the ISO 14001-based GSCM system is assumed to be used by any supplier. The main processes of the GSCM system are composed of the 'GSCM policy and purpose', 'joint planning', 'joint doing', 'joint monitoring', and 'joint reviewing'. Balancing the 4 elements for forming collaborative relationships and documentation operates the processes that are based on PDCA cycle. However, the GSCM system needs to be planned as a practical system in the initial stage of the construction.

Therefore, we considered the method for establishing GSCM goals and program in the process of 'joint planning'. The measurement survey for understanding the situation of cooperators (MSUS) was presented as a simple and useful method for setting up practicable GSCM goals and program. The MSUS has to be further developed and utilized for a continuous and practical operation of the GSCM in the future.

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# Effects of Supplier-Buyer's Inter-organizational Characteristics and EDI Utilization on SCM Performance

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## Abstract

The purpose of this study is to identify the inter-organizational factors that influence both the supplier-buyer's EDI utilization and the business performance in domestic retail industry. In terms of successful supply chain implementation and operation, we deduced the structural factors in the context of the inter-organizational characteristics between mass merchandisers and vendors. This study therefore focused on suggesting the ways of managing the partnership in supply chain and conceptualizing the big picture of EDI development model in the scope of a retailer's IT strategy. The results implicate that it is important to leverage the level of organizational capabilities for the success of supply chain adoption and operation. In the stream of SCM initiatives from the manufacturing industry, retailers should concentrate on improving the inter-organizational environment and implementing the effective information technology for supporting business strategy.

## Introduction

These days, business environment is changed radically because of information technology development, globalization, customer needs diversification, and so on. So there are many companies that would like to promote innovation through IT tools such as SCM(Supply Chain Management) for development of business efficiency and cost reduction.

So in this study, we verify a relation model between suppliers and buyers by inter-organizational characteristics, and suggest how companies should use EDI based SCM for level-up usability and company performance by there characteristics.

## Related Researches

There are many studies about the EDI usage level and performance. The usage level is about EDI adoption effectiveness, adoption attitude, and transaction degree, and so on(Noh at al, 2001; Lee, 2001; Kim et al, 2002; Sokol, 1989; Emmelhainz, 1990; Mansseti, 1991). Researches about the performance of EDI usage analyzed cost reduction, business improvement, competitive advantage attainment, financial outcome increase, level-up system usage and satisfaction, and so on.(Kim et al, 1999; Yang et al, 2001; Sokol, 1989; Brian, 1990; Emmelhainz, 1990; Hwang, 1991; Mansseti, 1991). This study reviews the relationship between EDI usage level and effectiveness, and suggests a model which organizational characteristics affect this relationship.

### EDI usage level

Masseti(1991) and Hwang(1991) explained the relationship between EDI usage level and EDI usage effect, and classified EDI usage level into usage integration, usage diversity, usage width, and usage quantity. Usage integration meant the degree of coordination between EDI system and legacy information system. Usage diversity meant the



types of document that is transmitted with EDI, and usage width meant the ratio of EDI using business partners of whole of business partners. Usage quantity meant the ratio of transaction quantity used by EDI of total transaction quantity. Park(1998) divided EDI usage level into usage quantity and usage scope, and verified the organizational differences between high usage level groups and low groups. And Kim et al(2002) defined EDI usage width into EDI using partner companies, and measured diffusion degree of business environments.

These studies measured supplier-buyer EDI usage level based on M:M cooperation relationship. The role of EDI is different according to relation types with partner companies. Because EDI is one of enterprise information system, usage level should be measured by two-way. So this study analyzes EDI integration, usage width, usage quantity, and suggest a relationship of usage diversity and usage scope that is showed by transaction relationship with suppliers.

#### **EDI performance**

The researches about organizational performance with information technology focused in strategic, managerial, operational, and financial areas. The studies for EDI system usage performance analyzed effects through communication and information sharing in B2B transaction.

Clemons(1986) classified usage performance into order cost reduction, increasing order times, lead-time reduce, stock cost reduction, and managerial support.

Sokol(1989) analyzed performance in organizational efficiency, and the affecting factors to performance were transaction cost reduction, material and service cost reduction, ordering process shortening, customer service improvement, internal business process reformation, and so on. These studies suggested EDI performance in operational and managerial side. Brian(1990) divided EDI performance into direct and indirect factors. Direct factors were transmission efficiency improvement of electronic documents, manpower reduction, and efficient usage, and strategic factors were improvement of long-term competitiveness in long-term, long-term strategic planning, improvement relationship within partners and customer satisfaction.

This study focuses on operational and managerial performance factors such as reduction of business transaction cost and time, business process improvement, stock reduction, and strategic factors such as customer service improvement, transaction relationship improvement, competitive advantage, business innovation, etc.

#### **EDI usage level and performance**

Masseti(1996) and Noh et al(2001) classified determinant factors for EDI usage level and performance into technological organizational and managerial factors. And they studied about the effect of EDI determinant factors for EDI performance in organizational and managerial sides.

#### **Relationship characteristics**

EDI affects various inter-organizational relationships as Inter-Organizational Systems (IOS) (Noh et al, 2001). The researches about the characteristics of inter-organizational relationship were developed mainly in marketing areas, core concepts are trust, relationship absorption, relationship solidarity, open communication, cooperation, reliance, and conflict resolution (Wilson, 1995). These concepts explain the qualitative characteristic of inter-organizational relationships.

## **Research Model and Hypothesis**

This study is about use of information technology for successful SCM in retail industry of Korea. The critical factors for SCM success are information sharing and easy communication between partners.

So, we set a model to explain the relationship between inter-organizational characteristics, EDI usage level and SCM performance.

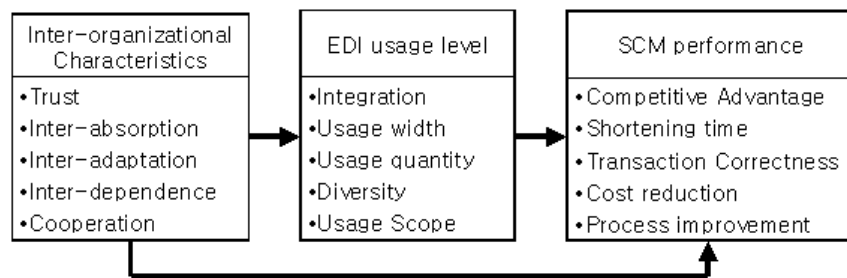


FIG. 1: RESEARCH MODEL

### Inter-organizational characteristics and EDI usage level, SCM performance

#### Trust for partners

EDI system is for promotion of interaction between supplier and buyers by inter-organizational information processing. The mutual openness and trustable relationships between partners promote efficient information sharing activity and affect usage and performance of supporting information systems (Mohr & Spekman, 1994; Winson, 1995).

And trust develops the interaction and inter-organizational performance between partners as an important tool for sustaining relationship (Schurr & Ozanne, 1985; Noh et al, 2001). So, high trust for partners affect positively EDI usage level and performance.

[H1-1] Trust among partners affects positively EDI usage level

[H2-1] Trust among partners affects positively SCM performance through level-up the EDI usage

#### Inter-absorption between partners

Absorption means constant needs for sustaining relationship between partners. The partners which have low level of relationship absorption are liable to break the partnership. There should be inter-absorption for business sharing and transaction with EDI. Partners can overcome long-term business problems through inter-absorption (Mohr & Spekman, 1994; Noh et al, 2001).

[H1-2] Inter-absorption affects positively EDI usage level

[H2-2] Inter-absorption affects positively SCM performance through level-up EDI usage level

#### adaptation to partner

Inter-adaptation means understanding of circumstance and characteristics of partners, recognizing aims exactly, and reacting to various strategic operations (Heide & John, 1992). There is no guarantee of strong relationship because of radical IT development, diversification of customer needs, and entering new competitors. So, flexible attitude for unpredictable market changes is important to organizational performance.

[H1-3] The degree of partner adaptation affects positively EDI usage level

[H2-3] The degree of partner adaptation affects positively SCM performance through level-up EDI usage

#### Inter-dependence between partners

Inter-dependence between partners is recognition process of mutual benefits through interchanges. The achievement of goal through inter-dependence in B2B transaction cannot be attained by one-side and can be presented by constant effect within partners (Mohr & Spekman, 1992).

The partners which have inter-dependence mediate through cooperation take flexible relationships.

[H1-4] Degree of inter-dependence between partners affects positively EDI usage level

[H2-4] Degree of inter-dependence between partners affects positively SCM performance through level-up EDI usage

### **Cooperation between partners**

Cooperation derives success in business relationship. In general, there are the more cooperation between partners in supply chain, the more cost efficiency and higher performance. Cooperation based on mutual trust is basis of strong partnership(Heide & John, 1992). Maltz & Srivastava(1990) suggested that cooperation between retail companies and supply companies developed performance in whole of supply chain

[H1-5] Degree of cooperation between partners affects positively EDI usage level

[H2-5] Degree of cooperation between partners affects positively SCM performance through level-up EDI usage

### **EDI usage level and SCM performance**

#### **EDI usage level**

With EDI usage level, we can cognize inter-organizational IT adoption and usage degree. ED usage and participation degree between supplier and buyer is related to EDI adoption scope. In this study, EDI usage level is measured by integration between internal information system and EDI, EDI usage width, usage quantity, diversification, usage scope, and so on.

#### **SCM performance**

IT can contribute to organizational performance improvement such business process reformation, maternal and cost reduction. And companies can have promotion of partnership, increasing exact and speedy communication, advanced organizational efficiency, improvement of trust and cooperational structures. In this study, SCM performance is measured by competitive advantage creation, transaction time reduction, information correctness increase, transaction cost reduction, and business level improvement.

[H3] Inter-organizational EDI usage level affects positively SCM performance

## **Results**

### **Data Collection**

Subjects of this study are Korean large discount store and partner companies. So we selected one discount store which developed WEB EDI system in October 2001 for collaborative with partner companies. There are about 2,000 companies which use WEB EDI system. Whole of questions are formed with 5 scales.

We gathered data by online survey after informed about this study to EDI practical staff of partner companies. Online communication tools such as CGI, etc. develop questions and answers were stored to database in real-time. We gathered 381 questionnaires and take 315 in analyze.

### **Test reliability and validity**

We use factor analysis to identify the structure of relationships among variables(Hair at al, 1995). So we take SPSS 10.0 for extract determinant factors and use Varimax rotation method and principal component analysis.

TABLE 1: FACTOR ANALYSIS OF INTER-ORGANIZATIONAL CHARACTERISTICS

	Factor 1 Trust	Factor 2 Inter-absorption	Factor 3 Interaction	Factor 4 Inter-dependence	Factor 5 Cooperation
Observance of contract	0.869				
Correct understanding of correctness of contract	0.865				
Willingness of information sharing	0.773				
Relationship through EDI	0.729				
Expectation of constant relationship		0.875			
Sustain of relationship through EDI		0.568			
Satisfaction of partner's business		0.578			
Positive EDI usage			0.758		
Collecting partner's request			0.732		
Change of business process with EDI			0.925		
Scope of partners				0.877	
Positive problem solving with EDI				0.643	
Attitude for problem solving with EDI				0.606	
Understanding mutual goal					0.650
Sharing business information with EDI					0.481
Support of CEO					0.789
Openness of decision making					0.712
eigenvalue	3.269	3.142	3.009	2.539	1.887
Cronbach's Alpha	0.878	0.831	0.517	0.697	0.905

TABLE 2: FACTOR ANALYSIS OF EDI USAGE LEVEL

	Factor 1 Integration	Factor 2 Usage width	Factor 3 Usage quantity	Factor 4 Diversificat ion	Factor 5 Usage Scope
Stability with internal information system	0.826				
Connection with internal information system	0.856				
Ratio of EDI transaction companies		0.908			
Diversity of EDI transaction service		0.560			
Monthly ration of EDI transaction EDI			0.750		
Selling improvement ratio with EDI			0.863		
Diversification of transaction information with EDI				0.544	
Timeliness of transaction information with EDI				0.660	
Scope of EDI usage in practice					0.835
Flexibility of EDI usage in Practice					0.976
eigenvalue	2.319	2.188	1.696	1.326	1.133
Cronbach's Alpha	0.832	0.672	0.861	0.828	0.626

TABLE 3: FACTOR ANALYSIS OF SCM PERFORMANCE

	Factor 1 Competitive advantage	Factor 2 Time Shortening	Factor 3 Transaction Correctness	Factor 4 Cost reduction	Factor 5 Process Improvement
Market share	0.983				
Ratio of selling improvement with EDI	0.976				
Shortening of business phases		0.894			
Shortening of processing time		0.810			
Correctness of transaction information			0.579		
Timeliness of transaction information			0.749		
Cost reduction of office processing				0.734	
Cost reduction of material management				0.817	
Automation of processing					0.869
Improvement of customer satisfaction					0.868
eigenvalue	3.423	2.378	1.222	1.076	1.035
Cronbach's Alpha	0.415	0.945	0.874	0.873	0.910

**Hypothesis Test**

We performed covariance structure analysis for test of research model fitness. For this covariance structure analysis, LISREL 8.9 were used for path model analysis and used maximum likelihood (ML) method

TABLE 4: RESULT OF MODEL FITNESS TESTING

Model Fitness Index	X2/df	P	GFI	AGFI	RMR	NFI	CFI
Index Value	3.372	0.000	0.933	0.910	0.073	0.890	0.892

GFI(0.933), NFI(0.890) and CFI(0.892) mean fitness of model for analysis. RMR(Root Mean Square Residual) is 0.073, and it is higher than generally accepted value(lower than 0.07), but it is not trouble factor in this study progress. table 6 shows the relationships between independent and dependent variables which were derived with path analysis. These results prove direct or indirect effectiveness of inter-organizational characteristics to EDI usage level and SCM performance with path coefficient and t-value.

TABLE 5: PATH COEFFICIENT OF RESEARCH MODEL

	B1	B2	B3	B4	B5	C1		C2		C3		C4	
	Di	Di	Di	Di	Di	Di	Di	Di	In	Di	In	Di	In
A1	0.285	0.271	0.249	0.003	0.398***	-0.138	0.147*	-0.090	0.128**	-0.172	0.126**	-0.362	-
A2	0.795***	0.466**	0.208	0.557**	0.263*	0.398***	0.092	0.115**	0.130**	0.436***	0.111*	0.151	0.101
A3	-0.265	0.186	0.359*	0.095	-0.340	-0.239	-0.032	0.195	-0.071	0.251*	-0.045	0.117	0.022
A4	0.516**	0.124	-0.034	0.679**	0.485***	0.178***	0.236**	0.151***	0.175***	-0.066	0.156**	0.271**	0.075
B1						-0.142		-0.011		0.030		0.146***	
B2						-0.120		0.074*		-0.099		-0.168	
B3						0.215***		0.003		0.175***		0.148**	
B4						0.190***		0.054		0.053*		0.099*	
B5						0.418***		0.277***		0.252***		-0.087	

- ⊗ 1. A1(trust), A2(inter-absorption), A3(inter-dependence), A4(cooperation), B1(EDI integration), B2(EDI usage quantity), B3(EDI width), B4(EDI diversity), B5(EDI scope), C1(Shortening time), C2(Improve correctness), C3(cost reduction), C4(process improvement)
- 2. Di(Direct relation), In(Indirect relation)
  - \* path coefficient is significant in 0.1 ( $p < 0.1$ )
  - \*\* path coefficient is significant in 0.05 ( $p < 0.05$ )
  - \*\*\*path coefficient is significant in 0.01 ( $p < 0.01$ )

Trust, inter-absorption, inter-dependence, cooperation affected EDI integration, usage width, usage quantity, diversity, and usage scope very much. Inter-absorption, inter-dependence and cooperation affected EDI usage level directly or indirectly and they affect SCM performance indirectly. Inter-dependency affect transaction cost reduction directly, but there is no indirect relationship through EDI usage level. And individual variables of EDI usage level affect directly to individual SCM performance variables.

EDI integration shows weak but statistically significant relation with process improvement. And EDI usage width affects positively to improve correctness but weak. EDI usage width and diversity have very significant relation with transaction time shortening, cost reduction, and process improvement. EDI usage width affects time shortening, improve correctness, cost reduction and shows very high statistical significance and path coefficient.

In the analysis result of inter-organizational characteristics, EDI usage level and SCM performance, trust, inter-absorption, inter-dependence, and cooperation affect positively EDI system integration. And inter-absorption affect EDI usage width, inter-dependence does quantity positively. In quality, the companies which show high degree of inter-dependence and cooperation handle various businesses with EDI.

The relation between inter-organizational characteristics and EDI usage level affect SCM performance partially and indirectly. And high trust relation lead time shortening, improve correctness, and cost reduction. So, [H1-1] can be adopted partially and [H2-1] adopted.

EDI integration, usage width, usage diversification, and usage scope are positive relation with inter-absorption and related to improve correctness and cost reduction. So, [H1-2] and [H2-2] can be adopted

But inter-adaptation was omitted because of low significance, and [H1-3] and [H2-3] were rejected. Inter-dependence positively affects EDI usage quantity, but there is no indirect effect path to business performance. So, [H1-4] was adopted partially but [H2-4] was rejected. Cooperation affects EDI integration, diversification, usage width positively and does time shortening, improve correctness, and cost reduction indirectly. So [H1-5] and [H2-5] could be adopted.

Whole variables of EDI usage level affected SCM performance positively. Specially, EDI usage width has strong relation with time shortening, cost reduction, and improve correctness. So the path of [H3] is suitable and [H3] can be adopted.

TABLE 6: HYPOTHESIS TEST

Path	Hypothesis	Results
Trust → EDI usage level	H1-1	Partially Adopted
Trust → EDI usage level → SCM performance	H2-1	adopted
Inter-absorption → EDI usage level	H1-2	adopted
inter-absorption → EDI usage level → SCM performance	H2-2	adopted
Inter-adaptation → EDI usage level	H1-3	rejected
Inter-adaptation → EDI usage level → SCM performance	H2-3	rejected
Inter-dependence → EDI usage level	H1-4	partially adopted
Inter-dependence → EDI usage level → SCM performance	H2-4	rejected
Cooperation → EDI usage level	H1-5	adopted
Cooperation → EDI usage level → SCM performance	H2-5	adopted
EDI usage level → EDI performance	H3	adopted

## Summary

The purpose of this study is to identify the inter-organizational factors that influence both the supplier-buyer's EDI utilization and the business performance in domestic retail industry.

In terms of successful supply chain implementation and operation, we deduced the structural factors in the context of the inter-organizational characteristics between mass merchandisers and vendors. This study therefore focused on suggesting the ways of managing the partnership in supply chain and conceptualizing the big picture of EDI development model in the scope of a retailer's IT strategy.

While applying the EDI utilization factors that have been experimented in previous researches, we explored five main inter-organizational factors to evaluate EDI utilization and SCM performance. A new modified research model was deployed and analyzed to identify the influential paths among three families of factors. The result of this study showed that the inter-organizational factors have both direct and indirect positive relations to EDI utilization and SCM performance at a significant level. Especially, a cooperation between retailers works for usage of EDI. Also the scope of EDI use has a relatively high impact on supply chain performance.

This paper implicates that it is important to leverage the level of organizational capabilities for the success of supply chain adoption and operation. In the stream of SCM initiatives from the manufacturing industry, retailers should concentrate on improving the inter-organizational environment and implementing the effective information technology for supporting business strategy.

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# Offshoring of IT and IT-enabled Services: How Far Does India Benefit From Its Outsourcing Industry?

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## Abstract

The literature on services offshoring typically focuses on the extent of job losses in the home country. The impact on recipient countries is rarely examined in the debate on offshore outsourcing. The purpose of this paper is to analyze the impact of offshoring in information technology (IT) and IT-enabled services (ITES), including business process outsourcing (BPO), on employment creation and technology diffusion/innovation gap in India. The paper concludes that being a service industry, the IT/ITES sector cannot be expected to solve India's massive unemployment problem. India needs to build labor-intensive, manufactured products, not just services, in order to create jobs for millions of educated but unemployed young Indians. Concerning technology diffusion/innovation gap, in spite of impressive progress achieved by Indian service providers, they continue to lag behind in high-end areas that call for creativity and innovation such as inventing innovative business products, and creating new global markets for such products.

## Introduction

A by-product of the "flattening of the earth" has been the freedom of global businesses to engage in "offshore outsourcing" – which is the business practice of relocating labor-intensive manufacturing or service functions from an internal to an external source anywhere in the world. From the business viewpoint, offshore outsourcing can provide dramatic cost savings, permit the fragmentation of the value chain, enable a company to concentrate on its core competence, and leverage resources to higher-value-added products and services in order to create sustainable competitive advantage (Brown and Wilson, 2005; Prahalad and Krishnan, 2004.) Although offshore outsourcing has been going on for a long time in countries like Ireland, Israel and Turkey, recently it has attracted a great deal of political attention recently due to the alleged "loss of domestic jobs" in the United States, Europe and elsewhere to China in the manufacturing sector and to India in the services sector.

A review of the literature reveals that a great deal has been written in the west on the economic and technological issues involved in offshore outsourcing of services, but such writings have focused exclusively on the pros and of "global labor arbitrage", the extent of job losses in the home (exporting) country, and the plight of the workers whose jobs have been 'Bangalored" (Simpson, 2004.) The development impact of offshore outsourcing of services in the host (recipient) countries is rarely examined in the ongoing western debate on outsourcing.

The purpose of this paper is to examine some of the economic and technological issues pertaining to offshore outsourcing in the IT/ITES-BPO service industry in India. Specifically, the paper examines the impact of offshore outsourcing on (a) employment creation in India, and (b) technology diffusion/innovation gap in India.

## An Overview of the IT/ITES-BPO Industry in India

India's \$30 billion plus export industry of IT/ITES-BPO has been growing at an impressive annual average rate of around 35 percent since FY 2002-03. The Tier I Indian companies (Tata Consultancy Services, Infosys, Wipro and HCL Technologies) regularly report double-digit growth in client base, sales revenue, and net profit. They rank among the top 14 largest IT companies in the world in terms of manpower, profitability, and stock market capitalization. These top four Indian companies register annual revenues of more than \$1 billion each, and together with Satyam, are also India's leading IT exporters.<sup>[1]</sup> (NASSCOM, Strategic Review 2005, and 2006.)

India ranks as the number one destination for offshore outsourcing of IT and ITES-BPO, accounting for nearly one-half of the highly competitive global outsourcing market. India is the second largest exporter of software in the world, and some 300 of Fortune 500 companies do business with Indian IT services companies. Twenty out of fifty best-managed outsourcing vendors in the world are based in India -- either captive companies of multinationals or local Indian companies.<sup>[2]</sup> In addition, India's top BPO firms generate huge revenues from foreign sources and employ a large number of people.<sup>[3]</sup> Thus, India has been able to build up valuable brand equity in this industry in global markets.

By 2010, the outsourcing industry is expected to account for seven percent of Indian GDP, attract one-third of all foreign investment in India, generate around \$60 billion in annual export revenues (35 percent of exports), and create more than one million additional jobs. In addition, this sector has fuelled the growth of a number of ancillary businesses such as transportation, real estate, hotels, catering, and so on, and has created 3 million additional jobs via indirect and induced employment. With some 1.6 million of India's vast and talented educated people currently working directly and indirectly in this sector, the outsourcing industry exercises a major influence on the Indian economy (NAASCOM, Strategic Review 2006; The McKinsey Quarterly, Special Edition 2005.)

India is the principal outsourcing destination because it combines the twin advantages of low-cost and high-quality labor. In addition, by this time the top Indian vendors have mastered multi-country service delivery capabilities, thus enhancing their usefulness. As the cliché goes, multinationals go to India for low cost (NAASCOM estimates that offshoring to India generated cost savings between 25 and 60 percent for the IT sector, and 78 percent for the ITES-BPO sector over the U.S. cost base) but stay for the high quality in software and business process services. India has the highest number of qualified engineers and the largest pool of offshore talent in the world (Paul, 2004.)

In the offshore outsourcing industry, India is the only country in the world that has the largest number (more than 400) companies possessing international quality certifications. Some 82 of these companies are assessed at Carnegie Mellon's Software Engineering Institute (SEI) Capability Maturity Model (CMM) Level 5 – the highest international standard for quality attainable in software development. India has more companies assessed at this quality level than any other country in the world. India also has numerous companies assessed at the International Standard Organization (ISO) 9000/9001-level certification standards for high-quality manufacturing. Many Indian companies have also implemented Six Sigma methodology – a corporate-wide approach for ensuring high-quality performance. In this sense, India has truly become a “quality knowledge hub – the world's leading supplier of human intelligence” (Department of Information Technology, Annual Report 2005-06, p. 2.)

## Local Employment

There is no denying that with offshore outsourcing the host country gains in terms of employment generation, but the absolute numbers in India are only superficially impressive and cannot possibly be expected to make a dent in India's overall unemployment picture.

### Static Employment Effects

Table 1 shows the growth of Indian software exports from fiscal year (FY) 2002-03 to 2006-07. As can be seen, total Indian software exports have been enjoying an annual growth rate of 35 percent, the IT component of which has been growing at 34 percent, and the ITES-BPO component at 35 percent in U.S. dollar terms.

TABLE 1: INDIAN SOFTWARE EXPORTS, FY 2002-2003 - FY 2006-2007 (US \$ BILLIONS)

Fiscal Year	IT Services & Software	ITES-BPO	Total Exports
2002-2003	7.1	2.5	9.6
2003-2004	9.2	3.6	12.8
2004-2005	12.2	5.1	17.3
2005-2006	17.1	6.3	23.4
2006-2007*	23.0	8.3	31.3

\* Estimated

Sources: Ministry of Finance, Government of India, Economic Survey, 2004-2005, pp. 147-148; NASSCOM Strategic Review 2005, and 2006, p. 28.

Table 2 shows the growth of employment in IT/ITES-BPO sector (the latter defined as customer care, finance, human resources, payment services, administration, and content development) in India from FY 2002-2003 to FY 2006-2007. As can be seen, total employment in this time-period grew at an annual average rate of 45 percent, employing some 1.6 million people in FY 2006-07.

TABLE 2: EMPLOYMENT IN IT AND ITES-BPO SECTORS IN INDIA, FY 2002-03- FY 2006-07 (THOUSANDS)

Fiscal Year	IT software exports	ITES-BPO	Total
2002-2003	205,000	180,000	385,000
2003-2004	270,000	253,000	523,000
2004-2005*	345,000	348,000	693,000
2005-06	878,000	409,000	1,287,000
2006-07*	1,085,000	545,000	1,630,000

\* Estimated

Sources: Ministry of Finance, Government of India, Economic Survey, 2004-2005, p. 148; NASSCOM Strategic Review 2005, and 2006, pp. 34, 156; NASSCOM, "Industry Trends", May 11, 2006.

Yet, in spite of these impressive statistics, the IT industry as a whole accounted for less than 5 percent of Indian GDP in FY 2005-06 and employed one million plus people in a land of more than a billion people. Of course, the outsourcing industry in India is expected to grow in the future to 7 percent of India's GDP and employ yet another 1 million people by 2008. Still, even these optimistic job numbers will still amount to barely over 1 percent of the massive Indian labor force estimated to be some 600 million people in this decade (Department of Information Technology, Government of India, 2005-06, 2003-04; The McKinsey Quarterly, Special Edition 2005.)

#### **Dynamic Employment Effects**

It is true that such static calculations do not take into account the dynamic spillover and multiplier effects of the IT/ITES-BPO industry on other tertiary industries such as transportation, construction, real estate, security, catering and hospitality, and so on. NASSCOM estimates that the outsourcing industry has created 1.3 million indirect and induced jobs in ancillary services. Undoubtedly, the outsourcing industry has generated a booming middle class of young professionals with high disposable income that is contributing to India's national income, tax revenue, and an increase in consumer spending, particularly in real estate, construction, shopping malls, hotels, airlines, and mobile phones. The industry has also brought to the international forefront India's attractiveness as an investment destination, and this "prestige" factor is hard to quantify. Lastly, it has contributed to a reversal of the "brain drain" as expatriates of Indian origin return to India for good.

In particular, the BPO sector, including its knowledge-process outsourcing (KPO) sub-sector, has enormous job-creating potential in the future in such activities as corporate planning, market research, investment valuation research, patent filing, legal and insurance claims processing, biotechnology, pharmaceuticals, healthcare, business and commercial information, distance learning, and many more. By 2007, the BPO sector in India is estimated to bring in \$16 billion in revenues, capture some 49 percent of the overall offshore BPO market, and the KPO component of this sector is expected to create 300,000 jobs by 2010 (NASSCOM, Strategic Review: 2005; Confederation of Indian Industry, 2005.)

#### **Dichotomous Development**

Taking into account both the static and dynamic factors, the outsourcing industry will probably employ some 5 percent of the Indian labor force by 2008. However, this is a highly optimistic scenario. Ironically, as the top Indian vendors move up the "food chain" from BPO/KPO, design, programming, testing, maintenance and documentation tasks to higher value-added services such as product development, customization, system integration, IT consulting, and business consulting, such higher-end services require less and less labor. Also, some of the remote work that used to be performed out of India by Indian service providers is now being done out of other low-cost, talent-rich locations like China, Vietnam, and Eastern Europe. In addition, only about 25 percent of some 400,000 engineers

graduating annually in India are suitable for offshoring jobs at multinational corporations, and the top Indian companies recruit only about 1 percent of job seekers (The McKinsey Quarterly, 2005: 3.)

India has more than 40 million people looking for work, and an additional 35 million will join the labor force by 2008. The vast majority of educated young people in India, numbering some 200 million, are outside the elite loop of outsourcing since they are not employable in the industry due to lower-quality educational institutions they graduate from. In fact, the educated youth would probably comprise more than half of India's unemployed within the next decade and could constitute a "ticking bomb" for India if the economy does not create enough jobs for them (Basu, 2004; The McKinsey Quarterly, 2005: 3.)

Creating jobs for all these millions of unemployed Indians will require more than nurturing the outsourcing service industry alone. Only labor-intensive manufacturing can provide jobs on such a scale. India may have "missed the boat" with respect to Chinese-style low-cost, labor-intensive manufacturing, but India may have some advantages over China in "discreet" manufacturing or manufacturing activities that requires engineering skills (Joshi, 2004; India Abroad, February 16, 2007.) Without this job-creating possibility, however, as the "enclave" thesis maintains, the outsourcing industry in India will probably end up by creating "pockets of affluence" in sumptuous suburban campuses, leading to a highly dichotomous development process (Asian Development Bank, 2004; Joshi, 2004.)

## **Technology Diffusion/Innovation Gap**

In spite of impressive progress made by top Indian software companies in moving up the value chain to higher-level, sophisticated services, the fact remains that so far they still operate as "low-cost/high value" service providers. They have not yet reached the stage where they are able to manufacture, commercialize, market, and export a technological final product. Hitherto, the elite Indian companies have shown few signs of causing "new market disruptions" and are quite content to be "low-end disrupters" rather than innovators. Thus, even though India has gained by way of technology diffusion from western multinational companies, the innovation gap continues to persist.

Certainly, the more advanced Indian companies today have gone far beyond the traditional "hub-and-spoke" model in which strategic functions (such as innovation, business consulting, IT consulting, defining requirements, etc.) are generally retained in the home country, while non-strategic, labor-intensive activities (such as design, programming, testing, documentation, maintenance, etc.) are typically outsourced (Simpson, 2004.) These sophisticated Indian companies have moved up the value chain by going beyond the traditional project-oriented, technology-specific outsourcing contracts to an integrated "global onshore-offshore delivery model." This model involves "cross-selling and up-selling" a broader range of complex and higher value-added, domain-focused, services and solutions (such as business portfolio analysis, change management, sales and marketing relationship management, supply chain management, defining the client's market in relation to competition, packaged applications implementation, custom application, IT consulting, R&D, product design and development, remote network management, and systems integration.)

The Indian service providers are acutely aware of the fact that in this era of globalization of the services industry (particularly financial services), an outsourcing partner must provide services on the business and process side (such as time to market, customer relationship management, operations management, and the like), not just on the technology side. Therefore, top Indian companies are delivering domain knowledge in key verticals (industry-specific) such as financial services, health care, manufacturing, retail, life sciences, telecom, media, and so on. They have developed cost-effective processes for managing large-scale projects in distributed locations combining customer-side activities with development activities (Murthy.)

The BPO industry too is moving up the value ladder from providing horizontal low value/high volume communication and data-driven activities to delivering vertical high value/low volume analytics-based, knowledge-processing services (such as clinical data management, biometrics, market research, financial research, securities processing and lending, risk management, real estate management, fund management, actuarial modeling, insurance claims processing and underwriting, medical, accounting, legal work, and so on.)

Thus, the top Indian companies have been able to put together multicultural teams consisting of IT specialists, management specialists, domain experts, and behavioral experts from multiple countries in order to deliver customer-focused consulting and technology package deals to multinational clients (NASSCOM, Strategic Review, 2005.)

Today, India has emerged as a major global design center for higher-end technological tasks that were not outsourced before. In particular, Bangalore has been able to attract several creative/planning jobs, including high-tech product development, product design, software architecture, content development and design, and R&D. Multinational companies like IBM, General Electric, Motorola, Intel, and Microsoft have opened cutting-edge R&D and technology design centers in Bangalore and elsewhere. Famous Indian companies can deliver some very advanced engineering design and development work in large-scale projects (including aerospace) in distributed locations anywhere in the world (NASSCOM, Annual Report 2004-05; NASSCOM, Strategic Review 2005.)

#### **Role of the Indian Government**

The Indian government's support of the software industry, coupled with economic liberalization measures, has certainly been conducive to the success of the Indian outsourcing industry.<sup>[4]</sup> The overall result of the government-supported free environment for the high-tech sector was to create a highly competitive environment for the Indian firms, which were forced to adopt world-class infrastructure, quality control processes, and human resource management practices. Now the Indian government needs to introduce "second-generation" reforms in the field of education by privatizing higher education institutions, enlarging the number of engineering Ph. D candidates, introducing meritocracy in the academic labor market, and increasing faculty salaries to industry level. The issue of the quality of training of workers in the outsourcing industry, particularly in managerial and marketing skills, is going to be problematic for India in view of poor faculty salaries and deteriorating physical infrastructure, even in elite universities and technical institutes (Murthy, 2004; Singh, 2004.)

#### **Looming Problems on the Horizon**

The conventional wisdom concerning India's strong fundamentals in offshore outsourcing stresses the level of government support, quality of the labor force, proficiency in English, entrepreneurial culture, project management skills, and exposure to new technologies (Department of Information Technology, Government of India, 2003-04.) Such a rosy picture explains only part of the story. The so-called Indian advantages mentioned above might dissipate over time due to a variety of reasons over which the Indian companies may not have much control.

First, offshore outsourcing is a part of the strategic planning process of a multinational company in which a host of variables (including relative labor costs, logistics costs, customer requirements, time to market, skill levels and business experience, size of the local market, infrastructure facilities, and political and currency risks) enter into management calculations concerning the choice of an outsourcing location. The "portfolio approach" to offshoring maintains that spreading outsourcing relationships across a basket of low-cost regions and countries reduces risk and increases potential reward for a multinational company. Recent trends in outsourcing show a shift away from the client's reliance on a single vendor to provide end-to-end services (or the entire spectrum of outsourcing services including IT consulting, application outsourcing, BPO, and infrastructure outsourcing) to "unbundling" requirements, and opting for "hybrid structures" or "extended organizational forms." The latter involve partnering with a network of multiple "best-of-breed" service providers in specific areas of their strengths such as application development or industry-specific expertise. These relationship-seeking, rather than transaction-focused, customers expect vendors to simultaneously bring to bear technical knowledge, industry knowledge, knowledge of competitors and market trends (Vestring, Rouse & Reinert, 2005; NASSCOM, Strategic Review: 2005.)

Secondly, India's current cost/quality advantage faces serious competition from rival locations such as China, Vietnam, the Philippines, South Africa, Russia, the Czech Republic, Hungary, Poland, and Canada. This competition will be particularly problematic if wage pressures continue to build up in India, attrition rates (currently ranging from 35 to 45 percent in call centers) in the ITES sector continue to skyrocket, and faculty shortages at the post-graduate level continue to mount. If multinationals are flocking to India now to set up captive units (they have 40 percent share of the BPO market in India), they are doing so to fill a particular gap (e.g., labor-cost gap, talent supply gap, etc.) at a particular point in time. History has taught us that one can never be sure that multinationals will remain in one particular location such as India (or any other place for that matter) over the long haul.

Already, there are signs that India's labor advantage is dwindling due to rising wages, high turnover rates, and a shortage of skilled manpower. It is estimated that demand for qualified IT professionals will outstrip supply in India soon, resulting in further wage pressures and higher attrition rates (ranging from 15 to 30 percent) in the near term. India's cost advantage may be cut in half by 2007, and the current wage differential of 35 percent for higher-end services might shrink to 9-to-18 percent. It remains to be seen whether the elite Indian educational institutions (seven Indian Institutes of Technology and six Indian Institutes of Management) will be able to produce sufficient trained professionals to meet increased demand, and even if they do, quality of training might suffer due to heightened pressure to meet this demand (NASSCOM, 2006; McKinsey, 2005 Special Edition.) Interestingly, due to acute competition for this limited pool of talent, high-prestige Indian companies like Infosys that used to recruit only from the top engineering and management colleges in India are now hiring graduates from lesser-known educational institutions and offering them lower salaries.

Concerns over heightened competition, rising labor costs, high attrition rates, and future growth prospects are reflected in the generally declining prices of stocks (American Depository Receipts) traded on Wall Street of the top Indian vendors – Wipro, Infosys, Satyam, TCS, and HCL. Further, until recently, India attracted only 5 percent of the total venture capital/private equity invested in Asia, as compared to 40 percent for China including Hong Kong. And over 90 percent of these so-called “risky” investments in India were in fact made only in existing, profitable, top Indian companies. Only now private equity capital is pouring into India in a big way.

Yet, Wall Street analysts are puzzled by the ability of these Indian companies to generate double-digit (in the range of 30-40 percent) revenue growth, deliver high profit margins (earnings before interest, tax, depreciation and amortization/revenue) of about 30 percent, maintain high price-earnings ratios at more than 20 on average for the top companies, and ensure stability in client billing rates despite rising wage pressures in the Indian labor market (Pradhan, 2003; NASSCOM, Strategic Review: 2005.)

While the concerns of Wall Street analysts about long-term growth prospects for these companies may be legitimate, it appears that in the near term (over the next 2 to 3 years) there is enough room for these world-class Indian companies to grow in attracting clients from Fortune 500 and Fortune 1,000 companies. While salaries and bonuses of IT professionals have been increasing at a rate of about 10 to 15 percent annually, billing rates vis-à-vis large clients have been remarkably stable, going up by one-half the rate of growth in salary cost. Indian vendors have managed to withstand higher cost pressures due to declining telecom and infrastructure costs, moving to higher-yield services such as consulting, package implementation, running thinner but more efficient operations, and achieving improvements in scale economies and productivity.

#### **Competition from China**

In the long run, however, of all the possible competitors to India in offshore outsourcing, it is China that poses the gravest threat. China is investing heavily in producing English-speaking engineering graduates and software professionals, and these investments are expected to bear fruit in about a decade's time. However, as of now, China's IT services industry remains highly fragmented, consisting of multiple players (some 15,000 service providers), the majority of which are small players based in one particular city or province with less than 15 employees doing basic programming and niche applications. Chinese IT firms do not yet possess the size and expertise needed to attract large international clients.<sup>[5]</sup>

The current Chinese situation is subject to dramatic change with time. With greater consolidation under government pressure, improved talent base, tax incentives, “single window” processing, and lower power costs, the fragmented IT industry in China will in all likelihood regroup fast, posing a serious threat in the future to India's dominant position in the outsourcing industry. China outbids India by at least a 5:1 factor in attracting foreign direct investment, accompanied by a great deal of technology transfer and R&D placement, some of which will most likely spill over into the IT sector. Already, clusters of excellence are emerging in northeastern China, attracting multinational companies like IBM, General Electric, and Accenture.

The major Chinese weaknesses are lack of intellectual property rights protection, and low level of innovation. In addition, India has certain highly visible weaknesses, such as deteriorating physical infrastructure, perpetual power blackouts, and the like that China does not have, at least to that extent. The so-called Indian advantage over China in the English language may not be material in the outsourcing industry, except in call centers and transaction processing. In any case, since 1992, English has replaced Russian as the main foreign language

taught in Chinese schools, and it will probably take a decade or so before the Chinese become functionally proficient in English (The McKinsey Quarterly, (1), 2005.)

Of course, the India-versus-China competitive scenario does not necessarily have to be phrased in “either-or” term. In typical eclectic Asian fashion, it can be phrased in “this-and-that” term. The size of the outsourcing pie may be large enough to accommodate both of them with different specializations for each player, i.e., offshoring work for India, and captive work for China. This is precisely what the Chinese Prime Minister had in mind when, in his last visit to India in April 2005, he invoked the “two pagodas” alliance in which China would concentrate on hardware and India on software. The technological collaborative agreements between China and India, signed in New Delhi in April 2005, open up new vistas for the outsourcing business, dominated by the Chinese in the manufacturing sector and by the Indians in the services sector.

The top-tier Indian companies have already set up software development centers in China to take advantage of lower-cost skills, and the Chinese manufacturers are in the process of entering the vast market of India. The entry into each other’s huge markets will hopefully enable both countries to become global players in a bigger way. The Indian vendors, with their diversified service portfolio, deep industry-specific expertise, and far-flung, worldwide operations, are well poised to meet the multinational clients’ needs.<sup>[6]</sup> They are also operating in other low-cost, talent-rich areas such as Vietnam, Brazil, and Eastern Europe. Thus, the leading Indian vendors have proven capability to deliver multicultural teams in distributed geographies to serve global clients efficiently in both onshore and offshore locations.

#### **Role of the Hardware Sector**

In reality, though, probably one reason why India will continue to be the preferred destination for offshore outsourcing in high-tech services is the correlation between low wages and low capacity for technological competitiveness and innovation. Studies have shown that India ranks the lowest among top countries in the world in technological capacity and competitiveness, i.e., the ability to manufacture, commercialize, market, and export a technological final product (Simpson, 2004.)

Table 3 shows that in IT/ITES-BPO exports out of India, services account for more than 96 percent of revenue generated, and the share of hardware (e.g. electronic product development) is negligible amounting to less than 4 percent. The reasons behind this poor showing of the hardware sector include lack of domestic availability of inputs, government controls on imports and capital goods, inflexible labor laws that discourage entrepreneurship, poor infrastructure, and high interest rates – all contributing to a high-cost structure for hardware exports (Paul, 2004; NAASCOM, Strategic Review 2005.)

TABLE 3: COMPOSITION OF INDIAN IT-ITES EXPORTS, FY 2003-04, 2004-05 (PERCENT)

	FY 2003-04	FY 2004-05
IT Services & Software	69.1	67.8
ITES-BPO	27.0	28.4
Hardware	3.8	3.7

Source: NAASCOM Strategic Review 2005, p. 27.

Table 4 shows that in the Asia-Pacific region India ranks only number 6 in total R&D spending on information and communication technology.

TABLE 4: TOTAL INFORMATION AND COMMUNICATION TECHNOLOGY SPENDING (\$ MILLIONS), 2004

Country	Spending
Japan	425,095
China	110,468
South Korea	61,921
Australia	37,223
Taiwan	33,966
India	28,247

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Source: NAASCOM Newslines: 2004 (32).

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The manufacturing of electronic hardware (such as semiconductors and other components) is characterized by high fixed costs and calls for large-scale investments in R&D and infrastructure that are not in the cards in India. Neither does India possess global product marketing skills on a big scale. Unlike East Asia, India's development policies have not supported the emergence of an export-led, world-class manufacturing industry. The "triple disconnect" in the Indian outsourcing industry between hardware and software, foreign and domestic markets, and services and products is a matter for concern (D'Costa, 2004.)

#### **Shortcomings of the Indian Service Providers**

Generally, only the leading Indian software service companies are able to offer a wide-ranging bouquet of global services ranging from IT infrastructure, and software testing to BPO, IT architecture, and IT consulting. But even they do not have the global reach of western multinationals like IBM, Accenture, and EDS

Only a few elite Indian companies such as Wipro and Satyam have engaged in "big leaps" such as "string-of-pearls acquisitions" of major western companies. Probably out of fear of depressing the high price of their stocks, other Indian companies have undertaken joint ventures, strategic alliances, and relatively small, "tuck-under acquisitions" in niche areas across geographies to broaden their capabilities in setting up "near-shoring" facilities (local centers for clients that are not ready yet to outsource to distant locations) to serve their clients in the West. The presence of Indian companies in strategic consulting (management consulting or business process re-engineering) is negligible largely due to perceived inadequate intellectual property protection laws in India.<sup>[7]</sup> (Pradhan, 2004.)

Generally, Indian software companies have a long way to go before they can arrive at the product development, commercialization, and marketing stage. They continue to remain masters of processes involved in managing distributed work across geographies in a "flat" world, usually on a point-to-point basis. Achieving global status in hardware assembly work will call for substantial investments in physical infrastructure, which are not forthcoming in view of the large fiscal deficit and public debt in India. Currently, infrastructure investment in India amounts to only 6 percent of GDP or half of the Asian average and will continue to pose a serious bottleneck problem in the future (IMF Survey, 2005.)

By far the most important challenge that Indian software companies face in becoming truly global players is changing the mindset away from sustaining their cost/quality advantage via the "average revenue realized per employee" route to becoming "disruptive innovators" or "leapfrogging the competition and dislodging the entrenched market leaders." The leading Indian software companies have succeeded in becoming "low-end disrupters" based on their low-cost/high quality business models such as the Global Delivery Model. However, in order for them to remain competitive in the global market place in the long run, they need to move into "new market disruptions" or create new markets for their patentable innovative products where no such markets currently exist.<sup>[8]</sup>

So far, even the elite Indian software companies have shown few signs of becoming new market innovators and are quite content to be order-takers rather than innovators. They have focused on global service delivery models that emphasize delivery client value via integrating "packaged software" created initially by western multinationals. These "service-only" Indian companies have done very little software product innovation and have yet to develop software products that could sell in global markets. They have indeed developed "incremental" process innovations that are tailored to delivering low-cost services to local customers, particularly in the rural areas of India. However, breakthrough "disruptive" innovations with a global impact are still missing (Pradhan, 2003.)

## **Conclusions**

India's number one priority is to create employment for its unemployed educated youth. In the short run, there is no denying that the IT/ITES-BPO industry has created an employment base in India, with all its spillover benefits, that did not exist before. However, the outsourcing industry cannot possibly be expected to be a panacea for India's massive unemployment problem. In fact, this industry is caught in a "Catch 22" situation with respect to creating employment. The employment-creation prospects are the highest at the bottom of the "food chain", that is in the



BPO/KPO segments. However, in order to satisfy client demands, as the Indian software vendors move up the value ladder to higher value-added services such as consulting, application management, networking, and the like, the need for labor in these higher-end services becomes less and less.

India needs export-led, labor-intensive manufacturing to create jobs for its vast masses of unemployed but educated people. In other words, India needs to build products, not just deliver services. The Indian strategy of “leapfrogging” into the big league of advanced nations by exporting high-tech services without first going through the manufacturing export stage is unprecedented in history. But its long-term success remains to be seen in view of acute competition stemming particularly from China, and the fact that the industry will reach its maturity stage in the not-so-distant future. So far, even the elite Indian software companies have succeeded only in becoming masters of “incremental” process innovation and “low-end disrupters” based on their low-cost/high quality business models such as the Global Delivery Model. They have not been able to become masters of product innovation or “new market innovators” in creating new global markets for innovative products.

The high-end technological work being done out of India is essentially tailored to fit the needs of distant users implying little interaction with India’s domestic economy. Still, there is no question that the organizational capabilities developed by the IT/ITES-BPO services sector can serve as a model for the rest of the Indian economy. The high-tech services sector has been less regulated and taxed than other sectors. This, coupled with liberalization and the consequent unleashing of the power of human capital, has catapulted India as one of the leading economic forces in the world, and certainly as the undisputed leader in services outsourcing. Thus, the success of the software industry has had a profound “demonstration effect” on the whole of India.

The challenge for India now is how to extend the global success of the outsourcing industry to the manufacturing, construction, real estate, retail, tourism, and infrastructure sectors of the economy, all of which are labor-intensive. In a nutshell, the challenge for India is to make high technology work for millions of unemployed yet educated Indians. Short of this, the contribution of this industry towards promoting economic development in India will remain questionable, and the industry will probably remain yet another elite enclave (with limited linkages to the rest of the domestic economy) enhancing the existing pervasive inequality in India.

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Please contact author for the list of references

## End Notes

<sup>[1]</sup>The tier-1 Indian companies include Tata Consultancy Services, Wipro, Infosys, and HCL Technologies, while the tier-2 companies include companies like Satyam. Cognizant Technology Solutions is excluded from this analysis since it is a U.S.-based company with development centers in India.

<sup>[2]</sup>These companies are: IBM Global/Daksh, Accenture, Hewlett Packard, Mphasis, Wipro Spectramind, ICICI OneSource, Sutherland Technologies, Hewitt Exult, HCL Technologies, Satyam, Northrop Grumman Information Technology, Infosys, Getronics, Spherion, i-Flex, Siemens Business Services, Datamatics, i-Gate, Perot, and Patni Computer. See Brown and Wilson, 2005, 159-163.

<sup>[3]</sup>In terms of full-time employees hired in FY 2005-06, the top 10 BPO vendors in India were: Wipro BPO, Genpact, IBM Daksh, WNS, Mphasis BPO, HCL BPO Services, ICICI OneSource, Progeon, and ExI Service Holdings. See NASSCOM, "ITES-BPO Market: Facts and Figures", June 6, 2006.

<sup>[4]</sup>The first-generation economic reforms, initiated in 1991, decentralized decision-making authority from the central government to regional and state governments, allowed software companies to raise capital through the equity market, introduced current account convertibility of the rupee, made access to foreign currencies easier (thereby promoting overseas travel, establishment of overseas sales offices, and hiring of foreign consultants), and allowed 100 percent foreign ownership of Indian subsidiaries (thus facilitating the entry into India of multinational companies.) Most software imports were brought under the Open General License Scheme, and the duty on software imports was eliminated. The corporate tax rate was reduced, and estate tax was abolished. The government also allowed Indian companies to list on foreign stock exchanges such as NASDAQ. Finally, the IT sector was exempted from labor regulations concerning working hours, and overtime pay. See Murthy, 2004.

<sup>[5]</sup>The top 10 service providers in China control only 15 percent of the regional outsourcing market, compared with 45 percent market share for India's top 10 suppliers. China does not have brand names in the outsourcing industry whereas India has several, i.e., the top-tier Indian companies. Only 6 of China's 30 largest software companies are certified at levels four or five of CMM, while all of the 30 top Indian companies are certified at these levels. India's IT and ITES-BPO exports are generally double the amount exported by China. See The McKinsey Quarterly, 2005:1.

<sup>[6]</sup>See comments made by Nandan M. Nilekani, Managing Director of Infosys, in interview with a New York Times columnist in [www.infosys.com/media/playing\\_field.asp](http://www.infosys.com/media/playing_field.asp). Satyam maintains an overseas presence in 46 countries, Wipro in 35 countries, Tata Consultancy Services in 33 countries, Infosys in 17 countries, and HCL Technologies in 15 countries. See [www.tcs.com](http://www.tcs.com), [www.wipro.com](http://www.wipro.com), [www.infosys.com](http://www.infosys.com), [www.satyam.com](http://www.satyam.com), and [www.hcltech.com](http://www.hcltech.com)

<sup>[7]</sup>Computer software is protected by the Indian Copyright Act, which did not prohibit reverse engineering, thereby causing a great deal of anxiety to the outsourcing industry concerning piracy of intellectual products. Recently, an amendment to the Indian Patent Act has been proposed to protect software product. However, neither the Indian Penal Code nor the IT Act of 2000 deals adequately with emerging cyber crimes. See NASSCOM, Strategic Review 2005, pp. 172-173, and CNET News.com, June 29, 2005.

<sup>[8]</sup>See the interviews with Clayton M. Christensen of Harvard Business School, and N.R. Narayana Murthy, Chairman and Chief Mentor of Infosys, in "Can Infosys be a Disruptive Innovator?" Business Standard, January 20, 2004.

# R&D Outsourcing, Technology Characteristics, and Corporate Performance: Evidence from Japanese Manufacturing Firms<sup>1</sup>

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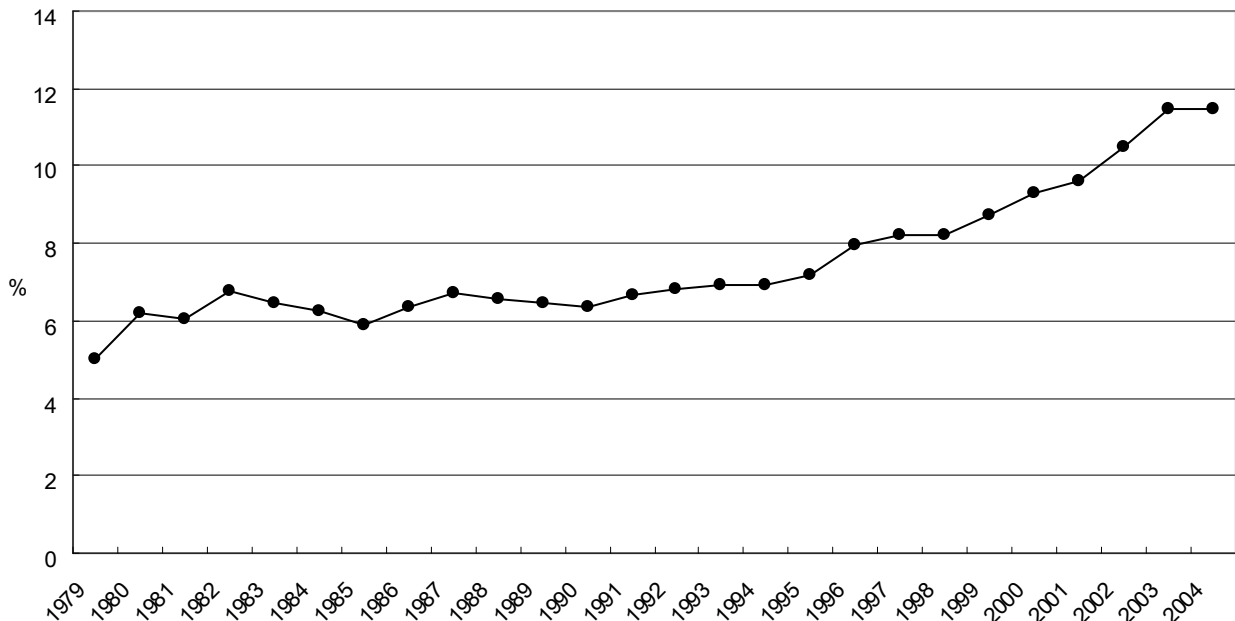
## Abstract

This paper is an attempt to investigate research and development (R&D) activities of Japanese manufacturing companies. Traditionally, Japanese firms conducted most of their R&D within their own organizations. In the past decade, however, their behavior shifted in the direction of greater R&D cooperation with outside organizations such as other firms, research institutes and universities.

## Introduction

Figure 1 demonstrates this trend in terms of the share of corporate R&D disbursements that fund external R&D activities.<sup>2</sup> The share remained 6-7% in the 1980s and until mid-1990s, and began to increase during the second half of the 1990s to exceed 11% in 2003 and 2004. This observation merits attention, as it may represent a more comprehensive shift in the inter-firm relationship among Japanese companies. Transactions with non-affiliated firms were basically limited to those conducted in the context of the buyer/seller of inputs such as raw materials, intermediate goods, and services.

Figure 1. External R&D Activities Share: Japanese Manufacturing Firms 1979- 2004



In the process of surviving the post-bubble recession of the 1990s, however, many Japanese companies began to seek inter-firm cooperation as a means to best utilize their resources. The rise of the R&D outsourcing is an

example of this effort, and its investigation could lead to a better understanding of the emerging alliance among Japanese companies.

This paper examines the outsourced external R&D from the perspective of its relationship with the internal R&D activities. An important issue is whether firms' inventive activities conducted outside their organizations substitute or complement their internal efforts. When they are substitutes, the choice between internal and external R&D is mainly a matter of cost minimization. Firms outsource part of their inventive activities when they judge it to be cost reducing. In case internal and external R&D efforts are complements to each other, however, an increase in internal activities will also make R&D outsourcing more productive.

This relationship between internal and external R&D could be discussed in the context of industry's technology characteristics. Products and the industry supplying them can be classified according to technological features behind them. As Clark and Fujimoto (1991) discussed, automobiles are designed with a closed system of interface among component parts that are in many cases unique to individual manufactures. On the other hand, personal computers (PCs) manufacturers build their products by assembling modules whose designs are more universally common. Under the former circumstances, outsourcing R&D activities may be difficult, as a close exchange/sharing of concepts and design information among companies is necessary for successful cooperative innovation. In the latter case, however, it should be easier to utilize external R&D resources: Integrating fruits of inventive activities from different sources is one of their technological features. These technology characteristics could dictate the extent of R&D outsourcing observed in various industries.

Following empirical analyses will identify manufacturing sectors that exhibit a greater degree of R&D outsourcing, and discuss if general perception of their technology features is consistent with the results. It will be then tested if the difference in the external R&D utilization is a factor to explain firm performance variation.

## **Determinants of External R&D Activities**

The data for quantitative analyses are from the *Basic Survey of Japanese Business Structure and Activities (Kigyo Katsudo Kihon Chosa*, in Japanese) conducted by the Ministry of Economy, Trade and Industry (METI). METI initiated this exercise in 1992, and has since 1994 made it an annual survey to collect wide-ranging information from individual companies.<sup>3</sup> The survey provides a comprehensive dataset for a large number of firms as it covers firms larger than the threshold of 50 employees or 30 million yen of paid-in capital. The sample sizes of the 2005 and 2004 survey, for example, are 28,314 and 26,634 respectively.

This research uses data from 1995-2004 surveys that report corporate data of 1994-2003 fiscal years. After elimination of data for non-manufacturing firms, the 10-year panel contains 63,571 samples from 11,665 companies. Summary statistics of sales, internal R&D/sales, and external R&D/sales are shown in Table 1, together with sample numbers in individual industries. Figure 2 demonstrates the combination of internal and external R&D size by the 16 industries that exhibit average internal R&D expenditures at least 1% of sales. The first analysis examines a firm's external R&D activities as a function of (i) sales and (ii) internal R&D activities. The industry effect is depicted through the use of industry dummy variables, which are specified for the 16 industries in Figure 2.

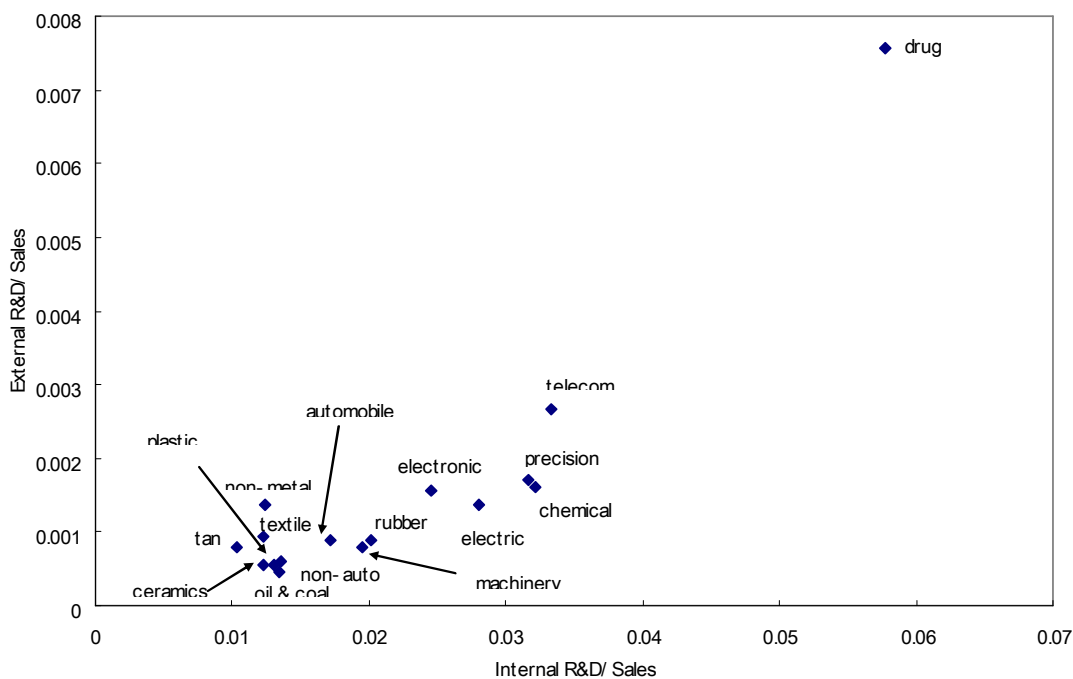
TABLE 1: SUMMARY STATISTICS: SALES, INTERNAL R&D/ SALES AND EXTERNAL R&D/SALES

Variable	Mean	Std. Dev.	Min	Max
Sales (million Yen)	34404.61	197516.3	55	9104792
internalR&D/Sales	.01933	.03094	0	2.04082
externalR&D/Sales	.00118	.01094	0	2.15306

(sample numbers in respective industries)

food: 6010	drink & tobacco: 1159	textile: 1632	clothing: 794
wood: 369	furniture: 889	paper & pulp: 1241	print: 927
pharmaceut: 1984	chemical: 5834	oil & coal: 353	plastic: 3131
rubber: 853	tan & fur: 210	ceramics: 2599	iron & steel: 1354
nonferrous metal: 1519		metal: 4366	general machinery: 8946
electric machinery & equipment: 5640		telecommunication: 1567	electronics: 3465
automobile: 4204		non-automobile transport: 933	
precision machinery: 2170	others: 1422		TOTAL: 63571

Figure 2. Internal/ External R&D relative to Sales by Industry: 1994- 2003



Regression results are shown in Table 2. The specification (1) includes sales, (Sales), internal R&D activities relative to sales (intrRD/Sale), its squared value (intrRD/Sale-SQ) and 16 industry dummies as explanatory variables. The sales variable enters the regression after being adjusted for inflation by the CPI index (2000 constant price). Three observations are derived from the results. First, a large firm tends to engage in more external R&D, as

implied by the positive and statistically significant coefficient of sales variable. Second, the coefficients combination of  $(\text{intRD}/\text{Sale})$  and  $(\text{intRD}/\text{Sale-SQ})$  indicates that the external R&D activities decrease until  $(\text{intRD}/\text{Sale})$  reaches 0.125, from where external R&D increases. In view of the sample average internal R&D ratio of 0.019, it means that internal and external inventive efforts are substitutes for most of the firms. Third, firms in pharmaceutical, chemical, general machinery, electric machinery & equipment, telecommunication machinery & equipment, electronics machinery & equipment, and precision machinery industries exhibit external R&D activities that are relatively larger than other industries.

The specification (2) includes dummy-interactive variables in order to investigate the size effect as well as the relationship between external and internal R&D that are specific to individual industries. An interesting finding is that statistically significant coefficients of  $(\text{intRD}/\text{Sale})$  and  $(\text{intRD}/\text{Sale-SQ})$  that enter as dummy-interactive variables reveal that internal/external R&D relationship are not uniform across industries. In Table 3 is this R&D relationship categorized for 16 industries.<sup>4</sup> In electronics industries, for example, the peak of external R&D takes place at  $(\text{intRD}/\text{Sale})$  of 0.838, while the industry average  $(\text{intRD}/\text{Sale})$  is 0.025. This implies that, for most electronics companies, external R&D rises at a decreasing rate as internal R&D activities increase. This complementarity between two types of R&D activities is also observed for the electric machinery & equipment industry. In five industries, on the other hand, external R&D is characterized by a switch from substitutes to complements to internal R&D over the  $(\text{intRD}/\text{Sale})$  range that covers three standard deviations from the industry average. They are pharmaceutical, ceramics, general machinery, telecommunications, and automobile industries.

TABLE 2: DETERMINANTS OF EXTERNAL R&D/SALES: 1994-2003 PANEL ANALYSIS

(1)	
Sales	1.58*10 <sup>-9</sup> (2.91)***
intRD/Sale	-0.063 (41.23)***
intRD/Sale-SQ	0.248 (141.41)***
(Industry dummy)	
Textile	0.001 (0.68)
Pharmaceutical	0.008 (9.71)***
Chemical	0.003 (6.41)***
Oil & Coal	-0.0001 (0.03)
Plastic	0.0004 (0.69)
Rubber	0.001 (0.54)
Tan & Fur	0.0002 (0.10)
Ceramics	0.001 (1.03)
NonFerrous Metal	0.001 (1.12)
General Machinery	0.001 (2.28)*
Electric Mach & Equip	0.001 (2.70)***
Telecommunication	0.002 (2.92)***
Electronics	0.001 (2.54)**
Automobile	0.001 (1.13)
NonAuto-Transportation	0.0002 (0.22)
Precision Machinery	0.002 (3.10)***
Adjuted R <sup>2</sup>	43.15
Wald-Chi	25559.85

Note: z-statistics are in parentheses. \*\*\*Statistically significant at the 1% level.

\*\* Statistically significant at the 5% level. \*Statistically significant at the 10% level.

TABLE 3: DETERMINANTS OF EXTERNAL R&D/SALES: 1994-2003 PANEL ANALYSIS (CONTINUED)

(2)			
Sales	-9.45*10 <sup>-10</sup> (0.80)		
intRD/Sale		-0.022 (4.43)***	
intRD/Sale-SQ			0.027 (3.25)***
(Industry dummy interactive with Sales)		(Industry dummy interactive with	
		intRD/Sale and intRD/Sale-SQ)	
Textile	1.10*10 <sup>-8</sup> (0.47)	-0.080 (3.39)***	0.583 (1.91)*
Pharmaceutical	5.79*10 <sup>-8</sup> (12.19)***	-0.006 (0.97)	0.201 (23.07)***
Chemical	1.60*10 <sup>-8</sup> (5.88)***	-0.173 (28.61)***	0.517 (60.15)***
Oil & Coal	5.41*10 <sup>-10</sup> (0.33)	-0.059 (1.19)	0.558 (1.08)
Plastic	-5.59*10 <sup>-10</sup> (0.09)	0.011 (0.91)	-0.004 (0.12)
Rubber	6.86*10 <sup>-9</sup> (0.86)	-0.023 (0.75)	0.476 (1.11)
Tan & Fur	-8.42*10 <sup>-8</sup> (0.56)	0.021 (0.21)	-0.062 (0.03)
Ceramics	1.23*10 <sup>-9</sup> (0.13)	-0.032 (1.59)	0.428 (1.69)*
NonFerrous M	-7.58*10 <sup>-10</sup> (0.16)	0.017 (0.80)	-0.106 (0.67)
Machinery	1.43*10 <sup>-10</sup> (0.07)	0.011 (1.56)	0.136 (5.71)***
Electric	-6.25*10 <sup>-10</sup> (0.40)	0.057 (9.69)***	-0.042 (4.67)***
Telecom	9.96*10 <sup>-10</sup> (0.70)	0.010 (1.00)	0.197 (4.79)***
Electronics	-3.91*10 <sup>-9</sup> (0.86)	0.036 (5.03)***	-0.035 (2.48)**
Automobile	4.85*10 <sup>-9</sup> (3.67)***	0.002 (0.20)	0.262 (2.56)**
NonAuto-Transp	-8.19*10 <sup>-9</sup> (0.66)	0.012 (0.67)	-0.004 (0.09)
Precision	1.55*10 <sup>-8</sup> (1.07)	0.005 (0.52)	0.068 (1.62)
Adjusted R <sup>2</sup>	61.97		
Wald-Chi	78241.10		

Note: z-statistics are in parentheses. \*\*\*Statistically significant at the 1% level.

\*\* Statistically significant at the 5% level. \*Statistically significant at the 10% level.

TABLE 3: RELATIONSHIP BETWEEN INTERNAL R&D AND EXTERNAL R&D

Relationship	Industry
Complements	Electric Machinery & Equipment / Electronics
Substitutes / Complements	Pharmaceutical / Ceramics / General Machinery / Telecommunication / Automobile
Substitutes	Textile / Chemicals / Oil & Coal / Plastic / Rubber / Tan & Fur / NonFerrous Metal / NonAuto Transportation / Precision Machinery



In these seven industries where internal and external R&D activities could be complementary to each other, it is important for a company to develop in-house innovative capabilities for two reasons. First, integration of fruits of outsourced R&D activities into internal innovation requires substantial technological expertise. The second factor, which is related to the first, is the “learning” aspect of the internal R&D process.<sup>5</sup> With accumulation of internal inventive efforts, a company is able to gain better assessment of various options of external R&D, and to identify the most suitable partners and projects.

Technological features of these industries demonstrate the importance of interface between internal and external innovations. Companies in electric machinery & equipment, telecommunications, and electronics industries compete in markets of high-technology products that combine frontier knowledge both in software and hardware. They allocate their own R&D resources to seek for the breakthrough core innovations while outsource inventive activities on the module part of the products. The internal R&D is important not only for its own sake, but also to create and maintain a promising pipeline of external R&D projects. The automobile industry, which is characterized by the “integral” technology, also shows complementarities between internal and external R&D, particularly for those firms with a high R&D intensity. Integrating innovative component parts to the entire automobile design system is a difficult task, which might be feasible only for companies with substantial internal technological capabilities. Once this option is available, however, new product development becomes more efficient by making use of the resources available outside. The drug industry is another industry where internal and external R&D activities are mutually enforcing. After chemical compounds are identified for the new drug, they have to be tested for clinical use. In both stages, a close R&D cooperation with universities and hospitals are crucial.

It is notable that the industries where internal and external R&D are substitutes include mature industries with a limited role of technological innovation, such as oil & coal, plastic, rubber, and tan & fur. The importance of maintaining internal inventive capacities could be lower for those industries where competition does not necessarily take place on the technological frontier. In this case, utilization of R&D outsourcing may lead to curtailment of internal innovative activities, hence substitutability between internal and external R&D.

## **External R&D and Corporate Income**

This Section will extend the analysis of two types of R&D, and investigate the performance consequences of the R&D outsourcing. The corporate performance is gauged by the operating income, as this measure reflects effects of technological innovation both on sales (through product innovation) and costs (through process innovation) while excluding influences of peripheral factors for manufacturers such as returns on securities and sales of real estates. The dependent variable is the operating income relative to sales, and explanatory variables include sales, internal R&D relative to sales, external R&D relative to sales, and product of external R&D and internal R&D. Squared values of both internal R&D relative to sales and external R&D relative to sales enter the regression as well. Industry dummy interactive variables are also added in order to isolate industry effects.

The regression results are in Table 4. The coefficients combination of internal R&D relative to sales (2.063) and its squared value (-12.145) means that income increases as a company expands its internal R&D up to the point where it reaches 0.085 (8.50%) of sales. As the sample average of this ratio is 0.019 (with the standard deviation of 0.031) from Table 1, this result implies that innovative activities are performance enhancing options for most of the firms in the sample.

TABLE 4: DETERMINANTS OF OPERATING INCOME/SALES: 1994-2003 PANEL ANALYSIS

Dep. Variable	Operating Income/Sales	
Sales	5.19*10 <sup>-8</sup> (0.98)	
intRD/Sale	2.063 (10.91)***	
intRD/Sale-SQ	-12.145 (40.15)***	
(Industry dummy interactive with Sales)	(Industry dummy interactive with intRD/Sale and intRD/Sale-SQ)	
Textile	3.10*10 <sup>-7</sup> (0.28)	-2.634 (2.69)*** 15.549 (1.35)
Pharmaceutical	4.36*10 <sup>-7</sup> (2.16)**	-0.802 (2.44)** -3.311 (3.35)***
Chemical	2.13*10 <sup>-8</sup> (0.17)	-4.469 (17.04)*** 12.323 (31.55)***
Oil & Coal	-5.83*10 <sup>-8</sup> (0.82)	-1.358 (0.63) 4.631 (0.22)
Plastic	7.69*10 <sup>-8</sup> (0.30)	-2.182 (4.49)*** 12.420 (10.66)***
Rubber	1.01*10 <sup>-7</sup> (0.26)	-2.323 (1.79)* 12.743 (0.76)
Tan & Fur	6.22*10 <sup>-6</sup> (0.79)	-3.638 (0.85) 22.320 (0.29)
Ceramics	4.17*10 <sup>-7</sup> (0.98)	-2.967 (3.54)*** 8.482 (0.88)
NonFerrous M	3.43*10 <sup>-8</sup> (0.16)	-2.993 (3.41)*** 16.444 (2.72)***
Machinery	1.22*10 <sup>-7</sup> (1.31)	-2.871 (10.54)*** 12.008 (12.63)***
Electric	-2.26*10 <sup>-8</sup> (0.32)	-2.631 (11.30)*** 12.329 (35.82)***
Telecom	-4.32*10 <sup>-8</sup> (0.67)	-2.468 (6.03)*** 10.590 (5.07)***
Electronics	1.50*10 <sup>-6</sup> (7.56)***	-1.144 (3.92)*** -8.975 (15.32)***
Automobile	-3.70*10 <sup>-8</sup> (0.62)	-2.352 (5.06)*** 13.486 (3.45)***
NonAuto-Transp	2.01*10 <sup>-7</sup> (0.34)	-1.946 (2.76)*** 12.017 (6.87)***
Precision	8.56*10 <sup>-7</sup> (1.29)	-2.690 (6.88)*** 12.378 (7.12)***

Note: z-statistics are in parentheses. \*\*\*Statistically significant at the 1% level.

\*\* Statistically significant at the 5% level. \*Statistically significant at the 10% level.

TABLE 4: DETERMINANTS OF OPERATING INCOME/SALES: 1994-2003 PANEL ANALYSIS (CONTINUED)

Dependent Variable	Operating Income/Sales		
	extRD/Sale	extRD/Sales-SQ	extRD*intRD
Textile	-1.520 (0.44)	23.351 (0.48)	-48.780 (0.25)
Pharmaceutical	-4.475 (7.28)***	20.470 (4.88)***	30.738 (13.01)***
Chemical	0.151 (0.24)	-27.934 (6.33)***	27.619 (5.91)***
Oil & Coal	2.401 (0.12)	-106.791 (0.14)	-1.388 (0.00)
Plastic	-0.471 (0.13)	12.459 (0.16)	-4.348 (0.06)
Rubber	1.690 (0.22)	-39.075 (0.14)	-10.077 (0.05)
Tan & Fur	-1.752 (0.07)	-89.428 (0.03)	49.052 (0.09)
Ceramics	-1.741 (0.72)	-8.841 (0.45)	153.709 (1.20)
NonFerrous M	0.159 (0.05)	-12.406 (0.36)	35.250 (0.95)
Machinery	-0.425 (0.48)	3.055 (0.49)	-12.269 (2.32)**
Electric	-0.502 (0.93)	3.882 (0.91)	-9.467 (1.55)
Telecom	0.263 (0.21)	-20.156 (1.27)	16.467 (1.39)
Electronics	1.163 (1.34)	-39.515 (7.27)***	36.200 (4.74)***
Automobile	-0.093 (0.05)	-0.303 (0.02)	-0.025 (0.00)
NonAuto-Transp	-1.899 (0.26)	11.850 (0.11)	-59.381 (0.21)
Precision	1.907 (1.27)	-35.457 (1.20)	-8.371 (0.92)
Adjuted R <sup>2</sup>	18.05		
Wald-Chi	8691.37		

Note: z-statistics are in parentheses. \*\*\*Statistically significant at the 1% level.

\*\* Statistically significant at the 5% level. \*Statistically significant at the 10% level.

When industry-specific internal R&D coefficients (that are statistically significant) are incorporated, however, this relationship is reversed and internal R&D proves to be performance reducing at their industry mean internal R&D level for 13 industries.<sup>6</sup>

One interpretation of this result is that these industries with dummy variables are manufacturing sectors with relatively high R&D intensity, and companies are operating at the margin where their internal R&D efforts are designed to be profit maximizing. The regression shows that their profit decreases at their mean internal R&D, reflecting the extent that inventive activities involve risk.

The last column of Table 4 shows that the coefficients of the product of external R&D and internal R&D are positive and significant for pharmaceutical, chemicals, and electronics industries. Firms in these industries compete for technological innovation, and this result confirms the importance of utilizing internal as well as external inventive resources for corporate success in these industries.

## Concluding Remarks

This paper reports early findings of the analysis of the corporate data collected in the *Basic Survey of Japanese Business Structure and Activities*. The first regression indicates that, in sectors that are characterized by technological competition, R&D activities outsourced by manufacturers are complements to the R&D activities that these firms conduct within their organizations. This relationship may reflect the keen pressure for innovation, where

in-house R&D capabilities are crucial for companies' own innovation as well as exploiting technological expertise available in the markets. The second analysis is an attempt to identify the corporate performance consequences of R&D activities, both internal and external. While a counter-intuitive observation is derived that internal R&D is not performance enhancing in many high R&D intensity sectors, it was demonstrated that combination of internal and external R&D would contribute to better corporate performance in drug, chemicals, and electronics industries. It is necessary to refine these analyses in order to investigate the factors behind firms' decision to engage in R&D outsourcing. This would help our understanding of the link between innovation strategy, technology features and corporate strategy.

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## End Notes

<sup>1</sup>This inquiry is part of a research project on "Reformed Japanese Innovation Model" organized at the Institute for Technology, Enterprises and Competitiveness (ITEC) of Doshisha University, funded under the Center of Excellence (COE) program of the Ministry of Education, Culture, Sports, Science and Technology.

<sup>2</sup> The data source is *Report on the Survey of Research and Development* (various years) prepared by Statistics Bureau, Ministry of Internal Affairs and Communications. The documents report corporate R&D expenditures disbursed to finance internal as well as external R&D that are aggregated by industry. The share in Figure 1 is calculated as percentage share of external R&D in the total (internal and external) disbursements.

<sup>3</sup> Matsuura and Kiyota (2004) provides a detailed description of the survey data. Fukao, Ito and Kwon (2005) presents a study of Japanese manufacturing firms based on the survey.

<sup>4</sup> Derivation of the industry-specific R&D characteristics is based on the industry combination of (intRD/Sale) and (intRD/Sale-SQ) coefficients. This combination is obtained by adding, to the baseline (intRD/Sale) and (intRD/Sale-SQ) coefficients, coefficients of dummy interactive (intRD/Sale) and (intRD/Sale-SQ) variables when they are statistically significant at least at the 10% level. This re-evaluation is conducted for 9 industries, i.e., textile, pharmaceutical, chemical, ceramics, general machinery, electric machinery and equipment, telecommunications, electronics, and automobile.

<sup>5</sup> Cohen and Levinthal (1989) investigate this issue, and write, "... while R&D obviously generates innovations, it also develops the firm's ability to identify, assimilate, and exploit knowledge from the environment - what we call a firm's 'learning' or 'absorptive' capacity." (page 569).

<sup>6</sup> They are textile, pharmaceutical, chemicals, plastic, rubber, ceramics, non-ferrous metals, general machinery, electric machinery & equipment, telecommunications, electronics, automobiles, and precision machinery industries.





**Section 11: Managing Globalization: Growth, Development & Sustainability**

# Neoliberal Idealism, State Building, and the Washington Consensus: A Story of Underdevelopment

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## Abstract

The paper links some of the major events and changes in international relations thinking over the last 30 years – such as the ending of the Cold War, the growing intolerance in the West of human rights abuses and the emerging doctrine of conditional sovereignty, and the recognition of trans-national threats by states – to demonstrate i) that the Washington Consensus list of development principles originally identified by John Williamson has been co-opted into an ideological vision for reshaping and homogenizing the behavior of states (both internally and externally); and ii) that doing so has resulted in a failing attempt at “securitizing” international development, which has led the US and its allies into a security and development “dead end”.

## Introduction

Following the ascendancy of neo-liberal economic thinking during the 1980s in the UK and US, the fall of the Soviet Union further strengthened both the empirical and political arguments for what John Williamson in 1989 called “the Washington Consensus”: a blueprint for social and economic development focusing on fiscal restraint, deregulation, and free trade. But while Williamson himself has objected to the strong neo-liberal flavor his term has since assumed, it is nevertheless clear that the professional consensus on economic development he originally described has become an integral part of a much broader ideological agenda pursued by the Bush administration and like-minded governments in the UK, Australia, and elsewhere. Indeed, following the 9/11 attacks on the US, an *augmented* form of the Washington Consensus<sup>1</sup> became – in theory but not in practice – a major pillar of the grand experiment in state building undertaken by the US in response to so-called failing states and the trans-national threats they are believed to generate. But in so far that a “consensus” of the kind described by Williamson ever existed, the Washington Consensus is better characterized today by division and mounting skepticism among professional economists and theorists rather than consensus.



This paper will argue that in the time since Williamson first drew attention to the Washington Consensus brand of policy thinking, any notion of a professional consensus on its effectiveness has been seriously eroded by dissent from leading economists and theorists. Its inclusion then as a major ingredient in state building, and broader status as the basis for global integration, appears to have been based on little more than a “belief” that the kinds of neo-liberal reforms implemented by many Western governments over the last two and a half decades are i) universal in their applicability; and ii) can, therefore, be readily used to transform rogue or failing states into stable and responsible members of a more secure global community of states.

The paper will link some of the major events and changes in international relations thinking over the last 30 years – such as the ending of the Cold War, the rise of the non-interventionist “regulatory” state model, the growing intolerance in the West of human rights abuses, the emergence of “conditional sovereignty”, and the recognition of trans-national threats by states – to demonstrate i) that the suite of policies named by Williamson has been co-opted into an ideological vision for reshaping and homogenizing the behavior of states (both internally and externally); and ii) that doing so has resulted in a failing attempt at “securitizing” international development that has led the US and its allies into a security and development “dead end”. Indeed, the state-building project is a highly questionable strategy due to the lack of either an unambiguous set of criteria for identifying failed and failing states,<sup>2</sup> or any universally applicable model for kick starting development. Unlike the highly successful “State Re-Building” undertaken by the US and its allies in Europe and Japan in the early post-war years – or perhaps the highly *unsuccessful* experiment in “State Overhaul” in Iraq – “State Building”, as witnessed so far, usually involves the elimination of grinding poverty and the building from scratch of institutions and infrastructure, human capital, civil society and rule of law, and, perhaps most importantly, political legitimacy. Moreover, the unwillingness of the intervening states to make the kinds of long term commitments any successful state-building is likely to require, due to the heavy ongoing domestic political and economic costs for both the intervening and recipient state(s), makes the entire enterprise extremely dangerous, since the problems created by failed or failing interventions can sometimes be worse than the problems and threats the intervention originally set out to address.

## **The Birth and Augmentation of the Washington Consensus**

In 1989, John Williamson outlined, in the form of a ten point list, what he believed represented the consensus of the time on development’s main ingredients. According to Williamson (2004), “I made a list of ten policies that I thought more or less everyone in Washington would agree were needed more or less everywhere in Latin America, and labeled this the ‘Washington Consensus’”. When Williamson summarized and named what he saw as the non-controversial fundamentals of development at the time, he was less than a decade past a major paradigm shift in

developmental economics and the role of the state but standing also at the beginning of the end of the Cold War and the ideological battle that had helped sustain it.

The turn away from Keynesian principles to what have since become known as neo-liberal economic policies and thinking, based as they are on neo-classical and Hayekian prescriptions for free markets, free trade, privatization, and an increasingly smaller state role, began in the UK with Margaret Thatcher's election in 1979<sup>3</sup> but was already taking root in the US under the Carter administration. Domestic US policy, however, would not fully embrace the fundamentals of neo-liberalism until after Ronald Reagan's election as President in 1981. By 1982, the increasingly rapid subscription of neo-liberal economic principles among the Anglo-American economies, regardless of their government's political persuasion,<sup>4</sup> was also beginning to manifest itself in the thinking of development economists and foreign policy. Mexico's debt crisis and the apparent failure of the centrally planned economies of Europe and Asia juxtaposed against the rapid growth experienced firstly by Japan and then by East Asia's Dragon economies (Hong Kong, South Korea, Singapore, and Taiwan, and later Malaysia, Thailand, and Indonesia) each served to reinforce the need for change in development policy thinking (Lindauer and Pritchett, pp.7-8). The introduction of loan conditionality by the Bretton Woods institutions for developing countries seeking loans and debt relief at this time, in the form of Structural Adjustment Programs (SAPs) requiring the freeing up of trade and markets and fiscal restraint, marked the shift in development priorities that Williamson would later summarize as the Washington Consensus.

For most of the remainder of the twentieth century, the development strategies of the Organization for Economic Cooperation and Development (OECD), the World Bank, the International Monetary Fund (IMF), and the US Treasury rested upon a set of policy fundamentals that contradicted the major policy assumptions on development of the preceding thirty years. The policy pendulum had, by the time of Williamson's announcement of a "Washington Consensus", completed its journey from one extreme to the other. The conventional wisdom of the initial post-war period on development, influenced as it was by de-colonization and the geo-political and ideological confrontation of the Cold War, stood in stark contrast to the new, "free market good/government intervention bad" thinking of the 1980s and 1990s. In the 1960s, government was a "driving force" of development, trade and integration were largely seen as unimportant, and foreign direct investment (FDI) was to be avoided; external government borrowing was judged far more beneficial. By 1989, the "consensus" perceived by Williamson directly contradicted all but one of these assumptions; the Washington Consensus itself did not explicitly reject state controls on the market, but its prescriptions would, in effect, erode state influence and control. The clarion call for the removal of state interference in economic development, and the rent seeking activities such interference allegedly led to, would come from other, and more ideologically explicit, quarters.

Indeed, with the election of the Reagan administration came the opportunity for several fast rising political figures in Washington – in particular Paul Wolfowitz, Francis Fukuyama, and Richard Perle – to begin implementing their ideas on how to pull the US out of the malaise they believed it to be in. According to these figures, later to be identified among the vanguard of neo-conservatism, the excessive liberalism of the 1960s combined with defeat in Vietnam and years of appeasing the Soviets under détente had led to a weakening of US power with its economy now struggling under stagflation and a general sense of aimlessness pervading Washington. The solution was a reassertion of US power and its projection against communism in order to spread internationally the neo-conservative vision they embraced, based as it was on notions of democracy, marketplace freedoms, the role and nature of the state, and a strongly held belief in US power as a force for good.<sup>5</sup> The views of Wolfowitz and others sympathetic to the neo-conservative position in the administration such as Richard Armitage and Secretary of State George Schultz were often challenged by the more traditional realist elements within the administration, most notably Secretary of Defense Casper Weinberger, but they sat well with the strong anti-communist and pro-monetarist policies pursued by the UK under Margaret Thatcher. The close relationship that developed between Thatcher and Reagan was in part the product of a general conservative dominance and consensus among the Anglo-American economies during the 1980s.<sup>6</sup> Thus, by the late 1980s, economic analysis and ideological commitment had converged to produce a consensus on development and how it should occur that went beyond only economists to include policy makers and politicians as well. The pivotal moment in the ascendancy of neo-liberal economic thinking, however, came with the collapse of the Soviet economy. The ensuing dissolution of the Soviet Union in 1991 and the widespread acceptance in the West that the Soviet demise demonstrated once and for all the supremacy of liberal free market economics and democracy not only appeared to reaffirm the policies of the Anglo-American governments, but also opened up a vast set of opportunities for the export of these policies into undeveloped and still developing states. Buoyed by communism's collapse in Europe and its apparent validation of Fukuyama's politically appealing "End of History" thesis, analysts and senior officials in the US treasury and Bretton Woods institutions felt relieved of any remaining doubts they may have had over the appropriate way forward for development. Furthermore, thanks to the Soviet demise, democracy was increasingly regarded as a defining characteristic of economic and state development.<sup>7</sup>

The Washington Consensus approach to development, with its focus on market liberalization, deregulation, and privatization, remained mostly unquestioned in the US and elsewhere until the 1997 Asian financial crisis, which saw some of Asia's economic miracles grind to a halt after the sudden flight of overseas short term capital from their economies. Hardest hit were South Korea, Indonesia, and Thailand. The governments in these countries had, under pressure from the US Treasury and OECD, liberalized their capital accounts in order to facilitate greater foreign investment, a policy Williamson denies was part of the original set of Washington Consensus

recommendations (Williamson, 2000 & 2004). The ensuing closure of many otherwise profitable companies resulted in huge economic and social disruption and rapidly rising unemployment. These economies were plunged into further hardship by the IMF's insistence on raising interest rates as the best way of attracting foreign capital back into the struggling economies and shoring up their free falling exchange rates. The 1997 financial crises triggered a growing wave of criticism of the neo-liberal free market focus that Williamson's 1989 list was now increasingly seen to be prescribing, despite his protests to the contrary. Nevertheless, the US commitment to free markets, trade, and democracy as the necessary ingredients for development remained resolute, as demonstrated by the Clinton administration's 1998 National Security Strategy document, which asserted that:

The forces necessary for a healthy global economy are also those that deepen democratic liberties: the free flow of ideas and information, open borders and easy travel, the rule of law, fair and even handed enforcement, protection for consumers, a skilled and educated work force. If citizens tire of waiting for democracy and free markets to deliver a better life for them, there is a real risk that they will lose confidence in democracy and free markets. (*National Security Strategy*, 1998, p. iv)

The institutional response to the financial crisis and the failed IMF advice was to turn to the nature of the institutions in developing economies and the state itself for an explanation of what had gone wrong. What emerged was the so-called "augmented" Washington Consensus, which added a further ten points to Williamson's original list that focused on required areas of governance and institutional reform. Proponents of the augmented version, which was preceded by the World Bank's 1997 World Development Report (WDR) entitled *The State in a Changing World*, argued that market reforms alone are unable to generate sustainable economic growth. Without institutional capacity – providing corporate governance, social safety nets, financial codes and standards, protection against corruption, and targeted poverty reduction – the original Washington Consensus prescriptions for financial and trade liberalization, fiscal discipline, and privatization and deregulation can not be properly implemented. In the case of the now crippled Asian Dragons, the failure, therefore, was not with the economic principles that had, to a greater or lesser degree, been adopted by each government, but rather was the result of their failure to implement them properly. According to Beeson and Islam (2003):

Pundits – most notably the IFIs [international financial institutions] which, on the very eve of the crisis, praised the East Asian economies for their 'miraculous' achievements – now rushed to condemn them as 'failed' cases of 'crony capitalism'. What appeared to be close government-business relations that were, in the past, argued to facilitate a virtuous process of equitable growth now became 'corrupt regimes' that encouraged inefficient state intervention, bred structural deficiencies and brought about their own downfall. The solution – crafted through the so called 'Letters of Intent' that were negotiated between the IMF and the crisis-affected economies of Indonesia, Thailand and Korea – essentially called for a re-imposition of 'augmented' Washington Consensus policies.

The augmented version of the Washington Consensus was essentially an attempt by neo-liberal advocates, attracted by both the ideological underpinnings of free market economics and also the neat fit it provided for promoting liberal democracy, to salvage the original Washington Consensus principles in the face of growing

criticism. From 1997 onwards, an advancing tide of both internal and external criticism continued to erode the Bretton Woods institutions' credibility, attacking in particular the strong, pro-market ideological beliefs that many critics believed were driving policy. Within the World Bank, senior staff members such as Joseph Stiglitz, Ravi Kanbur, and Branko Milanovich, to name but a few, have all spoken out against the neo-liberal policies of the Bank and IMF and also the strong political influence exerted by the US Treasury and executive. Stiglitz and Kanbur, for example, resigned from their positions at the World Bank as a result of political pressure from the US Treasury (Wade, 2002). Other critics include Harvard economist Dani Rodrik (2002), who, writing in 2002, stated:

After more than two decades of application of neo-liberal economic policies in the developing world, we are in a position to pass unequivocal judgment on their record. The picture is not pretty.

Rodrik (2002) went on to point out that levels of growth in most of Latin America in the 1990s were lower than in the 1950-1980 period, while poverty rates and real output in many of the former socialist countries were worse than 1990 levels after more than a decade of Washington Consensus-led development in those countries; development in Sub-Saharan Africa too is "very disappointing" and in many of these countries the situation is worse today than it was in the 1970s. Moreover, the countries that achieved the best and strongest rates of growth and poverty reduction during the 1990s – China, India, and Vietnam – "violated virtually all the rules in the neoliberal guidebook even while moving in a more market-orientated direction". By 2006, Rodrik and others proclaimed that the Washington Consensus, as implemented, was dead and buried as a development blueprint, since the evidence of its failure to produce lasting (or in many cases any) economic growth and development is simply too overwhelming for even its strongest supporters to ignore. According to Rodrik (2006), "While the lessons drawn by proponents and skeptics differ, it is fair to say that nobody really believes in the Washington Consensus anymore. The question now is not whether the Washington Consensus is dead or alive; it is what will replace it". As for the augmented version's remedy to the original's apparent failures, this too offers little hope for escaping the dead end that development policy in the World Bank and IMF now appears to have reached, since it in effect requires developing or underdeveloped states to be developed – in terms of the kind of state setting the Washington Consensus principles need to work – in order for them to develop! (Lindauer and Pritchett, 2002; Rodrik, 2006)

Given the sustained criticism that the Washington Consensus has suffered, in addition to the poor results obtained from more than two decades of its implementation, what can explain the continued adherence to its principles by many in the developed world, in particular the Anglo-American governments? And how can we understand the continued emphasis on institution building, in spite of the huge and as yet unmet problems and challenges it presents, that now underpins not only development but also current security strategy thinking in the US and elsewhere? Contrary to Rodrik's claim that "nobody really believes in the Washington Consensus anymore", the conservative belief in the primacy of privatization, free trade, and fiscal discipline (US defense spending is clearly

an exception here) remains alive and well from Washington to Canberra and London to Tokyo where it is driving not only domestic economic policy but also foreign policy initiatives aimed at managing international security, in particular trans-national threats, as well. To answer these questions, we must first return to the era in which Williamson first conceived of his consensus on development, paying particular attention to how both the ideological climate and changing geo-political landscape of the time made the neo-liberal co-option of the Washington Consensus all but inevitable.

### **Ideological Imperatives, 9/11, and the Securitization of Development**

As earlier noted, Williamson presented his notion of a Washington Consensus on the eve of one of the most significant events of the last century: the ending of the Cold War and the bi-polar structure it created within the international system. The United States, for the first time in its history, was suddenly (and unexpectedly) in a position where its level of power and international influence was unchallenged. The foreign policy rhetoric from both the Bush senior and later the Clinton administrations, and even George W. Bush when he first took office, appeared to confirm a firm US commitment to maintaining a multi-lateral international environment, based on international law and co-operation through multi-lateral institutions such as the United Nations. For a short while at least, it seemed that the ultimate liberal dream of transplanting the key ingredients of domestic society – civil and legal order and civil rights, shared values and institutional arrangements – into the international realm was close enough to no longer qualify as an idealist fantasy. High on the list of features that the “new world order” would include were a strong commitment to liberal democracy, human rights, and, of course, the major tenets of neo-liberal economic thinking: free trade, deregulation, privatization, and free markets.

It is not surprising then that the “Washington Consensus” that Williamson recognized in 1989 was warmly received and generally agreed upon within most developed governments at the time (Japan was still unaffected by the neo-liberal bug at this time)<sup>8</sup>, since major economies like the US and Great Britain had already been practicing neo-liberal fundamentals for almost a decade while less influential economies, like Australia’s and New Zealand’s, followed suit. For Williamson, however, the problem is that he never subscribed to any form of neo-liberal agenda and certainly never intended his Washington Consensus list to contribute to one. He maintains that the policy prescriptions he listed were simply empirically sound economic principles that most economists could agree upon in the context of creating and maintaining economic development (Williamson, 2004). Williamson’s basic argument seems to be that had the Washington Consensus principles been implemented differently, which he has indicated to mean a more balanced and case specific approach, the development outcomes of at least the last twenty years could have been different.

But given that Williamson's "laundry list" of policy prescriptions stopped short of providing any detail or guidance on exactly how the Washington Consensus should be implemented and, importantly, under what circumstances (hence the "one-size fits all" approach adopted by the World bank and IMF discussed by Stiglitz<sup>9</sup>), his protestations over it being wrongly labeled as "neo-liberal" are unreasonable. Indeed, since it was the prevailing neo-liberal political climate surrounding the major economies at the time that provided acceptance of his consensus in the first instance, it is hardly surprising that the same neo-liberal mindset should interpret and implement the Washington principles in ways that were consistent with that mindset. Contrary to what Williamson appears to be arguing here, the "facts" do not speak for themselves; nor do they exist in any form of theoretical vacuum. As Eckaus (Lindauer and Pritchett, 2002) notes, in his commentary of Lindauer and Pritchett's 2002 overview of how post-war development theory has swung wildly from one set of assumptions to another on the basis of new "facts" emerging from the development experience,

In economics, facts are reflected through the theories we carry around, as if those theories were prisms with different indexes of refraction that separate and display the colors in the light differently. So what Lindauer and Pritchett describe as irrefutable facts of the times were actually readings of events that were generated by the theories with which they were interpreted. Lindauer and Pritchett's list of the influences on each period's perceptions of the problems and policies in developing countries should include the power of the ongoing theories. (Lindauer and Pritchett, 2002, pp.31-32)

Fast forward to the post-9/11 international environment in 2002 and we find a fundamentally different ideological and theoretical mindset taking hold among the US and its allies in the aftermath of the 9/11 attacks. The Bush administration responds to trans-national terrorism and the security threats posed by failed and failing states by asserting its ability – as the only super power and in accordance with neoconservative views on the role of US power – to act unilaterally in pursuit of an open-ended War on Terror (WOT). Unilateral military intervention to overthrow "rogue" states is clearly stated as a policy option in the 2002 *National Security Strategy* document, which also presents an unequivocal policy statement on the future course of development policy and thinking:

We will actively work to bring the hope of democracy, development, free markets, and free trade to every corner of the world. The events of September 11, 2001, taught us that weak states, like Afghanistan, can pose as great a danger to our national interest as strong states. Poverty does not make poor people into terrorists and murderers. Yet poverty, weak institutions, and corruption can make weak states vulnerable to terrorist networks and drug cartels within their borders. (*National Security Strategy*, 2002, p.v)

In addition to the 2002 National Security Strategy document's often cited announcement of the Bush administration's plans to pursue a "post-sovereignty" inspired doctrine of pre-emption, it also reaffirms the relevance of the Washington Consensus in its augmented form – despite its past failures and the mounting criticism it is attracting as a development model – by effectively *securitizing* both the ends and means of international economic development.

Put simply, failed and failing states are no longer regarded only as obstacles to development and the proliferation of human rights. They have become, since 9/11 and the al Qaeda presence in Afghanistan, the key focus of security strategy in the developed world, since failed states like Afghanistan are regarded as potential “incubators” for terrorist attacks against the West<sup>10</sup> (read free market, liberal democracies). Thus, the solution is to ensure that failed or failing states are reconstructed in a pro-liberal democratic form and are free market orientated so that the finished product will be a) pro-Western (read pro-US) in its political orientation; and b) easily and profitably integrated into a global, neo-liberal orientated global economy. The earlier notion of negative sovereignty that characterized attitudes in the developed world to developing, post-colonial states was driven by the stigma of imperial exploitation and a post-war emphasis on self-determination, as enshrined in the UN Charter, in development and modernization approaches. Widespread popular, rather than government, concern with egregious human rights abuses and development failures in many of these states emerged in the 1970s, particularly in the aftermath of the massacres in Cambodia. This trend was further augmented by South Africa’s apartheid rule, the Tiananmen Square violence in China, the perceived human rights victory that accompanied the ending of the Cold War, and then further outbreaks of genocide in the Balkans and later Rwanda. By the late 1990s, it had become clear that political pressure for some standard of “conditional sovereignty” to be enforced was mounting, both domestically and internationally, but most states still remained reluctant to become directly involved in the internal affairs of other states, particularly in the absence of any clearly defined mission and exit strategy.

Thus, the major impact of the 9/11 attacks was to give urgency to not only the need for state accountability, but also the augmented Washington Consensus argument, formed in the wake of the 1997 Asian financial crisis, that weak or corrupt governance posed serious obstacles to economic development strategies<sup>11</sup>. Completing the rationale for direct intervention post-9/11 was the widely accepted assessment of failed and failing states as “a clear and present danger” to the security of other states via a host of potential transnational threats, most disturbingly terrorism. In an abruptly altered security paradigm – one where traditional notions of sovereignty no longer apply, trans-national threats abound, and the supremacy of liberal democratic societies exists as an article of faith – the US-led “coalition of the willing” appeared to take their ability to directly implement neo-liberal economics and liberal democratic governance in failed and failing states as a given. As Wesley (State of the Art) has noted, Anglo-American states have, until recently at least, largely agreed on the attributes of a properly functioning state, despite the many ambiguities involved, and the actions required for turning failed states around since the late 1990s. This consensus is more broadly reflected by the goals of the various interventions since that time (Kosovo, East Timor, Democratic Republic of Congo, Liberia, and the Solomon Islands): a consensus based on the principles mapped out by the augmented version of the Washington Consensus and given added conviction and validity by the 9/11 attacks and subsequent War on Terror. And despite increasing public and academic opposition to this “consensus”, there has



remained a strong, bi-partisan commitment within the US and among its allies to the neo-liberal interpretation these, and past, governments have given to Williamson's original principles.

### **State Building 101: The Devil is in the Details**

The general order of play adopted for state building in failed states divides the process into three stages (Wesley, 2008). The first stage involves foreign military intervention aimed at stabilizing the domestic security situation, providing humanitarian aid, and creating an atmosphere of law and order. Stage two focuses on institution building and the introduction and development of a functional public administration and market led economy (overseen by international agencies). Following the successful and linear completion of stages one and two, conditions should then allow the further development of legal, public, and corporate infrastructures and institutions, civil society, the political legitimacy of the state (generated by the state's increasing effectiveness), further market orientated economic development and the introduction of liberal democratic style elections and political institutions. Stages two and three of this process clearly resemble the augmented Washington Consensus' dual list of things to do (and also, therefore, the 1997 WDR) as does the initial prioritization of institutional and governance development in order to lay the necessary groundwork for free market development.

The big problem with this seemingly logical progression of actions and events is of course the issue of "how?". As was the case with Washington Consensus' original set of principles, and remains the case with the governance-orientated principles tacked on by the augmented version of Williamson's now rather tattered looking consensus, they are simply too broad and underspecified to serve as any form of blueprint for state building. Furthermore, there is no guide offered, and nor does one exist, on the critically important issue of developing long term political process and legitimacy other than some rather glib expectations concerning the universal legitimacy of liberal democratic processes and norms and the ability of the state to assume legitimacy (at some point!) by favor of its good performance. But which comes first, the chicken or the egg? In his critique of the World Bank's 1997 WDR, *The State in a Changing World*, Kapur (1998) observed that:

The WDR is generally successful as a didactic device ... as a guide to policy makers on the "what": the State's role must focus on social and economic fundamentals, but should always be tailored to capabilities. It is, however, much weaker when it comes to the "how". Its recipe for reinvigorating institutional capabilities – increased competition, decentralization, and participation, and internal collective action – is neither controversial nor novel. Myriad exercises at quantification to "prove" its case, especially with regard to the importance of state "credibility, are often misplaced and analytically flawed. And by avoiding contentious issues at the heart of the state, in particular those related to politics and power, and instead genuflecting the current intellectual fashions, the report says more about the World Bank than the role of the State in LDCs.

Commenting in 2002 on the augmented Washington Consensus model, itself informed largely by the ideas in the 1997 WDR, Rodrik (2002) too focuses on the superficial character of the approach to development taken by IFIs and Western governments, and their failure to move beyond merely describing what properly functioning states should look like:

The Augmented Washington Consensus is bound to disappoint, just as its predecessor did. There are too many things wrong with it. It is an impossibly broad, undifferentiated agenda of institutional reform. It is too insensitive to local contexts and needs. It does not correspond to the empirical reality of how development really takes place. It describes what “advanced” economies look like, rather than proscribing [sic] a practical, feasible path of getting there. In short, the Augmented Washington Consensus is infeasible, inappropriate, and irrelevant.

Indeed, the military interventions aimed at creating stable states complete with free market economies and liberal democratic government over the last ten years all continue to struggle to move beyond the first stage goal of creating a stable and secure environment; conditions in some countries, Iraq and Afghanistan in particular, appear to have become less rather than more secure. The missing ingredient in the 1997 WDR and Augmented Washington Consensus schemas is the issue of political legitimacy, and the critical role its establishment, or absence, plays in determining the nature and stability of states<sup>12</sup>. During the Cold War, realist thinking put the challenge of exporting democracy to the developing world in the too hard basket precisely because of the overwhelming complexities involved, which explains in large part why US policy rhetoric on freedom and democracy was often undermined by Washington’s relations with unsavory authoritarian regimes in Central and Southern America and elsewhere. And two decades or more later, the Anglo-American commitment to democracy and freedom abroad still rings hollow. As Chandler (2006) argues<sup>13</sup>, the state building goal of creating strong, independent states is disingenuous, since all that the current attempts have actually intended to establish has little to do with political autonomy and is entirely about administrative and technocratic capability. Sovereignty, then, becomes devoid of notions of political legitimacy, and is instead identified in terms of administrative capacity; if sufficient capacity is established, legitimacy will follow since legitimacy according to this view is entirely the product of how well the state functions. In addition to being a gross misrepresentation of the complex internal factors that contribute to the creation of political and state legitimacy – notions of national identity and belonging; shared cultural heritage and values; and in particular the exercise of tangible political power and influence by local rather than external actors – what this “state as independent variable” (Wesley, 2008) based approach sets up is the perception that intervention is all about establishing and supporting sovereignty. If societies resist intervention, or fail to cooperate sufficiently, they are, therefore, undermining their own sovereignty, since sovereignty is really only about building administrative and institutional capacity. Thus, as Chandler (2006, p.36) points out, “Governments which resisted this external assistance could, in the Orwellian language of state builders, be accused of undermining their own sovereignty.”

But even if the West were able to come up with a workable blueprint for developing the economies and institutions of impoverished states, one that addressed the question of “how?” rather than simply describing the desired end product, it is obvious that such an undertaking would require a long and expensive commitment to the target state(s) involving significant sacrifices, both in resources and most likely human life, by the intervening parties. The problem here, however – as we have already seen from the ongoing interventions in Iraq, Afghanistan, and the Balkans, and will no doubt soon see in East Timor, and perhaps the Solomon Islands – is the ability and willingness of the intervening states to “stay the course” and also their willingness to make “national interest” sacrifices of benefit to the state they are attempting to stabilize and empower. On the latter point, the Howard government, for example, has been widely criticized over its refusal to give the fledgling East Timor government, created out of the UN intervention Australia led in 1999, a larger share of the huge oil and gas deposits under the Timor Sea<sup>14</sup>. On the former point, Western democracies have historically shown very little patience and virtually no long term commitment to foreign interventions and military actions that do not provide obvious or direct security or national interest benefits to the intervening state. As the US interventions in Vietnam, Africa, and more recently Iraq and Afghanistan have shown, any existing commitment dwindles rapidly in the face of mounting casualties, while domestic political concern over issues such as the financial cost and impact of overseas deployment on national security also can rapidly erode political will at home for foreign interventions. The obstacles to long term commitment to state building enterprises created by weak or limited domestic political support within the intervening states pose an interesting set of issues concerning the extent to which attempts to promote and create liberal democratic states abroad are handicapped by the apparent unwillingness of liberal democratic societies and governments to bear the long term costs and responsibility of doing so.

## **Conclusion**

Looking at the current state of existing state building exercises in 2007, and their contribution to international development, it appears that we have reached something of a dead end. Lindauer and Pritchett, for example, have suggested that the development community now has run out of the kinds of “big ideas” that drove development throughout the post-war period, since “the current nostrum of one size doesn’t fit all is not itself a big idea, but a way of expressing the absence of any big ideas” (Lindauer and Pritchett, 2002, p.13). Moreover, the largely undisputed focus on trans-national threats and issues that has helped shape the much broader security paradigm within which policy makers now operate rightly continues, but without any confident strategy or purpose. Indeed, the necessity of international cooperation and engagement in the management of trans-national issues like terrorism, global warming, wildlife management, and epidemics, to name but a few, are also generally accepted. And it would

seem reasonable to associate the need for international cooperation with a significant role for international multi-lateral institutions, treaties and conventions, and international law. The efficacy of such an approach, however, depends heavily on an international society, or at least system, of functioning states able to implement domestically what they sign and commit to internationally. Clearly, no such system exists.

The formation or application of regimes and intergovernmental organizations to deal with transnational threats, therefore, would require them to include some strategy for empowering states, which of course leads us back to the problem of state building, or at least state empowerment, which we apparently know far less about than we thought we did. The mantra of “develop institutions”, which replaced the earlier mantra of “get prices right”, is now being recognized for what it has always been: complex, inherently political, country specific, and of limited importance as a driver of growth unless one can clearly specify exactly what kind of institutions and policies will work in country specific contexts (China’s institutions, for example, appear to work far better than Russia’s, no thanks of course to Western development thinking). And even if we think we know what kinds of institutions and practices are needed, that is still a far cry from knowing how to create them, or even understanding the factors that brought them into existence in already functioning states like our own. As Rodrik (2006) points out:

Taken to its logical conclusion, the focus on institutions has potentially debilitating side effects for policy reformers. Institutions are by their very nature deeply embedded in society. If growth indeed requires major institutional transformation – in the areas of law, property rights protection, governance, and so on – how can we not be pessimistic about the prospects for growth in poor countries? After all, such institutional changes typically happen very rarely – perhaps in the aftermath of war, civil wars, revolutions, and other major political upheavals. The cleanest cases that link institutional change to growth performance occur indeed at such historical junctures: consider for example the split between East and West Germany, or of North and South Korea. But what are poor countries that do not want to go through such upheavals to do?

The current “dead end” we find ourselves in over how to promote development, not only as an end in itself but also as a means to enhancing our own security, goes some way to explaining the serious lack of policy debate in Anglo-American societies over what to do now. Indeed, foreign policy debate on development and state building, in addition to responses to pressing trans-national issues like global warming and terrorism, is generally quite shallow thanks to the lack of ideas and alternatives in mainstream politics. Thus, a pervasive form of bi-partisanship appears to exist on the fundamentals of most major policy issues, with debate being restricted to more superficial disagreements over “how much” and “how long.” Voters, in effect, are being offered any shade of black that they like! Even more worrying, though, is the conviction with which the advocates of neo-liberal and neoconservative policies, despite mounting evidence and specialist advice to the contrary, maintained their support for their own particular brand of development and state building; firstly by offering the augmented version as the explanation for why the original Washington Consensus was not working, and then, implementing it as the response needed to combat terrorism and other transnational threats. The ideological commitment to neo-liberal economics and belief in

the manifest destiny of liberal democracy that underpinned the politics of the conservative Anglo-American governments throughout the 1980s and 1990s clearly played a significant role in limiting the so-called “market place of ideas” to one that was highly “brand specific”<sup>15</sup>. But what does this suggest about the role of specialist advice in policy making and the extent to which we can expect public policy making to ever be an entirely “rational process” in the conventional usage of the term? These questions will be the focus of my future work on the Washington Consensus variants and the role they have played in the recent evolution of development policy and state-building.

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<sup>1</sup> Dani Rodrik lists Williamson's original ten principles and the additional ten "augmented" principles as follows: Fiscal discipline, reorientation of public expenditures, tax reform, financial liberalization, unified and competitive exchange rates, trade liberalization, openness to DFI, privatization, deregulation, secure property rights PLUS corporate governance, anti-corruption, flexible labor markets, WTO agreements, financial codes and standards, "prudent" capital-account opening, non-intermediate exchange rate regimes, independent central banks/inflation targeting, social safety nets, targeted poverty reduction.

<sup>2</sup> See, for example, the *Foreign Policy* "failed state index", which lists a broad array of 12 "indicators of instability" ranging from "economy" and "group grievance" to "public services" and "external intervention". The failed state index. (2006, May/June). *Foreign Policy*, 154, 50-58.

<sup>3</sup> See Peter Hall. (1993). Policy paradigms, social learning, and the state: The case of economic policymaking in Britain. *Comparative Politics*, 25(3), 275-296.

<sup>4</sup> For example, the extensive deregulation and privatization in Australia and New Zealand during the 1980s under Labor governments

<sup>5</sup> See James Mann. (2004). *Rise of the Vulcans*. New York: Penguin Books.

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<sup>7</sup> See the Clinton administration's 1998 National Security Strategy: *A national security strategy for a new century*. (1998, October). Washington DC: The White House.

<sup>8</sup> Relatively few criticisms of the Washington Consensus principles existed until after the 1997 Asian financial crisis. Following the 1997 crisis, and the IMF's widely criticized responses to it, internal criticism of both the Bretton Woods institutions and US Treasury influence rapidly increased, peaking in 2002-2003. See for examples the list of articles critically analyzing World Bank/IMF policy between 1994 and 2006 on the Global Policy Forum website: Global Policy Forum. *General analysis on internal critics of the World Bank and the IMF*. Retrieved April 2007, Web site: <http://www.globalpolicy.org/socecon/bwi-wto/critics/generalindex.htm>

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<sup>13</sup> See also Philip Cunliffe's review of Chandler's book *Empire in denial* entitled "Exposing 'empire in denial'": Philip Cunliffe. *Exposing 'empire in denial'*. Retrieved April 2007, Web site: <http://www.spiked-online.com/index.php?site/article/1601/>

<sup>14</sup> A 2004 article in *Le Monde Diplomatique* reported that "On the eve of a meeting of aid donor countries in April 2004, [East Timorese President] Gusmao made an exasperated appeal to public opinion: 'If our larger, more powerful neighbor steals the money we need to repay loans, that will put us deeper in debt. We will be one more country on the list of debt-ridden countries all over the world.' [Australian Foreign Affairs Minister] Downer took offence and accused the Timorese of blackening Australia's image. He pointed to Australian generosity in conceding 90% of the royalties from Bayu-Undan and in giving \$170m in aid. Oxfam Australia has calculated that, during this period, Australia had made more than \$1bn from the Laminaria/Corallina field. Jean-Pierre Catry. (December, 2004). East Timor: Undersea Wealth. *Le Monde Diplomatique*.

<sup>15</sup> See for example analysis, commentary, and critiques of the influence of neo-liberal ideology on development policy by the works cited in this paper of the following authors: Robert Hunter Wade (2002), Joseph Stiglitz (2000), John Williamson (2000, 2004), and Dani Rodrik (2002, 2006).

# **Achieving Competitive Advantages and Sustainable Growth: Developing Human Capital under Globalization Strategy**

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## **Abstract**

**The purpose of this paper is to investigate how Japanese Multinational Companies (JMNCs) in Malaysia's electronic and electrical (E&E) industry, developed human capital by using an event-history analysis, in the period from 1980s to 2006s; past 26 years. Considering the status of Malaysia as the hub of global production network, it is vital to identify the globalization impact on human resources. Many past studies have proven that human management practices can help to create a source of sustained competitive advantages, especially when they are aligned with firm's competitive strategy. Thus, this study focuses on understanding the subsidiaries' human resource management in the context of organizations and its environment. Findings show that, despite the unique culture and distinct characteristics of the parent companies, the stress of successive environmental changes is inevitable. In the process of adaptation and assimilation of technology, local operations implemented continuous improvement and innovation-oriented activities. Author concluded that continuous individual self development is the essence of the subsidiaries' absorptive capacity.**

## **Introduction**

In Malaysia, as the technology factor becomes increasingly critical in sustaining global competitiveness, the shift to high-tech industries becomes an integral policy for Malaysia in realizing its vision of being a fully industrialized nation by the year 2020. The shift towards higher technology and capital-intensive activities in the manufacturing sector was indicated by: (1) greater investment in higher technology and capital intensive projects and (2) a greater proportion of skilled workers employed. As a result, higher-value added and knowledge intensive activities increase the need for knowledge and market-driven expertise. However, Malaysia has consistently faced a shortage of skilled workers (engineers, scientist, researcher, experts, specialist etc.) in specialized fields such as engineering, information and communication technology and high technologies. Mismatch between supply of and the demand for skilled workforce and the labor mobility were highlighted to be the basic reasons that lie behind the problem. This persistent shortage may hamper Malaysia's progress in the technology dimension and its ability to attract further investment by MNCs, on which the country depends for industrial development (Hobday 1996). Thus, developing innovative, creative and highly skilled human capital becomes one of the challenges in industrial development.



To overcome this shortage, MNCs play a vital role in developing human capital (Lall, 2000; OECD, 2003). Engagement of foreign experts and specialist are prevalent in the higher managerial category and specialized fields (MIDA, 2005). In 2005, there were 35,480 expatriates employed in Malaysia, with 14,406 (40.6 per cent) in the manufacturing sector. At the same time, foreign labor in Malaysia was mainly employed in the unskilled category. There were 1.8 million foreign workers, of whom 581,379 workers (32 per cent) were employed in the manufacturing sector. As a measure to reduce the dependence on foreign labor, industry initiated efforts in the automation of production processes, using labor saving technologies such as robotics and computer integrated manufacturing systems.

This research attempts to explore how MNCs subsidiaries overcome the issue of skilled workforce shortage. Reviews on theoretical and empirical research suggest that Human Resource Management (HRM) may be observed as a method of identifying the internal and external context of organizations in developing their human capital. The objective of this study is three folds. First, it intends to characterize Human Resources Management (HRM) practices of Japanese Multinational Companies (JMNCs) subsidiaries in electronic and electrical (E&E) manufacturing sector in developing the human capital (skilled workforce as core competencies), second, to investigate the extent to which Human Resources Management (HRM) practices have converged over a period of past twenty six years (1980 to 2006) from traditional personnel management to sophisticated HRM practices, and third, to understand the HRM in the context of organization and its environment. The time frame is based on the time when the sample of companies started their operation in Malaysia.

I decided to focus only on JMNCs subsidiaries in E&E manufacturing sector due to its significant contribution to Malaysia's economic competitiveness<sup>1</sup> and growth. Since JMNCs possess dominant position in Malaysia manufacturing sector<sup>2</sup>, it is essential to investigate how they had developed human capital as core competencies in achieving competitive advantages and sustainable growth at firm-level; which, later became an important catalyst in the growth and development of Malaysia manufacturing sector<sup>3</sup>.

This study is structured as follows. The second section reviews theoretical literature on human capital and HRM in the context of social and economic development. The third section explains the research methodology, followed by the fourth section addressing the HRM practices in the case studies. The fifth section discusses the degree of changes and adoption of HRM in the context of organization and its environment. The final section concluded the study.

## **Literature Review**

The resource based theory of competitive advantage focuses on the role of internal resources like employees play in developing and maintaining a firm's competitive capabilities. The resources are valuable when they enable a firm to

enact strategies that improve efficiency and effectiveness, exploit market opportunities, and/or neutralize potential threats (Barney, 1991; Wright and McMahan, 1992; Porter, 1985). Employee skills can be classified as core or peripheral assets (Barney, 1991). Core assets, in particular are vital to the competitive advantage of an organization (Porter, 1985) and often require continual internal development (Quinn, 1992), while other peripheral asset may be outsourced.

The value and uniqueness of human capital determine human capital architecture. The value of human capital can be influenced by a multitude of sources, such as firm's strategy and technologies (Arthur, 1992; Snell and Dean, 1992). Accordingly, the value of human capital is inherently dependent upon its potential to contribute to the competitive advantage or core competencies of the firm (Lepak and Snell, 1999). The transaction cost and resource theory have argued on the idiosyncratic resources (Barney, 1991; Williamson, 1981). The uniqueness of an employee's (firm-specificity) may result in variety of factors. Work organization such as team-based production and unique operational procedures such as JIT and TQM, will enhance the uniqueness of a firm's human capital. It rely on the company's decision to select and pool their capital investment in building core competencies; gaining and retaining skilled workforce that has high value and uniqueness to the company.

HRM practices can helps to create a source of sustained competitive advantages based on human capital, especially when they are aligned with firm's competitive strategy (Begin, 1991; Butler et al., 1991; Capelli and Singh, 1992; Jackson and Schuler, 1995; Porter, 1985; Schuler, 1992; Wright and McMahan, 1992). Organizations can use HRM in a variety of ways to increase their human capital (Cascio, 1991; Flamholtz and Lacey, 1981). They can "buy" human capital in market or "make" it internally. HRM practices is mainly concern about (1) getting good resources, (2) upgrading skills and knowledge and (3) retaining skilled workforce. Contextual factors affect HRM in the value creation (Jackson and Schuler, 1995). In human capital theory, contextual factors such as organization structure, strategy, technology, labor market conditions, government policies and natural characteristics of the industry can affect the cost associated with alternative approaches to using HRM to increase the value of organization's human capital and value of the anticipated returns, such as productivity gains (Russel et al, 1993) Figure 1 summarizes the research model for this study.

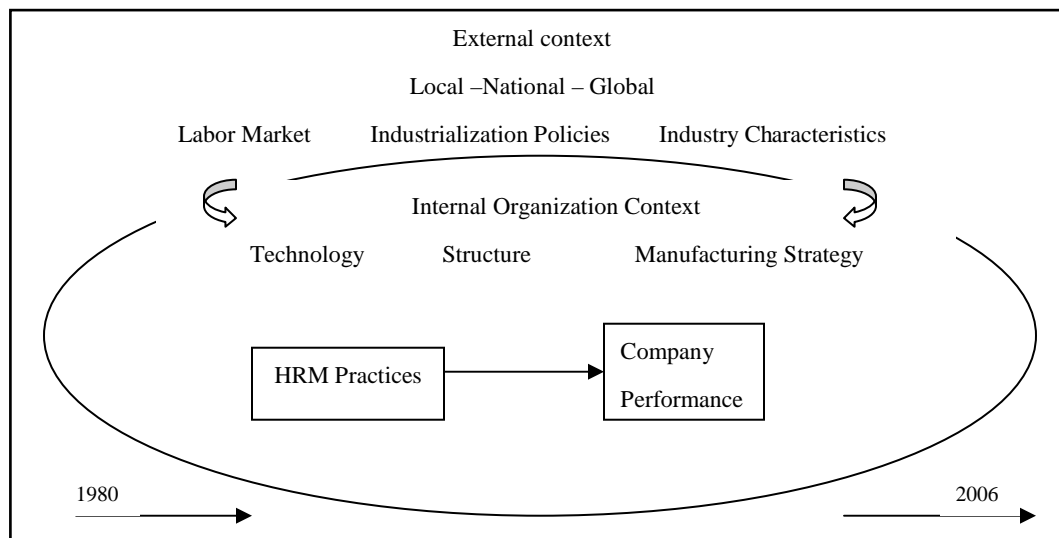


FIG. 1: FRAMEWORK FOR UNDERSTANDING HRM IN CONTEXT OF ORGANIZATIONS AND ITS ENVIRONMENT

Based on Jackson and Schuler,1995; Youndt, Snell, Dean and Lepak,1996 and altered by author for this study.

## Methodology

**Sample:** Two JMNCs subsidiaries from E&E Industry (manufacturing), were selected as subjects of observation. Companies' profiles are listed in Table 1. The outstanding achievement and recognition gained over the years has made these companies the choice of observation.

**Data:** Preliminary data is based on the field study conducted in September, 2001 and April, 2003 in Malaysia. For this purpose, seven staffs were interviewed. The staffs were chosen from Japanese expatriates group, most outstanding local staffs group and a representative from human resources department. Closed structured interview was arranged. Information on recruitment and selection was gained from human resources department. Interview questions were designed to explore the career development progress of successful local staffs that regarded as core competence to the company. Other question related to career path and promotion and appraisal system were asked to acquire specific idea on the actual process of human resource development in achieving effectiveness. Continuous observation and engagement were undertaken through emails with few interviewees for updated information after the interviews. Secondary data is based on all related historical events and information recorded from the time of establishment till 2006 provided by the company. Other related information is also collected from archives of local newspapers, companies' homepage, research papers and surveys.

TABLE 1: COMPANIES PROFILE

Source: Author's compilation

	<b>A ( Market leader in CTV Industry)</b>	<b>B (Market leader in Semiconductors and Components Industry)</b>
<b>Start of operation</b>	Oct, 1987 (TV Plant) July, 1989 (VHS Plant) - Oct, 1999 (Merged)	March, 1980 -Oct, 1992 (New plant fully managed by local staffs) closed in 2005
<b>Paid-in Capital</b>	RM 20 Million + Reinvestment (2002) RM 8 Million + reinvestment (2005) US 20 million	RM 11.2 Million - divestment (2005)
<b>Ownership</b>	<b>Wholly owned</b> Japan 100%	<b>Joint Venture</b> Japan 77.1% Singapore 12.2% Malaysia 10.7%
<b>No of Employee</b>	6,001	2280 (1997) 1,917 (2001) after divestment(2005) 500
<b>Japanese Expatriate</b>	86 ++	11
<b>Japanese Employees %</b>	1.4%	0.5% after divestment(2005) 0.004%
<b>Main Products</b>	<b>Finished Goods:</b> Color TV, VHS,DVD <b>Parts:</b> Deflection Yoke(DY), Flyback Transformer(FBT) Tuners	<b>Finished Goods:</b> Color TV Parts <b>Parts:</b> Deflection Yoke(DY), Flyback Transformer(FBT) Tuners, Circuit Board Units
<b>Other Functions</b>	R&D, Procurement Center for South East Asia (Product Development & Design)	Procurement Center for South East Asia, Sales Center for world market. R&D (Product Design & Process Engineering)
<b>Main Business</b>	Assembly of finished goods and parts	Assembly of TV parts
<b>Market</b>	<b>TV:</b> Japan 49%, Malaysia 7%,Singapore 7%, other 37% <b>VCR:</b> Japan 31%, Asia 31%, Malaysia 1%, Europe 2%, other 25% <b>DVD:</b> America 59%, Europe 27%, Japan 6%, other 8%	<b>Customer:</b> Group of companies 70% Other 30% <b>Area:</b> America, Europe, Malaysia, Asia

## Empirical Findings

This section addresses the Human Resources Management (HRM) practices of Japanese Multinational Companies (JMNCs) subsidiaries in electronic and electrical (E&E) manufacturing sector in developing the human capital (skilled workforce as core competencies). Comparative analysis is done to distinguish general practices of the sample; to seek the extent to which Human Resources Management (HRM) practices have converged over a period of past twenty six years (1980 to 2006) from traditional personnel management to sophisticated HRM practices (gaining good resource, upgrading skills and knowledge, retaining resources). Evidences from human resources

management and development practices shows that there are changes pertaining to the environmental factors which took place over the period of 26 years of establishment.

## Getting Good Resources: Recruitment and Selection

Interviews reveal that recruitment practices vary upon type of position and skill requirement. Table 2 shows four types of practices that generally being implemented in early 1990s.

Evidences show that recruitment of fresh graduates for engineer positions are being carried out periodically, similar to fresh graduates' recruitment system in Japan; which occur during the final year of studentship for annual entrance in April. Parent Company will recruits required number of Malaysian graduated in many disciplines from universities and technical college around Japan according to the Japanese traditional hiring policies. This is taken as part of the strategic human resource management to attain competence employees with Japanese language literacy that can work better in both local and parent company. This is also referring to the aggressive transfer of new product technology which required more than Japanese expatriates could handle. Similar to Thong (1991), the environment of rapid technological change due to technology transfer in local production line is conducive to the employment practice of hiring young inexperienced workers who are more adaptable than older workers to new methods and techniques.

TABLE 2: RECRUITMENT PATTERNS AT COMPANY A AND B IN 1990S TO 2005

	<b>Periodical recruitment (large number of people)</b>	<b>Vacancy opening (very small number of people)</b>
<b>Administrative and High Operational Position</b>	Fresh graduates from Japan (after 1988) (Engineers/staffs with Japanese Language Proficiency)	Specialized/skilled engineers/staffs (including fresh graduates from other universities)
<b>Operational position</b>	Unskilled Malaysian labor (permanent employment) Unskilled foreign labors (contract basis)	Skilled labor (technician etc)

Source: Author's compilation

Periodical recruitment is also practice in the case of unskilled operators for new production line. In early 1990s, as Malaysia labor market experienced the phenomenon of labor scarcity problem and competition between manufacturers has intensified the practice of poaching staffs within the same area and industry. Both companies described how they send personnel staffs out to the remote rural villages in the east coast of Peninsular Malaysia to recruit women operators on the spot. B. Wilkinson et al (2001) similarly reported that specifically due to the recruitment problems and urgent expansion, Company B set up their second plant in rural area in 1993. In the late 1990s, further expansion of Company A has made the production became dependent on foreign labor from Indonesia. Personnel staffs went to Batam Island in the mission of sourcing required numbers of young women to fill in the positions of production operators. However, dependency on foreigners is kept at 20 to 40 percent. Interestingly, managers actually preferred foreigners because they are more or less captive for the three years or so of their contracts – legally they cannot job hop and training efforts are less likely to be wasted (B. Wilkinson et al, 2001).

In the case of real time HR needs and vacancy opening, both companies practice the 'internalization of labor market'. Firm-specific skill and close networking within department has made it difficult to recruit a 'stranger' from external labor market unless the specific skill could not be found internally. Although, at initial stage of factory establishment, a group of experts were sourced out or headhunted from local labor market, towards a more stable development stage, priority were given to selected high performers in the organization. Allocation of HR works as a mechanism to motivate close networking, accumulation of knowledge and new skills among indigenous staffs.

However, implementation has always been the hardest part. Generally, internalized labor market practice which is 'across department job rotation' is not welcomed in the indigenous Malaysian organization. This practice has driven some misperceptions among local staffs. Local staffs interviewed at both companies remarked their disagreement in the practices which claimed that it will give negative impact to their future career development (showing incompetence of personnel in holding particular position). It is a coalition of ideas of being a specialist or a generalist. In some cases, the local staffs leaved the company rather than being shifted to another department which is not related with their current job. On the other hand, findings show that those who experienced 'across department job rotation', stayed and survived over ten years have shown interesting achievement. Indigenous staffs that became general managers for both companies are the evidences. They were trusted to head a department, having high participation in the top level management and communicating directly with the parent company. In short, it is also a tool for selecting potential indigenous staff for succession planning and a way of indirectly structuring organizational capacities. For instance, the first local staff appointed as Director at Company B started his career as Production Engineer in 1980. After being transferred to various sections on the production lines, he was appointed as Sales Executive to assist Japanese expatriates in establishing the department in local factory since 1982. He developed his career in sales and currently holding the key position of coordinating sales operations for customers from all over the world. He is also the only one left from the first group of engineers recruited as pioneers.

Toward the end of 1990s and early 2000s, recruitment for immediate vacancies is being carried out with close attention. In the case of company A, the good reputation and recognition gained from Malaysian community has made up the overwhelming response for each job advertisement. Thus, selection criteria for a new staff are more complicated and high credibility on their basic knowledge, skills and work experiences is accounted. The new hiring strategy is a departure from the seniority systems in which work experience is valued before entry, and the base salary is competitive with the market rate (Chew, 2005). This is well reflected from the accumulated group of indigenous staffs with high education background (graduated from famous western universities) and expertise in various fields. Deputy General Manager of Design Department commented that;

*"In comparison to the 'pioneers' group, the young generation of indigenous staffs is well selected and equipped."*

## **Upgrading Skills and Knowledge: Training and Development**

Interviews reveal that further training and development of HR after proper appointment has changed over the past 26 years. Training and development program is no longer a simple menu of enhancing technology transfer from parent company to local production floor as it was in early stage of establishment in 1980s. Multi-purpose program to fit each level and group of employees was designed early 1990s as the production continuously expand. There are few factors that help the process of designing the program. Internally, adaptation of parent company's training and development program created the main stream of the system. External forces, such as Malaysia government policies indirectly support the establishment of few technical training centers and private consultants to help the development further. Human Resource Development Fund started in 1992 too, has encouraged the development practices (Chew, 2005). Table 3 shows the outline of the training and development menu that is multi-purpose to cater different level of staffs. Generally, training and development for management and operational level is separated. The width and depth of the skill is also regarded.

The purpose of training and development system in foreign MNCs in Malaysia is more than just meant for replacement and retraining. Survey done by Chew (2005a) shows that heavy investment in training for promotion and succession planning is prevalence. In addition to the job specific training which are provided for replacement so as to equip new recruits with basic on the job skills, comprehensive development programs are extended to high performing staff as apart of the succession planning, as well as to prepare employees for the larger responsibilities that accompany promotion. Interestingly, this study found that both companies include some other generalized development training programs to enhance not only job specific skills on individual basis, but organizational learning culture as well. These are referred as innovation-oriented activities to promote creativity amongst indigenous staffs.

TABLE 3: OUTLINE OF MULTI-PURPOSE AND MULTI-LEVEL TRAINING MENU FOR COMPANY A & B IN 2000S

Level / Group	Job Specific Training (OJT & Off-JT)	Generalized Development training (Off-JT)	Duration
All levels (skilled and unskilled)		<ul style="list-style-type: none"> <li>✓ Quality Control Training</li> <li>✓ Occupational, Safety, Health and Environmental Training</li> </ul> (In-house & external)	Continuously
Managerial level (Administrative & High Operational Position)	OJT Off-JT: professional certificate at private institution	External: (In Malaysia) Private Consultant Training Center <ul style="list-style-type: none"> <li>✓ Leadership Training</li> <li>✓ Information Technology Training</li> </ul> Headquarters in Japan <ul style="list-style-type: none"> <li>✓ Cross cultural Training</li> <li>✓ Overseas Management Course</li> <li>✓ Basic Manager Program</li> <li>✓ Middle Management Course</li> </ul>	1 to 2 weeks
Operational level (supervisor, technician, Operator)	OJT Off-JT : Overseas Technical Training in Japan	Government Training Center in Malaysia <ul style="list-style-type: none"> <li>✓ Technical Training</li> </ul>	3 to 6 months. 1 year. periodically

Source: Author's compilation

### Job Specific Training

Mounting evidence from past studies and surveys has shown that on-the-job training is well adapted in all Japanese manufacturing companies especially in building technical capability on the production floor (B.Wilkinson, 2005, Chew 2005, Tatsuo Kimbara, 1991, Thong, 1991, Nobuo Kawabe, 1991). Japanese expatriates are assigned to a group of engineers and technician as technical coordinators, where coaching and guidance are given as the team executes their daily task. According to B. Wilkinson et al (2005), it is typical for operators in final assembly and components plants in Malaysia to spend the first few couples of weeks on induction and on-the-job training before being assigned to proper place on the production line. Even for fresh graduates employed as engineers and executives, few weeks induction process and job specific training for a period of 3 to 6 months at parent company is commonly practiced.

On the same rate, upon confirmation of appointed position, job rotation within department on the production floor and at administrative level is practiced. Some of the findings support the conventional wisdom that there are frequent transfers of staffs within Japanese firms as a training practice. The interviews reveal that a typical indigenous staffs experienced more than once inter functional transfers through out tenure. Transfer would also be used as human resource practice to select those who are less capable as engineers and more suitable for non-

technical work (T. Numagami & K.Kusunoki, 1997). Worker's capabilities in rotating between jobs and in engaging in continuous improvement activities were clearly related to this greater emphasis on skills formation.

In the early stage of production expansion of Company A, from 1990 to 1997, production staffs were sent for technical training at mother plants in Japan, for duration of 3 to 6 months periodically. However, in the 2000s, the frequency decreased as the production became more stable. But, prior to the transfer of new product engineering that is introduction of "Digital Reality Creation" incorporated in their latest products from Japan in 2002, again, overseas technical training has been carried out aggressively for all related engineers. On the other hand, the divergence of mutual interest between Company B and parent company has exhilarated the technology transfer to be completed within short period after the company established. Shift from labor-intensive to new manufacturing systems based on flexible production have been introduced by middle of 1990s (Rajah, 1988). The number of operators as reduced drastically upon importation of numerous automated machines for replacement. It is argued that such high-technology-based production is possible due to the mature and stable product's concept. Thus, further technical training is concentrated in machine maintenance and improving process for cost efficiency. Consequently, the adoption of techniques such as total quality control (TQC), just in time (JIT) and materials requisition planning (MRP) and the team concept of production introduced, giving workers greater input into decisions on the shop floor (Sarosh Kuruvilla & Ponniah Arudsothy, 1992).

In attaining higher knowledge and skill in managerial level, job specific training such as acquiring professionalism in certain administrative fields is encouraged. Company B mentioned that a substantial provision is allocated to encourage employees to further develop themselves. It is depending on individual effort to seek for such training at external institutions and approval of head of department is required to justify the importance of training to their job task. Further, Deputy Department Manager of Human Resource Department at Company B stated that:

*"Here, we encouraged self development among local staffs. We do not wait for the management to plan our career, personal efforts in seeking self improvement are supported and the company is ready to invest for such ...., I am also one of the many that had acquired specialized knowledge through some external institutions."*

## **Generalized Development Training**

Off-the-job training programs constituted by various types of management training beyond the job scope, specifically structured to support skill enhancement and preparing a personnel for particular position. Apart from that, there is also some training programs designed purposely to company needs. For example, a staff from Company A was sent to an intensive 'Six Sigma' workshops conducted by professional consultants in 2000. He was awarded 'black belt' status that allowed him to be trainer for in-house training team (training for trainers). Later, the in-house training is continuously provided for all staffs in managerial level. Some of the training contents are customized to suit the immediate requirement for organizational improvement.

It is quite surprising that parent companies of both A and B conducted some overseas management courses for their local managers. According to all managers interviewed, the course is specially designed to build up the awareness of the group of companies' position in current and future market, as well as to build up corporatism spirit among managers. The ten days intensive course at Japan headquarters is regularly organized twice a year. Participants are selected top and middle local managers from all subsidiaries around the world. Beside, basic management skill courses, every night is filled with free sessions for the managers to socialize, communicate and build up networking. Customs of meeting and building closer intra-firm relation among top management is quite familiar in Japanese business organization, but such a cross cultural or cross borders programs which include other than Japanese expatriates is rarely mentioned in previous studies and surveys.

## **Retaining Skilled Workforce: Appraisal System**

Both companies have adapted a comprehensive combination of performance appraisal system based on ability and outcome. The appraisal is conducted twice a year from April to September and October to Mac following the financial year of Japan calendar. These practices are carried out over a period of time, continuously for a long term.



In avoiding bias and getting fair evaluation outcome, values are calculated relatively to overall company performance for the particular financial year. Justification is made by finalizing the average value taken from total evaluation figure given by few evaluators.

Though, group performance is measured by similar criteria, different measurement scale for individual performance appraisal is adopted by both companies. It reflects the nature of different work organization and production systems constituted in both companies. Company A which is large in size and depends highly on parent company for expertise in engineering, emphasizes more on communication skill and discipline to keep smooth control in executing daily task. However, other achievement, job related skill and contribution to group is accounted for further promotion.

In contrast, Company B favors high-flyers with outstanding creativity, leadership and organization oriented personalities. These are related to the company's guiding spirit initiated in Japan in 1959, quoting 'sincerity', 'pioneering spirit' and 'harmony'; represent important instruments in the process of character building and attitude formation (Dore, 1971). Particularly, in the multi racial organization such as Malaysia (Japanese, Malays, Indian and Chinese), 'harmony' has always been the most highly valued. At the same time, it is also as motivation tool to initiate further innovation at local production line. In motivating creativity among local staffs, Japanese Director at Company B explained that 'Patent Award' is also extended to indigenous engineers that come up with excellent invention. However, it is yet to be awarded due to lack of support and not conducive environment for such research and development to be done in Malaysia. General Manager from Sales Department of the Company B commented;

*"There was an occasion where the local design department has come out with an improved jigs and tool that helped to modify the process of assembly and saved substantial amount of production cost. This was highly regarded by parent company and later on implemented in affiliate's production line as well."*

TABLE 4: OVERVIEW OF PERFORMANCE APPRAISAL SYSTEM DESIGNED IN 1990S

Group performance 70% (Same for Both Companies)	Individual performance (Company A) 30%	Individual performance (Company B) 30%
<b><i>Project Base</i></b> Target setting (Cost or Quality etc) Target achievement Contribution to organization	<b><i>Performance Base</i></b> Communication skill Discipline (attendance, absentees) Other ability	<b><i>Performance Base</i></b> Creativity Leadership Communication skill Personality
<b><i>Evaluators:</i></b> Department Manager and other related department	<b><i>Evaluators:</i></b> Department Manager and Human Resources personnel	<b><i>Evaluators:</i></b> Department Manager and Human resources personnel
<b><i>Duration &amp; validity:</i></b> Short term (company performance and target)	<b><i>Duration &amp; validity:</i></b> Long term and continuous (moral and personality)	<b><i>Duration &amp; validity:</i></b> Long Term and continuous (good attitude and personality building)

Source: Author's compilation

## Retaining Skilled Workforce: Pay and Promotion

Generally, the outcome of performance appraisal system is closely linked to pay and promotion system. According to Company A, increment in salary and bonus is very much influenced by the result of the appraisal system which classified employees into A, B and C achievers. Simultaneously, salary rate is depicted by standard range to accommodate the difference. However, when it comes to the issue of determining further promotion that gives a leap in the pay increment and implication to the whole organization, it takes a deeper thought to comprehend the

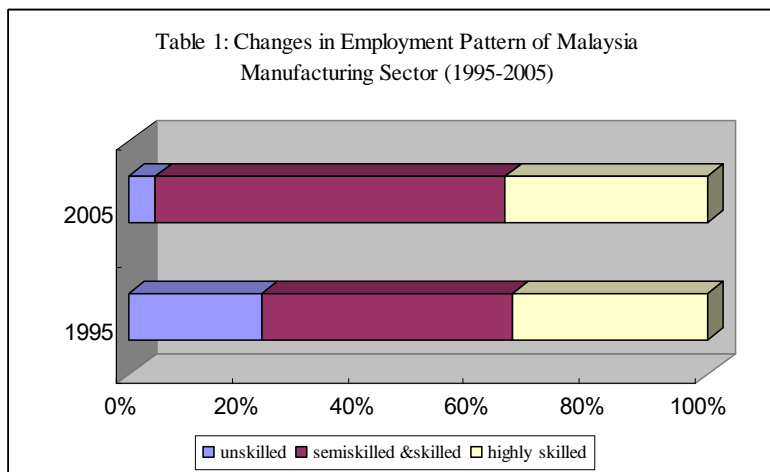
evolution of the system. A distinct feature of both companies' pay and promotion system is that it follows Japanese practices of seniority based promotion system and wages system. The system became more obvious towards the end of 1990s as both companies' structure of organization grow bigger, production lines become more stable and product concept became more mature.

The comparison between 'pioneers' career paths and those that came after 1990, explained the change. For instance, before 1990s, the position of engineers or executive is a single level. However, after 1990s the position was enlarged to 3 grades which are junior executive, executive and senior executive, before one could be able to reach the position of Assistant Manager. Thus, also means that employees who joined the company earlier has higher tendency to be promoted within short period (to much higher managerial 'level'). Whereas, those joined after middle of 1990s, promoted to a certain 'grade' or 'level' after fixed period which is every two years of tenure ship. Staffs tendency to stay at the same level is much longer than the 'pioneers'. Regardless of the young or new joined staffs' competencies, the career ladder is becoming more rigid than before. However, upward promotion to upper grade is linked to stable increment in basic pay. Some conventional wisdom explained this phenomenon as a divergence from a generalist to a specialist (Koike, 1990). Consequently, their range of experience and job scope became narrower than before. Thus, slow promotion to upper level is justified with opportunities to be specialist. Meanwhile, the increment in basic salary is compensated by seniority merit.

## Discussion

This section discusses the degree of changes and adoption of HRM in the context of organization and its environment. Finding from the fieldwork represents the actual trend happening at national level. The employment pattern in the manufacturing sector reflected the shift towards higher technology and capital intensive activities as indicated by the higher proportion of skilled and semi-skilled workers employed as in Table 5. New technologies have made the use of cheap human resources no longer attractive. Thus, particularly in the fast and rapid technological advancement industry such as E&E, cost effectiveness of cheap labor for its assembly operations is no longer feasible, which are now undertaken semi automatically. In view of this, human resources have to be re-trained in other areas, particularly in production of higher value-added items. Retraining of assembly workers is an important concern of the developing countries in the region (Nabeshima, 2000).

TABLE 5



Source: Economic Planning Unit & Department of Statistic Malaysia, 2006

Through the adaptation process to the changing environment, evidences show that it was both intentionally and unintentionally where the local organization continuously making improvement and endless effort in

maintaining effectiveness. As a result, highly competence indigenous human capital is accumulated. Their capabilities are developed in achieving managerial effectiveness.

The most obvious finding to emerge from this study is HRM practices will not succeed in isolation: firm-level industrial relations and human resources policies must be mutually reinforcing, must fit together into consistent whole. In this aspect of interrelationships between various policies requires attention (Kuruville, 1992). Dore (1973) noted that the question of transferability apart, however, consideration on cultural and institution setting of the employment systems make it clear that one cannot evaluate them in isolation. It is necessary, too to look at their interrelation with the other institutions of their respective societies. The effectiveness of HRM practices of these two companies is non comparable. In fact, the adequacy of the policy to the strategy can be evaluated by looking at the longitudinal time effects on the whole organizational performance.

TABLE 6: HRM IN CONTEXT OF ORGANIZATIONS AND ITS ENVIRONMENT

	1980's	1990's	2000s
<b>Government Policies</b>	Export-oriented FDI -Low/Medium-tech	FDI – medium/high tech	FDI – high tech
<b>Issues</b>	Cheap+ unskilled Workforce	Labor Mobility (unskilled +skilled)	Lack of skilled workforce + Increasing labor cost
<b>MNCs activities</b>	Production center (assembly of finished goods)	++ value added activities (sales, procurement)	++ value added activities (Design, R&D) components
<b>Technology</b> 1. product (concept) 2. production	Analog (Low) Labor intensive	Analog / Digital Automated (NC machines)	Digital (high) Capital Intensive (CIMS etc)
<b>Manufacturing strategy</b>	Cost	Cost & quality	Cost, quality & flexibility
<b>HRM practices</b> 1. recruitment &selection 2. training/development 3. appraisal 4. pay 5. promotion	Unskilled > skilled .vacancy OJT > Off-JT Administrative behavior based Seniority + job function Seniority + job function	Unskilled < skilled (ILM)* OJT + Off-JT+ generalized Seniority + skilled based Seniority + skilled based	Skilled (ILM+ out sourcing) OJT<Off-JT + generalized Performance + behavior based Performance + skill + + seniority based
<b>Skill</b>	Execution of tasks	+ Problem solving	++creativity + innovation
<b>Core competence</b>	Unskilled / semi skilled	Semi skilled / skilled	Skilled / high skilled / pro

Source: compiled by author from fieldwork, 2006

\*: Internalized labor market

## Conclusions

Returning to the questions posed at the beginning of this study, it is now possible to state that in the adaptation to environmental change, the subjects of observation have continuously experienced evolutionary process, which resulted to the establishment of distinctive capabilities (skilled workforce that became core competence of the company); which is unable to be replicated by competitors. It is also obvious that HRM plays a vital key in establishing sustainable competitive advantage in JMNCs subsidiaries of E&E manufacturing sector in Malaysia. The samples show how HRM systems were geared toward making these human resources to firm-specific competencies that are valuable, rare, imperfectly imitable, and non-substitutable. The flexibility of HRM to fit the changing strategy and work system is the heart of the story. Owing to these intangible capabilities, high value-added activities and products with cutting-edge technology are continuously being trusted to the foreign subsidiaries in Malaysia.

The limitation of this study lies in the fact that financial data was not collected to test the financial status and physical evidences on company performance. The access to the data was denied due to recording inaccuracy and some confidential matter.

## References

Contact author for the list of references.

## End Notes

<sup>1</sup> An investigation on the Malaysia electronics industry, found that the industrial competitiveness of Malaysia shifts away from the production of low value added products (radio and sound recorders) to that high value added (office machines and computers) ones (Okamoto, 2005). Study on the catch up process manufacturing amongst East Asian countries shows that Malaysia's home electrical appliances depicted very strong competitiveness in 1990s (Hiratsuka, 2005).

<sup>1</sup> Japan is the most influential foreign investor in Malaysia. The influx of Japanese companies into Malaysia has been remarkable since 1980s as Malaysia government launched the export-oriented industrialization program. Taking just the manufacturing industry, which is the main focus of my research, the number of operations has risen from 367 in 1991, to 533 in 1993, 596 in 1995, 722 in 1996, and 755 in 1997. A feature of Japanese industries in Malaysia is that the proportion of E&E manufacturers among them is higher than among Japanese companies operating in other Southeast Asian nations.

<sup>1</sup> The manufacturing sector continues to remain an important sector; the share of the sector to GDP increased from 29.1 per cent in 1996 to 31.4 per cent in 2005. Electric and electronic (E&E) products were the main contributor accounting for 64.1 per cent of the total exports of manufactured goods. Manufacturing sector is also the second largest source of employment, after services sector accounted for 3.1 million in 2005; electrical and electronics (E&E) industry, with 840,800 workers, or 26.8 per cent, of the total employment in the manufacturing sector.

# Making the Business Case for Corporate Sustainable Development<sup>1</sup>

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## Abstract

Can a business case for sustainable development be made? A more common approach is to rely on business ethics to make the case for sustainable development and not to rely on basic business principles – will the business make a profit and sustain itself financially? In order to move towards corporate sustainable development, it is necessary to make a business case for sustainable development. This can be done through the use of two conceptual tools: triple-bottom-line thinking and understanding the economic dimensions of eco-system services. This paper looks at the various business responses to environmental problems; analyzes the global drivers for corporate sustainable development; fits sustainable development into business strategy; and structures specific management approaches that result in both corporate sustainable development and business competitive advantage.

## Introduction

A recent report estimates that continued release of human-induced greenhouse gases that cause global warming without any policy or management changes could risk future economic damages equivalent to a reduction of up to 20% in global Gross Domestic Product (GDP) (Stern, 2006; Varian, 2006:). Table 1 shows the economic costs of extreme weather events in developed economies with only moderate climate change, while significantly greater costs are associated with higher temperatures. The Asian Development Bank states that Asian economies are losing between 2-9% of their annual GDP to environmental degradation, and the latest published report from the Chinese State Council estimates that environmental problems are costing the Chinese economy more than 200 billion US dollars a year, or about 10% of its annual GDP (ADB, 2001; Zissis (2007); Lelyveld (2006). Table 2 displays the results of China's Green National Accounting Study of 2004, a more modest assessment than other international assessments. It is these types of reports and governmental estimates that are leading corporate CEO's and business leaders into a new way of looking at the environment and its relationships to business competitive success. This new way of business thinking is referred to as corporate sustainable development and it is being promoted globally by international organizations such as the Business Council for Sustainable Development and other organizations that represent the views and policies of major multinational corporations. Companies that do not manage and mitigate their exposures to environmental risks are destined to lose shareholder value. Companies that do incorporate these risks into their business strategy will be well-positioned to generate competitive advantage over their rivals (Lash & Wellington, 2007).

TABLE 1: COSTS OF EXTREME WEATHER EVENTS IN DEVELOPED COUNTRIES WITH MODERATE CLIMATE CHANGE\*

Region	Event Type	Temperature	% of GDP	Notes
Global	Extreme Weather	2 degrees C	0.5-1.0%	Based on extrapolating and increasing current 2% rise in costs each year over and above changes in wealth.
USA	Hurricanes	3 degrees C	1.3%	Assumes a doubling of carbon dioxide leads to a 6% increase in hurricane wind-speed.
USA	Coastal Floods	1-m sea level rise	0.01-0.03%	Only costs of wetland loss and protection against permanent inundation.
UK	Floods	3-4 degrees C	0.2-0.4%	Infrastructure damage costs assuming no change in flood management to cope with rising risk.
Europe	Coastal Floods	1-m sea level rise	0.01-0.02%	Only costs of wetland loss and protection against permanent inundation.

Source: Stern Review, "The Economics of Climate Change," 2006. \*Temperatures are global relative to pre-industrial levels. If temperatures increase 4 or 5 degrees centigrade, economic costs are likely to rise much sharper than the above models based on moderate temperature increase

TABLE 2: COST ESTIMATES FROM CHINA'S GREEN NATIONAL ACCOUNTING STUDY REPORT<sup>2</sup>

Categories of Environmental Damage	Economic Costs as a % of GDP	Categories of remediation expense	Estimated remediation costs as a % of GDP
National Resource Depletion Costs* Land, Minerals, Forest, Water, Fisheries	N/A	Pollution discharge and treatment costs	8.8%
Environmental Damage Costs Environmental Pollution Ecological Damage	3.05% N/A		

Source: China's Green National Accounting Study Report, 2004, SEPA and NBS (<http://english.sepa.gov.cn>)

\*Cost estimates of environmental damages do not consider depletion costs and ecological damages which is why other sources (Zissis, 2007; Lelyveld, 2006) estimate costs as a percentage of GDP (8-12%).

When 51 of the 100 largest economies are companies and not countries, and when it is recognized that the combined sales of the world's largest 200 corporations generate one quarter of the world's GDP, it is imperative to involve the corporate community in any shift toward sustainable development (Table 3). It is the purpose of this paper to discuss the reasons why multinationals are developing new strategies of corporate sustainable development; describe how these strategies relate to the principles of business management; and analyze the various tools that exist to successfully implement corporate sustainable development.

TABLE 3: TOP TEN COMPANIES COMPARED TO GDP OF SELECTED COUNTRIES 2000

Corporation	Sales (\$Mil)	Country	GDP (\$Mil)
General Motors	176,558.00	Denmark	174,363.00
Wal-Mart	166,809.00	Poland	154,146.00
Exxon Mobil	163,881.00	Norway	145,449.00
Ford Motor	162,558.00	Indonesia	140,964.00
DaimlerChrysler	159,985.70	South Africa	131,127.00
Mitsui	118,555.20	Saudi Arabia	128,892.00
Mitsubishi	117,765.60	Finland	126,130.00
Toyota Motor	115,670.90	Greece	123,934.00
General Electric	111,630.00	Thailand	123,934.00
Itochu	109,068.90	Portugal	107,716.00

Source: Anderson & Cavanagh, "The Rise of Corporate Global Power," Washington, D.C. 2000

## Business Responses to Environmental Problems

There are traditionally four responses that businesses take when dealing with environmental issues and problems. Businesses that are well-positioned in the market, have a good management team in place, and understand the nature of competitive strategy, seek to look at the business challenge of environmental problems. These companies do not view regulations as business obstacles but utilize innovation and new technologies to respond to new market opportunities. These early adopters are on the cutting edge of corporate sustainable development and are the global leaders in this new way of thinking. They tend to build environmental ethics into their corporate mission.

A second type of response is made by mainstream businesses that also seek to address new customer preferences and business opportunities presented by public environmental awareness. These businesses respond more traditionally than the early adopters by developing strategies that limit costs through better engineered products, the reduction of waste and toxics in the production process, and a pro-active approach to regulatory compliance.

A third type of response is made by businesses that seek to sustain competitive advantage by ensuring that they maintain regulatory compliance. Their response is driven mainly by governmental regulations, and considers environmental problems as compliance issues. This business strategy is geared more toward environmental management than in pursuing a strategy of sustainable development. They seek to stay competitive by reducing compliance costs, and make little effort to tap into new environmental opportunities.

And lastly, a fourth type of business response is generated by companies defined as business laggards. These companies are often the least competitive businesses; are in industries or sectors that are experiencing economic decline; and whose main purpose is to continue to stay in business. These businesses are marginal and need to be closely monitored by regulatory agencies. They view environmental issues and regulatory agencies as mostly adversarial.

TABLE 4: BUSINESS RESPONSES TO ENVIRONMENTAL PROBLEMS

Type	Driver	Characteristics
Early Adopters	Market Opportunities	Utilizes innovation and new technologies to respond to new market opportunities.
Mainstreamers	Costs	Seek to address customer preferences and reduce costs in products or services.
Compliers	Regulations	Seeks to maintain regulatory compliance only.
Laggards	Declining Markets	Are in economic sectors experiencing declining markets and take an adversarial position.

## Global Drivers for Corporate Sustainable Development

There are three drivers or factors that are leading businesses to adopt sustainable development as a competitive management strategy. The first driver is governmental compliance. Businesses need to comply with the regulatory apparatus of their host countries. In countries that have strict regulatory procedures and strong enforcement, this driver constitutes a major consideration in business policy and can move companies much faster toward sustainable development. In countries that have weak enforcement systems, a greater emphasis needs to be placed on the economic gains that can be derived from adopting a sustainable development management strategy. Countries that have strict environmental standards perform better in the global marketplace as companies learn to become more efficient and adopt better technology. Also, companies that can respond quicker and more efficiently to a regulatory environment can gain a significant advantage over weak competitors who cannot comply (Porter, 2005).

A second driver is the marketplace. Businesses can sustain competitive advantage by responding to the environment preferences of their customers, suppliers, communities, investors, shareholders, and other financiers. This driver is growing more important as global financiers such as the World Bank and various not-for-profit and for-profit investment groups are demanding that companies that practice corporate sustainable development be part of their investment portfolios. And finally, companies can gain market share by responding to the need and demand for environmentally-friendly products and services. This opens up new markets for entrepreneurial business expertise.

And lastly, a third driver is the development of the globally integrated enterprise. The globally integrated enterprise is a further evolution of the multinational corporation into something new and different. While the multinational corporation tends to have a hub-and-spoke management style, the globally integrated enterprise is more decentralized, is based on the revolution in information technology, and requires new forms of collaboration between businesses in different countries. This new type of global business framework requires greater global stability and a greater reliance on new intergovernmental networks of regulators and legislators. It also requires shared professional standards and relationships in cross-national communities. This means that environmental and social problems now become business issues, as global business relies on a global peace and stability that ensures that global business networks perform efficiently and in a timely fashion (Payne & Raiborn, 2001; Dodd, 2000) (Palmisano, 2006).

### **Fitting Sustainable Development into Corporate Strategy**

For corporate sustainable development to be truly operational, it is necessary to develop two types of thinking. The first is to recognize that payment for ecosystem services is a policy that encourages sustainable development by placing an economic value on the environment. Ecosystem services are services provided by natural systems that sustain life and make it possible for humans to exist and prosper. Photosynthesis is responsible for food production and biotic productivity; proper atmosphere and climate



TABLE 5: DRIVERS OF CORPORATE SUSTAINABLE DEVELOPMENT (SD)

Driver	What the Driver Does	Problem of Driver	Possibilities of Success
Governmental Compliance	Establishes an effective country-based regulatory system.	Not all countries enforce their regulatory systems.	Increasing involvement of Civil Society leads to stronger enforcement.
Marketplace	Responds to customer demands.	Environmentally sustainable products are often more costly.	Investment screens, capital venture opportunities, and green labeling provide greater market penetration.
Globally-Integrated Enterprise	Decentralizes and equalizes corporate power globally.	Requires peace and global stability to operate.	Collaborations are fostering knowledge networks for stability.

establish the tolerance levels for human existence; and biomes such as wetlands provide services to humans such as water filtering and purification and a buffer to flooding, To replace these natural systems with man-made engineered solutions are sometimes impossible but when possible, costs much more than simple maintenance of the natural system. Thus, a policy of payment for the maintenance of ecosystems, such as watersheds and wetlands, can be viewed as a good return on investment using simple return-on-investment techniques used for any business decision. Through this type of thinking, environmental amenities can be viewed through a traditional business approach and can be dealt with in traditional business decision-making formats (Abramovitz, 1998, Potent, 2006).

A second type of thinking is to develop corporate sustainable development around the concept of the Triple-Bottom-Line (TBL) (Savitz, 2006). The Triple-Bottom-Line is based on three measures of business success. The first is economic. This measure is determined by traditional measures of business success, such as: what percentage of market share does a company have; what is the stockholder value of the company; and what are its capital assets and infrastructure capabilities. The second measure of success is social. Its business application refers to its ability to bring people into the market-place, to generate goods and services that are affordable and can expand purchasing capacity of larger numbers of people, thereby reducing poverty and expanding social opportunities. The third measure of success is environmental. This measure of success depends on the capacity of the business to lessen natural resource use, practice eco-efficiency in production units, prevent and reduce pollution, and follows policies of de-materialization and de-carbonization (Kates, 2000).

TBL constitutes the evolution of business thinking from the environment being an externality to one where social and environment issues are important components of corporate sustainable development. Businesses first viewed the environment as an externality, something which was outside normal business operations. This perspective was replaced in the 1970's in the United States by the view that new environmental public policies required that businesses respond to governmental compliance. By the 1990's this approach was supplanted by the development of policies geared toward pollution prevention. And finally, the current perspective emphasizes corporate sustainable development. This management strategy holds that competitive advantage is based on the ability of the corporation to incorporate social and environmental considerations into its business model. By doing so, the business organization will develop new markets for its products, create more effective management systems, and respond to the needs and demands of a wide-range of stakeholders.

## The Business Case for Sustainable Development

Free market economists like economist Milton Friedman do not believe that businesses should make decisions based on social and environmental criteria, but should strictly adhere to pragmatic business principles of profit and loss and return of value to the shareholders (Friedman, 1962). If sustainable development is to be an effective corporate

management style it must meet the basic principles of business decision-making. A business case rests on decisions that companies must produce goods and services for people at affordable prices. They must develop market share in their industries or business sector. A corporate sustainable management style provides the nexus of sustainable development with the principles of business.

Free market economists who believe that business has no role to play in the social and environmental realms fail to recognize the issue of timeframe. Business decisions that do not take into consideration a long-range timeframe are basically non-sustainable. If the natural capital base that generates global wealth degrades to the point that it impedes global economic growth, businesses will atrophy along with natural systems. Also, triple-bottom-line thinking, a core feature of sustainable corporate management, views the social feature as a way to grow business market share. Today, only 1.5 billion people out of a global population of 6.5 billion have enough wealth and purchasing power to drive the global economy. With triple-bottom-line thinking, reducing poverty and bringing more people into the global market will allow businesses to significantly increase market share and prosper. The key business feature of corporate sustainable development is the recognition of the benefit of long-term thinking, - that the role of business is to incorporate long-term social and environmental consequences into short-term decision-making and planning.

## **Obstacles to Corporate Sustainable Development**

One of the key ways to move the organization toward corporate sustainable development is to recognize the obstacles within the organization to this new type of thinking and to develop the appropriate tools and strategies to remove these obstacles.

Who is demanding this new type of thinking? While there has been attention given to a growing customer base for green markets, generally, customers are not major drivers for this new management style. Also, the business organizations themselves, meaning the large groups of people that make up the line and staff positions of these organizations, are often too involved in short-term decision-making to be fully engaged in corporate sustainable development. The major drivers for this new way of thinking are corporate CEO's. They tend to see the big picture and are looking at where their organizations will be in ten or twenty years. This expanded timeframe produces the perspective necessary for the adoption of corporate sustainable development.

How can organizations move to this new type of thinking? The most salient approach is to develop "knowledge systems" that convey the key concepts of corporate sustainable development internally within the organization and externally to the broader community. These "knowledge systems" are part of the concepts basic to the learning organization. They consist of multi-stakeholder collaborations, successful training programs, and customer and community dialogues. Two broad management approaches to corporate sustainability reveal the various tools and strategies that organizations need to implement in order to adopt this new way of thinking.

## **Management Approaches to Corporate Sustainable Development**

There are two basic approaches to corporate sustainability. The first approach deals exclusively with business operations. Business operations refer to the functions of the organization that deliver its products and services on a daily schedule and require short-term planning and decision-making. There are four tools available to deliver corporate sustainability: environmental management systems (EMS); environmental cost-accounting (ECA); design for environment (DFE); and eco-efficiency (EE).

The most prevalent tool for the delivery of corporate sustainable development is the ISO 14000 series, an international standard that establishes a corporate environmental management system (EMS) that integrates environmental responsibility into corporate management procedures. ISO 14000 is basically a way for the business organization to manage and measure its environmental performance. A company sets its own goals and puts in place a management system that accomplishes these goals (Tinsley & Pillai, 2006).

Environmental cost-accounting (ECA) is a financial tool that allows corporations to understand more precisely their environmental costs associated with their products. Traditionally, environmental costs have been a

part of general administrative costs in the accounting function. Through this approach, it is impossible to understand how certain products in a company's product line might be most responsible for exaggerated environmental costs. Through environmental cost-accounting (ECA), companies move toward a system of accounting based on activities where costs are measured by product. In this way, a company builds its environmental costs into each product cost analysis and is able to make a decision to eliminate products that have unusually high environmental costs.

Design for environment (DFE) is an important corporate sustainability tool that recognizes that the most important stage in product development is the design stage. DFE takes the traditional issues related to product design, namely, utility, interest, manufacturability and reparability, and adds the dimension of environmental sustainability. This tool addresses issues of environmental health and safety, preservation, and restoration processes in new product development. It considers issues such as product disposal, waste management, pollution prevention, ecology, and resource conservation. It is a tool that enhances environmental quality as well as market competitiveness ([www.best.me.berkeley.edu](http://www.best.me.berkeley.edu))

TABLE 6: ADVANTAGES OF DESIGN FOR THE ENVIRONMENT

Conserve resources and create leaner products.
Design products which can be reused or recycled.
Minimize waste, byproducts and emissions in the production process.
Increase a product's service life.
Create more efficient disposal and waste management alternatives.
Increase the safety in the product design.
Prevent or decrease pollution in the production, use, and disposal of designed products.

And lastly, eco-efficiency (EE) is a tool that seeks to minimize the use of resources by utilizing the concepts inherent in the developing science of industrial ecology. It is an approach that calls for the creation of value with fewer inputs of materials and energy. It is one of the main tools responsible for recent global trends in product development that emphasizes dematerialization and de-carbonization.

TABLE 7: BUSINESS TOOLS FOR CORPORATE SUSTAINABILITY

<b>Tool</b>	<b>Characteristics</b>
Environmental Management Systems (EMS)	Establishes a system to measure environmental performance.
Environmental Cost Accounting	A financial tool where environmental costs are associated with specific products or services.
Design for Environment	Assesses environmental sustainability through product design.
Eco-efficiency	Measures product or service value based on fewer inputs of material and energy

A second approach to corporate sustainability is stakeholder engagement. This management approach emphasizes the need to develop good information systems for business competitive advantage and effectiveness. Good information can only be attained through a system of open and available information flow that is dependent on a knowledge network of engaged stakeholders. These stakeholders can be either internal to the company, - company employees and various company offices, or external, - suppliers, customers, regulators, company shareholders, the public and the local community. Both these stakeholders, the internal and the external, are often covered in environmental management systems conceived through the ISO 14000 series. Corporate sustainable development develops information that allows the company to create product marketing that appeals to customer's environmental preferences. It engages its suppliers in a supply chain management system that ensures proper resource conservation

and environmental quality. And finally, it engages its shareholders, its financiers and investors, and members of the public through proper and timely environmental reporting.

## **Public Policy for Corporate Sustainable Development**

It is necessary to have effective public policy in place that encourages corporate sustainable development. One set of public policies must be directed at bringing the marketplace into the environmental problem-solving arena through the creation and use of market mechanisms. The use of market mechanisms to encourage corporate sustainable development is dependent on establishing the value of eco-system services both to business and society. By establishing value on these services, it is possible to utilize market-based mechanisms such as trading markets to move toward sustainability.

An example of a trading market is the greenhouse gas emissions market that has developed as a result of the Kyoto Accord. The attempts to reduce human-induced carbon dioxide, the major greenhouse gas that leads to global warming, has produced a carbon emission trading market used by national governments and corporations to trade permits in order to motivate polluters to reduce their emissions through a series of financial or business incentives. These market based incentives are not designed to replace governmental regulatory policy but to use the market to optimize the business case for sustainable development.

Public policy is also necessary as a force for guiding multi-stakeholders into the development of effective “knowledge networks” for sustainable development. There is an increasing body of research that states that corporations, local communities, regions, and nations that possess the most effective environmental policy as measured by various indicators of environmental quality also are the most innovative, possess the most advanced technology, and have the strongest economies. As a result, one measure of environmental sustainability and economic viability of cities, regions and nations is analyzing the ability of these geographic areas to develop clusters of stakeholders or “knowledge networks” that foster sustainable development.

## **Conclusion**

Can a business case for sustainable development be made? A traditional method is to rely on business ethics and not on the traditional principles of business to justify the implementation of corporate environmental sustainability. While business ethics are necessary, business decisions are generally made on the principles of the business case - will the business make money and sustain itself financially? In order to move towards corporate sustainable development, it is necessary to make a business case for sustainable development. This can be made through use of triple-bottom-line thinking and understanding the economic dimension of eco-systems services. Good environmental performance means good business performance. The growing consensus among CEO's is that if your corporation is sustainable, you will be in business a long time, and if it is not, you will soon be out of business.

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### End Notes

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<sup>2</sup>There is a major discrepancy between various estimates of the GDP in China due to environmental degradation. Recently, the China National Green Accounting Report downplays the impact, while international organizations and even Chinese officials have estimated the impact to be 9-12% of GDP, depending on how extensive environmental damages are computed.

## Competitiveness of SMEs as Sustainable Enterprises

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### Abstract

Society's functioning depends on all organizations, including small and medium-size enterprises (SMEs). SMEs are 99 % of enterprises in Europe, the others employing 48% and dictating rules of game. To survive, SMEs must be economic rather than only legal enterprises; their heads must be innovative and entrepreneurial. Market demands synergy of efficiency, quality, range, uniqueness, and sustainability. SMEs must cherish sustainable development like all enterprises. Meeting these requirements depends on influential humans, along with institutional order. Many SMEs must innovate their management style, applying ethics of interdependence using the sustainable-enterprise ethics. SMEs owners/entrepreneurs/managers might benefit from requisitely holistic/systemic behaviour. Paper discusses two theses. (1) Improving SMEs' competitiveness by becoming sustainable enterprises to requisitely holistically meet requirements in social/business environments. (2) Improving business by helping SMEs members understand/implement "sustainable-enterprise ethics". SMEs' future depends on their innovating of individual/organizational values, culture, ethics, and norms very much. It is conceptualized as a reminder to diminish oversights in SME's practice.

**Keywords:** entrepreneurship, ethics of interdependence, globalization, innovation, requisite holism, sustainable development, sustainable enterprise.

### The Selected Problem and Viewpoint

Currently, in Europe 99 % of all enterprises are small and medium-size enterprises (SMEs) employing 52 % of all employees (Rebernik et al., 2003; EU, 2006; Potocan and Mulej, 2007). This means that 1 % of all enterprises employ 48 %; among them the multinationals have the biggest and most global influence (Petzinger, 2000; EU, 2006). But the biggest number of new jobs is provided by the micro enterprises employing 23 % (Hazl, 2002; EU, 2006).

In transitional countries of Central and Eastern Europe that are only starting to become innovative societies, SMEs are a rather recent feature, but their number is coming close to EU figures. How entrepreneurial are these new SMEs? How can they become more and requisitely innovative, including sustainable development (SD)?

### Diffusion of Attributes of Economic Enterprises among SMEs

Entrepreneurship can be considered:

- A legal feature, i.e. ownership of enterprises, such as family ones (Duh, 2002; Rebernik et al., 2003),
- An economic feature, i.e. searching for, creating, and using new business opportunities to make innovations (Schumpeter, 1934; Rebernik and Mulej, 2000; Potocan et al., 2004 – 2007; Senge et al. 2004), or
- A psychological and sociological attribute of the entrepreneur as a person (Potocan, 2002; Leydesdorf, 2006).

Hence, the above figures mean that about 40 % of adults in a society must be entrepreneurial persons to make enterprises economic rather than only legal entities, called enterprises. This percentage must be achieved by innovation (as a process) of human values, which will not be a novelty yielding no benefit to its users, but an innovation (as outcome) (Potocan et al., 2004-2006; Mulej, 2006).

Figures from research on diffusion of novelties aimed at becoming innovations (Rogers, 1995; Lester and Priore, 2004; McGregor, 2006) include into rather innovative recipients of novelties only about 18 % - 30 % of all adults, while in e.g. Slovenia, as a case of the transitional countries of the Central and Eastern Europe this figure may be even only 20 %; according to public opinion survey, 80 % prefer a slow development (Rebernik and Mulej, 2000; Rebernik, Mulej and Rus, 2003; Rebernik et al., 2003). This means that new concepts such as economic

entrepreneurship replacing routine-loving behavior (including employment without subordinates' responsibility for creativity) are difficult to implement. The same findings apply to sustainable development, too (Ecimovic, Mulej and Mayur, 2000; Potocan, 2002; Potocan and Mulej, 2003; Potocan, 2004; Potocan et al., 2004 – 2007; Potocan, 2005).

On the other hand, both scientists and world top politicians found it urgent to declare SD a new invention supposed to become innovation in order for humans to solve an emergency of the entire humankind – a lack of remaining natural preconditions for humankind to survive (WCED, 1987; UN, 1992; OECD, 2000; Umpleby, 2002; Umpleby, 2003); they still fight for support, but do receive some support also in the business community (WCED, 1987; UN, 1992; OECD, 2000; BASD, 2001; BASD, 2002; Potocan et al., 2004-2006).

Both groups of change agents – those concerned with SMEs as economic enterprises and those concerned with SD – have obviously not done enough on making the emergency recognized by all influential persons and organizations; they have not considered that their scientific findings and political declarations should be considered inventions that should become innovations (Potocan et al., 2004; Mulej, 2006). This requires the invention to be considered in terms of a persuasive communication process (Potocan, 1998; Dyck and Mulej, 1999; Ecimovic, Mulej and Mayur, 2002; The Economist, 2006a; Potocan and Mulej, 2007). Figures 1 - 4 were neglected or unknown. The approach was not requisitely holistic and hence successful for humankind to have a secure future with no monopolies and unemployment (against which SMEs work) and with a healthy natural environment (for which sustainable development works).

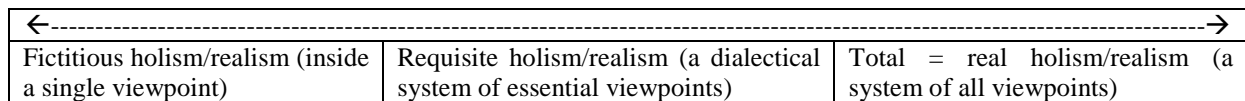


FIG. 1: THE SELECTED LEVEL OF HOLISM AND REALISM OF CONSIDERATION OF THE SELECTED TOPIC BETWEEN THE FICTITIOUS, REQUISITE, AND TOTAL HOLISM AND REALISM

APPROACH TO DEALING WITH AN OBJECT AS A TOPIC OF THINKING ETC.	One-sidedness by a single viewpoint	Requisite holism by co-operation of all essential professionals and only them	Total holism by consideration of totally all viewpoints, insights from them and synergies of them
TYPE OF APPROACH	(Too) simple	Requisitely simple	Very entangled
TYPE OF SYSTEM	Single-viewpoint based system	Dialectical system	Total system
ATTRIBUTES OF OBJECT INCLUDED IN SYSTEM	(Very) few	All essential	All
RESULT OF APPROACH	Fictitious holism (in most cases)	Requisite holism (good in most cases)	Total holism
FOCUS MADE POSSIBLE	(Too) Narrow focus (in most cases)	Requisitely holistic focus	Lack of focus
NUMBER OF PROFESSIONS	One single	Requisitely many	Literally all
TYPE OF WORK	Individual	Mixed team of requisite and different experts	All humankind in co-operation
CONSEQUENCES	Complex due to crucial oversights, dangerous	No problem due to no crucial oversights	Simple due to no oversights
AVAILABILITY	(Too) Frequent in real life	Possible in real life	Not possible in real life

FIG. 2: LAW OF REQUISITE HOLISM (FIGURE 1) IN SOME DETAILS

One-sided attempts of perception, thinking, decision making, and action are normal with the normal specialists, if they do not want and/or know how to co-operate with other specialists who are different from them, and make therefore oversights and finish in fictitious holism causing mistakes (from e.g. bad cooking all way to world wars). Owners, entrepreneurs and managers of SMEs are often quite close to this danger: they do not have many co-workers, they have often established their own SMEs because they had no other chance to survive after losing their job as employees (Rebernik and Mulej, 2000; Rebernik, Mulej and Rus, 2003; Rebernik et al., 2003). Often, this means that they are very good in a technical profession, on which they intend to live, with full right, but less good or even completely uneducated in running a SME (Gerber, 2004; Nussbaum, 2005; Mulej, 2006). This is obviously no local problem of the transitional economies of the Central and Eastern Europe with a short tradition of SMEs that are not handicraft with a limited number of employees or intellectual services, to which SMEs used to be limited in the so called socialist era. An entrepreneur produces an enterprise rather than a product; his professionals produce the product as a part of his/her basis to produce a SME.

In the current economic circumstances, SMEs must be obviously viewed as inventions that are supposed to become innovations, not only their products. All influential stakeholders must be persuaded in a communication process for the transition from invention to innovation to happen. In a summary, everything in Figure 3 must be considered and mastered (Summarized from Rogers, 1995).

<i>Viewpoints to be considered</i>		Phases of users' decision making about a novelty				
		1 Awareness	2 Persuasion	3 Decision	4 Applica- tion	5 Reconfir- mation
<b>Novelty custo- mers (po- tential)</b>	Customers – innovators					
	Early customers					
	Early majority					
	Late majority					
	Laggards					
<b>Opinion leaders</b>						
<b>Attributes of novelty</b>	Relative advantage					
	Compatibility					
	Complexity					
	Testability					
	Visibility					
<b>Communicat- ion channels</b>	Public					
	Interpersonal					
<b>Nature of the social system of customers</b>						
<b>Decision type about novelty</b>	Optional					
	Group					
	Authority					
<b>Conseque- nces of novelty</b>	Desired					
	Undesired					
	Indirect					
	Direct					
	Anticipated					
Unanticipated						

FIG. 3: MATRIX OF ESSENTIAL ATTRIBUTES OF DIFFUSION PROCESS FROM THE VIEWPOINT OF CHANGE AGENTS (A CASE)

Legend: The darker the area, more effort of change agents is needed.



In addition, making an innovation from an invention requires the inventor trying to become an innovator to consider everything included in the dialectical system of preconditions in Fig. 4 (Mulej, 2000).

Innovation = (invention X entrepreneurship X holism X management X co-workers X innovation-friendly culture X customers X suppliers X competitors X external (socio-economic) conditions X natural environment X random factors, including good luck).

FIG. 4: DIALECTICAL SYSTEM OF PRECONDITIONS FOR INNOVATION TO SHOW UP

In order to cover well everything in Figures 1-4, the entire process in Fig. 5 must be taken care of with requisite holism (Mulej, 2000).

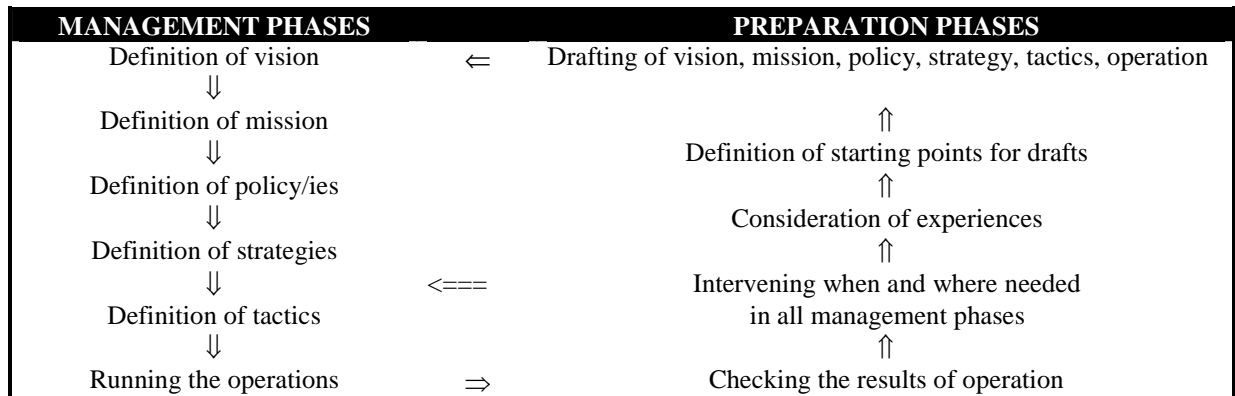


FIG.5: THE CYBERNETIC CIRCLE OF THE PREPARATION AND IMPLEMENTATION OF THE MANAGEMENT PROCESS (A SIMPLE MODEL)

For influence of sustainable enterprises (SE) and SE's ethics (SEE) on enterprise competitiveness see Figures 6 and 7 (See: Potocan and Mulej, 2003; Potocan and Mulej, 2007; completed up after: Bolwijn and Kumpe, 1990).

Decade	Market & Social Requirements	Enterprise's Ways To Meet Requirements	Type of E
1950	Meet post-war conditions	Supply anything	Supplying E
1960	Suitable price (as judged by customers)	Internal efficiency, i.e. cost management	Efficient E
1970	Suitable price X quality (as judged by customers) (X = interdependence)	Efficiency X technical & commercial quality management	Quality E
1980	Suitable price X quality X range (as judged by customers)	Efficiency X technical & commercial quality X flexibility management	Flexible E
1990	Suitable price X quality X range X uniqueness (as judged by customers)	Efficiency X technical & commercial quality X flexibility X innovativeness management	Innovative E
2000	Suitable price X quality X range X uniqueness X contribution to SD (as judged by customers)	Efficiency X technical & commercial quality X flexibility X innovativeness X SD	Sustainable E (SE)

FIG. 6: FROM AN EFFICIENT TO A SUSTAINABLE ENTERPRISE

Choices between the models from various decades in Fig. 6 are no longer available for SMEs with interest to compete successfully: they must be SEs. This is a matter of knowledge and will: the owners, entrepreneurs, and managers must form their values and diffuse them in terms of the model in Figure 7. They will attain more success,

if they follow the left column in Figure 8 rather than the right one, but the narrow specialists and routine-lovers prefer the right one – and fail.

Individual values (interdependent with knowledge)	↔	Culture = values shared by many, habits making them a round-off social group
↓		↓
Norms = prescribed values on right and wrong in a social group	↔	Ethics = prevailing values on right and wrong in a social group

FIG. 7: CIRCULAR INTERDEPENDENCE OF VALUES, CULTURE, ETHICS, AND NORMS, INCLUDING THE CASE OF SE ETHICS

Nothing in Fig. 1 – 7 may be left aside. In the contemporary circumstances both attributes – being an economic SME rather than a legal one only, and living with or even on SD – are unavoidable and interdependent for a longer-term prosperity of the enterprise including all its stakeholders and of the society at large. Therefore it is an important question: who is in charge of making it all happen in the case of SMEs? The rough framework only and nothing more is provided for by United Nations documents and with governments’ documents per countries. Enterprises can normally obey or circumvent legal rules and institutions on the basis of their own market situations, perception of trends etc., which depends on personal attributes of the decisive persons - owners, entrepreneurs, and managers and other stakeholders.

### Who and What Makes SMEs Economic and Sustainable Enterprises?

SMEs face the same natural and market conditions as all other enterprises, including the requirement for consideration of SD (Potocan, 2002, Potocan and Mulej, 2003; Potocan, 2004; Potocan, 2005). They can succeed, if they do understand (and implement in business practice) important business trends on the basis of:

- Sustainable development (SD) and prevailing of sustainable enterprise (SE),
- Appropriate business ethics, which means sustainable enterprise ethics (SEE).

This capacity is easier to attain with systems thinking – see Figure 8.

No	Systems / Systemic / Holistic Thinking	Un-systemic / Traditional Thinking
1	Interdependences, Relations, Openness, Interconnectedness, Dialectical System	Independence, Dependence, Closeness, A single viewpoint/system
2	Complexity (& Complicatedness)	Simplicity, or Complicatedness alone
3	Attractors	No influential force/s, but isolation
4	Emergence	No process of making new attributes
5	Synergy, System, Synthesis	No new attributes resulting from relations
6	Whole, Holism, Big Picture, Holon	Parts and partial attributes only
7	Networking, Interaction, Interplay	No mutual influences

FIG. 8: THE SEVEN INTERDEPENDENT BASIC SETS OF TERMS OF SYSTEMS / SYSTEMIC / HOLISTIC VS. UN-SYSTEMIC THINKING (AS A DIALECTICAL SYSTEM)

Information in Figures 1 – 8 applies both the making a SME an economic enterprise, after it has been established as a legal one, and to making it a SE. All attributes are necessary and are so in synergy.

A holistic research of all the phases of process of transition of owners’, entrepreneurs’ and managers’ (as well as their co-workers’ and other stakeholders’) ethics concerning SD and its application in the SMEs operation reaches beyond the framework of our investigation or this contribution. We shall rather discuss only the basis for SME’s owners’, entrepreneurs’ and managers’ behaviour in the framework of globalization: why is SD so important for SMEs competitiveness, how do we understand sustainable SME, why (and how) sustainable SMEs’ ethics

presents interdependence linking the selected important viewpoints of business and how SE and SEE of SME influence SMEs' competitiveness.

Since the great majority of business systems are SMEs, it is almost impossible to reach any goal in the society without engaging also the SMEs. This applies also to achieving the goals of SD (Rebernik, Mulej and Rus, 2003; Potocan, 2004; Potocan et al., 2004 – 2007; Potocan, 2006).

Like any enterprise, SMEs start as empty legal shells (with some kind of organizational structure). It is the owners, entrepreneurs, and managers (individually or in teams) that define goals and operations of their SME (as a process of finding and exploiting business opportunities) that make their SME efficient, effective and successful with help of their co-workers and other stakeholders, of course. They all must be both entrepreneurial and managerial personalities to succeed (See: Schumpeter, 1934; Bygrave, 1994; Prigogine, 1997; Affuah, 1998; Daft, 2000; Hazl, 2002; Gu and Chroust, 2006). Entrepreneurial personalities are aiming at something new all the time, managers at using the given funds optimally. Thus, they are complementary to each other. If these rather different viewpoints must be the concern of the same person, it may cause troubles, unless the person exercises Figures 1 – 8.

A SME is a product of owners, entrepreneurs and managers aimed to exploit a business opportunity and to capitalize on it. Management of SMEs is a complex process, and the owner, entrepreneur or manager who runs it has to play many different roles (Drucker, 1990; Harman and Porter, 1997; Magretta, 2000; Buijs, Meer and Fischer, 2007). There is no guarantee that the entrepreneurial efforts will be allocated in a way that follows the innovative and constructive image we usually have of the economic entrepreneurship. Not every entrepreneurship is aimed at development; it can also be unproductive or destructive (Baumol, 1990; Drucker, 1990; Baumol, 1993; Harman and Porter, 1997; Magretta, 2000; Potocan, 2002; Potocan and Mulej, 2007). Unproductive entrepreneurship refers to the performing of entrepreneurship activities that enrich the entrepreneurs, but do not increase the wealth of the society of which he or she is a part. In some cases, entrepreneurs may even play a destructive role (apart from the entrepreneurship of military dictatorships, destructive wars, etc.), especially when they obstruct the dissemination of technological knowledge and other inventions and innovations, or forget about their corporate social responsibility in other ways (Laurent, 2007; Jennings, 2005).

As we have summarised in Fig. 6, the ideal enterprise of this decade is a SE (i.e. highly ranked in efficiency, quality, range, uniqueness, and care for humankind's natural environment, all in synergy). Thus, it holds true that the existence and development of SMEs in the frame of contemporary globalization should depend increasingly on their capability to contribute to SD in their environment. Hence, the behaviour of owners, entrepreneurs and managers who are the core of SMEs is to be examined more closely, and perhaps also supported with new insights and suggestions.

In working on their SE and its SD, owners, entrepreneurs and managers encounter a number of problems. Firstly, they must understand the modern economic conditions (e.g. globalization, which tackles them indirectly, at least, even if their own business covers the local markets only: there are no totally local markets any longer, at least not in Europe and most of the other world). In the next step, owners, entrepreneurs and managers must define the starting points and characteristics of their work in the frame of globalization. And finally, they must define their own place in working on their SME's SD, and application of the idea of SD on SMEs to make them SEs with SEEs. This fact has to do both with their knowledge and their ethics (Singer, 1993; Umpleby, 2003; Senge et al., 2004; Potocan, 2006), as we can see in Figure 7 and in the fact that no person is rational only or irrational only; thinking and emotions and interdependent (Smith, 1937; Bertalanffy, 1968; Mulej, 1979; Mulej and Kajzer, 1998; Mulej, 2000; Mulej et al., 2004).

What must owners, entrepreneurs and managers of SMEs do to successfully enter the market game under modern conditions, on the basis of the above summarised findings, in practice?

## **Globalization Requires Management Innovations**

The globalization no longer allows for routine-loving owners, entrepreneurs and managers, like a long-term stability used to for millennia (Magretta, 2000; Potocan, 2002; Rebernik, Mulej and Rus, 2003; Potocan et al., 2004 - 2007). Therefore, the new bases of a modern ownership, entrepreneurship and management may include serious novelties

aimed at becoming management innovations such as:

- Owners, entrepreneurs and managers must thoroughly rethink and innovate their operation to improve their SMEs competitiveness, permanently create and sell new products and services, which must become innovations.
- Owners, entrepreneurs and managers must create operation globally, and act locally; they need direct links with their end users, to know both their market and the broader consequences of their action in time.
- Owners', entrepreneurs' and managers' transition from the commanding hierarchy to the 'process-based' specialization and interdisciplinary creative cooperation is of special importance, in order for a SME to activate capacities of every member and partner in the value-chain.
- Owners, entrepreneurs and managers must reconsider their absorption capacity for inventions and other knowledge from research organization, which are their potential and/or real partner in research and development (R&D), because most SMEs cannot afford R&D departments of their own, but need fresh knowledge and information on technology, marketing, accountancy, law, etc. (Potocan, 2004; Potocan, 2005; Potocan, 2006).
- There is a growing need for the interdisciplinary capacity of owners, entrepreneurs and managers in SMEs (e.g. systems thinking, inter-cultural capabilities and knowledge, permanent education and training, formation of personal standards of ethics of interdependence and the standards of entrepreneurship behavior, capacity of anticipation based on a broad interdisciplinary cooperation, cooperative and team work capacity).

For these reasons, owners, entrepreneurs and managers must innovate the process of their work (and perception of its role, importance and characteristics) to meet the newly emerging conditions of business operation. They must create a set (better: a dialectical systems) of new goals and new innovative behavior for their own work (Rhinesmith, 1999, Daft, 2000; Potocan and Mulej, 2003; Potocan et al., 2004 – 2007; Potocan, 2005; Potocan, 2006).

The basic tasks for a SME's owners, entrepreneurs and managers to be competitive in conditions of globalization include hence, we think, the following (See for details: Potocan, 2002; Potocan and Mulej, 2003; Potocan, 2005).

- A timely and therefore anticipatory and requisitely holistic/systemic formation of the entire concept of the SME and its competitiveness, which will be created on the basis of co-operation between all partners of a value chain – both the current and the potential ones, and institutions from the environment. Such a view can make the future operation equal-footed, cause co-operation and motivate coworkers for creativity (See also: Ulrich, 1997, Hebert and Link, 1998; EU, 2006).
- Anticipation of the changes in the industrial dynamics, and the resulting adoption and adaptation of the available and potential resources of a SME. The operation of the SME will, therefore, be oriented mainly to the innovation of the already existing operation and to the formation of new possible directions of further development. The optimization of available resources will be replaced by the efforts to accumulate and innovatively use the SMEs' (potential) resources. Additionally, it will be necessary to anticipate synergetic effects of the use of resources together with the competitors and buyers (Rebernik, 1997; Affuah, 1998, Rebernik and Mulej, 2000), and to include SD in the anticipation.
- Creation of a flexible system of operation, which will enable, on an anticipatory basis, a (re)configuration of resources to suit to new possibilities of operation of a SME - market, and other challenges. The provision of the capability for such a (re)distribution of resources is based on the fast learning, holistic understanding of 'new society and economy' (where the 'limits' and restrictions are mainly fictitious and virtual) and the formation of a learning and innovative SME behavior (See also: Kekes, 1988; Lunati, 1997, Ecimovic, Mulej and Mayur, 2002).
- Development of the capability of global operation. SMEs must create their operation globally and locally at the same time and thus establish their relations with buyers, suppliers and other partners. Their base of success can no longer leave the care for the natural environment aside, because it is less costly to consider SD and be a SE (See also: Hawken, 1994; Hawken, Lovins and Lovins, 1999; The Economist, 2006). Neither can the business be good enough if it is based on the real-time data only, the rapidly and permanently changing environment

requires a requisitely holistic anticipation of one's future to be the basis of the current business decision making and acting.

- Support by artificial intelligence tools, such as standardization of decision-making (See for details: Potocan, 1998; Potocan, 2006).

Owners, entrepreneurs and managers must in the new conditions of the economy, therefore, redefine their goals and tasks, rethink areas of their own work, and innovate the characteristics of their own operation, in order to make it a fundamental source of the potentially big enough competitiveness and consequently of profit of their SME, which is high enough now and does not cause danger to future. Their problems have to be decided upon in the phase of investment preparation already and hence in both a (requisitely) holistic and anticipatory manner.

One we have been able to link the issue of SMEs' competitiveness with invention-innovation processes and reaching the level of SE, one may ask the question what does the top international literature on innovation say about it.

Literature on innovation abounds. Still, we did not detect literature considering SMEs becoming SEs as an important factor of innovation success, although it obviously belongs to its preconditions, if it meets the Mulej/Kajzer law of requisite holism in Figures 1 and 2 (Mulej, 1979; Mulej and Kajzer, 1998).

In other words: SMEs becoming SEs might be considered an overseen step toward the innovative society. Why should SMEs incorporate sustainability into their attributes to become SEs?

## **Being a SE is Important for SMEs Competitiveness**

Why must the statement in the title of this chapter be stressed? Only a minority of SMEs intend to grow, e.g. in Slovenia (Rebernik et al., 2003; Potocan et al., 2004 - 2007).

Times, including conditions of business operations, have changed a lot over the last few centuries, and especially over the last decades. The economic development processes made the humankind split into the well-advanced 20% and the increasingly lagging 80% (Dyck and Mulej, 1999; Ecimovic, Mulej and Mayur, 2002; Potocan, 2002; Potocan, 2006).

It is the approach to innovation which causes these differences – the innovation-need paradox: the ones needing innovation the most, like it the least (Freeman, Pierce and Dodd, 1995; Rogers, 1995; Lunati, 1997), and support entrepreneurial behavior the least, too (Laurent, 2003). In addition, with a decision by its highest political body – the United Nations (UN) – humankind decided, in 1992, to accept the fact that a holistic rather than biased / one-sided care of humans for their economy and natural environment including themselves – called SD – had become a precondition of their own survival (Potocan, 2002; Bauchamp, Bowie, 2004; EU, 2006).

Foresights, decisions and actions of all human activities (especially of enterprises) must include SD. Otherwise, profit (as a goal, defined one-sidedly) kills profit (as the outcome), because oversights, neglecting nature around humans cause tremendous cost of eco-remediation and/or other renewal of preconditions of survival of humankind and other interdependent nature's subsystems (Potocan, 2002; Umpleby, 2002; Umpleby, 2002, Trevino and Nelson, 2004; Potocan, 2005; Potocan, 2006). Conditions have changed rapidly and critically as we presented in Figure 6.

SE also requires creation of new understanding of the current reality and new way of thinking of all members of the modern society. We try to suggest humans how to adapt to changes conditions for business based on past and current long-term and recent socio-economic development trends in Figures 6.

Figure 6 shows why humankind needs SEs in order to survive. How can SME become sustainable SME (SSME)? All the economic conditions mentioned above result in requiring SME to take a new, requisitely holistic and future-anticipating vision aiming at their own long-term viability (Potocan, 2004; Potocan, 2005, Potocan, 2006).

All members of modern SMEs are, hence, facing a basic question: How to define the new development and future business of their SMEs supposed to become SEs.

## Criteria for SMEs to Become SEs

In both theory and practice there is no model of business, which would provide for a harmonized and target-oriented development of SMEs toward SEs (to the best of our knowledge). But the SD concept offers a partial solution, trying to carry out common goals of humankind with a sustainable orientation of human activities at all levels of our common living and behavior.

On the basis of much theoretical cognition and our own experiences in business practice, we can define SME as a SE, most generally, as an SME that tries to work, as much as possible, to attain a synergetic whole of: economic, ecological, social, and ethical objective of its business (Potocan, 2002; Potocan and Mulej, 2003, Potocan and Mulej, 2007).

The basic direction (and objectives) of SME's being SEs working are depicted in Figure 9.

<b>Dimension</b>	<b>Focus</b>
Economic imperative	Competitiveness
Ecological imperative	Habitability
Social imperative	Community
Ethical imperative	Legitimacy
All dimension	Combined foci

FIG. 9: BASIC DIRECTIONS (AND MAIN GOALS) OF SSME

A SME as a SE tries to conceive and run its working in a way, which meets needs and requirements on levels of: enterprise, its closer natural and social environments, and its broader (i.e. global) ones.

These needs require SMEs as SE to define and use suitable criteria, too, to evaluate business in critical levels of working (See Figure 10).

<b>Criteria</b>	<b>Corporate Performance</b>	<b>Societal Performance</b>	<b>Global Performance</b>
Economic Imperative	Corporate profitability	Societal wealth	Global wealth
Ecological Imperative	Corporate eco-efficiency	Societal eco-efficiency	Global eco-efficiency
Social Imperative	Corporate reputation	Societal quality of life	Global quality of life
Ethical Imperative	Corporate values	Societal values	Human values
All dimensions	Sustainable management index	Sustainable development index	Sustainable development index

FIG.10: BASIC CRITERIONS FOR EVALUATING SSME BUSINESS

Hence: a SME as a SE attains the highest level of requisite holism and destroys the human conditions of survival the least of all enterprises. A SME as a SE does not command with the most modern and comprehensive knowledge only, but with ethics as well allowing it to do no harm, i.e. the SD ethics. We brief it in chapter 8.

A crucial innovation of the management style is unavoidable, and it is e.g. corporate governance and management and societal governance, which is able to make it happen. The entire World needs a transition of ethics along with the transition of conditions and preconditions of life, SD being a part of the process. The changing, both experienced in the West, and expectable with the other 80 % of humankind (and partly going on with them, too) now, may include change in a number of attributes of ethics.

This requires much more of ethics of interdependence, as has been the habit so far. United Nations would not need UNICEF, ILO, or IRO, otherwise. There would be no need for world-top conferences on the South-North trade, like the one in Cancun in autumn of 2003, etc. Owners, entrepreneurs, and managers must include this fact in

order to be requisitely holistic and hence successful, effective and efficient. Our understanding how these influence on SMEs competitiveness, is briefed in chapter 7.

## **SE and SE's Ethics Influence over SMEs Competitiveness**

Let us go back to Figure 4 and brief difference of SME from other types of enterprises from the viewpoint of meeting requirements for competitiveness. On the basis of different theoretical cognitions and our experiences from business practice we can define some findings about the influence of SE (and its ethics) on SME competitiveness (Potocan, 2002; Potocan, 2005; Potocan, 2006; Potocan and Mulej, 2007).

SME as SE may also be considered the most creditworthy and trustworthy of all enterprises:

- This level of reliability diminishes the need for lots of double-checking and related cost, thus increasing a SME's profit critically.
- Similar may be impact of converting innovation into total quality and attain ISO 9000 and similar certificates: they help customers trust their potential suppliers, because they do not risk much drop out of their row material etc. coming from their suppliers.
- Provision of a range of products and services helps SME approach more customers; thus the invested capacities can be utilized better, initiatives for new innovation processes can be received and accepted, etc.
- Provision of uniqueness may lead, for a period of time, to a more or less monopolistic position of a supplier, which leads to higher margins and profits.
- Provision of well-know care for natural environment provides a SME a well-accepted image, resulting in new customers, in bargaining power concerning suppliers.
- All of them together cause cost, as well, of course, but in medium period of time, this cost is outweighed by expectable benefits. The general preconditions may read: lower cost, better quality, better image must result from innovation rather than from causing unemployment etc.

## **Some Conclusions**

The current cognitions about SE (and its ethics) as well as about their impact over SME's competitiveness allow us to understand and treat:

- Links between single (kinds, types, and forms of) SMEs ethics inside a given SSME;
- Links between a SME (with a given SSME ethics) and the possible (and/or real) outcomes of working (and behavior) of this SSME;
- Links between outcomes of working of a SSME (with a given SSME ethics) and its competitiveness.

A more/requisitely holistic investigation of this topic will require a further research of further content – and methodology related issues including e.g.:

- Potential consideration of a SME and different SMEs ethics in an given SE,
- Potential consideration of SSME ethics over competitiveness, and
- Bases for a requisitely holistic approach to consideration of SSME, SSME ethics, and their impact over business of an SME.

The above mentioned questions present the basis for a further investigation of the selected basic starting points, and characteristics of SSME, its ethics and influence of SSME ethics on business competitiveness.

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# Transformation of Industrial Structures in Countries with Quest for Competitiveness

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## Abstract

The Visegrad countries (Poland, Czech Republic, Slovakia and Hungary) have undergone remarkable economic transition since 1990, in spite of their different initial conditions, and have become the members of European Union in 2004. The economic reforms that were in line with the „business class model“ supported by the international institutions, and privatization attracted the massive inflow of foreign direct investment and know-how to these countries, helped to create the substantial SME sector, and increased the competitiveness of these countries in the international scale. In spite of the attained progress the rapidly developing globalization and transformation to the knowledge-based economy opens new challenges for Visegrad countries. In near future they will have to augment substantially support for the R&D, innovation, education, business cluster formation and transborder co-operation in order to stay competitive and help to fulfill the expectations of the European Union formulated in the Lisbon strategy.

## Introduction

Visegrad countries comprise four countries located in Central Europe: Czech Republic, Slovakia, Hungary and Poland. The countries became the EU members in 2004. After the fall of communism these countries successfully managed their transition to market economies. And today they have to cope with the similar challenges as other OECD countries. They have to take care of increasing their competitiveness in the context of fast developing global knowledge-based economy.

There are many serious problems in Visegrad countries, such as strong regional disparities resulting from uneven FDI, partial reliance on traditional industries and agriculture, which are unable to compete on the international level; asymmetries among SME sector and international investors; the problems of the development of capacities. These problems are known in the developed countries. They are however more intense in the Visegrad countries (Bohle, D., Greskovits, B Retrieved March 6 2007).

## Transition and Economic Restructuring

Transformation of the Visegrad countries was quite similar. During one decade, all these countries consolidated their democracies. They also became integrated in the global and European economy. They trade mainly with countries of the European Union (EU). The value of their foreign trade approximates or exceeds their GDP. Via substantial foreign direct investment (FDI) inflows, their assets have been incorporated into global and European systems of production, commerce, and finance. These countries' exposure to external influences has been further exacerbated by their entry to the IMF, the World Bank, OECD, WTO, and, after long preparation, the EU. The above-mentioned development was very important because traditional production factors such as land (and real estate), labor, capital, became more accessible for the entrepreneurs.<sup>1</sup>

Privatizations have been a key tool in the transition process. The different privatization methods have been used and they brought varying results for the particular countries. The transition brought on one hand the growth of individual companies' productivity, the growth of GDP (see the Table 1), but on the other hand the rise in unemployment and growing income disparities.

TABLE 1: REAL GROSS DOMESTIC PRODUCT IN VISEGRAD COUNTRIES

Annual change in %	2002	2003	2004	2005	Q3 2005	Q4 2005	Q1 2006	Q2 2006
Czech Republic	1.9	3.6	4.2	6.1	5.9	6.9	7.1	6.2
Hungary	3.8	3.4	5.2	4.1	4.5	4.3	4.6	3.8
Poland	1.4	3.9	5.3	3.4	3.9	4.3	5.2	5.5
Slovakia	4.1	4.2	5.4	6.1	6.3	7.4	6.3	6.7

Source: Eurostat, national statistical offices, wiiw. Retrieved March 2007, from <http://ceec.oenb.at>

Before 1989 the logic of industrial development was quite different in Visegrad countries and developed European countries. In EU the industrial structure was basically determined by the factors of demand and supply. Consumer demand is linked to the shifts of incomes. Supply on the other hand depends on the availability of the production factors and innovation. The innovation influences positively the productivity but it may lead to the loss of jobs, if it is not accompanied by the growth of production output. Moreover with rapidly growing productivity in production sector and slower productivity growth in the service sector, the share of services in the GDP and employment rises. These tendencies are further amplified by the globalization, which affects profoundly both the national conditions of the supply and demand. The loosening of the trade barriers leads to the new international division of labor, which exerts the pressures on the ways of organizing the production. The process is also amplified by the rapid development and implementation of ICT, that enable to reduce the transaction costs of companies supporting the processes of off shoring, outsourcing and viability of TNC. The pressures exerted from the rapidly changing conditions of supply and demand forced the Western European countries to accelerate their restructuring since the oil shocks in seventies, when the era of relatively stable development of after war „Trente glorieuse“ years have ended.

The industrial structures in Visegrad countries started to adapt to the changing global market conditions only after 1989. Before that the organization of production was controlled by socialist central governments and seriously influenced by the „international socialist division of labor“ that was coordinated by the Council of Mutual Economic Assistance (COMECON). The aims of these structures differed from the market logic, and therefore the structural development strongly deviated from that what we could observe at that time in Western European countries. The effort to keep the full employment in socialist countries had led to the support of the ineffective state enterprises. The socialist industrialization created in some regions economic monostructures, that are in the contradiction with entrepreneurial cultures and even today such regions is quite difficult to restructure. Many enterprises moreover suffered from obsolete equipment and lack of investments. The lack of economic freedom has stifled the innovation and so after the break of the Iron curtain the Visegrad countries practically did not produce top quality high tech products for the consumer markets. The problem of restructuring was further aggravated by the legacy of socialist economic management. At the epoch of communism the preference was given to the heavy industry consuming large amount of energy and raw materials, reduction of consumer goods, domination of large state owned enterprises, state control of the material supply, low mobility of the production factors, decision on localization of industry based often on military or non-economic consideration, lack of independent financial sector, prices determined by state and not by market – the distorted prices could not ever be used for the efficient calculation of the economic efficiency. The obsolete industrial structure and equipment together with slow innovation processes had moreover the negative impact on the energy saving, industrial pollution of air, water and soil (Tickle, A., Welsch, I., eds. 1998).

The institutional theory put the important stress on “path dependency”. The economic development is quite dependent on historically created business structures, culture and institutions. Transformation enabled to develop the new institutions, however they evolved in local context and therefore they may often differ from their developed

countries counterparts. Short existence of the new institutions and structures together with the frequent changes of legislation did not enable to attain the same level of experience as is common in the developed countries.

Before 1989 the industry was organized in the large state-owned conglomerates. There was the lack of management marketing skills. The goods were sold mostly to other COMECON countries, where the power of consumers on the consumer markets was rather weak. The population moreover had the low income. Lack of competition did not stimulate the innovations either.

The situation in 1989 was not identical in all Visegrad countries. Not all state-socialist countries had to start “from scratch” when building a market economy. (See the Table 2) While Czech and the Slovak Republics inherited rather unreformed state-socialist systems Hungary and Poland had small private businesses long before the fall of iron curtain, although the dependency of last two countries on Soviet economy was higher. In 1993 the former Czechoslovakia was divided to two countries that had to build their nation state and that was the really tough issue especially for the Slovak Republic. In the less affluent and ethnically more heterogeneous Slovakia nation building came into conflict with democratic state building for a period in the 1990s (Bohle, D., Greskovits, B Retrieved March 6 2007).

TABLE 2: INITIAL CONDITIONS OF VISEGRAD COUNTRIES

	<b>Czech Rep.</b>	<b>Slovakia</b>	<b>Hungary</b>	<b>Poland</b>	<b>Average <sup>1</sup></b>
<b>Population (millions)</b>	10.3	5.4	10.0	38.7	15.9
<b>GNP p.c. 1989 at PPP US\$</b>	8,600	7,600	6,810	5,150	5,593
<b>Life expectancy (1989)</b>	71.7	71.0	69.5	71.0	70.2
<b>Liberalization index (0 to 1) <sup>2</sup></b>	0.00	0.00	0.34	0.24	0.10
<b>Political freedom</b>	0.08	0.08	0.42	0.33	0.23
<b>Employment in agriculture</b>	11	12	15	27	21
<b>Employment in industry</b>	45	32	38	36	38

<sup>1</sup> Average for 25 transition countries (including Visegrad countries)

<sup>2</sup> Liberalization and political freedom indices are normalized so as to range between zero

(indicating no liberalization or political freedom) and one (greatest liberalization) and democracy

Source: Fidrmuc, J. Fidrmuc, J. Horvath, 2002

Two parallel transformations had taken place in Visegrad countries after 1990. It was necessary to change the command economies to market economies, and that mean to change the ownership structures and introduce and implement the new institutional structures and at the same time to react on the globalization challenges. With the opening of their economies the Visegrad countries were able to buy the products on the World markets, to attract the foreign direct investments etc.

This was however realized in the conditions of the fierce economic competition. The former socialist countries had thus to bridge the gap between their old structures and the prevailing structures in the World economy as well as adapting to the new pace of the structural change determined by globalization processes (Muller, B., Finka, M., Linz, G.,eds. 2005). The start of the adaptation to the globalization was late in comparison to the Western countries, which led to substantial problems in these countries in early Nineties. While in Western countries the adaptation to the changing conditions was stretched on the longer period of time and usually it did concern one or two industrial sub sectors or regions at one of them, the postponed restructuring in Visegrad countries created during transition the necessity to change quickly almost everything.

## Foreign Direct Investments

The transformation of the Visegrad countries was realized according to the "business class" model supported by key global institutions such as the World Bank, the International Monetary Fund and the World Trade Organization. This model has been supported by governmental policies focused on liberalizing markets and promoting economic efficiency aimed at the opening of economies to foreign investment, deregulation, fiscal discipline, privatization and trade liberalization. The model exerted substantial pressures on firms. They had to concentrate more on core operations, outsourcing other activities to the extent possible. The countries that have benefited from the substantial economic reforms than have acted as the conduits for the foreign direct investments. The economic freedom was at the same time the prerequisite for the development of important sector of SME (small and medium enterprises). SMEs were important source of growth of Visegrad countries because of their flexibility and adaptability, and their important contribution to reducing unemployment level.

According to a survey by Ernst & Young, the region including the Czech Republic, Hungary, Poland and Slovakia together, with Estonia, Latvia, Lithuania and Slovenia (the other four CEE states which acceded to the EU on 1 May 2004), is now regarded by international executives as the second most attractive foreign investment locale after Western Europe and is the most favored place for investment in the manufacturing industry. 40% of respondents to the survey with declared relocation projects indicated that CEE was their preferred choice, followed by only 22% for China and 7% for India. In relation to manufacturing related projects, the figures were 30% for CEE, 23% for China and only 16% for Western Europe (Ernst & Young's 2005 European Attractiveness Survey).

This view is supported by the figures produced by the OECD (see the Tables 3 and 4): between 2000 and 2004 the CEE's share of total inward European FDI increased from 17% to 31%. In fact, according to the Vienna Institute for International Economic Studies and the Economist Intelligence Unit, around 70% of exports in these four states are now accounted for by foreign-owned firms (Allen and Overy 2007).

TABLE 3: FOREIGN DIRECT INVESTMENT (FDI) - FLOWS  
(MILLIONS DOLLARS)

FDI flows		1990-2000 (annual average)	2002	2003	2004	2005
Slovakia	<i>Inward</i>	422	4,094	756	1,261	1,908
	<i>Outward</i>	3	5	22	141	146
Czech Republic	<i>Inward</i>	2,131	8,483	2,101	4,974	10,991
	<i>Outward</i>	78	207	206	1,014	856
Hungary	<i>Inward</i>	3,244	2,994	2,137	4,654	6,699
	<i>Outward</i>	177	278	1,644	1,122	1,346
Poland	<i>Inward</i>	3,669	4,131	4,589	12,873	7,724
	<i>Outward</i>	51	230	305	794	1,455

Source: UNCTAD, World Investment Report 2006, Retrieved March 2007, from [www.unctad.org/fdistatistics](http://www.unctad.org/fdistatistics)

TABLE 4: FOREIGN DIRECT INVESTMENT (FDI) - STOCKS  
(MILLIONS DOLLARS)

FDI stocks		1980	1990	2000	2004	2005
Slovakia	<i>Inward</i>	-	81	3,733	15,358	15,324
	<i>Outward</i>	-	-	325	583	538
Czech Republic	<i>Inward</i>	-	1,363	21,644	57,259	59,459
	<i>Outward</i>	-	-	738	3,760	4,239
Hungary	<i>Inward</i>	-	569	22,870	62,687	61,221
	<i>Outward</i>	-	197	1 280	6,027	6,604
Poland	<i>Inward</i>	-	109	34,227	85,605	93,329
	<i>Outward</i>	312	408	1,018	3 216	4,671

Source: UNCTAD, World Investment Report 2006,. Retrieved March 2007, from [www.unctad.org/fdistatistics](http://www.unctad.org/fdistatistics)

One of the most important effects of FDI is the transfer of technologies and know-how. In many industrial sectors the new generation of equipment has been introduced, together with the new ways of the organization of industry (such as the lean production, Toyota manufacturing system). The important driver for the change of technology is the higher quality of products and export. The most of the foreign-based businesses brought to countries of Visegrad new technologies that are comparable to the equipment installed in the developed countries. This had the serious impact on domestic producers that followed the foreign examples and introduced important innovations in their technologies in order to be competitive. For the foreign firms it also typical more efficient use of the production factors. The privatized firms have been deeply restructured and their productivity has grown up.

Foreign direct investments affected the growing regional disparities in all Visegrad countries. The capital cities, and the large cities with the universities and skilled working force, the regions located on the western parts of Visegrad countries have benefited from new job opportunities and higher income level, while some other regions lagged behind. For the illustration of this phenomenon the territorial pattern of distribution of FDI stock in Czech districts in 2005 is shown in Fig. 1.

The growing export affects the strength of the local currency. For instance in Slovakia the Slovak koruna has strengthened its position to Euro by 15% in the last 12 months. Such situation exerts the pressure on the domestic producers that use the obsolete technologies and rely on the low-cost labor. They have to make their processes more efficient, they have to pay more to their workers otherwise they lose their markets or they may not be able to find enough qualified labor. For example, as the result of the entrance to the European Union it is estimated that the Eastern Europe lost more than 1 million of construction workers that moved west. Many of these workers are now missing in the booming construction sector of the Visegrad countries. Hence this affects also the competitiveness of the local companies. If they are not willing to innovate they have to go out of the market. Growing incomes of qualified workers exert additional pressure on changing the industrial equipment. It becomes more efficient to substitute the labor by machinery, when labor costs rise, and that is the important innovation driver.

The new technologies and products are not in most cases developed in the recipient countries of Visegrad. The former research and development base developed during the communist era has been substantially reduced.

The new ways of organizing the production, such as just in time systems, higher requirement on the quality of supply are the reasons why some larger producers provide the technical aid for the suppliers which then enables them to buy better supplies and reduce the costs.

The purchasers of the supplies are not the only businesses that exert the serious influence on suppliers. The investors influence suppliers also indirectly. The activities of the firms with the share of foreign capital exert the pressures on the domestic firms through the demonstration effects. As a result of it the domestic firms augment their technical and organization level. The special channel of such activity is also the mobility of the managers and workers, who transfer the experience acquired in firm with higher level of productivity to domestic firms. For the

firms with the share of the foreign capital is typical growth of production, quality and higher effectiveness – as well as the good perspective. The growths of the competitiveness on the micro level enable the growth of the competitiveness of the industry as the whole, and creates also general atmosphere of the success. It helps to ameliorate the image of the Visegrad countries in the world.

### FDI Stock in Czech districts in EURO in 2005

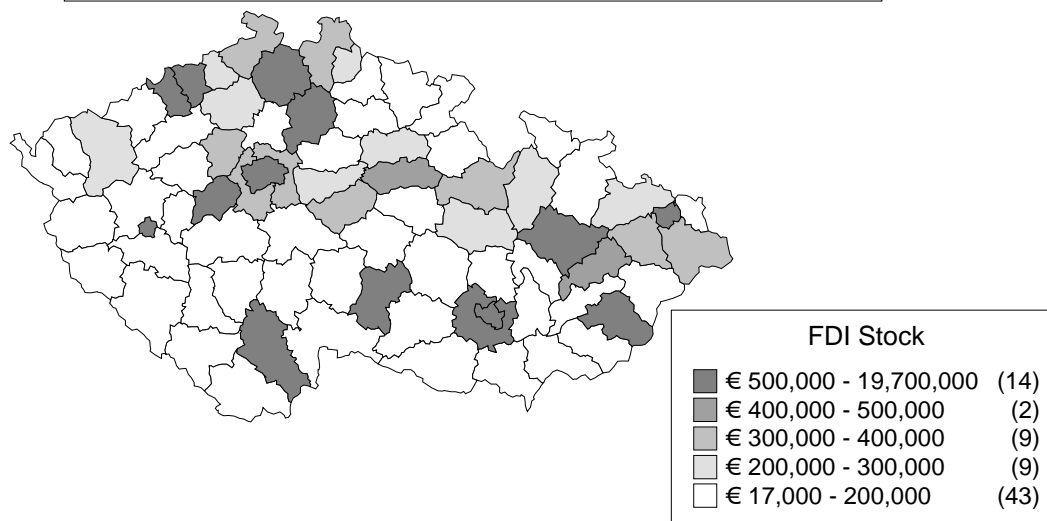


FIG. 1: FDI STOCK IN CZECH DISTRICTS IN 2005  
The map was elaborated based by authors based on data from Czechinvest

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### Research and Development and the Links to Industry Sectors

In the area of research and development the Visegrad countries lag behind developed countries in the amount of funds invested (public and private) and also in the number and quality of R&D institutions and their employees. The two serious problems are a low utilization of R&D outcomes in innovation activities and insufficient support of industrial research.

The problems of Visegrad countries are quite low expenses to R&D. According to available data from OECD (see the Table 5) the percentage of R&D expenses from GDP Visegrad countries was much lower than in developed countries. The situation was especially alarming in Poland and in Slovakia. It does not seem to us that it

has radically changed in the last years. Moreover the structure of expenditures differed profoundly from developed countries, where the industry funds most of the R&D expenditures.

TABLE 5: SCIENCE AND RESEARCH TECHNOLOGY DEVELOPMENT  
(GROSS DOMESTIC EXPENDITURE ON R&D – GERD) IN 2004

Country	Gross domestic expenditure on R&D (GERD)			
	% financed by			Per capita at current USD
	% of GDP	Government	Industry	
<b>Czech Republic</b>	1,27	41.89	52.82	236
<b>Hungary</b>	0.89	51.81	37.1	142
<b>Poland</b>	0.58	65.23	26.91	72
<b>Slovak Republic</b>	0.53	57.11	38.29	72
<b>United States</b>	2.68	30.95	63.38	1,063
<b>G7</b>	2.5	29.57	62.75	841
<b>EU-15</b>	1.9	34.32	54.27	528
<b>EU</b>	1.81	35.04	53.66	459
<b>OECD total</b>	2.26	30.17	61.93	627

Source: OECD in figures 2006-2007.

It is therefore necessary to link better the local R&D capacity to local production. We often observe a worrisome disconnect between academia and industry, where businesspeople perceive academics as theoreticians and do not expect any involvement on their behalf in R&D projects. Especially alarming are the passive attitudes of industrial companies towards R&D and innovation together with limited interest in technology transfers. Fortunately there are also many positive examples.

## Development of Industrial Clusters

Clusters have become the focal point of many new policy initiatives in the last few years, in Europe as elsewhere around the globe. The clusters help to reduce the barriers to entry of the new businesses to other location, they are the factor of growing productivity, they influence the pace of innovation cooperation and as the consequence of it - the growing competitiveness of businesses.

The clusters might be considered as one of the approaches for raising the competitiveness of the European Union in the broader context of Lisbon agenda<sup>2</sup>. The implementation of clusters helps to translate the goals of macroeconomic policies into the microeconomic level, and to develop the new type of partnership between research and educational institutions and the private sector. Many private firms are also interested to take the advantage of clusters because in the globalized economy; a company's location is one of the few sources of differentiation competitors cannot easily copy (Solvell, O, Lindqvist G., Ketels, C. 2003). The development of a knowledge-based economy requires the human capital, ICT, and innovation systems have to be interlinked. Cohesive progress in these sectors impacts productivity and growth, which also depends critically on the business environment in which innovative firms must operate (Goldberg, I. 2004)

The governments of the Visegrad countries have found that if they want to attain the sustainable economic growth and balance economic development they have to raise the quality of business environment on the local level. As a result of it the last years the cluster initiatives and the strategies were expanded.

According to the cluster mapping 46 clusters has been identified on Slovak territory in 2003. Slovakia supports the sector SME, but has at present no cluster policy. In practice the clustering occurs under the influence of

FDI and the imported management approaches. One can observe especially the clustering in the automotive industries. It is recommended by OECD to apply the cluster approaches for Slovak regional policy (Local Economic and Employment Development Business Clusters 2005). Slovakia's success in attracting automotive production is linked to five factors (World Investment Report 2004):

- The three main sites located in western Slovakia are close to western Europe and in the middle of an emerging cross-border cluster of 13 car plants, 10 power train factories and hundreds of suppliers in a 500-km circle that encompasses the Czech Republic, Hungary, Poland, Slovakia and Slovenia.
- Slovakia benefits, within that cluster, from good transportation links (a highway link to Western Europe is almost complete) and free movement of goods within the enlarged EU, which facilitates the cross-border supply of components.
- The country offers a combination of labor skills and competitive labor costs. The latter are particularly competitive due to the latecomer status of the country in attracting FDI. This has kept wages lower than in CEE countries that have been the traditional magnets for FDI (the Czech Republic, Hungary, Poland) and that, as a result, have seen their wages rising.
- Thanks mostly to Volkswagen's efforts – such as the construction of two industrial parks for suppliers – the supplier capacity of Slovakia is improving, making production more cost efficient. In 1997, the production value by Slovak automotive suppliers amounted to around \$450 million. By 2003, it had increased by more than five times, to about \$2.5 billion.
- In the cases of PSA and Hyundai, the Government of Slovakia provided assistance within the limits of EU rules on State aid (up to 15% of the value of the projects): free land for the plants, construction financing, subsidies to train the labor force and tax breaks. Direct payments to Hyundai were estimated to be around \$170 million, while estimated public expenses related to the project amounted to \$50 million. PSA was expected to receive \$114 million in government assistance. In addition to its contribution to export competitiveness, FDI in Slovakia's automobile industry is a major source of new investment and jobs.

In Poland we observe the tendencies to networking from bottom-up in the traditional as well as in technological sectors. The first elements of cluster policies have been introduced in 2002 and since that time we observe the gradual development both on the regional and central level. As in other Visegrad countries there are the problems with inadequate development of the social capital, although spontaneous creation of the regional business associations closely co-operating with the regional governments has enabled to attain the certain progress.

Hungary has developed in past 15 years many initiatives on the regional level that support the local development. The clusters were established in some sectors such as automobile, logistics, and construction. Export oriented cluster is Pannon Automotive Cluster, PANAC, representing 10% of HDP is the most important cluster in Hungary. On the basis of Szechenyi plan of the Ministry of economy from the year 2000, 21 consortiums were officially labeled as the clusters, which are eligible for the state support. Later analysis has shown that only one third of all clusters can be described statistically. The growth was concentrated in the western part of the country and there are substantial differences between West and East. Creation of cluster from domestic firms continued quite slowly.

In Czech republic we may observe the establishment of clusters in older industrial regions in Moravia (metallurgy, mechanical engineering) and also for the supply networks for large international corporations, such as Volkswagen/Skoda. The Association of technology parks, the consulting agency Czech Venture Partners, Czech modernization Center and Czechinvest are the important factor for the cluster development that is moreover pushed by FDI (Local Economic and Employment Development Business Clusters 2005). All these organizations coordinate the establishment of industrial zones and are seeking the strategic investors.

In the CR the problem of clusters and their promotion is only at the outset. Nevertheless Czech Republic has developed the program KLAŠTR in 2004 and the so far attained results are very positive. Further development of the clusters is decelerated by the absence of regional strategic development plans and regional industrial and innovation policies, to which the clusters or other projects promoting innovations in regions could be connected.



However at present the substantial changes are implemented. The main differences consist of a change in the amount of state support, more independency concerning the membership of universities and optimal number of cooperating entities in clusters. Concurrently, the preparation and training of experts and managers in the area of innovative entrepreneurship is taking place partly funded from EU funds

Some of the scholars criticize the cluster concept in EU and in Czech Republic. According to Jetmar, N. and Kourilova, (J, Wokoun, R. and Mates, P., eds. 2006) the notion of clusters is not well described and in the cluster concept two approaches are mixed. The first one is linked to the development of business networks, creation of the strong relations with the regional actors that are moreover supported by the public sector interventions. The second one is linked to the enhancement of innovation potential, the strengthening of competition and putting the stress on further concentration of business. Such mixture of approaches has the corollary: the unclear goals, policies and instruments as well as the role of public sector supporting the clusters.

From our point of view the contradiction embedded in the cluster concept is in fact imaginary. In fact the contradictions represent the driving force of the cluster development. From the practical policy making view this may represent the problem, since more experience is needed for tuning up the policy measures, business structures, operations, etc.

## **Public Instruments for Enhancing the Competitiveness of the Clusters**

The desindustrialization and competitiveness are two problems that are closely linked. It is necessary to define the policies that would stop the desindustrialization processes. The European institutions act as the guardian of the competitiveness. They have the common goal that would enable their successful competition on the global markets. After 1995 the productivity growth in Europe was slowed down. The efficiency of hourly work in Europe in 2002 was on the level 86,6% calculated from the level of USA. The growth of competitiveness of labor in the period 1990-1995 was 2,5% but later decelerated to the level 1.3% (1995-2000). In the USA corresponding numbers were 1,1 % a 1,9 % (European competitiveness report 2003)

The results of the research show that the principal importance has the conditions that enable the investor the fast start of the investments, and to certain extend also the reduction of its costs. This depends both on creations of tangible conditions such as the access (existence) to the land and infrastructure and in the first place the efficiency of formal approvals. The local governments (city self-governments) can influence the investment in the first place by their responsible attitudes, the quality of provided services in the city hall and through the technical infrastructure. The very important role is played in this process the institutions and the local leaders (Domanski, B. 2001). The investor expect the amelioration of the local infrastructure – the construction of the new roads or amelioration of the surface of the existing roads, there are also requests for the amelioration of energy and water supply, refuse removal, canalization, water treatment plants, some of the firms also request the amelioration of the public transport.

The modern business clusters need better transport infrastructure, such as good access by the international airport, which is integrated with other types of transport, the high speed railways, express highways, the broadband access, etc. The clusters bring better-paid jobs and growing need for the mobility. Their operations indirectly generate the demand for the production of new housing units. In the innovation clusters the large part of jobs have the service character, hence the cluster development generates the growing demand not only for modern industrial and logistic premises but also for the modern distractive spaces, which is clearly the challenge for the developers, that are now prospering in the fast developed regions of Visegrad countries.

In some cases however the real estate development does not match the needs of industry. Unjustifiable delays in implementing the necessary land ownership reform remain the major cause of the lack of development in the housing, construction and property markets, with a direct and negative impact on the labor market, SME growth, new enterprises and financial intermediaries. This problem is also hindering the entry of domestic and foreign investors in both these and a wide range of other sectors, especially when compounded by the legal loopholes affecting property rights.

Horizontal infrastructures need to be put in place or reinforced in the internal market sector, particularly those that facilitate a good business environment and entrepreneurship. Examples of areas where there is considerable room for improvement include: market supervision, standardization, certification and industrial and intellectual property rights.

## Transborder Economic Co-operation

The regions that were once on the frontier of the „iron curtain“ dissolved after 2007 have at present the interesting development potential. The European Union tries to stimulate the transborder cooperation in these regions from the EU funds. In the short paper it is not possible to describe all initiatives that take place in Visegrad countries. For this reason we concentrate our description on the Centrope transborder region (see Fig. 2).

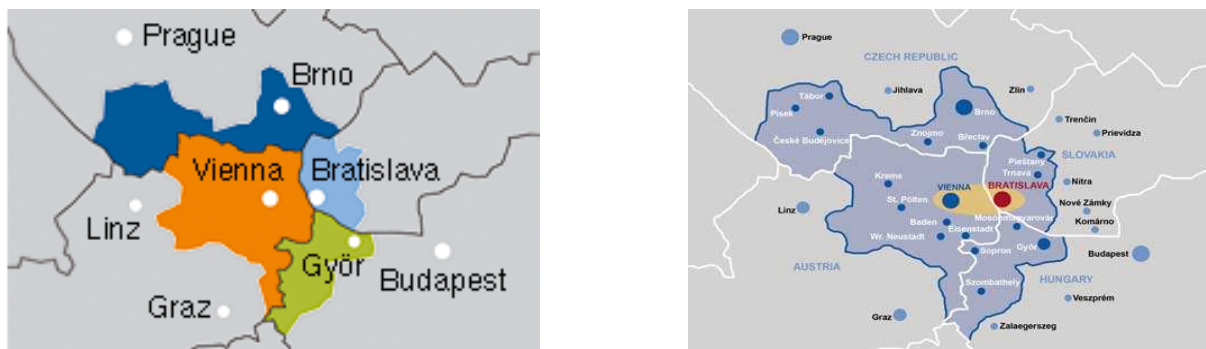


FIG. 2: CENTROPE REGION  
Maps are from Centrope web page

The Centrope region, strategically located in the heart of the “New Europe”, is one of the continent’s most dynamic economic regions. In contrast to Western Europe’s saturated markets, Eastern Europe offers enormous growth opportunities, with an economic expansion rate of up to five percent anticipated over the next few years. (4 Countries – Unique Business Opportunity, Retrieved March 2007). The Centrope region was established in October 2003 and consists of 9 bordering regions of Austria, Czech Republic, Slovakia, and Hungary. The center of the region is not in Visegrad countries but in Vienna, Austria. Investment in the Centrope region anticipates an economic expansion rate of up to 5% within the next few years, and for this reason it is expected to offer enormous growth opportunities for potential investors. Recently it focuses on biotechnology, automobile and IT and telecommunication.

The Centrope region has the potential to become the high tech region (Centrope. Central European Region 2006) We should mention especially life sciences sector (13,500 persons in Vienna, 140 enterprises in the fields of biotechnology, pharmacology, medical technology, big pharmaceutical companies Baxter, Novartis and Boehringer Ingelheim, Campus Vienna Biocenter, the research base in Lower Austria: Wiener Neustadt, Koln, Krems). Similarly we should mention the strong potential in South Moravia (Masaryk University, the Mendel University of Agriculture and Forestry, the University of Veterinary Medicine and the University of Pharmacology, The establishment of new enterprises in the field is driven by the South Moravian Innovation Center).

The important centers of the automotive industry are located in Western Slovakia (PSA Peugeot-Citroen, Hyundai-KIA, Opel, VW and Audi, top automotive brands). Slovakia produced 295,000 cars in 2005. The automotive production was mostly oriented on export (40% of national export). This year it will produce 500,000 cars, and it is expected that the production in 2005 will attain the level 800,000 cars (Stavebne noviny, 2007). At the

moment, the multifunctional science and Technology Park CEPIT (Central European Park for Innovative Technology 2007) is being constructed north of Bratislava, which should be completed within six to eight years.

The co-operation of Volkswagen and the Slovak University of Technology in Bratislava enabled to fund the University the costly measuring equipment and EDP systems. The University can then better prepare the graduates for the work in the industry and also develop the research activities that can later be applied in industry. The real potential of the co-operation and technology transfer is however still underutilized. The flexible managerial structure responsible for the transfer has still to be developed especially at the Slovak Universities. Meanwhile the demand from automotive industries is growing. More and more subcontractors of the automotive industry are coming to the country. And they need to innovate their products. So more synergy is expected to be developed with the local Universities.

The Gyor area in Hungary is also specializing in automotive industries. The vehicle manufacturer Reba started the development pole "Auto polis", the important player is also Szechenyi Istvan University of Gyor. The Hungarian state promotes the development of regional "development poles". According to these, Budapest is to become a development pole for information and communication technologies; nano and micro technologies are to be promoted in Miskolc; biotechnology and IT are to be points of emphasis for Debrecen and Szeged, and Szekesfehervar, Veszprem and Gyor will further expand the automotive sector.

The Austrian Burgenland region has assumed Europe-wide pioneering role in the field of renewable energy (production of liquid fuels, solar energy, recycling, treatment of e-waste, construction of low energy and passive houses), South Moravian region is concentrated on wastewater management.

The concept of the Centrope is the visionary concept that combines the ideas of knowledge based society, transborder co-operation, competitiveness, and integrated regional policies.

## **The Problems to be Solved**

In Raising EU R&D Intensity Report, was claimed "In most Accession countries (now already members of EU), the challenge is to find technology-based firms with sufficient resources and vision to look beyond the day-to-day struggle for survival and the courage to begin the virtuous cycle of investment in innovative activities. Building links with existing research institutions may also be complicated because traditional competence in this sector may not be aligned with the needs of firms involved in rapidly-changing technology sectors." (Raising EU R&D Intensity 2003).

An important factor limiting the transfer of R&D outcomes into practice is insufficient use of instruments securing the rights to intellectual property. As a result, the patent activity in Visegrad countries is low. The reason can be either a lack of quality R&D outcomes suitable for patenting or technical and financial demands of the patenting procedure.

Compared to other EU countries, in the area of innovations the Visegrad countries ranks below average. The Visegrad countries lag behind the developed countries notably in the intensity of enterprises' innovation activity, transfer of technologies, business spending on R&D and innovation, patent activity, cooperation between research and enterprise sector and use of venture capital. Since innovations are one of the prerequisites for business sector competitiveness, it can be assumed that promotion of innovations will impact positively on economic growth and employment.

Innovation depends mostly on the activities of private sector and its cooperation with research institutions, sufficient and available funds for innovative activities and innovation infrastructure. Apart from sufficient "inflow" of R&D outcomes suitable for innovations, the development of innovative activity also depends on the innovation infrastructure, firms and, not least, innovative human resources.

The innovation infrastructure consists of scientific and technological parks, entrepreneurs' incubators and centers for transfer of technologies. The existing infrastructure in Visegrad countries is not developed sufficiently, although the substantial progress has been achieved. There is the lack of quality entrepreneurs' incubators, which

would provide complex services for entrepreneurs. The transparent and simple legislation, have to be developed which would motivate research and education institutions to create spin-off firms financed from public budgets. To ensure further development of innovation infrastructure it is therefore necessary to focus on creating structures and mechanisms to improve the innovative environment including the business structures, which represents quite complex problem.

It is very important to promote the cooperation between employers, educational institutions and professional institutions. Such areas of co-operations as preparing new educational programs with the participation of the private sector, participation of experts on education, providing practical experience, and by promoting mobility of students and teachers via practical traineeships in enterprises, are not unknown in Visegrad countries but they are not in widespread use. The strengthening of the interconnection among universities and private sector could help to bring more funds into educational institutions.

The important moment for the development of the competitiveness is the enhancement of the social capital. The quality network of the social interconnections enable to reduce the transaction costs, stimulate the co-operation between different partners, helps to pool the scarce resources, supports the process of preparing the creative solutions and innovation. It is an important factor of monitoring costs as well. The social capital is also very important factor for building the cluster organizations, where the creation of the partnership structures is the essential ingredient of success. According to this economic rationale, Visegrad countries entrepreneurs would make the rational choice to maximize their personal profit by deciding to interact and invest in social relations.

The growing exposure of the Visegrad countries to the global economy, growing maturity of the public and private sectors together with the involvement of the specific EU policies and structural funds, as well as FDI inflows are the important catalysts of growing competitiveness. The Visegrad countries has made the serious progress during the last 16 years of the economic and social transformation, however they stand in front of the new challenges that intellectually stimulating but not easy to deal with.

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## End Notes

<sup>1</sup> In fact the new challenges for economic transformation of Visegrad countries influence indirectly the social sphere and should be accompanied with measures that enable better affordability of housing for Visegrad countries' labor force in. In order to understand these problems, it is necessary to understand the new challenges of economic transformation. In this sense this paper presented represent the preparatory material for the solution of the research grant VEGA1/3781/06 European dimension of Slovak housing policy and development of housing sector in Slovakia, and it is partially funded from it, which we are grateful for.

<sup>2</sup> Lisbon European Council in 2000 formulated the idea that the Europe should become "the world's most competitive and dynamic knowledge based economy"

# **Enlarged EU-27 and the Growing Fragmentation of its Enlarged Internal Market**

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## **Abstract**

The paper deals with some experiences as gathered from our research and lecturing in the area of internal market of the EU. The general development trend in this one of the key areas of the EU has been that the bigger is its internal market, the bigger is becoming also its fragmentation. Accordingly, the EU member states are becoming also members of various categories of members according to their role, place and functions in the functioning of the EU. The main focus of our paper is on this process as developing after the last two enlargements from the recent “old” EU-15 to the current EU-27

## **Introduction**

Just very recently, in the end of March 2007, the EU has - with its traditional pomp and sense for magnificence – celebrated the 50<sup>th</sup> anniversary of the Rome Treaties that among others have established not only two new European Communities i.e. European Atomic Energy Community (Euratom) and the European Economic Community (EEC) but also the Internal market of the European Communities or of the current European Union. According to the same basic treaties ... “the internal market shall comprise an area without internal frontiers in which the free movement of goods, persons, services and capital is ensured in accordance with the provisions of this Treaty”. Originally, the same EEC Treaty has stipulated that the particular internal market has to be established within the so-called transitional period of 12 years i.e. that till 1970 the Internal market of the EEC has to be not only existing but also to be fully functional. Unfortunately, as in many other similar cases also the history of the Internal market of the current EU has not been as simple and as straightforward as it has been originally expected and signed by the EU member states heads of states, etc.. Although originally its creation had to be completed by the year 1970, even now after more than 50 years since its inception we can state that the Internal market of the EU has not been completed as yet and it is still an open question when if ever it could be completed according to the particular Article 14 (ex Article 7a) of the basic treaties as quoted above. In the following parts of this paper we will deal in more details with some aspects and/or problems that are doing the entire process of the internal market development more complex and difficult than it has been originally anticipated.

## **Some of the Main Problems and Difficulties that have also Caused the Internal or Common (?) or Single (?) Market of the EU has not yet been completed even after more than 50 Years since its Inception**

One of the first problem areas that are related to the issues of the internal market of the EU is the problem of its name. Since its initial definition in the above Rome Treaty as an internal market there exist in the basic treaties and other official documents also another two names used for the same purpose. So in the basic documents we could find altogether three different names for the same object, viz.:

- internal market
- common market
- Single market.

Although in principle all three of them denominate the same object or entity, we could say that they at the same time have been stressing some different features of this one of the most important parts, goals and symbols of the entire European integration:

- internal market - as we have stated already above, the original definition according to the Rome Treaty on the EEC has been underlining the fact that this market is internal i.e. without any internal frontiers or borders and thus has to be existing and operating within some external borders that at the same time have also to protect this internal market against any distortions and/or an unauthorized entries from the outside of the EU. In this connection it is interesting to point out that the particular external border is not directly mentioned in the particular initial definition and legally has not been done so until year 1992
- common market – although according to the basic Treaties there is no explicit definition of the common market, there is in the Article 3 (a)-(d), (g) and (h) of the EC Treaty stated that the common market is “...a customs union in which in addition to the free movement of goods also the free movement of persons, services, capital and payments, the freedom of establishment and undistorted competition are guaranteed...”. In this respect, the common market represents an extension of the internal market from its original four basic - or as often being marked – fundamental or constitutional freedoms to some additional freedoms that specifically mean the freedom of establishment i.e. a right to apply these fundamental or constitutional freedoms anywhere within the internal market i.e. not only e.g. in own member state but universally inside the external borders of the EU together of course also without any undistorted competition or otherwise in other words without any discrimination. This aspect of non-distortion or non-discrimination is in this context very important as it is right this fundamental and/or constitutional right that is most often not respected and most widely violated depending upon the EU member states nationality of the particular subject no matter if it is a physical or a legal one
- Single market – since of its inception more than 50 years ago in 1957, the internal market of the EU has gone through various development stages, reforms, action plans, etc. In order to accelerate to make more efficient its completion and/or practical implementation. One of the most significant in this respect has been the so-called Single European Act adopted in 1986 that has amended the particular EEC Treaty and stated also the new, more realistic deadline for the completion of the internal market by 1 January 1993. Since that time also a new term of a Single market has been introduced in order to stress and underline that within the EU there has been only one single market.

However, these legal and terminological uncertainties regarding the EU internal market still do not represent the major problem in this problem area although it is fact that on the other hand they also document how it is difficult and complicated to transfer such an important part of the European integration from the texts of treaties into the daily practice of the EU. The more important fact in this respect is the problem that even after 50 years of its development; the EU internal market has still not been a fully functioning reality for various reasons. Some of the most general problems in this respect have been the following ones:

- although the year 1970 has been originally defined as a target year for the completion of the EU internal market, until 1992 i.e. adoption of the Maastricht treaty on the EU there has not been defined an external border of the EU i.e. the border that as an external border has been responsible for the protection of the EU internal market. And unfortunately even until now this external border in principle has not been existing to the full of its extent and thus in some respect it has been more dividing than protecting the EU internal market. The problem is that the so-called Schengen external borders of the EU and thus also of its internal market are not fully corresponding to the actual borders of the EU and/or its member states. For example as of today in this connection we could see several paradoxes. On the one hand, not all member states of the current EU-27 are within this external borders of the EU although formally they are also integral parts of the internal market of the EU. In fact out of current EU-27 member states only 13 old EU-15 member states i.e. without Ireland and the UK are “protected by the Schengen border. It means that most of the current EU member states i.e. 14 are outside the borders of the EU Internal market although of course they are integral parts of the EU Internal market and on their “internal” borders with other EU member states are free of any customs controls but of course not of passport controls for all passengers irrespective if they are or are not citizens of the EU-27. In order the reality of the Internal market would be even more confusing, there are

some non-members of the EU like e.g. Norway, Iceland that are parties to the Schengen agreement and thus enjoy also free movement of persons including their own citizens who although not being EU citizens can fully enjoy what EU citizens from the above 14 member states simply just can not?! And in order to make it even more complex, citizens of some overseas “territories” of some EU member states have also a kind of privileges regarding their free movement within the EU territory although they not meeting even the most fundamental precondition for European integration i.e. to be from or in Europe as stipulated the initial treaties regarding who is eligible to become a part of the initial European Communities i.e. “any European country can apply...”

- a mutual recognition (e.g. of goods for free movement within the EU Internal market) difficult in practice – although since adoption of the so-called “Cassis de Dijon” in 1979 has already elapsed more than 27 years, the problem of a mutual recognition of goods has been still one of the most frequent obstacles in the truly and fully free movement of goods. Most of the member states of the EU still do not miss any opportunity to protect their national market against any “unnecessary” imports and thus of course for various reasons protecting their own national producers e.g. especially in agriculture where they always find enough reasons for suspending free movement of goods on the grounds of BSE, a cow disease, a bird flu, etc.
- Transposition delays – it is a problem that for various reasons the member states are “unable” to adopt and implement the community legislation into their national legislative system. Among the most frequently quoted reasons are that there is too much of EU legislation adopted too quickly and with insufficient deadlines for its implementation on the national level, administrative structures especially in the new member states are not always able to absorb so much legislation in such a short time especially because of their internal institutional, administrative and other deficiencies. In many cases there is misinterpretation of the EU legislation, what in many cases means that the national administrations either underestimates the importance of the adoption of the EU legislation and/or they interpret it differently than it has been originally adopted on the EU level. So in many cases they use the EU legislation as a cover up or “objective justification” for achieving their narrow and selfish national interests and not those of the community significance. Especially in the case of the EU directives that enable a kind of national interpretation of the basic principles of the particular legal act it is quite common that the same directive has quite wide and different interpretation in different member states what again is to some extent distorting the functions of the EU internal market. Not to mention that it has to be not only an internal but also a common or even a single market as we have defined it above. Another and very often problem with the functioning of the EU internal market on the national level has been the problem of the enforcement of the already adopted and implemented EU legislation. In the next part of this paper we will illustrate at least some of these problems in connection with the current situation regarding the four basic or constitutional freedoms or free movements.

### **The Key Problems of the EU Internal Market Regarding Four Basic, Fundamental or Constitutional Freedoms or Free Movements – Goods, Services, Capital and in Particular of Persons/EU Citizens**

As we have already stated above at the beginning of this paper, since its inception more than 50 years ago by the Rome treaty, the current EU internal market has to be based on four basic freedoms that as they are defined by the basic treaties have at the same time to be interpreted as fundamental or constitutional freedoms. In this respect their functions in the EU internal market are far more important and significant than some other legislative acts as we have mentioned them in the end of the previous part. Analogically as on the national level, the constitutional rights and freedoms are always above or are superseding the “ordinary” legislation. Of course that the same principles have to be respected also on the community or the EU level. As the EU has not have still its own Constitution – as we know the particular EU Constitutional treaty has not been approved in the referendum in France and the Netherlands – then the existing basic treaties serve as a part of a rather complex and not very logically organized, but still an officially adopted and ratified kind of a “constitution”.



Unfortunately, in view of the above, the current situation in the EU has still been far from the above enquired respect for and adherence to the particular basic fundamental constitutional freedoms as enshrined in the basic treaties already for more than 50 years. If we take any of these basic freedoms, no one of them could assess as a fully functioning one.

## **Free Movement of Goods**

Some still existing problems in this respect we have already mentioned also in the previous part of this paper. In addition to those already mentioned above, we could add that there exist the whole range of various others that are not just simply consequences of the misinterpretation of the community law, or its delayed implementation or interpretation. There are existing distortions to the truly and fully existing free movement of goods that are directly sanctioned - by an evident paradox - by the community legislation i.e. the same legislation that has to be in the front-fore of protection of a fully functioning free movement of goods as enacted by the basic treaties. In this respect we cannot find a better example for illustrating this paradox situation than the CAP - Common Agricultural Policy. The largest, oldest and at the same time the most expensive common policy that during the period of fifty years since its inception has completely lost any kind of objective justification for its existence. While in time of its inception in 1950s, shortly after the 2<sup>nd</sup> World War, the CAP was a common policy that had to help member states to overcome at that time still existing shortages in food supplies, in quality of food, etc. Nowadays there has not been any justification for this kind of common policy that annually has been swallowing almost the half of the total budget of the E. Moreover, this enormous financial means have been serving to a sector that has already for long nothing to do with any of the new challenges of the contemporary EU like e.g. the Lisbon strategy on e-Europe and information society, or its newer version of i2010, or problems of energy self-sufficiency, a modern life-long education, new and better jobs instead of still existing a rather high unemployment especially among some categories of the EU citizens, etc. This enormous amount of the EU budget has been still used to serve to a still smaller part of the EU population that currently achieves not more than about 5% of the total workforce and contributing to the GDP on the union level by not more than about the same share. Moreover, in an already overproduction of all basic categories of food. With some exaggeration we could say that currently this enormous sum of community money are used directly or indirectly by the EU itself for distortion of its own internal market! All those various subsidies and direct payments to farmers for their agricultural production or on the opposite for not producing some crops, or for liquidation of the existing production capacities like currently e.g. for closures of sugar mills, destruction of wine yards, etc. have nothing to do with any market economy and not at all with any free movement of goods, etc. Moreover, in all those various kinds of subsidies there exist relatively high differences e.g. currently between old EU-15 and new member states. The latter ones have been receiving only a fraction of subsidies (25-35%) of what has been paid to farmers from the old EU-15 member states. And this differentiation between "old" and "new" members has been so strict that it has not been even allowed to equalize these differences from the national budgets of the new member states. It is then no surprise that an important segment of the EU internal market i.e. one dealing with agricultural goods has had totally anything with any elementary requirements of the free movement of particular goods. And the negative consequences are already evident especially in the new member states. The prices of basic foodstuffs are no much higher than they were before they joined the EU less than three years ago., because simply most of them are nowadays not home grown but imported from the old EU member states and thus also cheaper than they could be produced by the less subsidized domestic farmers but in general more expensive for consumers as their prices correspond more to much better paid citizens of the old EU-15 countries than consumers from the new EU member states.

Some evident distortion of the current EU internal market exists also in respect of the free movement of goods across the borders between the new and old EU member states. While there have been abolished any customs check points on these internal borders between old and new EU member states yet on 1 May 2004 when the EU has enlarged from the former 15 to then 25 member states, i.e. almost three years ago, there is still evident a kind of distortion in the free movement of goods especially from the new to old EU member states. It is enough just to travel from Austria to Slovakia or vice versa through the border crossing Berg - Bratislava and one can see those never

ending long waiting cues of loaded trucks for their “free crossing of the internal border of the EU internal, common or single market”. As we have already mentioned above there is always something what has to be checked, verified or just simply something like that in that respect on that and other similar internal borders of the EU. If it is not for infected meet, then for potential illegal emigrants or if for nothing else then for the technical conditions, weight, overloading or whatsoever similar “technical or security or any other reasons”. If we take into account that in addition to the above already mentioned distortions of the current enlarged EU internal market that the free movement of goods is further distorted by various quantitative quotas in production or storage e.g. again in agriculture products or steel and other industrial products then it is clear that the current EU internal market is definitely not anything similar to the common or single market. In fact within the current EU internal market due to its above ongoing fragmentation there exists several partial internal markets for free, less free or more free movements of goods. If we take again only the sector of agriculture as an example we could see that there exist several segments of the EU internal market as e.g. one consisting of old EU-15 member states with high subsidies, completely free movement of goods, etc. Then there exists a relatively separated segment of the EU internal market consisting of 10 NMS with less generous subsidies but various restrictive quotas that do not exist e.g. in the EU-15 as e.g. regarding production of sugar (all “redundant” production capacities in that respect have been recently eliminated in the NMS but on the other hand generously compensated from the EU funds to their foreign owners), beer, but also in the segment of energy, steel, etc. And then there is the newest segment of EU internal market consisting of the latest entrants of Bulgaria a Romania that are now in the stage of the same subsidies as previous 10 new entrants were in year 1994.

Also from this rather brief analysis of the ongoing fragmentation of the EU internal market it is quite evident that as for free movement of goods it is neither common nor at all a single but more and more fragmented internal market. Nothing in this respect could be changed by the fact that the CAP is officially exempt from the EU internal market where any unfair competition, excessive state aid, subsidies, quotas, etc. are strictly prohibited by the community legislation, etc.

## **Free Movement of Services**

In principle the same problems as we have listed them in the previous part in connection with the “free” movement of goods could be t the same extent applied also in the case of the second fundamental or constitutionally provided and/or by the basic treaties provided a free movement of services. Again as in the case of the free movement of goods there exist an ongoing process of fragmentation of the common internal market as a consequence of the ongoing and especially the latest two enlargements of the EU from the original EU-15 to EU-25 and quite recently to the current EU-27. In principle there are again at least two segments of the common EU internal market i.e. one consisting of the old EU-15 countries that in principle have in fact an existing free movement of services within all 15 member states. However, again completely different situation exists regarding services provided by the entities from the EU NMS. The most vivid and most famous case in this respect has been the enormously publicized case of a “Polish plumber” who - just because - has offered his services in plumbing promptly on the spot and for much more reasonable price than his French counterparts has become a symbol of an unacceptable danger from the East destroying labour market, taking jobs to local experts and specialists, etc. Not surprisingly he has become a symbol of the anti-campaign against the Draft of the Constitutional treaty that has finally been not approved in the referendum in France and subsequently also in the Netherlands and thus sending not only the particular treaty but also the entire EU into the deepest crisis never before existing. And the entire case is just nothing more or less than a practical example of application of one of the basic constitutional freedoms of movements and rights of citizens in practice. Nothing more than an attempt to fully utilize all the potential of the EU internal market in the free movement of services that on paper has been existing nowadays already for more than 50 years! Unfortunately, the “Case of Polish plumber” has not been the only, although the most publicized symbol of the ongoing fragmentation of the EU internal market in its segment of free movement of services. Many more other examples could be brought up regarding e.g. various restriction against service providers from the NMS in the area of truck services, taxi services (taxi drivers from the NMS are e.g. not allowed to offer their services in the old EU-15 member states even

in cases when their first leg service has been carried out from the territory of the NMS to the territory of the old EU-15 member state?! However, on the other hand, there exist some exemption also in this respect. If one happens to provide nurse services in hospitals, or for elderly, or happens to be providing certain ICT related services, then there are no restriction for providers of them in the old EU-15 member states even by nationals from the NMS. And of course, so far there are no existing any such exemptions for service providers from the countries of the latest two entrants to the EU.

In summary to this part we could again just to state that the EU internal market in its segment of free movement of services has again been fragmented into several relatively isolated parts strictly according to the three basic categories of the EU-27 member states i.e. old 15, new 10 and the newest 2. Or otherwise, the current EU-27 internal market in the area of free movement of services is not common or single or on the other hand in fact as fragmented as it suites to the needs or preferences of the old EU-15 member states! One only can wonder where in this case are all those proclaimed basic principles of the European integration on mutual respect, benefits, assistance, solidarity between EU member states of course also old and new ones!

## **Free Movement of Capital**

In principle this kind of free movement is relatively less controversial or fragmented within the current EU-27 internal market than in the case of the three other of them. But again after the last enlargements also in this respect we can witness some fragmentation tendencies of the EU internal market especially again along the lines or internal borders between the old EU-15 and NMS respectively. In principle there exist at least two tendencies towards its fragmentation and they are:

- regarding the common European currency – Euro
- in the capital flows in the form of FDI

As for the common European currency – Euro the last two enlargements have substantially changed the position of this “common” currency. While within the old EU-15 all but three member states (Denmark, widen and the UK) have switched to this new European currency, after the last two enlargements out of the total of EU-27 member states only 13 i.e. less than half of members have been using this “common” currency. It is quite evident that this problem is not only a technical one but has also many very practical adverse effects on the free flow of capital especially again between the old and new member states as of 12 new members only one (Slovenia) has already qualified to the Euro zone. And quite logically those more negatively effected in this fragmented capital movement are those NMS that have not yet met the particular Maastricht criteria as prescribed by the Maastricht treaty on the EU for eligibility of the country to become a part of the new Euro zone within the EU. As in various other areas also in this respect exist some differentiation between the old and new member states. While in the case of original old EU member states the consideration of the readiness of the country to join the Europe zone has been more than generous (except perhaps of Greece) and most of the countries even until now have never met the particular Maastricht criteria. In many cases it was enough just to show the so-called some positive development tendency in the particular criterion and the country was approved for joining the Euro zone. Thus it happened that among the first Euro countries have been approved also at least two countries that have exceeded the total debt Maastricht criterion of 60% of the GDP by more than 100% on the levels of over 120%. Until now their all the positive development tendency in meeting this one of the fundamental four criteria has improved to not more than to around 110% what has been still almost the double of the required threshold of 60% of the GDP. And since introduction of Euro almost a decade ago, many Euro zone member states are unable to meet various Maastricht criteria especially those on the budget deficit on the level of 3% of the GDP. And what was the result? The particular countries instead of being punished according to the treaties have managed that the particular articles of the Maastricht treaty have been adjusted in such a way that there has not been any punishment at all. In order the paradox with the particular criteria for introducing Euro would be even bigger, it has to be mentioned that Euro has been used also by the countries that have never had or never will have to meet any such criteria and are not even EU member states as e.g. Montenegro, Province of Kosovo, but also all various tiny neighbours of the EU like e.g. Vatican (even being allowed to mince its own Euro coins?!), San Marino, Monaco, Andorra and of course also again

various overseas departments of some EU member states. On the other hand some of NMS that have already met the particular Maastricht criteria and/or are much closer to meeting them than some of the existing Euro zone members have not yet been allowed to join the Euro Club as reputedly they are not-yet-ready to meet all the necessary criteria?! In any case the Euro common currency so far has been more dividing, further fragmenting the EU-27 internal market than making it more common or single as it has been its main objective and also undisputed potential

As for capital flows in the form of FDI, these flows are so far much more one way flows from the old EU-15 members to NMS than anything else. In principle it could be a positive trend as it is one of the ways how to more equality and cohesion among the old and the new EU member states. But again, in many cases these FDI are more dividing and fragmenting the EU internal market of the EU than unifying it. The main reason is that the foreign investors very soon discovered that for various historical but also other development trends, the cheap NMS are the best place for placing in them various productions and activities that are less sophisticated, requiring less qualified workforce, less value adding so in this respect the particular gap between old and new members of the EU has been rather widening than narrowing. While sectors and activities related to the latest ICT applications, R&D, etc. have been mostly placed and/or remained in the old EU-15 member states various laborious, hazardous or environmentally more risky productions have been placed in the new member states for the overall costs being just a fraction of the costs required in the old EU-15 countries. The typical example is a recent incident with huge explosion in a plant in Slovakia where semi-qualified workers have been dismantling obsolete ammunition for the monthly salaries on the level of only 200-300 Euro per month?! In case of more attractive productions like e.g. car industry, the foreign investors have expected such locally provided incentives that in many cases raised the total costs for creation of one job to several times multiplied expenditures than have been normally needed or offered to local employers, etc. Not to mention various other direct perks to the foreign executives, managers or even ordinary specialists like accommodation in newly built villas, free air transport, education of their children in foreign language schools, recreational facilities, etc. In some other cases as e.g. in case of privatization of banks through foreign banks has required the incoming FDI required such “preparatory” national investments into the “cleaning” process of their portfolio from bad loans (it is quite interesting that there was no much effort to find out who was behind those “bad loans” that again their final sale to foreign investors has been just a clean loss for the particular new member state and especially its citizens who have been the largest losers from all these processes of privatization, rationalization, modernization, etc. through so often over heralded FDI. They are again contributing more to the fragmentation of the EU internal market to its high tech segment in the old EU member states and its low tech portion in the NMS than to its integration towards a truly and fully common or single market of the entire EU. What is in this overall FDI flows most remarkable, it is the fact that in spite of all problems with them there is one significant development trend. The outflows of profits, dividends and various other benefits for foreign investors have been permanently growing. While for example in the case of Slovakia just ten years ago the total repatriation of dividends has been only about 10 billion Slovak Koruna (1 US\$ is currently about 25 Sk) in just finished year 2006 it has been over 70 billion Sk what is almost the same amount as the total amount of the incoming FDI into the country for the same year?! Hence, the free flow of capital between the old and new EU member states has had really some unwanted and unpleasant consequences not being in line with the principles of mutual benefits, solidarity, assistance, etc.

## **Free Movement of Persons**

All the above distortions of the EU internal market regarding its fragmentation due to problems with the free movement of goods, services and capital have negative impact on overall functioning of the EU, but this last fourth free movement being also guaranteed directly to the citizens of the EU by the basic treaties has even more damaging effect. It is simply because of its nature. Although all three previous free movements have negative effect on the overall functioning of the EU and thus finally negatively effecting also each and every citizen of the EU, but most of them are not so directly effected by some problems in the free movement of goods, services or capital as most of them neither exporters nor importers. Most of them are not providers of various services and even less they are

involved in the free movement of capital. After all, none of these free movements belongs among the fundamental human rights guaranteed by the most universal act of international law. By their substance they belong to the responsibility of various specialized UN and/or other international agencies like WTO, World Bank, IMF, UNCTAD, etc. However, the free movement of persons on the other hand belongs among the fundamental human rights i.e. something what has been guaranteed to every human being irrespective of what is his/her nationality, gender, race, social or marital status, religion, etc. as it is expressed also by their character – they are universal and as such they belong to all people without any restrictions, necessity to claim them, etc.

In view of this its universality it is then absolutely unacceptable that a part of the EU citizens has been deprived of this kind of one of fundamental human rights as it has been currently in the case of the EU citizens from the NMS.

Due to the above universality, there is no legal way that any human being could be stripped of this right. No national or international act of law, treaty, and agreement can have that effect even in case if the particular citizens would “voluntarily” agree with that. In view of this universality it is then no surprise, that the citizens of the NMS are very sensitive about any restrictions imposed over them regarding their free movement within the EU territory i.e. territory of the Union of which they are also “full fledged” citizens with otherwise all the same rights and obligations as they belong to the EU citizens from the old member states. In view of this, any restrictions imposed in this respect over them by the accession treaties that among others have introduced also the so-called transitional period in this respect with the total length up to seven years i.e. till year 201. Especially, for the citizens of the EU from the former ten socialist countries this restrictions regarding free movement of persons has been clearly seen as their totally unacceptable and unjustified discrimination. Basically they see it as a kind of the same continuing unjustified discrimination they were subjected during their former totalitarian communists regimes when right the restrictions on travelling abroad (i.e. to the West) had been seen as one of the biggest deprivations. And by the certain paradox, the same countries that for decades were encouraging citizens of the former socialist countries to get rid with their totalitarian regimes nowadays are doing the same what those undemocratic totalitarian, dictatorial regimes?! It then no surprise that in the first ever elections into the EP the turnout of electorate was in some NMS on the level of the historical lowest levels of only e.g. 16% in the Slovak Republic. That is just a result of their frustration in this respect. They have become citizens of the EU but only of the second category. The EU citizens from the NMS are now also holders of the EU passports but that passport does not help them much in their free movement as guaranteed to them not only by the basic EU treaties but also by the UN Universal human rights, by the Council of Europe etc. Basically, within the EU they do not need the EU passport as an ID card is enough – but in the most of the old EU-15 member states they can till travel only as tourists on the same grounds as citizens of various other countries from the outside of the EU. And outside the EU, their new EU passport also do not help them as their visa and other related statuses are depending upon their national passport or citizenship and definitely not on their EU passport or citizenship.

In principle we could say, that the current situation in the free movement of persons as in one of the “constitutional” freedoms has created such a situation that the citizens of the EU are nowadays divided into at least the following eight categories of citizens:

- citizens of 14 old EU member states that have a complete free movement not only within the Union but also outside
- citizens of one old EU member states, notably Greeks have some restrictions regarding travel abroad e.g. to the USA where they as only citizens of the old EU-15 countries need visas
- Citizens of the 10 NMS have limited free movement within the EU-15 member states where they fully depend upon the generosity or non-generosity of the particular EU member states. For example the UK, Ireland, Finland have opened their labour market to them without any restriction since their entry into the EU. All other old member states are opening it at their will as they like and/or need migrant workers from the East e.g. according to some professions, etc. This “pick-up” or “a la carte” system of opening their national labour market is even more discriminatory than in case that the country has not opened its labour market at all as it makes of the NMS just a source of wanted or unwanted labour! In this case the EU failed to achieve at least that little for its citizens from the NMS that no country could choose what categories of

professions they will accept or not. The minimal equality of the citizens requires a consequent principle of either all citizens or none of them as otherwise the current system is a double discrimination!

- Moreover, also in the old EU-15 countries that have opened their labour market for citizens from the NMS, the situation of these new workers is not an ideal one. Although in principle the EU rules and legislation on the equality, equal workers rights, benefits, etc. has been formally guaranteed, in practice there are various kind of hidden discrimination. These workers have e.g. an equal pay as their counterparts but mostly it is not according to their qualification but because of their initial language deficiencies they are assigned to mostly menial jobs of servants, janitorial staff, etc. so they pay is equal with semi-qualified immigrant workers from the third countries, etc. In this connection it is again a big question, what for exists the portfolio in the European Commission with responsibility for education and multi-languages, etc. If Canada or Australia are able to provide a language preparation for their immigrants for free why the EU is not able to provide the same for its own citizens within the EU itself?!
- Citizens from the last two NMS i.e. Bulgaria and Romania do not have any opened labour market in any of the old EU-15 member states
- Although the EU as also all international organization are very active in protection of national minorities, there are minorities in the current EU-27 that although formally they are eligible to be citizens of the EU as they were born on the territory of the particular member states and have permanent residence in the member state they are not eligible to become citizens of the particular member state e.g. because they do not pass test in the official language of the particular country?!. On the other hand there are citizens of other EU member states that do not speak the language of the particular member state but they are citizens of that state. Hence it would be necessary to have a common Union rules and regulations that would clarify this kind of issues and problems with citizenship, minority status, etc. There are still big differences existing also between old EU-15 member states e.g. between France and the FRG,
- Another problems with the free movement of persons exists between Schengen and non-yet Schengen member states. By a certain paradox (unfortunately not unusual in the European integration) in some case non-citizens of the EU but citizens of the Schengen have more rights for the free movement of persons and free right for establishment than it is in the case of the EU citizens from the NMS. Similarly, also in some EU member countries immigrants from their former colonies have more favourable treatment than citizens from the EU NMS, etc.

In this list of problems and weaknesses in the current free movement of persons within the EU we could continue further on but we suppose that for illustration we have brought up enough examples that call for a very fast and efficient solution in this one of the principal human rights also for the citizens of the EU irrespective if they are citizens of the old or new EU-27 member states. There should be no discrimination whatsoever and this constitutional right of the EU citizens has to be guaranteed directly by the EU institutions and not being left in the hands of the national administrations of individual member states. Otherwise, could happen again very soon that in the next elections into the EP in year 2009 the turnout of electorate will achieve another new historic record in the low level of those who will exercise their right to vote. The solution of the free movement of persons strictly according to the basic treaties could bring the EU closer to its citizens than all various existing campaigns, slogans, declarations, etc.

## **Conclusions and Recommendations**

As we have stated in the previous parts of this paper, in spite of the fact that the EU internal market has just very recently celebrated its 50<sup>th</sup> anniversary, there has still been a lot of work needed in order to bring it into line with the provisions of the basic treaties. The existing and to some extent continuing fragmentation of the EU internal market requires a more consequent approach than it has been so far. Especially it is needed to increase the role of EU institutions in the entire process of the EU internal market development in particular the European Commission has to act in the protection of the EU internal market more strictly according to the basic treaties and without taking into account if that or other group of member states has some other national priorities, etc. Otherwise, it could

happen very soon that there very soon will be no internal common and single market of the EU but only a rather inconsistent gathering of individual and fragmented national markets or their sub-regional groupings.

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## Implementation of the EU Lisbon Strategy: Problems for States

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### Abstract

The paper deals with some experiences as gathered especially from our recent EU projects that have been funded by the EU under the 6FP and its IST – Information Society Technologies Program. For more details about our particular EU funded projects please visit the web site of our e-Europe Research & Development Centre at [www.fm.uniba.sk/erdc](http://www.fm.uniba.sk/erdc). From the point of view of our experiences from these and some other similar projects we are trying to assess some problems and weaknesses of the Lisbon strategy implementation but also some innovations as prepared by the EU under the new research and development program EU/7FP/ICT to be operational for years 2007-2011. This new program by its overall orientation is more open, global and thus giving more opportunities also for participation of partners from the outside of the EU in the EU community research and thus contributing positively to the overall implementation of the Lisbon strategy until its original target year of 2010.

### Introduction

The Lisbon strategy of the EU as adopted at the Summit of the EU member states leaders in March 2000 has stipulated as its main goal by the year 2010 that the EU should become the most advanced and competitive “knowledge based” economy in the world with more and better jobs ... cheap Internet as the main backbone of the whole Lisbon strategy and the future e-Europe with ... modern public services on-line ... dynamic e-business environment, etc. [6]

However, the further development has quite quickly and clearly demonstrated that the main goals of the Lisbon strategy have probably been too ambitious for the current stage of the EU and especially for the national governments of new member states and their general development strategies. In particular it has not sufficiently taken into account that during the same period of years 2000-2010 another important process would be going on in the EU development. This other equally demanding process has been the process of the ongoing enlargement of the EU from the previous 15 member group of (mostly highly developed Western European) states to the EU of 25 member states since 1 May 2004 and subsequently to the current EU-27 when on 1st January 2007 also Romania and Bulgaria have become new EU members. Most of these new member states are former socialist and less developed countries from the Central and Eastern Europe including former USSR. The entry of these new member states has just further widened the gap between the EU and the USA that the Union has originally wanted to overtake as the most advanced knowledge based economy in the world by year 2010.

In addition to the above already mentioned problems with the ongoing process of enlargement there have also been some other and equally important problems. One of main such problems has been that there has not been any whole range and comprehensive implementation strategy for the e-Europe on the EU and especially on the national i.e. member states levels. As it has been in this connection quite evident, the whole Lisbon strategy in terms of its implementation has had some shortcomings especially regarding of its insufficient financial, institutional, legislative and other necessary support.

As it has been quite clearly stated in the W. Kok’s Mid Term Evaluation Report: of the Lisbon Strategy in November 2004 [5]:

member states have made some progress in one or more areas but none succeeded consistently across a broad front  
Halfway to year 2010 the overall picture is very mixed...

Europe needs to step up its efforts considerably in order to meet the Lisbon’s main objectives by the year 2010...



Otherwise, the Lisbon strategy will become a synonym for (an another) missed objectives and failed promises.

On the basis of these and other evaluations, the EU finally adopted a revised and somehow less challenging strategy of i2010 with the main objectives basically defined as “a European Information Society for Growth and Employment [2] i.e. strategy that has been focusing not on becoming the most advanced knowledge based society but to become by the target year 2010 an Information Society that will be able to achieve the steady and higher overall macroeconomic and socio-economic development with higher employment and thus to lower unemployment that currently in many member states of the EU and EU regions has been rather too high hovering on the high levels of 10-12% in average and in some less developed regions even over 20-25% of the total workforce.

### **A Brief Description of the Situation in Implementation of the Lisbon and/or i2010 Strategies within the Previous EU/6FP/IST i.e. in Years 2002-2006**

In addition to the insufficient support to the ICT utilization and to SMEs, another deficiencies of the EU's Lisbon strategy implementation has been that although the “knowledge based economy” has been the main goal of the EU for the whole decade 2000-2010 there has not been so far created anything like a “common policy in e-Europe” in its support similarly to the CAP i.e. common agricultural policy, common foreign and security policy, common policy in justice and home affairs, common regional policy, now intended common energy policy, etc. Most clearly this lack of support could be documented by the EU budget that has - still by an evident paradox – been destined for the old fashioned and currently already out-of-date CAP – Common Agricultural Policy and not for the development of the knowledge based economy. Almost 50% of the EU budget i.e. 45-50 billion Euro goes annually still to the CAP and its subsidies, direct payments, etc. to farmers who in general represent nowadays in the EU only a very small sector of 2-3% of the total workforce and that contributes to the EU's GDP also only with about the same share.

On the other hand the whole 6FP as the main executive program for the EU's research and development program has had totally only 17.5 billion Euro. But even that small amount in comparison with the annual 45-50 billion Euro for the CAP has not been allocated for one year but for the whole period of the 6FP i.e. for years 2002-2006!

In general, the EU policies have been well known for its support to comprehensive institutionalization of the processes of the European integration, However, by a certain contrast the Lisbon strategy has some evident deficiencies in this respect as e.g. in some member states specialized ministries of informatics have already been existing but in most of them such ministries have been missing so the coordination has been in such cases left on several other central organs of the state administration what evidently is not the best way of coordinating the most important development strategy of the EU on the national level

Although the whole Lisbon strategy is based on the knowledge i.e. education, research, development and science, in addition to the insufficient budgetary support to R&D as we have already illustrated above, there has not been any more systematic attempt to create anything like a common educational policy although such a portfolio in the current European Commissioner has already been existing since 2004. So far we cannot see any whatsoever progress in this respect e.g. regarding any systematic all EU harmonization of the curricula, coordinated mobility programs, not to mention e-education or education in ICT and foreign languages e.g. in English as the most important factors for achieving anything similar to the evident comparative advantage of the educational system in the USA that in addition to various other advantages has also one important feature i.e. it is very open for foreign students, stipend and/or fellowship holders among scientists, researchers, etc. from the entire world. That in addition to its much better technical basis is also very flexible and open to the outside world e.g. in attracting best foreign students, PhD. students, researchers to the U.S. universities, etc. Most of measures as adopted in the EU in this respect as e.g. in the introduction of the e-education are more administrative decisions than any comprehensive approach including necessary international coordination, funding, mobility, etc. We cannot just simply speak about development of the knowledge based society and economy without a real revolution in the EU's educational system that only could prepare at least young people for more and better jobs as it has been stipulated in the Lisbon strategy. Just to create a new portfolio in the EC is just not enough moreover, if by a certain paradox the entire educational systems are left as

a national and not community competence. Otherwise, it could not happen such a paradox like in Slovakia where e.g. in time when all the effort has to be devoted to expansion of the Internet based education in all schools, the religious education has been introduced as one of two elective subjects together with ethics?! And in this connection we could state even more paradoxes that something has to be wrong in the education on the community level...

One of the biggest shortcomings of the so far completed implementation of the Lisbon strategy has been that it has not offered any evident and relevant Internet services for general public. Especially many new EU member states are very slow and inefficient in offering any Internet based benefits regarding e-government, e-education, e-health, etc. so citizens of the EU do not see any justified reason why they should invest in the home based Internet connections, services, etc. Just to read newspapers or check train and bus time-tables through Internet is not an adequate benefit for still rather high costs of Internet installation, operation, utilization, etc. Moreover if some new member states with a very high unemployment, low wages of about 400 Euro in average are still not having the standard of living that would correspond to the age of information society, etc.

To some extent quite surprising there has not been existing any sufficient legislative support to the processes of informatization of the EU society is rather weak. Although in many other areas especially again in agriculture, but also in food protection, environment, etc. the EU is very active in introducing community legislation e.g. also in the recently adopted legislation on "protection of air passengers" that to some extent is even in contradiction to fundamental human rights or dignity, etc. the Lisbon strategy lacks in many cases even the most necessary legislative support as e.g. already mentioned institutionalization but also more practical oriented legislation on mandatory utilization of an (unified and cheap) electronic signature as a basic precondition for any more wider utilization of Internet for daily needs, etc.

In general especially in the new member states of the EU there is not a big respect for the SMEs as a potential backbone of the accelerated socio-economic development. The whole sector of the SMEs has been still seen more as a sector that serves as a fast track for becoming a rich businessmen as soon as possible than as one bringing the same benefits as in the USA regarding the high GDP growth, employment, etc. According to many accounts the situation of the SMEs in the new member states of the EU has not improved much since becoming a part of the EU. On the contrary their position has in many respects worsened as e.g. we have registered complaints within our above EPRI-start project. In general the situation of the SMEs including those active in the ICT sector in the new member states has not improved but has been stagnating or even worsening.

Some special problems exist also in the sector of SMEs acting or doing business in the ICT i.e. in the field that represented the operation area for the EPRI-start project. They are as follows:

The methodology and rules of the EU funded projects are too complex, complicated and in some cases even very hard understandable especially for SMEs. For example, there are no specific rules for projects to be prepared by SMEs that quite naturally cannot have the same capacities as e.g. big trans-national corporations. So most even interested SMEs are finally discouraged from a wider participation in the community research and development oriented projects

In general, all preparatory works and activities for submitting a project for funding by the EU is very much time consuming. It requires a lot of own resources, effort and the prospect for success is a rather limited especially in comparison with the big TNC, well established universities, recognized research institutions, etc. Moreover, the English language and especially the specific terminology of the EU funded projects is also an evident burden for the SMEs

too many and various agencies have been offering their (and quite expensive) services, training, consulting and advising on "how to prepare a good EU funded project" but only very few have also a practical experiences from the particular field so there is an another reason for the distrust in this respect from interested SMEs

If in an exceptional case, the project is finally accepted for being funded by the EU, then the cash flow from the Commission is very slow and its final settlement could last for several years even after the successful completion of the project. According to the existing situation, very often projects funded by the EU get during the lifespan of their operation only about 40% of the allocated funds. This especially for SMEs is a rather big problem as they usually do not have so much of own free capital to be bound for so long by the EU

SMEs would prefer rather specific concrete orders, tasks from the EU and its agencies for specific IST related solutions, projects than to apply within the particular calls for rather abstract and very generally formulated topics

like e.g. nanotechnology, safe Internet, advanced robotics, etc. In general it means that in the future 7FP there should be specific programs for SMEs as well as for their matching together with their partners from the old EU member states.

However, one of the biggest problems of the whole Lisbon strategy on any level of its implementation (education, business, government, services, etc.) has been the problem with Internet. Even after practically six years since the inception of the Lisbon strategy, Internet has not yet become anything close to what could represent a backbone of the whole strategy.

Internet especially in the new member states has still many deficiencies. Some of the most crucial in this respect are the following ones:

there still does not exist the necessary technological broadband basis for safe and high speed Internet  
Internet services as offered by the public sector and/or governments are insufficient so they do not offer any incentives and/or compensation for rather still high costs of Internet services. The government sector itself is not using Internet efficiently even for its own internal purposes, there is still missing any share system on the data collected from the citizens by individual governmental agencies. National governments are very slow in any support to Internet in general and its wider utilization e.g. Slovakia only now more than 5 years after adoption of the Lisbon strategy has launched more systematic support to Internet by an incentive of about 150 Euro but limited only to 40 thousand families and a particular client must be 15-25 year old (?) and the speed of Internet must be 512 kbit/sec. in many NMS like e.g. in Slovakia in principle general public has still not had a free and easy access to Internet through the proposed PAP – Public Access Points and definitely Internet café like services are no substitutions in this respect Similarly, there is not sufficient liberalization in the telecom services so there is a lack of competition and thus there exist conditions for the monopolistic position of the existing providers. Just for comparison while there are more than 10 telecom services providers in Denmark, there are only 4 in Slovakia, i.e. in countries of about the same size and population

in general the Internet and related services are too expensive not only for general public but also for SMEs especially if taken into account high costs, high VAT, low salaries, high unemployment, etc. Our research under the EPRI-start project has clearly documented that most of the SMEs from the sector of the ICT related services are not offering any public access to their services through Internet. For example in our sample of 348 such SMEs we have found only 101 of them with their own web site and e-mail addresses. It means that more than two thirds of SMEs registered by this project do not have/offer own web page or generally accessible e-mail address?! Just for comparison again, a company in the USA that has not had an Internet connection or e-mail is considered as a suspicious one of about the same kind like being without phone, fax, a bank account, etc.

There is growing distrust to Internet because of spasm, etc. For example our first attempts using general Internet communication as main communication tool to SMEs under this project has failed and we had to switch to more personalized ways of communications

although all schools e.g. in Slovakia are already linked to Internet the access of pupils and students is still rather limited because of location of PCs or the lack of qualified teachers. The access to Internet in schools has still not been available for parents or the public from that community as it is a common practice e.g. in all schools in the USA

There is not existing any EU program for long-life education in ICT and Internet and no whatsoever promotion for citizens in order to explain them advantages of Internet benefits for their work, education, information, etc. in many sectors it seems that a wider utilization of Internet is seen as an unnecessary intruder to the existing practices of corruption, shadow economy, various kinds of illegal payments, cash transfers, etc. as simply e-communications and e-transfers in such cases are too transparent, impersonal and too traceable and unnecessary well documented.

In view of these few but of course also many more facts it is not quite realistic to expect that Internet will become a backbone of the e-Europe very soon, at least not in some new member states of the EU.

## **Some Results of our Comparative Analysis of the Situation under the EU/6FP/IST in Years 2002-2006 with the Perspectives as Outlined by the EU/7FP/ICT for Years 2007-2011 according to the Draft EU/ICT/Work Programme for the First Two Years of 2007-8**

On the basis of our particular comparative analysis between the previous 6FP and the current 7FP [4] the results achieved could be summarized to the following main advantages of the latter one.

The 7FP is defined for seven years i.e. a longer period than it has been in the case of the 6FP with five years what due to the character of many research and development projects creates more stable and thus also more effective operational area with the clearly stated rules, funding schemas i.e. types of projects to be funded by the EU, etc. although so far it has been launched only first two years 2007-8

The funds as allocated for the 7FP from the EU budget have been substantially increased in comparison with the former 6FP. While the 6FP altogether was handling the total budget of only 17.5 billion Euro for the new 7FP the total budget allocation has been over 50 billion Euro (the exact figure has not yet been available in time of writing this paper). That means that also on the comparative annual basis there has been an increase from 3.5 billion Euro to more than double amount of over 7 billion Euro under the current 7FP. It is evident that as before not all this funding is only for the IST program and has to cover all various other research and development programs under the framework of the ERA – European Research Area. However, on the other hand the total is still substantially less than is funding allocated for the CAP but generally a positive trend and shift in favour of R&D has been clearly evident. And it creates also a good starting platform for the expected future substantial revision in the provisions for the CAP after the year 2011 when will expire the current still stand in the CAP funding. Another positive fact in funding has been regarding involvement of the SME in the EU/7FP. The funding limit for them has been increased from the previous 50% to 75% what gives more chances to this important and very dynamic sector for its active involvement into the research and development activities under the 7FP. On the other hand our experiences from the EU/6FP/IST EPRI-start have clearly demonstrated that even this remaining lower threshold of 25% could be too high especially if we realize that some SMEs with the highest research and innovation potential are really too small or rather only micro companies with less than 10 employees. Another important obstacle for their active participation in the community R&D projects could be the cash flow from the EC to members of various consortia. Our own experiences clearly demonstrate that the delays up to 2-3 years in the final payments are no exemption. In this respect it would be really very much desirable if also in the cases of payments under the 7FP a kind of decentralization i.e. principles of subsidiary would be introduced in order to minimize this kind of delayed payments that as we have mentioned above are often the main reasons for non participation of SMEs in the community R&D programs

One of the biggest advantages of the current 7FP has been its more open policy towards an active participation of subjects from the non-EU member states. In connection with the EU's intentions to become a more respected and active global player and at the same time to support inflow of the innovative know how from the outside of the EU for the support of the Lisbon and i2010 strategies, the EU has now even more wider opened door for entrants from non-EU member countries for their active participation in the 7FP especially in the IST program. There are at least two important aspects in this respect. One being that with only three partners from three different EU member states, there is practically available almost unlimited number of partners from non-EU member states. The other one being that practically the whole world has been invited to join the 7FP. Regarding this "open door" policy of the EU towards research and development partners from the non-EU member states it is important that this door is open practically for all the developing world including some of the poorest and/or smallest and most tiny nations. Most of them are hardly even known to ordinary EU tax payers, like e.g. Cook Islands, Tonga, Tuvalu, Vanuatu, Samoa, Kiribati, Nauru, Niue, Palau etc. in the Pacific Rim. It is really a commendable gesture that clearly indicates that the EU firmly believes that the knowledge, know how, entrepreneurship are not exclusive domains only of the most rich nations. In this truly global geographic context it is important also to realize another not less important factor of real liberalization, globalization of the EU sponsored community research. Among eligible countries for funding from the EU 7FP budget are also countries that are otherwise often ostracized and criticized like Cuba, Syria, Belarus, Burma/Myanmar, Iran, Venezuela, Zimbabwe, Sudan, etc. Out of those not found in the eligibility list we

could mention only e.g. P.D.R. of Korea. This most welcome “open door” policy of the 7FP is going even that far that in case of some big and very prospective countries like Russia, China, Brazil, India they are considered not only as eligible countries but also as regions so there could be more partners from these countries on the basis of their internal regions, states, etc. what is further widening their participating potential and thus also their more than welcome active contribution to the EU community R&D. Of course that the 7FP is open also for all most developed countries like the USA, Canada, Australia, New Zealand or some very rich countries like Saudi Arabia, Kuwait, Qatar, Bahrain, etc. but not under the direct funding from the EU budget. However, again for individual experts even from these countries the funding from the EU could be made available on the case to case basis.

One of the main challenges of the 7FP - in addition and/or better above the already mentioned various positive development trends - is the so-called global physical e-infrastructure for the truly and fully EU Global Research Network. Under the GEANT2 an e-Infrastructure and/or grid has been made available for practical utilization. This global network through its individual subsystems like AGEE, DEISA, EU MEDGRID, EELA, OSG, TERAGRID, SEEGRID, EUINDIAGRID, EUCHINAGRID, NAREGI, BALTAGRID, KNOWARC has created the system that is directly linking current and mainly future partners also in the community research and development into one homogenous e-working environment where the exchange of knowledge, information, results, innovations will only be a matter of fraction of time for direct on-line, real time transmissions. In this way, e-research and e-science under the 7FP will be only a matter of e-communications from/to any place of the globe as also above names of particular grids indicate e.g. regarding the USA, the Latin America (EELA), China (EUCHINAGRID), India (EUINDIAGRID), South East Europe (SEEGRID), Baltic (BALTICGRID), etc.

## **Conclusions and Recommendations**

As we have presented in the previous part devoted to the comparative analysis of the current 7FP with the previous 6FP it is evident that the EU as a whole, its EU member states and in particular the European Commission and its units responsible for the IST programme have in the preparation of the 7FP adopted a new more innovative, systematic and comprehensive “self-learning” approach i.e. learning from its own experiences as well as from the opinions and recommendations spelled out during the 6FP in years 2002-2006 by various experts including this author. Although in some cases it is still evident that some compromises with the existing situation had to be done like e.g. still just in a gradual shifting of funding from the CAP to the R&D, the 7FP and/or the ERA, etc., in general the development trend in this respect is definitely positive one as we have clearly documented in the previous part of the comparative analysis between the current 7FP with the previous 6FP.

The main features and principles as adopted in the 7FP in its ICT Work Programme are definitely creating all necessary preconditions for an accelerated approach and proceeding in the “informatization” of the society irrespective if we consider it under the original e-Europe Lisbon strategy or its “softened” version of i2010. In our opinion the formulation of i2010 has been adopted rather to hastily and prematurely. Sticking more firmly to the original Lisbon strategy would be - also from the psychological aspects - much better serving to the main strategic goals of the EU in the first decade of the 21st century i.e. get closer to the modern Information society.

In this connection, the recent two events organized by the EU in promoting also this global collaborative approach of the EU in the 7FP as e.g... The EUSEA in Singapore in June and BELIEF in New Delhi in December 2006 have clearly demonstrated that the EU and especially the EC are very serious in their effort for attracting research and development capacities from the outside world to international consortia for solving challenging tasks in the current 7FP in the IST/ICT programme. In this respect especially “Get-in-Touch” sessions at above events have also clearly demonstrated an enormous interest from the developed as well as developing countries in joining their capacities with their partners from the EU member states in solving tasks under the 7FP/IST. What is needed it is to provide for them an adequate training program for mastering the project preparation methodology of the EU funded projects. For example our e-Europe Research & Development Centre at the Faculty of Management of the Comenius University ([www.fm.uniba.sk/erdc](http://www.fm.uniba.sk/erdc)) is one of such institutions that could now already help in transferring its recently acquired “hands on” experiences from preparing good EU projects to the potential partners from the

developing countries. It is just a matter of some organizational and financial arrangements and e.g. we, - as a modern university educating regularly foreign students not only from the EU under the ERASMUS project but also those from various developing countries – are ready to launch such a hands on, on-the-job training also for our future potential partners from developing countries.

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## Monetary Unification in East Asia: Economic Necessity or Political Illusion?

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### Abstract

The launch of the economic and monetary union in Europe and the 1997 financial crisis that underscored the disadvantages of currently employed exchange rate regimes raised questions about the feasibility of a similar monetary unification project for East Asia. Being one of the most dynamically growing regions in the world, East Asia has the potential for a successful implementation of a monetary union. The paper examines why, despite of substantial political emphasis being placed on the issue of monetary integration, the progress to date is slower than it could be expected. The major finding is that, although East Asia may actually benefit from establishing its monetary union in the long run, a specific political culture that prevails in the region and misconceptions about the sequencing of the process prevent the East Asian monetary union from materialising. Possible short and mid-term policy solutions follow.

### Monetary Unification in East Asia: Economic Necessity or Political Illusion?

East Asia, one of the most dynamically growing regions in the world, has long been thought to be a potential candidate for a regional monetary union. Amid the successful launch of the European monetary union the debate on the issue of regional monetary integration (or at least close monetary cooperation) in East Asia heated up in the aftermath of the financial crisis that hit the region a decade ago<sup>1</sup>.

The crisis underscored the danger of running fixed exchange rates, with independent monetary policy and opens capital accounts, and resulted in a growing awareness about the importance of regional monetary cooperation in East Asia. There is now a strong perception that, had an effective regional monetary cooperation institutional framework been implemented, the crisis itself might have been prevented or at least mitigated and that the benefits of the intra-regional cooperation could not be fully accrued without a well-established monetary cooperation framework. Accordingly, a group of East Asian countries<sup>2</sup> engaged in a series of appropriate initiatives that aimed at enhancing the region's monetary cooperation.

Yet in spite of high priority given to the issue of monetary unification at least during high-level meetings of regional bodies, East Asia's progress towards its common currency seems to be falling short of expectations. Furthermore, there is evidence showing that, after the immediate post-crisis initial switching to floating rates, the East Asian countries have gradually returned to the *de facto* dollar peg<sup>3</sup>.

Looking for answers about the reasons for slower than expected progress towards monetary unification in East Asia, the paper examines three possible explanations. First, East Asia may really not need the monetary union after all. Second, there may be the lack of political will to implement the agreed policies. Third, East Asia may be following its original path to the monetary unification that need not necessarily be identical to the approaches adopted in Europe or in the Gulf area. The remaining of the paper is organized as follows. The second section presents arguments in favour and against alternative exchange rate regimes for East Asia. Next, the following section questions the desirability of the region's monetary union using a basic optimum currency area framework. The main political initiatives towards the monetary union in East Asia are presented in fourth section. Section five argues that it is mainly the Asia's original path to the monetary unification that is to blame for the slower than expected progress. Finally, concluding section, after having answered the paper's main question, provides a set of necessary, in author's opinion, steps that may lead to achieving the monetary unification in the region.

### Alternative exchange rate regimes for East Asia

The debate whether the exchange rate should be fixed or flexible has remained unresolved ever since Milton Friedman began championing the cause for exchange rate flexibility. Advocates of both corner solutions could be found on either end of the economic theory spectrum. A Keynesian economist would argue for instance that flexible exchange rate could absorb external and internal shocks without affecting domestic price and wage levels, while his support for fixed exchange rate regime would be based on the beliefs that it provides a necessary protection from speculative attacks (that result from imperfect foreign exchange markets). On the other hand, a market economy believer would argue that flexible exchange rates are necessary condition for retaining independence of domestic monetary policies under free capital movement (that is indispensable for efficient functioning of a market). Yet fixed exchange rates could, in his reasoning, provide a nominal anchor necessary for stabilising flexible domestic prices and wages. The debate is far from being resolved and in practice a wide range of intermediate regimes has been in place.

The Asian currency crisis constitutes a milestone in the debate on the optimal exchange rate regimes for East Asia. Most of the region had adopted *de facto* dollar peg before the 1997 crisis. Undoubtedly, the fixed exchange rates helped to encourage capital inflows that contributed to the excellent performance of East Asian economies before 1997. Yet even then the vulnerabilities of the system were quite obvious; the high interest rates necessary for stabilising rapidly growing economies were encouraging more portfolio investment that in turn contributed to the overheating in the region (the impossibility to maintain fixed exchange rate, capital mobility and independent monetary policy at the same time). After 1997, while leaving the debate on two corner solutions still largely unresolved, the focus of the debate here has shifted to costs and benefits of three alternative exchange rate regimes, a return to the dollar peg, a currency basket regime and a monetary union for East Asia.

Let aside the return to the *de facto* dollar peg after the crisis, some analysts have argued in favour of explicit adoption of a dollar peg<sup>4</sup>. For reasons ranging from transaction costs, direction of trade flows to historical conditions at least some countries of East Asia could be considered as a part of a “greater dollar zone” (with Canada, Mexico and parts of Latin America being a “natural dollar zone”). As Fukuda (2006) convincingly shows, for history and expectations reasons, invoicing in dollars dominated in Thai (85.7 percent in 2001, down from 92.0 percent in 1997) and Korean (87.43 percent in 2001 down from 89.21 percent in 1997) transactions in spite of the fact that their trade with the United States amounted to only 20.3 and 20.9 percent respectively (against 49 percent of East Asia share in Thailand and 44.3 percent share of East Asia in Korea’s trade). History, lower transaction costs, and a nominal anchor for stabilisation policies constitute the main arguments in favour of a dollar peg but on the other hand the arguments on the loss of independent monetary policy and the possibility of asymmetric shocks still hold (Table 1).

TABLE 1: THE DOLLAR PEG IN EAST ASIA

Benefits	Costs
An efficient medium of exchange (lower transaction costs)	If a country does not satisfy the OCA criteria, the economy would suffer from asymmetric shocks
A nominal anchor (low inflation)	
It can be carried out unilaterally by a small economy. Regional cooperation is possible if all economies peg to the US dollar	
Currency attack would be weaker and contagion would be contained	The entire region becomes dependent on the third party (FRB) monetary policy decisions
If Japan joined (China has been already in) the entire region would be unified optimally	

Source: loosely based on Wyplosz (2002) and Ito and Park (2004)



Although being the second best solution, the *de facto* dollar peg has returned in practice as the first choice of an exchange rate regime in East Asia. But much more attention has been paid to a currency basket peg and to a currency union as optimal forms of monetary unification in the region. Many academicians would prefer the former while the policy makers in the regions apparently favour the latter one. One of main arguments in favour of a basket regime is its ability to stabilise real effective exchange rates (as such a basket would contain currencies of major trading partners). Regarding quite high trade weight with Japan and the European Union, the argument that a basket containing, apart from dollar, the euro and Japanese yen could mitigate the 1997 crisis looks fairly plausible. Another argument in favour of a currency basket peg is its moderating influence on capital flows. Comparing to a single currency peg, a basket peg contains a higher exchange rate risk and therefore has a depressing influence on capital flows. A basket peg provides an economy with some stabilising anchor (comparing to flexible exchange rate) and with more flexibility than it happens under a fixed exchange rate regime.

There are, however, also some difficulties associated with a currency basket peg. First, complicated basket calculations would certainly result in a loss of transparency. Given difficulties in immediate evaluating the actions the monetary authorities undertake, the credibility of the basket peg may be adversely affected. Needless to say, interventions within the currency basket regime may be technically much more complex than those that take place under a single currency peg. Second, since each country optimal basket is different, adopting a currency basket peg may result in difficulties in policy coordination in the region<sup>5</sup>. Table 2 summarises the main costs and benefits of a currency basket regime.

TABLE 2: A CURRENCY BASKET REGIME

Benefits	Costs
Fewer fluctuations in trade balance	No currency crisis prevention
Moderate capital flows	Loss of transparency (due to complicated basket calculations)
Some flexibility in managing external shocks	Loss of flexibility (compared to a free float)
Gives some anchor to prevent misalignment (comparing to a free float)	Loss of nominal anchor (compared to a fixed exchange rate), hence higher risk premium
Allows for joint appreciation and depreciation in the region	Policy coordination problems

Source: loosely based on Wyplosz (2002), Ito and Park (2004), and Ogawa et al. (2004)

The successful launch of the economic and monetary union in Europe has provided an additional argument for those who support a similar project in East Asia. Some, especially those involved in policy making, seem to take for granted that East Asia will have its own version of a common currency introduced in a (relatively) near future<sup>6</sup>. The advantages and drawbacks of a monetary union are relatively well known (Table 3). A monetary union arrangement provides exchange rate stability necessary for promotion of trade and investment within the region while avoiding at the same time dependency on the third party monetary policy (one of the drawbacks of the dollar peg). Here the monetary policy would be conducted by an independent (regional) central bank. A monetary union provides also a firm anchor both in monetary and institutional sense (peer pressure for meeting policy coordination goals if a framework such as the Europe's Growth and Stability Pact has been established). One can also expect that, once in place, a monetary union may deepen the economic correlation within the region. The loss of independent monetary policy for each member country has been the most pronounced cost of the monetary union. However, long before the debate on currency union emerged, the proponents of currency board arrangement had argued that the loss of an independent monetary policy resort associated with establishing a currency board was actually overstated. It happens because the growing interdependence of the world economy does not allow for completely independent monetary policy and, in addition, even the independence of monetary policy does not warrant its optimality<sup>7</sup>. Moreover, as Wyplosz (2002) argues, there is a possibility that a common monetary policy performed by a regional central bank may not vary significantly from each member country optimal monetary policy. Needless to say, in order to implement a monetary union successfully, the region needs to meet the optimum currency area criteria.

TABLE 3: A MONETARY UNION

Benefits	Costs
Exchange rate stability (trade and investment promotion)	Loss of independent monetary policy
A (regional) central bank independence	
Peer pressure for macroeconomic policy coordination	Asymmetric shocks may cause problems without sufficient capital mobility and fiscal transfers

*Source:* loosely based on Wyplosz (2002), and Ito and Park (2004)

Most of research done on the issue of monetary integration in East Asia seems to be quite in favour of establishing a monetary union in the region. Even critical papers (Chan-Lee, 2005 or Kim, 2004) predict that a monetary unification of some sort will eventually emerge in the region over a longer time horizon. Yet in spite of the favourable comments and various political initiatives the monetary integration in East Asia still seems to be decades away. The following sections will attempt to search for reasons behind the slower than expected progress.

### **Is a monetary union desirable for East Asia?**

The benefits of monetary union outweigh its costs when the union's partners are trading intensively with each other, when their economies business cycles are correlated and they suffer from symmetric shocks, when there is high degree of policy coordination in place, production factors mobility between member states is high, financial markets well developed and so on. In other words when the entire region constitutes an optimum currency area (OCA). This section attempts to address briefly this issue.

Most of empirical evidence seems to suggest that the region does indeed satisfy the OCA conditions, more or less. Trade openness indices for East Asian economies (defined as a share of total trade in country's GDP) show that, with notable exceptions of Myanmar and Japan, the economies of the region are as open as the EU-15 and more open than the EU economies were in 1990 (before the Maastricht Treaty, Table 4).

East Asian economies do similarly well on the account of the intra-regional trade. For instance Kawai and Motonishi (2005) as well as Yano and van Anh (2006) show that the intra-regional trade in East Asia has already reached the level comparable to the pre-Maastricht European Union (Fig.1). The caveat is that the ASEAN economies do not trade much between themselves; in 2003 only 24 percent of their trade were reaching other ASEAN countries. The same applies to the Asian New Industrialised Economies (NIEs; Hong Kong, Korea, Singapore and Taiwan); only 16,1 percent of their trade were directed to the region in 2003. But the trade between the ASEAN, the NIEs and China already accounted for 44.1 percent of their total trade in 2003. When the trade with Japan is included the intra-regional trade amounts to 54 percent of the region's total trade. Fig. 1 (based on Kawai and Motonishi, 2005) shows that this is more than the intra-regional trade within NAFTA and it is comparable to the intensity of the intra-regional trade in the European Union in 1990 (before the Maastricht Treaty).

TABLE 4: TRADE OPENNESS IN EAST ASIA AND THE EUROPEAN UNION  
(Total trade as a percentage of GDP)

East Asia	1990	2002	EU-15	1990	2002
Brunei	88.5	113.4 <sup>a)</sup>	Austria	56.4	69.7
China	24.2	49.1	Belgium	111.1 <sup>b)</sup>	169.1
Cambodia	17.4	101.8	Denmark	50.3	61.0
Hong Kong	218.3	248.8	Finland	39.1	59.3
Indonesia	42.2	53.6	France	37.0	43.1
Japan	19.8	21.1	Germany	50.0	55.4
(Rep. of) Korea	51.4	65.2	Greece	33.6	31.1
Laos	30.5	40.9	Ireland	93.7	114.2
Malaysia	124.1	177.2	Italy	31.9	41.8
Myanmar	3.1	1.0 <sup>a)</sup>	Luxembourg	129.4	95.4
Philippines	46.0	87.7	Netherlands	87.2	99.1
Singapore	300.8	273.7	Portugal	60.2	52.4
Taiwan	74.6	83.5	Spain	29.0	43.6
Thailand	61.4	98.1	Sweden	46.8	61.1
Vietnam	54.1	115.0	United Kingdom	41.2	39.1

<sup>a)</sup> 2001

<sup>b)</sup> 1993

Source: Kawai and Motonishi (2005).

Even more support on the OCA criteria comes from the estimated correlations of real sector macroeconomic variables (real GDP, real personal consumption, and real gross fixed capital formation) as well as financial variables (real money supply, real stock price, and real effective exchange rates) and price variables (GDP deflator, consumer price index, and wholesale price index). Kawai and Motonishi (2005) estimations for the period 1983-2000 as well as Yano and van Anh (2006) results for 1980-2002 show that East Asia economies do on this account not worse than European countries. Similar conclusion emerges from estimations of demand and supply shock correlations for East Asia, EU-15 and NAFTA. The results<sup>8</sup> show similar level of correlation for all groups of countries. Given the endogenous character of the criteria in question (i.e. once the a monetary union has been formed, economic integration will deepen and the degree of asymmetry of shocks will decline) the results support the plausibility of the East Asian monetary union.

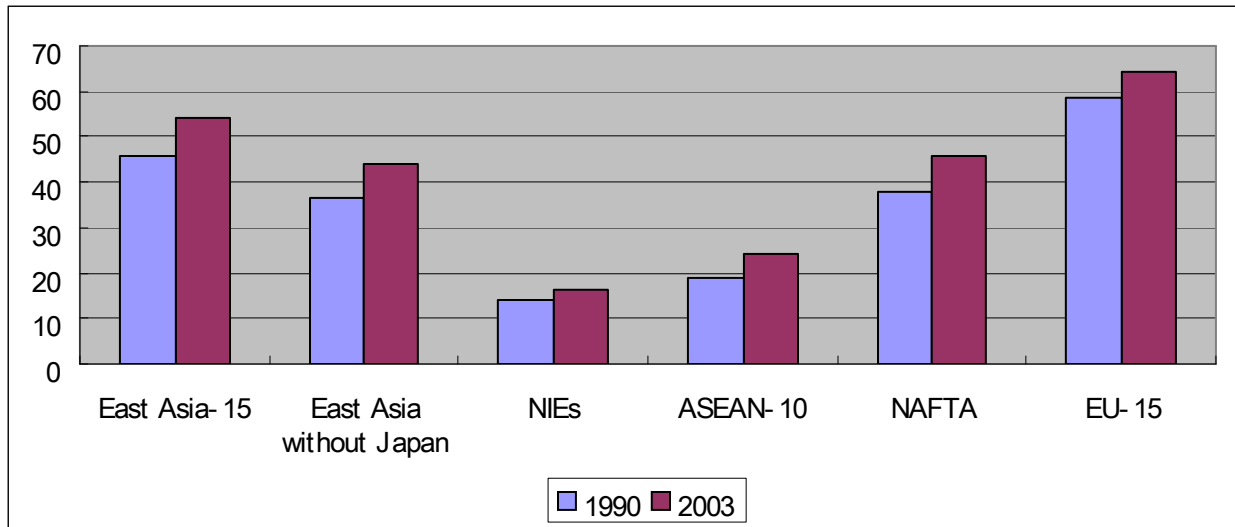


FIG.1: INTRA-REGIONAL TRADE  
(as percent of total trade)

Some problems arise when the labour mobility criterion is tested. Although limited availability of data constitutes a serious difficulty, Yano and van Anh (2006) conclude that the labour mobility in the region is rather low. For major economies (Japan, Korea, Taiwan, and Thailand) the approximate stock of migrant workers in 2000 did not exceed 1-2 percent of labour force in spite of enormous income disparities between labour exporting and labour importing countries (PPP adjusted income per capita in Japan, Singapore, and Hong Kong is 8-9 times higher than that in Indonesia or Philippines). Only Hong Kong (5-7 percent), Malaysia (10-15 percent), and Singapore (25-27 percent) have shares of migrant workers higher than average. In the presence of high capital mobility (except for Malaysia and China) one may argue that, similarly to Europe, labour mobility has largely been replaced with trade and capital flows.

The quality of institutional framework constitutes another serious difficulty for East Asia as shown in Chan-Lee (2005). In spite of relatively high level of capital account openness, the quality of financial sector prevents the capital flows from being efficiently utilised. Table 5 (based on data from Chan-Lee, 2005) presents, apart from the capital account openness, the assessment of the quality of financial systems (scale 1 to 10) and the perception of business environment (here the reversed Price Waterhouse and Coopers' "business opacity" index). While some of the East Asian countries (Hong Kong, Japan, Singapore or Taiwan) managed to establish relatively sound financial systems, much is to be done to match the level of the EU "southern periphery" (Greece, Portugal, Spain) not to mention the United States. The problems are aggravated by phenomena common for most of emerging market economies such as insufficient property rights protection and contract enforcement, poor transparency, low level of corporate governance and widespread corruption. Except for Hong Kong and Singapore, the perception of business environment in East Asia is not encouraging. Poor condition of the region's financial markets damages the East Asia's image as an optimum currency area.

TABLE 5: QUALITY OF FINANCIAL MARKETS

	Quality of financial systems (1-10), 2003	Business environment (1-10), 2001	Capital account openness (1-4), 1999
China	2.7	1.3	1.5
Hong Kong	6.9	5.5	4.0
Indonesia	1.9	2.5	3.5
Japan	6.9	4.0	3.5
(Rep. of) Korea	5.4	2.7	3.5
Malaysia	5.7	n. a.	3.0
Philippines	4.3	n. a.	3.0
Singapore	7.1	7.1	4.0
Taiwan	6.6	3.9	2.5
Thailand	3.9	3.3	2.5
Greece	3.8	4.3	3.0
Portugal	4.6	n. a.	3.0
Spain	6.2	n. a.	3.0
United States	9.1	6.4	4.0

n. a. – data not available

Source: adapted from Chan-Lee (2005)

To summarise, on most of accounts East Asia (or at least its parts) seems to be satisfying the OCA criteria. Even if not matching the level of the EU monetary union member countries, East Asia is close to the levels the EU member states had reached before they started the process of monetary unification (i.e. before the Maastricht Treaty). However, the disparities between the East Asian countries are much bigger than in Europe and much is to be done in the area of institution building. Nevertheless the answer to the question whether East Asia needs its monetary union seems to be largely positive (at least for parts of the region).

### **A lack of political will?**

This section attempts to address the issue whether it is the lack of political will to implement a monetary integration that is responsible for a slow progress in achieving the goal. There may be no straightforward answer to this problem. On the one hand there is abundance of political initiative towards deepening integration in the region. ASEAN+3 heads of state have met annually since 1997. Even before their first meeting took place the Manila Framework Group, a regional surveillance body had been established in November 1997. Other initiatives include bilateral swap arrangement (Chiang Mai Initiative) of May 2000, establishing intergovernmental East Asia Study Group or non-government East Asia Vision Group (both agreed at November 2000 meeting in Singapore), Asian Bond Initiative of 2003 and so on. A series of bilateral negotiations has produced a handful of bilateral free trade agreements between countries of the region.

TABLE 6: ASEAN+3 DECLARATIONS ON ECONOMIC AND MONETARY COOPERATION IN EAST ASIA

Venue and date	Agenda
Kuala Lumpur, December 1997	Exchange of views on regional currency problems amid the Asian currency crisis
Hanoi, December 1998	Deepening an economic cooperation aimed at economic recovery in the region
Manila, November 1999	The first official joint statement by the ASEAN+3 summit
Singapore, November 2000	The assessment of the Chiang Mai Initiative Agreement. Establishing the non-government East Asia Vision Group (EAVG) and its intergovernmental counterpart, the East Asian Study Group (EASG) for working-out guiding principles of economic and monetary cooperation in the region
Brunei, November 2001	Accepting the EAVG report. Korea's President Kim Dae Jung announces his country's readiness to establish an East Asian Free Trade Area
Pnom-Penh, November 2002	Accepting the EASG report on establishing a free trade area in East Asia
Bali, October 2003	Accepting a strategy for establishment of the ASEAN Community by 2020 (the Declaration of the 2 <sup>nd</sup> ASEAN Accord)
Vientiane, November 2004	Establishing an official bureau of the ASEAN+3 in the ASEAN structures (ASEAN+3 Unit)
Kuala Lumpur, December 2005	Renewed commitment towards narrowing development gap between member states
Cebu, January 2007	Commitment towards accelerating the establishment of the ASEAN Community by 2015

Source: compilation based on the ASEAN internet home page ([www.asean.org](http://www.asean.org) actual as of May 2007).

Yet in spite of being often highly publicised, many of those initiatives do not develop beyond the stage of a study group or a political statement. Even the most successful one, the Chiang Mai Initiative still seems not to be fulfilling its entire potential. Verbal support and statements of good will do not change the fact that, in contrast to Europe, East Asian governments seem to be very reluctant to delegate parts of their prerogatives to supranational institutions. Europeans' willingness to do so has been the result of their historical experience of two world wars that generated a desire to establish political and economic institutional framework able to prevent a recurrence of conflict. There is apparently lack of such consensus among East Asian nations. The lack of shared beliefs in political democracy and the presence of unresolved historical disputes result more often in emotional confrontations<sup>9</sup> rather than in a compromise based on principles of solidarity and conflict resolution. The resultant distrust translates then into a characteristic pattern of many low profile initiatives.

On the other hand, after the bitter controversy surrounding the IMF Stand-by Agreements with East Asian economies in the aftermath of the 1997 crisis no self-respecting Asian leader would ignore the issue of deepening the regional integration here. East Asia, one of the fastest growing regions of the world economy, is highly under-represented in various international bodies (the IMF, G-8, United Nations and so on). There is a growing frustration over the disparity between the region's own growing economic might and its lack of political clout. Awareness of own helplessness can be also an important driving force behind regional cooperation efforts.

Considering the number of undertaken integration initiatives, not necessarily the lack of the real political will but rather the specific political culture of distrust and lack of commonly shared cultural and political set of values contributes to slower than expected progress of the integration process. The procrastinated negotiations on the free trade agreement between Japan and the Republic of Korea may illustrate the point.

## Is East Asia following its own specific path towards monetary union?

Even if East Asia is indeed on its own path towards monetary union, the path is very different from the one the European monetary union has followed. After having achieved its original goal of establishing a customs union the European countries undertook series of attempts to stabilise the intra-European exchange rate (dating back to the pre-EMS days). Then, the leading monetary body (Germany's monetary authority) took over setting the pace of region's monetary policy and, after relaxing capital movement controls (that did not happen without difficulties) the Europe's common currency was finally established.

East Asia's path towards monetary integration differs significantly from the Europe's one. First, East Asia as a region has not pursued any formal trade liberalisation. Instead the region's trade has been regulated on the base of bilateral liberalisation agreements (notably the agreements on free trade between the largest countries of the region, Japan, Korea, Taiwan, and China have yet to be reached on). Primarily for that reason the monetary integration in East Asia stands for a *policy goal* itself, while in case of Europe it has been a mere economic *policy tool* used for further deepening of economic and political integration.

A second important difference is the fact that, contrary to the European experience, East Asian countries (with the notable exception of China) had liberalised their capital accounts even *before* their financial markets were well developed. Although the capital controls relaxation was arguably necessary for achieving high growth rate at the end of last century<sup>10</sup>, capital mobility makes it difficult to sustain a fixed exchange rate regime (let it be either dollar or currency basket peg) as a precondition for establishing a monetary union in the region.

Third, there appears to be no obvious candidate to assume the role Germany has performed in the European Union at the end of 1980s and in the 1990s. The position of Japan, once undisputed candidate for a regional leadership, has been seriously damaged by its prolonging economic depression. As for China, with its low level of economic development, internal discrepancies<sup>11</sup>, underdeveloped financial systems, not convertible currency, and capital account restrictions, it is hard to imagine it taking over a regional economic leadership in a near future.

Fourth, the East Asian political establishment seems to have taken it for granted that the economic integration goes precisely along the Balassa (1962) five-consecutive-steps pattern. It requires first establishing a free trade area (FTA) in order to reach a customs union level. The latter can later develop into a common market and a full-fledged economic union can follow. Finally, the integrating nations can establish a complete political and economic union<sup>12</sup>. Revolutionary as it was half a century ago, the theory neglects the fact that it requires a *common policy* to reach the level two of customs union while the FTA does not require any common policy at all (simple abolishing of customs should suffice the FTA to work). The European Union has *never* been a free trade association. Already in 1957 it aimed at entering the Balassa (1962) pattern at the stage two. Accordingly, given the fact it was not the European Free Trade Association (EFTA) that produced the Europe's common currency, forming the network of FTAs around the region will not eventually lead to a monetary union as that would require a *common policy*, something the FTA actually misses.

## Conclusion: What is wrong with East Asia?

The East Asia's path to monetary unification suffers from the adverse effects of its reversed order (capital account liberalisation ahead of monetary integration) that creates a conflict between monetary cooperation (understood by the region's opinion makers as a capital movement liberalisation) and exchange rate coordination (ranging between a single currency or currency basket peg and currency union altogether). Also the misconception about the sequence of economic integration (i.e. taking the Balassa, 1962 theory *prima facie*) has taken its toll on the speed of the monetary integration in the region (or may take in a near future). Together with the lack of regional leadership (the role Germany has played in European processes), specific political environment that precludes bold political initiatives, and, to put it straightforward, lack of political vision for the region's future (i.e. political union) it probably rules out for decades any monetary union in East Asia.

However it does not mean that nothing can be done in order to deepen a monetary integration in the region. In my opinion, the following measures could be helpful for establishing the monetary union in East Asia in mid- and long run. First, the political energy should switch from concluding bilateral FTA towards establishing at least a customs union in the region<sup>13</sup>. Then, building sound financial markets should follow. The character of the optimum currency area theory allows for almost discretionary interpretation of results. But, let aside the Mundell's original criteria, it is the soundness of the financial system that spells the ability to withstand the adverse shocks that are likely to accompany the monetary unification project. At their current condition the East Asian financial markets are as weak as they were at the onset of the 1997 currency crisis and probably could not withstand any similar challenge. Third, through strengthening the Chiang Mai Initiative, the joint surveillance of economic policies and coordination of exchange rate policies could ultimately lead to establishing a decision making framework (or institutions) based on the principle of the mutual consent. Only from that point one can realistically think about the East Asian monetary unification process.

Besides, there is the problem of what to do with China. If the country is going to assume the leadership in the region, then a phased opening of its capital markets has to take place at some time. But, analogously to the Russia's relations with the EU, there is a well-grounded doubt about the wisdom of creating such an unbalanced integration body.

Finally, it seems plausible to acknowledge that the monetary unification in East Asia is not a political illusion. However, it is not an immediate necessity either. As the Economic and Monetary Union in Europe has taken half a century to materialise, also here, after having addressed the problems raised in the paper, fifty years from now, East Asia may be well on its way to a monetary union.

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## End Notes

1. For instance Williamson (2000), Berben et al. (2002), Kawai and Takagi (2002), Ogawa (2002), Kawai and Motonishi (2004), Ogawa and Kawasaki (2006), Ito and Park (2004), Zhang et al (2004), Ogawa and Ito (2002), Kwack (2004), Chan-Lee (2005), Kim (2004) and others
2. For the needs of this paper I refer to the ten ASEAN countries together with China, Japan and (the Republic of) Korea (known as ASEAN+3) and Hong Kong and Taiwan as East Asia.
3. For instance Fukuda (2006), Ogawa (2002), Ogawa and Kawasaki (2006)
4. For instance McKinnon (2004) or Barro (2004).
5. Ogawa and Ito (2002) show that the probability of a sub-optimal outcome is not negligible under such circumstances.
6. For instance Chino (2004) or Asahi Shinbun (2005).
7. For instance Hanke and Schuler (1993).
8. Kawai and Motonishi (2005), Kwack (2004), Yano and van Anh (2006) and Zhang et al. (2004)
9. The latest examples could include angry demonstrations and violent reactions to public figures statements regarding historical territorial suzerainty between Korea and China or Thailand and Cambodia as well as public outrage in China and Korea against Japanese prime ministers visits to a controversial Yasukuni shrine, not to mention the real still unresolved territorial disputes between Japan, Korea, and China.
10. Another way of reasoning would be that they had to liberalise their capital accounts *precisely because* their capital markets were not developed enough to stem capital inflows necessary for high growth rates.
11. It is a good question whether we can really think about a single unified China in economic terms; systemic and income differences between the regions (Hong Kong, Shanghai, Beijing, the island of Hainan, Manchuria, Tibet, Inner Mongolia, western provinces etc) are so big that one can think about the country as a group of economic entities (forcibly) unified in political terms as for instance the British Empire once used to be.
12. It is precisely as the line of argument runs in Nakashima (2006).
13. Or parts of it if political considerations allow for excluding the weak elements of the system.

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# The Trade Liberalization Process and the Structure of Protection in Bangladesh

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## Abstract

There has been a significant shift in trade policy orientation in Bangladesh over the last two decades. A dirigiste policy orientation has gradually been replaced by a more outward oriented economic policy. In line with such a policy orientation, a series of trade liberalisation measures has been introduced marked by occasional reversals in the policy direction. Tariffs still remain the main instrument of protection for import competing industries while export oriented industries are accorded various forms of subsidy. While any direct involvement of the government in trade has been reduced, there still exist significant regulatory controls and administrative discretions in influencing the flow of imports. The paper argues that a more uniform incentive structure will enable the country to adjust to the changing global economic environment and help expand its production and export base.

## Introduction

Since the early 1980s a large number of developing countries have moved towards reforming their economic policies to put in place a more open economic regime particularly in relation to their economic engagement with the rest of the world. Such a policy also entails to create a more competitive environment within the domestic market. However the reasons for economic liberalisation differ from country to country.

Bangladesh is ranked as one of the least developed countries in the world with per capita income of US\$470.00 in 2005. Almost half the population live below the poverty line. Bangladesh at its independence in 1971 followed a state interventionist economic policy. However state intervention in economic activities in the post Second World War period was not an uncommon phenomenon even in most industrialised countries which were described as “mixed economies”. In newly decolonised developing countries, too, state intervention as reflected in the philosophy of national developmentalism, was considered essential to address the issue of underdevelopment and industrialisation was considered essential for economic development. This was to be achieved through the import substituting industrialisation (ISI) strategy usually accompanied by financial repression which entails the imposition of legal restrictions preventing financial institutions to function at their full capacity. In the case of Bangladesh it was not the issue of state intervention as such but the extent to which it went resulted in the virtual state control of the economy.

The emergence of market failures in the economic literature in the early 1950s did provide a conceptual framework to determine under what circumstances state can in the interest of maintaining properly functioning of competitive markets be allowed to intervene. It simply means that when a perfectly competitive market fails under specific circumstances such as increasing returns to scale, non-rivalry in consumption and externalities, the state can intervene to promote competition, provide public goods and take remedial measures to neutralise the effects of externality. The fundamental belief in the ability of market to allocate resources most efficiently has never been under question. However even a larger issue was at stake; if market fails, what is the guarantee that state will also not fail as well. Therefore state’s ability to redress market failures has become a questionable proposition.

Bangladesh in effect followed a dirigiste policy where the visible hands of state were present in every aspects of the economy. There was a fundamental distrust of the ability of the invisible hands of market to deliver efficient and desirable economic outcomes. Dirigisme as a doctrinaire view pervaded all aspects of economic life in Bangladesh and as a result state continued to play an activist role in all aspects of economic policy formulation. A paternalistic state also suited the prevailing social order in Bangladesh based on patron-client relationship.

It is fair to say that Bangladesh inherited a system of state control at independence and the government of the time in Bangladesh further extended those controls quite extensively and to such an extent that the direct state

intervention touched nearly all aspects of economic life in Bangladesh. It was argued that all embracing economic controls were justified on the grounds of prevailing economic circumstances resulting from the war of independence. There was also an ideological commitment for state to control the economy to deliver the desired economic outcomes. Therefore a highly centralised economic system was instituted and such all pervasive economic controls severely limited the scope and functioning of private sector firms. By 1974 some 62 percent of manufacturing output was in the hands of the public sector, a share that rose to 71 percent by 1978, the highest share of any Asian country, except China at the time. Eventually the government extended its control to transportation and distributive trade (see Mellon and Stern, 1991).

Given the background outlined above, the paper intends to examine the trade liberalisation process that has been instituted in Bangladesh since the mid 1980s and also to examine the structure of protection accorded to industry that has evolved since then. Such a study will enable us to see the direction and speed of the transition process from a highly centralised economy to a more open market oriented economy with increased economic engagement with the rest of the world. The emphasis in this paper is on trade liberalisation in the context of overall economic reform measures and the corresponding structure of protection that has developed and now currently in place.

## Literature Review

In most cases the reason for trade liberalisation is to expand the production and export base, in particular for manufactures, which now almost accounts for four fifth of world trade in merchandise. A liberal trade regime, it is hypothesised, will expand the production and export base through reducing the distortions in relative prices which will enable the economy to direct its scarce resources to most productive sectors of the economy thereby stimulating growth. As Rivera-Batiz (1997) pointed out the proliferation free trade zones, trade liberalization initiatives and the successful completion of the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) are testimony to rising faith in trade as an engine of growth. Krueger (1997) suggested that then and now, it was recognized that trade policy was central to the overall design of policies for economic development. Manufacturing in this context is of great importance to policy makers because a sound manufacturing base can provide the country with more flexibility in trade as trade in manufactures face far less barriers than primary goods. Agenor and Aizeuman (1995) hypothesised that trade liberalisation on its own or as part of a comprehensive restructuring might lead to new economic activity and would change the sectoral composition of output in the long run. This is to suggest that a country can trade on the basis of comparative advantage only under a free trade regime. Papagorgiou et al (1991) argue that a liberal trade regime promotes the expansion of production and export of manufactures, contributes to economic growth and help achieve the country to improve international competitiveness. Protection can impose increased costs to exporting industries as protection increases input costs. This puts exporters at a competitive disadvantage. Balassa (1982) describes this as an absolute bias against exports. The Lerner symmetry theorem also states that an import tariff will have the same effect as an export tax. Thus trade liberalisation reduces the cost of imported inputs (see Dornbush, 1992). Thomas et al (1991) suggest that exports in general and manufactures in particular tend to increase following liberalization. Countries that reformed their trade policies performed better than those did not reform. However two studies that were undertaken under the auspices of UNCTAD by Shafaeddin (1994) and Agosin (1991) found very little evidence of any link between trade liberalisation and export performance. Santos-Paulino and Thirwall (2004) found that reductions in export and import duties had significantly affected the growth of exports and imports, with the impact on import growth greater. Rodrik (2002) also suggests that while there is no conclusive relationship between trade openness and growth in many countries, there is also no evidence that trade protection is systematically associated with high economic growth.

A trade system is called neutral if it operates under perfect competition as it would in the absence of government interference. Any movement in a trade regime towards neutrality is defined as trade liberalisation, and a change which increases the deviation from neutrality is seen as reversal of liberalisation (Togan, 1996).

Therefore a liberal trade regime is not necessarily a free trade regime. There is no general consensus on what really constitutes trade liberalisation unlike free trade where there is a body of theoretical frameworks exists to

define free trade. In the absence of any clearly defined formulas, trade liberalisation can mean (i) reductions in anti export bias where a move towards equalising incentives between the exporting and import competing sectors resulting in a neutral set of relative prices (i.e. tariffs can be offset by subsidies); (ii) the level of government intervention in all forms has been reduced. This may involve removal or reductions in tariff and non-tariff barriers, subsidies etc; and (iii) replacing one more distorting instrument of intervention by a less distorting one where quotas are replaced by tariffs. Any of these measures can lead to a more open trade regime relative to a previous one with high levels of state involvement in trade. In the case of Bangladesh it appears that the model (i) above approximates the trade liberalisation process.

## **Economic Policy Reforms in Bangladesh**

By the late 1970s continued poor performance of public sector business enterprises created serious strain, as well as drain on the very limited resources of the country. At the same time the government was also under pressure from foreign aid donor countries to institute economic reforms to lift economic performance which was extremely poor by all criteria of macroeconomic performance evaluation. Economic policy failure was clearly demonstrated by poor economic performance as reflected in persistent balance of payments problems, high inflation and interest rates and the failure of public sector business enterprises to run efficiently and profitably. This has resulted in the rethink of economic policies. It was clearly evident that a centralised economic system with strong state controls over production and distribution was incapable of steering the economy towards sustained economic growth.

Mallon and Stern (1991) suggest that the emergence of three groups in the 1980s has helped to accelerate the pace of economic policy reforms; foreign aid donors, local and foreign technocrats and more enterprising local business persons. They were successful in convincing local interest groups that the economic reform process would benefit all. It was not a zero-sum game rather a positive sum game.

As a first step some limited industry policy reforms were instituted throughout the late 1970 and the early 1980s by encouraging increases in private sector investment in manufacturing. In a country with an estimated unemployment rate at 40 per cent, industrialisation is seen as a major strategy to absorb unemployed (given that the country has a high adverse person-land ratio with a population density of 1090 per square km in 2005) and to accelerate economic growth. However the process of industry policy reform has been marked by piecemeal efforts starting with the removal of investment ceilings to simplification of approval processes for the private sector. Since the early 1980s with gradual liberalisation of the economy, industry policy as revised in 1992, allowed private sector investment without any investment ceiling including joint ventures with foreign enterprises in all areas except five industries, armament, nuclear energy, forestry, security printing and air and rail transportation. Air transportation, in certain specific areas has later been opened to private investment. At the same time policies have been introduced to encourage foreign direct investment. Reductions in agricultural input subsidies and output price controls have also been undertaken. The objective of industry policy is to achieve rapid industrial growth through private sector initiatives within the framework of a relatively more open and competitive market economy.

A limited degree of reform was also introduced in the early 1980s to liberalise financial markets where private and foreign financial institutions, especially in the banking and insurance industries were allowed to operate within a given set of parameters. However a number of nationalised banks and insurance companies still remain nationalised. The very slow process of privatisation in Bangladesh can be largely attributed to what Cowan (1990) described as the lack of suitable institutions and institutional capabilities to permit the privatisation process to go forward. But the private sector banking activity increased quite substantially since early 1990s as reflected in the number of private sector banks allowed to operate. As consequences some regulatory reforms directed at the banking and the financial sector have been introduced to strengthen their operations.

Overall, while the economic liberalisation process along with trade liberalisation started in the 1980s, but this did not gain momentum until the very early 1990s. It is also clear that forces external to the government played a more decisive role in forcing economic reforms rather than the reform agenda originating within the governing system of the country. Therefore economic policy reforms lacked any firm commitments on the part of the government to see them through in the early phases of the reform process.

## Trade Policy Trends in Bangladesh

In the area of trade, the Bangladesh government at independence inherited a comprehensive set of control measures which were instituted by Pakistan. These control measures over time were further extended and strengthened. Import substitution was the policy objective and to give effect to such a policy objective require the use of high tariff barriers to protect domestic manufacturing. High tariffs were supplemented by quantitative restrictions either through import bans or by import licensing in the case of many consumer goods producing industries. The import tariff is also the government's principal source of revenue, accounting for a quarter of its total tax revenue. It was thought that import substitution in manufacturing would be synonymous with industrialization, which in turn was seen as the key to development (Krueger, 1997). Further distortions were introduced by differential tariff rates for different products. The tariff structure was designed in a way where final products faced almost prohibitive rates while intermediate and primary products faced a more favorable tariff rate. The tariff structure as applied in Bangladesh coupled with quota restrictions opened up avenues to extract high economic rents on imports creating the an anti-export bias. This anti-export bias was further reinforced by an overvalued exchange rate.

Despite such policy measures, the share of imports of manufactures continued to rise as a proportion of domestic consumption. Such an outcome is generally consistent with empirical findings of many other developing countries (see Bhagwati, 1978, Krueger, 1978 and Balassa and Associates, 1971). Santos-Paulino and Thirwall (2004a) also concluded in their paper that while the strong presumption that trade liberalisation contributes positively to economic performance exists in the literature, however for a variety of reasons, the level of proof remains a little less than one might wish but the preponderance of evidence certainly favours that conclusion.

Every country that followed such a policy option has failed to develop either a competitive manufacturing industry or has been able to solve current account deficits. The ultimate price for such protection has been borne by domestic consumers and export oriented industries. Excessive protection provided to domestic manufacturing in many developing countries including Bangladesh caused the internal terms of trade between manufacturing and agriculture to turn against agriculture more than what the corresponding terms of trade measured in world prices would have been. This definitely caused resources to move from the agriculture sector to the manufacturing sector.

An inward looking trade policy also failed to develop a sound domestic manufacturing base because of the very small size of the domestic market in Bangladesh. Such a small market can neither achieve economies of scale because the country can not specialise nor can it find its niche in the global market under a protectionist regime. A protectionist regime also gave rise to increased imports of intermediate inputs to keep protected domestic manufacturing functioning. This process was also further aided by an overvalued currency. The failure of a protectionist trade policy is reflected in the country's failure to develop a broad based manufacturing. Bangladesh still remains an agrarian economy in terms output and employment. Agriculture still accounts for 19.8 per cent of GDP, employing 51.7 per cent of total employed labour force while manufacturing contributes 15.4 per cent to GDP employing only 9.7 per cent of total employed labour force (see BBS, 2005 & WB, 2006).

Trade policy reform with a view to liberalise the trade regime in Bangladesh is possibly the most significant economic reform measure that has been undertaken in the country since its independence. The government initiated a series of trade policy reform in 1985 with a view to stimulate exports by reducing anti-export bias. The process has begun to accelerate since the early 1990s. This shift in trade policy orientation has been also augmented by significant structural adjustment programs composed of market driven programs to enhance the growth prospects of the country. Trade policy reforms so far included reductions and rationalisation of tariff and import taxes, simplification and streamlining of administrative procedures, gradual elimination of import prohibitions and import licensing and other quantitative restrictions. Shahabuddin et al (2004) suggest that the existence of considerable dispersion around average tariff rate and numerous exemptions and concessions in the tariff structure indicate that the pace of trade policy reform has slowed down since the middle of 1990s.

Trade liberalisation to work effectively also needs a flexible exchange rate regime along with other related economic reform measures. A country like Bangladesh experiencing chronic current account deficits must rely on a flexible exchange rate system to address the problem. Bangladesh does not have recourse to other sources of finance

such as borrowing overseas in foreign currency to finance current account deficits. Macroeconomic policies to maintain low inflation and a competitive exchange rate regime allow the country to trade on the basis of its comparative advantage.

Trade and exchange rate liberalisation are important steps towards creating a competitive economy to achieve faster and durable economic growth and to insulate the economy from external shocks. A liberal trade regime is neutral between production for exports and the domestic market. Export prices should reflect the combined impact of world prices and scarcity of domestic inputs.

## **Exchange Rate Policy**

The role of exchange rate policy is not only important in the context of maintaining macroeconomic stability but also extremely important for promoting trade as changes in exchange rate can impact on a country's competitiveness. In Bangladesh, there were controls also placed on foreign exchange transactions at independence. The government followed a dual exchange rate system incorporating one fixed (official) and partly market related exchange rate for a long time. The two exchange rate markets are separated mainly because of the exchange rate risk premiums, interest rate differentials (foreign and domestic) and expected rate of exchange rate depreciation (Ghatak and Siddiki, 2000). The official exchange rate (Taka/US\$) was always lower than in the secondary market. The secondary exchange rate more closely reflected the market. The expansion of the secondary market over time reduced the importance the official exchange rate and also eased the impact of direct control on imports through rationing of foreign exchange at the official exchange rate. Over time both exchange rates depreciated and continued to converge. At the beginning of 1990s, the official exchange rate was within a two percentage range of that in the secondary exchange market.

The Dual exchange rate system that existed through the 1970s to the 1980s was unified in early 1992, allowing market forces a much greater role to play in determining exchange rates. Bangladesh accepted the Article VIII obligation of the International Monetary Fund in 1994. This obligates Bangladesh to liberalise transactions on the current account. The Bangladesh taka was eventually made convertible in March 1994 with respect to current account transactions and accordingly the taka depreciated against currencies of its major trading partners, reflecting the exchange rate response to the persistent current account deficits. Restrictions still apply to capital account transactions. As a result average black market foreign exchange premium has drastically fallen (see Martin, 2003). It is now widely accepted that growth prospects for developing countries are greatly enhanced through an outer-oriented trade regime and fairly uniform incentives (primarily through exchange rate) for production across exporting and import competing goods (Krueger, 1997).

Exchange rate policy the way it existed until May 2003 had been based on making periodic adjustments to the value of the Taka through monitoring the trend in the real effective exchange rate (REER) index based on the trade weighted basket of currencies of 15 largest trading partners of Bangladesh and other macroeconomic indicators. Current developments in the regional and international fields including those in the countries that compete with Bangladesh, but not included in the REER index, are also taken into consideration (see BB, 1999 for details). The REER is useful for examining changes in the relative purchasing power of foreign currencies, especially of the major trading partners over time. The main objective of exchange rate policy during this period appears to be to maintain a stable REER. Since May, 2003, Bangladesh has introduced the freely floating exchange rate system. However, Bangladesh Bank quite often intervenes in the foreign exchange market to stabilise the rate at the target zone and uses monetary policy instruments to ease the upward pressure on the exchange rate. Despite Bangladesh Bank's intervention in the foreign exchange market, Taka has continued to depreciate. Since the floating of the Taka in 2003, it has depreciated by about 25 percent by the end of 2006. Togan (1996) suggests that the manifestation of trade liberalisation is also a move towards a system where real exchange rate and the sectoral real effective exchange rates remain relatively stable over time with no violent fluctuations.

## The Structure of Protection

Since the mid 1980s Bangladesh has embarked on liberalising its trade regime with progressive reductions in tariffs and non-tariff barriers. The proponents of protectionism still exert a considerable degree of influence in shaping the trade policy direction. While the government is committed to pursuing a liberal trade policy, the process of implementation has been marked by counterbalancing measures to provide additional protection to domestic industry. This can be seen from the structure of protection that has evolved over the last two decades and as it exists now in the country.

## Tariff Protection

Tariffs have continued to be the main instrument of protection despite continued reductions in tariffs since the mid 1980s. Tariff as an instrument of protection becomes fairly complicated as Bangladesh heavily relies on import taxation for revenue rising. One quarters of the government's tax revenue came from import taxation in 1999-2000, given that tariffs have been progressively reduced since the early 1990s. This share however declined from 33 percent in 1994-95 to 25 percent in 1999-2000 but by 2004-05 this share went up to 26 percent. If other taxes associated with imports such as consumption tax and supplementary tax are included, the share went up to 50 percent in 2004-05. It is apparent that during the first half of 1990s, tariffs were reduced at a rapid rate but since the second half of 1990s the rate has significantly slowed down (see Table 1)

Average tariffs have been reduced and made more uniform. Average tariffs have declined from 57.5 per cent in 1991-92 to 12.51 per cent in 2005-2006. Table 1 indicates a gradually declining average tariff rates. This fall in average tariff has also led to reductions in effective rates of protection with wide variations across sectors.

TABLE 1: AVERAGE (UN-WEIGHTED) TARIFF, BANGLADESH  
(percent)

Year	Average Tariff
1991-92	57.5
1992-93	47.4
1993-94	36.0
1994-95	25.9
1995-96	22.3
1996-97	21.5
1997-98	20.7
1998-99	20.3
1999-00	19.5
2000-01	18.6
2001-02	17.13
2002-03	16.51
2003-04	15.6
2004-05	13.5
2005-06	12.5

Source: GOB (Various issues): Bangladesh Economic Review

However, tariffs (i.e. customs duties) per se provide a misleading picture of the level of protection provided to domestic industries as Bangladesh also continues to impose a number of other taxes on imports over and above customs duties (i.e. tariffs). These taxes are often described as para-tariffs because they have the same effect as tariffs on imports. These taxes can be used selectively with wide discretionary power making the system very non-transparent. These taxes include taxes on imports such as value added tax, supplementary duties, regulatory duties



and infrastructure development surcharge. Some of the para-tariffs are applied across the board on all imports while some additional para-tariffs are also applied more selectively. The main function of para-tariffs is to raise the level of protection above that accorded by tariffs. This results in tariff peaks (highest tariffs) exceeding the maximum tariff rate in Bangladesh. Bangladesh now has the highest average tariffs in South Asia and is one of the most protected economies in the world.

Very slow rate of progress in expanding the tax base, in particular income based tax which contributed 18.9 percent of total tax revenue in 2004-05 relative to 8.6 percent in 1992-93 is one of the major contributing factors to this anomaly. Also the domestic tax collection system is known for its inefficiency and is riddled with corruption and also less comprehensively covered relative to taxes on imports. It appears that without a major overhaul of the taxation system, any significant further reductions in tariffs may be difficult if not impossible.

Furthermore, the tariff regime has been further streamlined by equalising operative tariff rates with statutory tariff rates along with reductions in tariff slabs (tariff bands) from 12 in 1993-94 to 4 in 2004-05. Table 2 indicates that the government did not synchronise between operative tariff rates which are actual tariff rates applied to imports and statutory tariff rates which are the officially declared rates until 2000-01. This was primarily due to the government's use of the budgetary process to provide additional protection to specific industries. This process obviously was subject to lobbying by special interest groups and also used by the government for raising additional revenue. This ad hoc approach further added to increased opportunities for discretionary application of tariffs.

TABLE 2: OPERATIVE AND STATUTORY TARIFF RATES

Year	Operative Tariff Rates (%)	Statutory Tariff Rates (%)	Highest Tariff Rate	Tariff Slabs
1993-94	0,3.75,7.5,15,30,45,60 75,100,125,150,300	0,30,60,100,150, 300	300	12
1994-95	0,5,7.5,15,30,45,60	15,30,60,100,150, 300	60	7
1995-96	0,5,7.5,15,15,22.5,30, 45,50	15,30,60,100,150, 300	50	8
1996-97	0,2.5,7.5,15,22.5,30,45	15,30,60,100,150, 300	45	7
1997-98	0,2.5,5,7.5,15,22.5,30,42.5	15,30,60,100,150, 300	42.5	8
1998-99	0,5,7.5,15,25,30,40	15,30,60,100,150, 300	40	7
1999-00	0,5,15,25,37.5	15,30,60,100,150, 300	37.5	5
2000-01	0,5,15,25,37.5	0,5,15,25,37.5	37.5	5
2001-02	0,5,15,25,37.5	0,5,15,25,37.5	37.5	5
2002-03	0,7.5,15,22.5,32.5	0,7.5,15,22.5,32.5	32.5	5
2003-04	0,7.5,15,22.5,30	0,7.5,15,22.5,30	30	5
2004-05	0,7.5,15,25	0,7.5,15,25	25	4
2005-06	0,6,13,25	0,6,15,3,25	25	4

GOB (2006): Bangladesh Economic Review

The highest rate of tariff was reduced from 350 per cent in 1991-92 to 25 per cent in 2004-2005. Differential rates of tariff still exist not only on the basis of broad classifications but also for a wide range of products within those broad classifications, ranging from zero tariffs for food-grains to 25 per cent for many consumer items. Table 3 summarizes differential rates of tariff by broad product type. This process is further complicated by preferential tariffs accorded to SAPTA member countries along with the application of the rules of origin contained within the agreement.

Like many other developing countries, Bangladesh also uses tariff escalation where tariffs escalate according to the degree of processing where higher the level of processing, higher the level of tariffs with final consumer goods attracting the highest rates (see Table 3). Tariff escalation always raises the effective rate of

protection above the nominal rate of protection contributing to further increases in the anti export bias. Tariff escalation also impacts on tariff peaks. WTO (2003) suggested that tariff peaks and escalation can constitute major impediments to poorer countries' development and industrialization.

TABLE 3: AVERAGE (UN-WEIGHTED) TARIFF RATES BY BROAD COMMODITY GROUP

Year	(Percent)			
	Primary products	Intermediate goods	Capital goods	Final Consumption goods
1992-93	47.7	41.6	38.7	63.6
1993-94	34.9	31.8	26.2	49.9
1994-95	31.6	23.2	13.9	38.6
1995-96	24.6	20.1	12.3	33.7
1996-97	22.3	19.6	12.5	32.3
1997-98	21.9	19.2	12.1	30.6
1998-99	21.4	19.0	12.3	29.2
1999-00	15.6	17.1	16.1	31.0
2000-01	15.7	17.7	11.3	29.6
2001-02	20.1	15.61	7.0	26.0
2002-03	21.0	14.9	8.0	22.9
2003-04	19.9	14.4	7.9	21.3
2004-05	17.6	12.5	7.3	18.2
2005-06	17.3	11.0	6.5	17.7

Source: GOB (Various issues): Bangladesh Economic Review.

The import tariff still remains the principal instrument of trade policy in Bangladesh therefore constitutes a major impediment to competition with the consequent implications for efficient allocation of domestic resources. Since independence, the main instrument to regulate the import regime has been the Import Policy Order (IPO) which used to be issued annually until 1988, then it became two yearly and finally in 1997 it became five yearly. This was designed to provide policy continuity and certainty for a reasonable period of time and also to provide a stable business decision making environment. The IPO 1997-2002 also provided much greater ease for imports of capital goods and industrial raw materials to assist promoting exports. However the government introduced a three year IPO (2003-2006) with effect from March 2006. This new import policy appears to indicate some departures from the previous one. The new import policy clearly discourages import of nonessential goods to address the balance of payments difficulties. It also sets standards for goods which have implications for public health and the environment. In essence the new import policy (2003-2006) is more restrictive relative to the previous one (1997-2002).

### Non-tariff Protection

While the number of goods in the quantitative restrictions list including banned items has considerably been reduced, the continuation of such a policy is defended on non trade related issues such as public health and safety, environment and for religious and cultural reasons. The reason for the existence of such a list appears to be more about creating technical barriers to imports as reflected in the list being getting shorter and shorter over time. Now the list contains 63 items as outlined the Import Policy Order (IPO), 2003-06, relative to 315 items in 1989-90. However there still remains trade related restrictions applied to a number of agricultural products, packaging materials and textiles. There are also in certain cases government approvals are needed to import specific products.

This tantamount to import licensing which was abolished in the early 1990s. Furthermore, all importers are required to register with the appropriate authority. This causes the transaction costs to rise given the lengthy bureaucratic process involved.

Any direct state involvement in trade has also significantly been reduced, now limited to only defence equipment and petroleum products. But government procurement procedures in Bangladesh offering price preference margins tend to favour local producers.

## **Contingent Protection Measures**

Bangladesh does not use contingent protection measures such as anti-dumping duties (AD), countervailing duties (CD) and safeguard measures. Given the very high level of protection provided already by tariffs and para-tariffs, these measures were not considered necessary by the government to provide further protection. But following India's anti-dumping cases in recent times against some of Bangladeshi imported products, there is now growing pressure in the country to introduce contingent protection measures.

It is true that Bangladesh has made significant strides in liberalising its trade regime by reducing tariffs and eliminating many quantitative restrictions on imports. However there still remain significant regulatory controls and administrative discretion which further add to the complexity and create uncertainty. There also still exist the complicated formalities associated with import activities. Furthermore, it was pointed out that 38 signatures are required to import goods into Bangladesh relative to 2 in Singapore<sup>1</sup>. While such bureaucratic processes help to restrict imports flowing into the country, it at the same time creates problems for exporting firms by increasing transaction costs as a very large number of exporting firms rely on imported inputs.

## **Export Incentives**

Bangladesh has put strong emphasis on export-led industrialization since the mid 1980s. With that objective in mind the government has put in place a variety of export incentives and special attention has been given to certain industries which are considered to have a high export potential such as the clothing industry. The policy instruments for export promotion include an export credit guarantee scheme, concessionary interest rates, export processing zones, duty-drawbacks (i.e. direct and indirect exporters are exempt from import restrictions), bonded warehouse (i.e. firms are allowed to import and stock intermediate inputs duty free) direct subsidies (used selectively, not across the board) and tax concessions. A number of institutional arrangements have also been put in place for the implementation of various export incentive schemes. Some of these measures were designed to offset the adverse effects of relatively high tariffs and other duties which exporting firms face. This helps to neutralise anti-export bias in any restrictive trade regime but cash subsidies, in particular, in many instances constitute indirect barriers to imports. But these measures make the regime more complex. The export incentive program implementation process is complex and non-transparent reducing its effectiveness. Furthermore, Bangladesh also has set up an export promotion agency to provide market intelligence and to assist firms in their exporting activities.

### **Export Restrictions**

Bangladesh also imposes restrictions and taxes on exports of certain products such as animal hides and skins and jute textiles. In all the cases these restrictions in effect subsidise production and exports of leather and jute goods by depressing the domestic price of the raw materials and intermediate inputs. This causes input prices to remain below the world price level and this enables the manufacturers to further process the products for final consumption by end users overseas at a competitive price. Export controls are therefore, an effective tool in these instances to subsidise exports to enable exporters to gain competitiveness.

## Conclusions

Since the mid 1980s there has been a fundamental shift in Bangladesh's economic policy orientation with greater emphasis on market oriented economic outcomes. In line with such a policy shift a steadily liberalised trade regime has been put in place. Despite many structural and institutional constraints, levels of tariffs and quantitative restrictions have been reduced and a more deregulated foreign exchange and financial markets were introduced. However the pace of trade liberalization process has been slow and marked by occasional reversals in policy decisions under pressure from various interest groups as well as in response to balance of payments problems. Also there still remain significant regulatory and administrative controls which renders policy implementation complex and nontransparent.

Although tariffs have been reduced since the mid 1980s, they still remain the principal instrument of protection in Bangladesh. While export oriented industries are supported by various forms of subsidies and are allowed to operate under almost a free trade regime, import competing industries are supported by tariffs and many regulatory barriers. But it must be borne in mind that in Bangladesh tariffs are not simply an instrument of protection but also a principal source of revenue. This compounds the role tariffs play in the economy. However the new import policy as outlined the Import Policy Order (IPO) for 2003-2006 is more restrictive relative to previous one indicating some policy reversals. Such an erratic policy direction is symptomatic of intense lobbying by various interest groups and the way trade policy reforms have been crafted.

It is also suggested that on the part of the government there is no political commitment or will to economic reform measures including trade policy reform measures or any firm belief in the market mechanism to operate in an open economic system. As the forces external to the government played a more decisive role in forcing economic reforms rather than reforms originating within the governing system of the country, economic policy reforms including trade policy reform lacked any firm commitment on the part of the government. Furthermore there is considerable opposition from civil bureaucracy and organized labour to the reform process (see Mallon and Stern 1991, Karim, 1996). However since the mid 1990s a general consensus has started to emerge within the country that more open economic engagement with the rest of the world must be a key element of overall economic policy to stimulate economic growth which is now recognised as the principal means to alleviate poverty in Bangladesh as well as in other developing economies. Such a policy should be implemented progressively so as to minimise the costs of adjustment. While the influence of civil bureaucracy and organised labour appears to be declining in shaping trade policy direction but other interest groups such as import competing industries in the manufacturing sector and certain elements within the primary sector are continuing, as expected, to resist a more open economic policy. The interplay of pro and anti trade liberalisation forces will continue involving bargaining and sometimes shifting coalitions within the country and at the same time the forces of global economic integration on the other hand will also definitely impact on the future direction of trade policy.

The major challenge facing Bangladesh now is to move towards to step up trade liberalization process and carried through to create an enabling environment for industries to be internationally competitive. This also calls for a more uniform incentive structure so that industries can adjust to changing global economic environment. Such structural adjustments will help expand the production and export base.

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## **End Notes**

<sup>1</sup> The daily Star, Web edition, Vol 5 No.557 (2005)

# Negotiating a Free Trade Agreement between Australia and Japan: An Economic Assessment\*

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## Abstract

The Australia-Japan Free Trade Agreement (AUJA-FTA) is already in the process of negotiation by the two governments. The success of this FTA will depend on the manner in which it deals with the problem of agricultural trade between the two countries. This paper analyses the economic effects of the proposed FTA between Australia and Japan on both economies and on the trading partners, drawing lessons from simulations of two bilateral FTA scenarios. The simulations are undertaken using the Global Trade Analysis Project (GTAP) model and its version 6 database. By simulating the GTAP multi-country CGE model, the paper provides quantitative evidence concerning the welfare impact of the FTA with special reference to trade creation and trade diversion. The responses of various production sectors to the FTA show the structural changes that may take place in the two economies over the long run. The findings may shed light on the debate over the inclusion of agricultural trade into the agreement.

## Introduction

On 9 May 2002, Prime Minister Junichiro Koizumi of Japan formally announced during his official state visit to Canberra that Japan sought a Free Trade Agreement (FTA) with Australia and was willing to negotiate towards that end. Australian Prime Minister John Howard responded positively to this proposal. This initiated a complex negotiation process over the period September 2002 to June 2003 that culminated in the signing of an Australia-Japan Trade and Economic Framework Agreement on 17 July 2003 in Tokyo. The Economic Framework Agreement formally obliged both countries to “work the liberalisation of trade and investment” on a “balanced and comprehensive basis” through an ongoing Joint Consultative Committee (JCC) composed of representatives of both countries (Australian Department of Foreign Affairs and Trade, 2003, p.1). The JCC, as part of its commitments, completed its comprehensive study in April 2005. Following the report, Prime Minister Howard and Prime Minister Koizumi further agreed to carry out a joint study covering various policy options to enhance economic relations between Japan and Australia. This included a feasibility study of an FTA between the two countries.

The joint government study report was published in early December 2006. It concluded that a comprehensive WTO-consistent FTA between Australia and Japan would produce substantial benefits to both countries. The Australian Prime Minister Howard and the present Japanese Prime Minister Abe welcomed the findings in the report towards finalising an FTA. Consequently both Prime Ministers agreed on 12 December 2006 to commence negotiations on an FTA in early 2007. The first round of negotiations was to be held in Canberra from 23-24 April 2007 (DFAT, 2007).

It would thus appear that a protracted period of negotiations between the two countries will now begin in order to eventually draft a mutually satisfactory bilateral FTA. An FTA between Australia and Japan would represent part of the broader “hub-and-spokes” Growing East Asia Community strategy developed by Japan (Scollay, 2001). In this sense it would augment the existing FTAs with Singapore, Malaysia, Philippines, Mexico, and Chile. Under this strategy, Japan would cement its role as the dominant economy at the centre of Asia and strengthen its ties with surrounding nations in the Asia-Pacific region.

A critical feature of the Japanese FTAs so far is that they exclude important agricultural commodities. Japan’s FTA strategy appears to be dominated by its long-run objective of securing the steady supply of energy and natural resources that are needed by the country to maintain a steady economic growth while remaining internationally competitive. As Japan is the largest market for Australia for its agriculture, fisheries and forestry exports, the question of agricultural trade between Australia and Japan is bound to raise many difficulties, especially the problem of Australian access to the Japanese domestic market. It is the intension of Australia that the negotiation

should take place to include all the goods without exemptions. The strong farming lobby that has substantial influence on the agricultural trade policy in Japan needs to be convinced that the gains from AUJA-FTA are far above the cost to reach a reasonable solution to this issue. Given that Australia is Japan's fourth largest supplier of agricultural and food imports supplying 10 per cent of Japan's requirements, the inclusion of important agricultural goods into the FTA with Australia surely cannot be ruled out.

This paper offers some preliminary findings relating to macroeconomic and sectoral impact of the proposed FTA on both the economies of Japan and Australia. We use a computable general equilibrium (CGE) model developed at the Global Trade Analysis Project (GTAP) to examine the effects of trade liberalisation envisaged by the FTA. The analysis focuses on two different scenarios highlighting the importance of agricultural trade and potential benefits and costs of its inclusion to the FTA.

The paper is organised as follows: Section 2 provides a brief synopsis of the development of FTA activities in Australia and Japan. Section 3 outlines the Australia-Japan trade and investment relationships. Section 4 briefly explains two trade liberalisation scenarios used in the GTAP simulations: an FTA including agriculture and an FTA excluding agriculture. Section 5 analyses the results of the simulation exercises. The paper ends with some brief concluding comments on potential policy implications of an AUJA-FTA in section 6.

## **Brief Review of FTA Developments in Australia and Japan**

Australia's involvement in bilateral trade treaties goes back to 1983 when Closer Economic Relations Agreement (CERA) between Australia and New Zealand was signed. The CERA is regarded as one of the most successful FTAs and it has contributed to a phenomenal growth in bilateral trade between the two countries (see Lloyd and Maclaren, 2004). Australia has become New Zealand's number one trading partner while New Zealand is Australia's 7<sup>th</sup> important trading partner. After a period of deep involvement in multilateral arrangements, now Australia has an 'open mind' about FTAs. In recognition of the fact that the trade isolation could hinder the long-run growth prospects of the country, Australia actively began seeking opportunities for regional trade agreements (RTAs). The first successful negotiation occurred between Australia and Singapore and an FTA between the two countries was signed in February 2003 (Siriwardana and Dollery, 2003). The agreement came into effect in the second half of 2003. Australia also signed a free trade agreement with Thailand which came into effect in early 2005.

The Australia-US FTA (AUSFTA) is the fourth bilateral FTA that Australia has negotiated and it came into effect from 1<sup>st</sup> January 2005 (Siriwardana, 2007). The US is Australia's third largest single trading partner. Under this agreement, Australia and the US agreed to trade bilaterally about 86 per cent of the commodities import tax-free. By 2022, almost every bilaterally traded commodity will achieve tax-free status with the exception of sugar and dairy products (CIE, 2004).

The most recent developments in relation to RTAs in the North East Asian region indicate that Australia is unlikely to be left alone. At a meeting held in Laos on 30 November 2004, the leaders from ASEAN, Australia and New Zealand have mutually agreed to establish an ASEAN Free Trade Area (AFTA) including Australia and New Zealand. This opens up new exciting prospects for full free trade in the region and it could well be regarded as an extension of CERA beyond Australia and New Zealand. Australia has also made a significant progress on a bilateral free trade agreement with China. There have been five rounds of negotiations to exchange information that are important to both Australia and China (DFAT, 2006a, DFAT, 2006b). It is anticipated that the Australia-China FTA will be concluded within a short period.

Japan on the other hand had pursued its trade liberalization under the General Agreement on Tariffs and Trade (GATT) and the World Trade Organization (WTO) until the late 1990s. Hence Japan has been slow to enter the FTA arena. It is now widely recognized that these multilateral trade negotiations are making a slow progress and hence FTAs are emerging as an option for achieving trade liberalization. Japanese government now wants FTAs to play a significant role in promoting its economic growth by creating business opportunities for Japanese firms in FTA partner countries. The domestic agricultural sector reforms are also considered to be necessary in achieving



success through bilateral trade treaties. FTAs can promote economic stability in East Asia and they would have a positive impact on Japan (Urata, 2005).

Japan signed its first FTA with Singapore in 2002. Under this agreement Singapore has removed tariffs on all imports from Japan while Japan has removed tariffs on 94 per cent of imports from Singapore. Mexico is the second country that Japan has successfully negotiated an FTA in 2004. Japan's strong resistance to liberalise its farm products such as pork, beef, chicken products, oranges and orange juice was a major obstacle for the FTA negotiation with Mexico. Eventually Japan opened up the market for these products by increasing import quotas but not by the usual removal of tariffs. Mexico on the other hand agreed to open up its market to all imports from Japan. Japan has finally agreed to include 84 per cent of imports from Mexico into the FTA. Japan also subsequently negotiated FTAs with Malaysia, Philippines and these agreements have also excluded agricultural goods. The most recent FTA has been the one with Chile where Japan has agreed to include 94 per cent of its trade with Chile into the agreement.

### Trade Pattern between Australia and Japan

FIG. 1 depicts Australia's trade with Japan from 1986 to 2005. Over this 20-year period, trade between Australia and Japan has shown substantial growth. Furthermore, Australian exports exceed imports throughout the period showing a significant trade surplus with Japan.

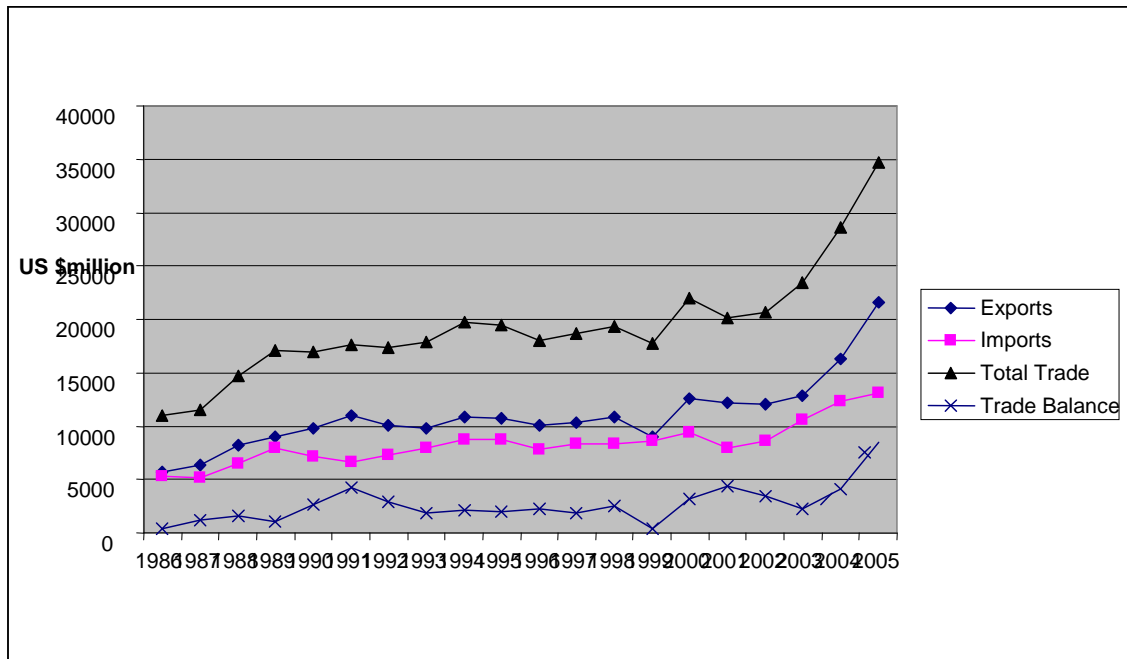


FIG.1: AUSTRALIA'S TRADE WITH JAPAN, 1986-2005

Source: Based on data from IMF, Direction of Trade Statistics Yearbook (various issues)

Table 1 displays Australia's bilateral trade with Japan in 1995 and 2005 by commodity group. Over the ten-year period, the composition of exports to Japan has undergone some changes whereas the composition of imports

remained relatively stable. In 2005, 75 per cent of Australian exports to Japan were primary goods (Food & live animals, Crude martial, inedible, except fuel, and Mineral fuels, lubricants & related materials). With regard to imports from Japan, 'Machinery & transport equipment' dominated the total accounting for nearly 80 per cent. This trade pattern between the two countries provides evidence to support the view that Australia-Japan bilateral trade takes place according to the comparative advantage and it can further be strengthened by removing tariffs under the proposed FTA.

**TABLE 1: AUSTRALIA'S BILATERAL TRADE (MERCHANDISE) WITH JAPAN (US\$ MILLION)**

Commodity group	1995				2005			
	Exports to Japan	%	Imports from Japan	%	Exports to Japan	%	Imports from Japan	%
Food & live animals	2252.88	21.0	26.82	0.3	3520.19	16.3	34.39	0.3
Beverage & tobacco	20.95	0.2	21.09	0.2	39.34	0.2	2.47	0.0
Crude materials, inedible, except fuel	2349.05	21.9	36.84	0.4	4454.78	20.6	31.34	0.2
Mineral fuels, lubricants & related materials	3362.01	31.3	9.03	0.1	8228.63	38.1	230.17	1.8
Animal & vegetable oils, fats & waxes	9.88	0.1	3.29	0.0	26.29	0.1	0.83	0.0
Chemical & related products	125.41	1.2	340.70	3.9	196.23	0.9	431.98	3.3
<b>Manufactured goods</b>	1053.65	9.8	1004.36	11.5	1411.64	6.5	1080.61	8.3
Machinery & transport equipment	358.54	3.3	6691.28	76.7	157.75	0.7	10437.73	79.9
Miscellaneous manufactures	103.62	1.0	580.82	6.7	85.82	0.4	575.52	4.4
Commodities not included elsewhere	1095.92	10.2	8.70	0.1	3467.34	16.1	233.56	1.8
<b>Total</b>	10731.91	100.0	8722.93	100.0	21588.00	100.0	13058.61	100.0

**Source: Australian Bureau of Statistics, International Merchandise Trade (Cat. No. 5422), various issues.**

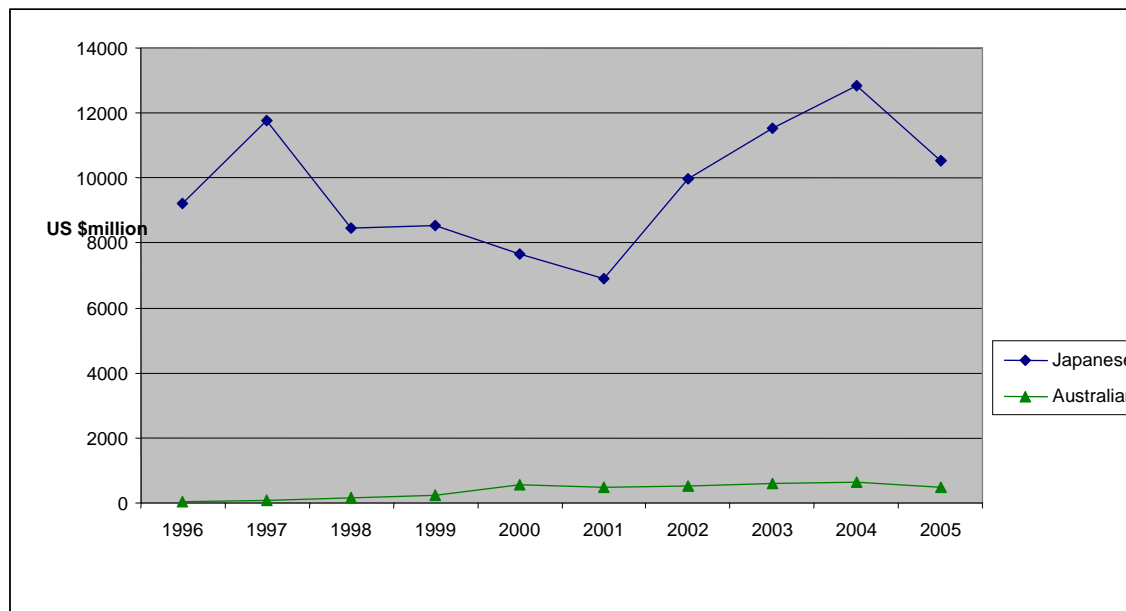


FIG.2: BILATERAL FDI BETWEEN JAPAN AND AUSTRAL, 1996-2005

Source: Japan Ministry of Finance web site, <http://www.jetro.go.jp/en/stats/statistics/>

FIG. 2 shows the bilateral FDI (stock) between Australia and Japan from 1996 to 2005. It is clear that Japanese investment in Australia is considerably greater than the Australian investment in Japan. It is also widely recognized that the proposed FTA should be used as a vehicle for lifting FDI flows to higher levels and the liberalisation of services are hence another priority area that has attracted attention of trade policy negotiators on both sides.

## GTAP Model and the Trade Policy Simulations

The specific model used to quantify the impact of the Australia-Japan FTA is the GTAP model. It is a multi-regional CGE model of the Johansen type that has been used extensively in the literature. It has been well documented in Hertel (1997). The modelling of each region in GTAP is based on the ORANI model (Dixon et al., 1982). In this paper, we used the GTAP model with version six of the database that disaggregates the world into 87 regions and 57 sectors.

We aggregate the GTAP database into 10 regions and 20 sectors to suit our needs as (see Appendix Table A1). Since our focus is on the bilateral FTA between Australia and Japan, the regional aggregation is designed to capture the importance of other trading partners to both countries. The sectoral aggregation framework is adopted to distinguish commodities (or sectors) that are important for the present analysis, especially separating agricultural goods from others. The elasticity parameters (i.e., Armington elasticities of import-domestic substitution, primary factor substitution, and export demand elasticities) are crucial to GTAP simulations. The present study uses the parameters that are standard to the GTAP database.

TABLE 2: AVERAGE TARIFFS ON DIFFERENT COMMODITIES

	Australian Tariffs on Imports from Japan	Japanese Tariffs on Imports from Australia
Grains	0.0	162.8
Other crops	0.0	1.4
Animal products	0.0	9.6
Forestry and fishing	0.0	2.5
Mining and energy	3.2	0.0
Meat products	0.2	46.5
Other food products	0.7	55.7
Dairy	0.6	45.7
Sugar	7.1	316
Beverages and tobacco	6.6	44.1
Textiles	9.2	0.9
Wearing apparels	13.6	10.5
Wood and paper products, publishing	4.2	0.2
Chemical, rubber and plastic	5.4	1.4
Ferrous metals	4.7	0.4
Metal products	8.1	1.6
Motor vehicles and parts	16.3	0.0
Machinery and equipment	3.1	0.1
Miscellaneous manufactures	2.2	0.4
Services	0.0	0.0

Source: GTAP data base Version 6, 2005

Table 2 shows bilateral import tariffs estimated from the GTAP database version 6. In Australia, the highest import tariffs on imports from Japan are recorded for 'Motor vehicles and parts' (16.3 per cent), and 'Wearing apparels' (13.6 per cent). In Japan, the tariff level is relatively high compared with Australia. The highest import tariffs on Japanese imports from Australia are noted in 'Grains' (162.8 percent) followed by many other agricultural goods.

The elimination of tariff barriers on bilateral basis under the FTA needs to be implemented via simulations of GTAP in order to quantify the effects of the agreement. A number of changes are expected to occur in bilateral tariff with the formation of an FTA between Australia and Japan. If both economies are fully open to each other's imports, both Japan and Australia will abolish tariff barriers on imports bilaterally (shown in Table 2). It is assumed that tariffs imposed on imports from other trading partners (non-members of the FTA) will remain unchanged. The prices of both Japanese goods sold in Australia and the Australian goods sold in Japan are expected to fall by the extent of import duties shown in Table 2. In order to quantify the effects of the proposed FTA, we carry out two GTAP simulations. These two simulation scenarios may reflect the options that have been discussed by the two parties at different stages of negotiations.

Scenario 1: All bilateral tariffs between Australian and Japan are removed while the existing tariff barriers against non-FTA countries are maintained. This is called 'the full liberalization' scenario under the FTA. If this is adopted, all tariff rates that appear in Table 2 will be reduced to zero.

Scenario 2: Even though Australian is keen to liberalize everything, Japan's position is not yet certain when it comes to agricultural goods. Hence the second scenario is designed to implement the AUJA-FTA by excluding agricultural commodities. This implies that goods 1-4 in Table 2 are subject to existing import duties while the other 16 goods are imported free of duty on bilateral basis.

We adopt the standard long-run macroeconomic closure for the simulations reported in the paper. This is sometimes known as the “steady state” closure. Here the rate of return on capital is fixed exogenously and the level of capital stock is allowed to adjust in response to the policy shock. Investment occurs in each region during the period of tariff reduction with the effect that sum of the regional investment matches with the changes in the global savings. The current account is fixed by setting the trade balance fixed exogenously. The period is long enough for the capital stocks of different industries in a given region to respond to the shock. The reallocation of capital stock among sectors equilibrates rates of return across sectors restoring the rates of returns to their initial levels. Thus in the process of adjustment, industries which are favored by the trade liberalization experience their capital stock growing while those industries which are adversely affected experience their capital stock shrinking.

In the simulation of GTAP, we assume that in the long-run the aggregate employment at national level is affected by the demographic factors that are not sensitive to the implementation of the FTA. Thus it is reasonable to assume that the elimination of merchandise tariffs under the FTA has no long-run effect on aggregate employment levels both in Australia and in Japan. In the model simulation, the fixed employment level is maintained in the long-run by the endogenous adjustments in the real wage. This implies that the benefits from the FTA are seen in terms of the increase in the real wage rather than the increase in aggregate employment.

## **Simulation Results**

To assess the effectiveness of the FTA with and without agricultural goods, we report results of full liberalization and partial liberalization separately. It is important to determine whether the maintenance of high tariff barriers by Japan against agricultural goods imported from Australia make economic sense in the negotiation of the proposed FTA. From the perspective of Japanese trade negotiators and farming lobby groups, these findings will have significant policy implications. Reported in the next sections is the impact of the bilateral trade liberalization on important macroeconomic variables, trade, industry outputs and economic welfare.

### **Full Trade Liberalization**

The first panel of Table 3 shows the macroeconomic effects of full trade liberalization under the proposed FTA between Australia and Japan. The projections highlight important findings that are crucial to both parties. Japan will experience an increase in real GDP by 0.33 per cent whereas Australia is projected to have 0.22 per cent increase. Except USA and Hong Kong, all other non-member regions are showing a decline in real GDP as a consequence of the FTA. Among these losers, ASEAN(6) is reported to have the most significant negative effect in terms of real GDP. This is a reflection of their strong trade relations with Australia and Japan and the trade diversion due to the FTA has adverse impact on them.

The proposed FTA seems to have substantial effect on the trade performance of both countries. As far as exports are concerned, Japan has a better outcome (1.91 per cent) than that of Australia (0.69 per cent). However, a significant gain in the terms of trade for Australia allows it to import more than what Japan may be able to achieve in imports under the FTA. Unlike for Australia, the terms of trade for Japan deteriorate by about half a per cent, which could explain its less strong capacity to import.

The projection of the equivalent variation (EV) as reported in Table 3 is a measure of the welfare impact of the FTA. The EV is an absolute monetary measure of changes in welfare in terms of income that eventuates from the fall in import prices when tariffs are eliminated. The EV estimates follow the same pattern of changes in real GDP. These improvements in welfare are attributed to the gains from trade creation. A more meaningful way to view the welfare effects is to consider the EV as a percentage of country's GDP. The AUJA-FTA with full trade liberalization seems more favorable to Australia than to Japan according to the EV to GDP ratio. Our projections indicate that Australia has a ratio of 1.33 per cent compared to the Japanese 0.17 per cent. The change in real consumption (see column 6 of Table 3) which is regarded as an alternative measure of welfare outcomes also confirms this finding.

Conventionally, trade creation and trade diversion are two key features that govern the welfare outcomes of preferential trade agreements. In the case of AUJA-FTA, the discriminatory behavior towards non-members will

reduce global welfare via trade diversion. All non-member nations have negative EV projections. This is the impact of trade diversion. As can be seen from Table 3, there is a small welfare loss globally which amounts to US\$ 3413 million due to the AUJA-FTA.

TABLE 3: MACROECONOMIC AND TRADE PERFORMANCE RESULTS OF THE FTA

	Real GDP	Export Volume	Import Volume	Terms of Trade	Equivalent Variation (EV) (US\$ million)	EV as (%) of GDP	Real Consumption Expenditure
<i>Full Trade Liberalisation</i>							
AUS	0.22	0.69	6.41	5.58	4750.84	1.33	1.41
USA	0.00	-0.12	-0.14	-0.07	-515.16	-0.01	0.00
ASEAN(6)	-0.15	-0.20	-0.30	-0.06	-860.10	-0.16	-0.19
CHI	-0.04	-0.10	-0.21	-0.07	-534.23	-0.05	-0.06
JPA	0.33	1.91	1.61	-0.56	7261.85	0.17	0.25
KOR	-0.02	-0.12	-0.20	-0.06	-145.98	-0.03	-0.05
TWN	-0.02	-0.06	-0.10	-0.03	-72.97	-0.03	-0.03
KHG	0.00	-0.01	-0.01	0.00	-2.28	0.00	0.00
EU	-0.01	-0.03	-0.04	-0.01	-664.97	-0.01	-0.01
ROW	-0.01	-0.06	-0.07	-0.01	-617.44	-0.01	-0.01
<i>Trade Liberalisation Excluding Agricultural Goods</i>							
AUS	0.39	2.39	5.51	2.98	3259.99	0.91	0.97
USA	0.00	-0.11	-0.1	-0.04	-771.64	-0.01	-0.01
ASEAN(6)	-0.07	-0.08	-0.16	-0.06	-508.45	-0.09	-0.11
CHI	0.00	-0.05	-0.14	-0.06	-196.46	-0.02	-0.02
JPA	0.16	1.36	1.34	-0.21	3482.18	0.08	0.12
KOR	-0.03	-0.06	-0.13	-0.05	-187.12	-0.04	-0.05
TWN	-0.02	-0.05	-0.1	-0.03	-79.04	-0.03	-0.03
KHG	0.00	0.00	0.00	0.00	7.11	0.00	0.00
EU	0.00	-0.02	-0.03	-0.01	-514.04	-0.01	0.00
ROW	-0.01	-0.05	-0.06	-0.01	-631.73	-0.01	-0.02

Source: Author's simulation of GTAP.

Columns 2 and 3 of Table 4 report the sectoral output changes in response to the AUJA-FTA being implemented in its full liberalization form. Australia is projected to experience more significant structural adjustments in terms of sectoral outputs in comparison to Japan. The sectors that export agricultural and related goods from Australia emerge as key winners whereas main manufacturing sectors that may face import competition become the losers. The performance of sectors such as 'Grains', 'Meat products', and 'Sugar' are quite exceptional. Conversely, the same agricultural sectors in Japan appear to be the significant losers from the FTA. Nevertheless Japanese manufacturing sectors show a consistent positive output response to the removal of tariffs and 'Motor vehicles and parts' has the highest output growth (1.79 per cent) among them.

The factor market adjustments arising from the trade liberalization are another aspect of structural changes that occur in both countries. Table 5 (columns 2-5) reports changes in the demand for land, labour (skilled and

unskilled) and capital in production sectors of Australia and Japan. While these changes are quite complex, they closely follow the output response that was previously described. For example, while Australia's agricultural sectors will require more labor and capital to meet the new demand for its output from Japan; their Japanese counterparts will experience the opposite. However the demand for primary inputs by the Japanese manufacturing sectors will increase and the demand by Australian industries will decrease. These shifts in factor demands are quite consistent with the respective comparative advantage which is further strengthened by the FTA.

TABLE 4: CHANGE IN SECTORAL OUTPUTS UNDER THE FTA

	Full Trade Liberalisation		Trade Liberalisation Excluding Agricultural Goods	
	Australia	Japan	Australia	Japan
Grains	93.25	-24.15	-11.61	0.52
Other crops	-10.65	0.28	-2.37	-0.60
Animal products	5.69	-4.21	19.39	-7.97
Forestry and fishing	0.41	0.30	0.67	-0.15
Mining and energy	-5.83	0.64	-4.65	0.40
Meat products	53.43	-9.56	74.61	-15.18
Other food products	16.55	0.56	21.92	-0.73
Dairy	4.65	-2.09	12.87	-3.29
Sugar	57.22	-10.29	64.87	-10.94
Beverages and tobacco	-1.79	0.41	-0.21	0.17
Textiles	-12.40	0.82	-8.75	0.54
Wearing apparels	-7.16	0.44	-5.53	0.25
Wood and paper products, publishing	-2.78	0.38	-1.71	0.13
Chemical, rubber and plastic	-7.12	0.60	-5.47	0.44
Ferrous metals	-14.29	1.17	-11.75	0.81
Metal products	-4.42	0.55	-3.17	0.31
Motor vehicles and parts	-11.00	1.79	-9.79	1.52
Machinery and equipment	-12.10	0.89	-10.11	0.54
Miscellaneous manufactures	-6.68	0.66	-5.31	0.25
Services	0.30	0.26	0.40	0.12

Source: Author's simulation of GTAP.

A quite robust export performance by industries in both countries can be expected under the FTA. As can be seen from Table 6, Australia will strengthen its position in trade with Japan by exporting more of the agricultural goods. The most significant winners are 'Grains', 'Sugar', and 'Meat products'. The export performance of Japanese sectors is also very encouraging. While there is an overall stimulus from the FTA to various sectors to do better, the manufacturing sectors are particularly advantaged by the removal of tariffs. For Japan, sectors such as 'Textiles', 'Wearing apparels', 'Metal products', and 'Motor vehicles and parts' promise to be the key players in exporting to Australia under free trade.



## Trade Liberalization Excluding Agricultural Goods

From the outset of the negotiations, Australia has persuaded the Japanese government to consider the FTA with the full liberalization option. Of course this appears to be the best option for Australia, though for Japan the protection of its agricultural sector has been a priority in many previous FTA treaties. Therefore its position is still unclear with the FTA with Australia. Japanese farmers have consistently opposed to the liberalization of the agricultural trade (Scollay, 2001). Surely, the role of agriculture and any associated level of protection afforded it will be a major concern in the forthcoming process of negotiations.

TABLE 5: CHANGES IN DEMAND FOR KEY PRIMARY INPUTS IN AUSTRALIA AND JAPAN

	Full Trade Liberalisation				Trade Liberalisation Excluding Agricultural Goods			
	Land	Unskilled labour	Skilled labour	Capital	Land	Unskilled labour	Skilled labour	Capital
<i>In Australia</i>								
Grains	57.51	108.42	108.76	109.06	-13.76	-11.11	-11.02	-10.79
Other crops	-19.61	-7.65	-7.49	-7.35	-6.18	-1.37	-1.27	-1.01
Animal products	-7.14	10.34	10.53	10.7	11.32	21.84	21.96	22.27
Forestry and fishing	-11.95	0.57	0.71	0.84	-3.67	0.98	1.06	1.28
Mining and energy	-30.65	-8.29	-7.86	-7.49	-13.92	-6.8	-6.54	-5.89
Meat products	-20.21	52.75	53.98	55.07	12.61	73.91	74.74	76.78
Other food products	-29.91	15.64	16.57	17.4	-5.25	20.94	21.52	22.97
Dairy	-33.65	3.7	4.55	5.29	-8.81	11.79	12.34	13.69
Sugar	-17.13	56.11	57.27	58.33	10.62	63.69	64.42	66.25
Beverages and tobacco	-35.59	-2.89	-2.1	-1.4	-14.08	-1.42	-0.94	0.26
Textiles	-40.15	-12.99	-12.18	-11.48	-17.86	-9.35	-8.84	-7.59
Wearing apparels	-38.5	-7.66	-6.81	-6.06	-16.52	-6	-5.48	-4.18
Wood and paper products, publishing	-37.28	-3.63	-2.74	-1.97	-15.18	-2.59	-2.05	-0.71
Chemical, rubber and plastic	-38.61	-8.04	-7.19	-6.45	-16.69	-6.42	-5.9	-4.61
Ferrous metals	-40.83	-15.15	-14.37	-13.68	-19.22	-12.68	-12.19	-10.99
Metal products	-37.7	-5.08	-4.2	-3.44	-15.67	-3.83	-3.3	-1.98
Motor vehicles and parts	-39.73	-11.78	-10.97	-10.25	-18.37	-10.61	-10.12	-8.88
Machinery and equipment	-40.08	-12.79	-11.98	-11.28	-18.45	-10.79	-10.29	-9.06
Miscellaneous manufactures	-38.4	-7.35	-6.5	-5.75	-16.52	-6	-5.48	-4.18
Services	-37.53	-0.68	0.32	1.19	-14.9	-0.55	0.05	1.54
<i>In Japan</i>								
Grains	-15.97	-25.58	-25.59	-25.49	1.33	0.32	0.31	0.39
Other crops	5.8	-0.83	-0.86	-0.72	0.38	-0.84	-0.84	-0.77
Animal products	1.86	-5.4	-5.43	-5.29	-5.86	-8.43	-8.43	-8.37
Forestry and fishing	5.96	0.39	0.37	0.49	0.71	-0.25	-0.25	-0.19
Mining and energy	13.92	0.51	0.45	0.82	2.36	0.33	0.31	0.51
Meat products	13.21	-9.81	-9.91	-9.31	-4.8	-15.32	-15.35	-15.05
Other food products	19.03	0.37	0.25	0.92	2.53	-0.84	-0.87	-0.53
Dairy	17.53	-2.31	-2.42	-1.78	1.27	-3.42	-3.45	-3.11

Sugar	12.72	-10.5	-10.6	-10.01	-2.62	-11.07	-11.09	-10.79
Beverages and tobacco	18.89	0.1	-0.01	0.65	2.93	-0.02	-0.05	0.3
Textiles	20.32	0.7	0.57	1.32	3.31	0.46	0.43	0.82
Wearing apparels	20.1	0.26	0.14	0.89	3.17	0.14	0.11	0.5
Wood and paper products, publishing	20.06	0.18	0.06	0.8	3.11	0.01	-0.02	0.36
Chemical, rubber and plastic	20.14	0.34	0.21	0.96	3.23	0.27	0.24	0.63
Ferrous metals	20.44	0.92	0.79	1.55	3.41	0.66	0.63	1.02
Metal products	20.16	0.38	0.25	1	3.2	0.2	0.17	0.56
Motor vehicles and parts	20.81	1.61	1.49	2.24	3.74	1.4	1.37	1.76
Machinery and equipment	20.31	0.67	0.55	1.29	3.29	0.41	0.38	0.77
Miscellaneous manufactures	20.2	0.45	0.33	1.08	3.16	0.12	0.09	0.48
Services	20.85	0.03	-0.1	0.71	3.22	-0.02	-0.06	0.37

Source: Author's simulation of GTAP.

TABLE 6: CHANGE IN BILATERAL EXPORT VOLUMES UNDER THE FTA

	Full Liberalisation		Trade Liberalisation Excluding Agricultural Goods	
	From Australia to Japan	From Japan to Australia	From Australia to Japan	From Japan to Australia
Grains	1290.39	285.74	-26.70	45.06
Other crops	-43.17	54.77	-24.24	21.62
Animal products	-25.55	73.77	-29.35	39.26
Forestry and fishing	-1.73	8.74	-10.13	10.86
Mining and energy	-8.29	32.88	-6.68	32.54
Meat products	522.14	91.74	630.28	55.06
Other food products	371.68	28.48	420.01	15.89
Dairy	322.11	64.52	373.93	44.49
Sugar	804.72	334.28	825.77	312.20
Beverages and tobacco	105.57	24.92	114.52	22.02
Textiles	-23.43	101.70	-15.22	98.25
Wearing apparels	73.09	182.92	81.51	178.12
Wood and paper products, publishing	-13.89	38.69	-11.41	37.25
Chemical, rubber and plastic	-8.53	45.17	-4.96	43.90
Ferrous metals	-14.75	37.09	-11.78	36.57
Metal products	-10.33	88.51	-6.59	85.85
Motor vehicles and parts	-7.81	87.15	-5.04	85.77
Machinery and equipment	-18.92	29.92	-15.70	28.92
Miscellaneous manufactures	-18.85	26.79	-14.72	23.52
Services	-1.00	8.41	-10.81	6.76

Source: Author's simulation of GTAP.

We have also attempted to project the potential outcome of an AUJA-FTA without liberalizing agricultural trade between the two countries. This may provide a preliminary estimate to trade policy negotiators who may be concerned with the ramifications of full free trade with Australia. Can Japan reap the full benefits by excluding agriculture from the proposed FTA? Will Japanese farmers be better off by not allowing free market access for Australian agricultural exports in Japan? Given Australia is a key supplier of agricultural goods to Japan, does it make sense to exclude such trade from the FTA? Some preliminary answers to these questions are found in the macroeconomic projections reported in the second panel in Table 3. These results are obtained by excluding commodity 1-4 in Table 2 from the FTA.

A quick glance at the GDP projections indicates that Japan's gain in GDP under full free trade is halved (from 0.33 to 0.16 per cent) if agriculture is excluded from the liberalization. Australia on the other hand improves its position (from 0.22 to 0.39 per cent). It appears that the benefits projected under the full liberalization for Japan are reduced substantially by removing agriculture from the proposal. A most noticeable change for Australia is the significantly reduced terms of trade improvement and the associated trade outcome. Australia exports more and imports slightly less than before. Overall, the welfare of both countries is reduced as measured in absolute as well as relative terms. Consistent with income changes, real consumption is also estimated to be less. Overall, the macroeconomic projections in Table 3 imply that Japan will eventually experience much reduced benefits in terms of income, trade, and welfare in the event it decided to exclude key agricultural goods from the FTA. Australia's experience is relatively less sensitive to the decision on agricultural goods.

As can be seen from Table 4, the sectoral output projections also changed substantially as a result of removing agricultural goods from the agreement. The extent of the change is a reflection of how producers respond to the policy decision on agricultural trade. In both Australia and Japan, 'Grain' sector's output performance is reversed dramatically. On examining the rest of the sectoral output responses, it is seen that different sectors in the Australian economy improve their position relative to their Japanese counterparts. This sectoral performance could perhaps explain why Australia's real GDP increases under this scenario compared to the full liberalisation. For Japan, the decision on agricultural trade is critical and it could certainly change the outcome for Japan considerably. Trade negotiators on the Japanese side need to be aware of such effects prior to concluding an FTA with Australia.

The employment projections shown in Table 5 suggest that the opposition to the FTA by the farming community in Japan does have some merit. The demand for skilled and unskilled labor in 'Grain' is reduced significantly under full liberalization but the removal of agricultural goods from the FTA may reverse the demand to be positive. But it comes at the expense of the rest of economy facing somewhat reduced employment prospects as the FTA is transformed from full to partial liberalization mode. The magnitudes of the bilateral exports volumes are also affected and the main shift again occurring in 'Grains'. Interestingly, except 'Grains', Australia's export performance shows improvement whereas as Japan's is somewhat adversely affected.

## Conclusion

This paper provides some preliminary estimates of the economic cost and benefits of the proposed AUJA-FTA which may be a significant change in the bilateral trade policy for both countries. The simulations conducted using the GTAP model examined two plausible bilateral trade policy scenarios: full trade liberalization and trade liberalization excluding agriculture. Naturally, as Australia's comparative advantage lies in the agricultural commodities and Japan's in the manufactured goods, the full liberalization option appears to be giving a balance outcome that can be regarded as superior to any other alternative. Both countries gain in welfare at a higher level and trade would occur according to their respective comparative advantage if trade is liberalised across the board. Any exceptions to this policy could lead to possibly a sub-optimal outcome to both parties.

The liberalization of trade in agricultural goods has become a politically sensitive issue in Japan since its possible negative impacts on employment. The analysis presented in this paper clearly demonstrates that Japan is likely to experience a reduction in its benefits that are possible from fully-liberalized trade with Australia if it decides to exclude key agricultural goods from the agreement. Compared to many countries that import agricultural goods, Japan's average tariffs on such imports are fairly low (12 per cent). What is special for agricultural protection

in Japan is extremely high protection given to several specific products with a complicated system that combines quotas and high tariff rates. For example, ad valorem tariffs equivalents on goods such as rice, wheat, sugar, butter, and potatoes are well above 200 per cent. As we can see from our second simulation scenario, the exclusion of commodities of this type from the FTA makes a significant difference. For Japan, it would be more beneficial to liberalize agricultural trade under the FTA and seek appropriate adjustment policies to deal with negatively impacted sectors at a subsequent stage. In the long run, it is an affordable policy option for Japan and the important positive impacts that eventuate from the free trade treaty will surely outweigh the costs. Moreover, the FTAs of this nature will ensure stable supply of food and natural resources that are paramount to the long-term growth of the Japanese economy.

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**Appendix-Source:** Purdue University 2005, GTAP database version 6

Aggregated Region	GTAP Region	Aggregated Commodity	GTAP Commodity
1. Australia (AUS)	Australia	1. Grains	Paddy rice; wheat; cereal grains nec
2. Unites States (US)	United States	2. Other crops	Vegetables, fruits, nuts; Oil seeds; Plant-based fibers; Crops nec Sugar cane, sugar beet,
3. ASEAN (6)	Indonesia, Malaysia, Philippines, Singapore, Thailand, Vietnam	3. Animal products	Cattle, sheep, goat, horses; Animal products nec; Wool, silk-worm cocoons, Raw milk
4. China (CHI)	China	4. Forestry and fishing	Forestry, fishing
5. Japan (JPA)	Japan	5. Mining and energy	Coal; Oil; Gas; Minerals nec; petroleum and coal products
6. Korea (KOR)	Korea	6. Meat products	Meat: cattle, sheep, goats, horse; Meat products nec,
7. Taiwan (TWN)	Taiwan	7. Other food products	Vegetable oil and fats; processed rice; food products nec
8. Hong Kong (HKG)	Hong Kong	8. Dairy	Dairy products
9. European Union (EU)	United Kingdom, Germany, Denmark, Sweden, Finland, Austria, Belgium, France, Greece, Ireland, Italy, Luxemburg, Netherlands, Portugal, Spain, Cyprus, Czech Republic, Hungary, Malta, Poland, Slovakia, Slovenia, Estonia, Latvia, Lithuania	9. Sugar	Sugar
10. Rest of Europe (RU)	All other regions	10. Beverages and tobacco	Beverages and tobacco products
		11. Textiles	Textiles
		12. Wearing apparels	Wwearing apparel; leather products
		13. Wood and paper products, publishing	Wood products; Paper products, publishing
		14. Chemicals, rubber and plastic	Chemical, rubber, plastic prods
		15. Ferrous metals	Ferrous metals; Metals nec
		16. Metal products	Metal products
		17. Motor vehicles and parts	Motor vehicles and parts; Transport equipment nec
		18. Machinery and equipment	Electronic equipment; Machinery and equipment nec
		19. Miscellaneous manufacturing	Manufacturing nec
		20. Services	Electricity; Gas manufacture and distribution; Water; construction; PublicAdministration/Defence/Health/Education; Dwellings; Trade, Sea transport, Air transport, Communication; Financial services nec, Insurance, Business services nec, Recreation and other services

## **End Notes**

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# The PPP Theory of Inflation and Post Colonial Trade Relationships: The Case of Two African Countries

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## Abstract

Using the absolute version of the Purchasing Power Parity (PPP) theory, the paper models the nominal exchange rate and the price level as integrated processes that ensure that trade between two countries will render the real exchange rate as a stationary process. After conducting a Unit Root Test on the primary price and exchange rate variables, the paper employs the Johanssen Cointegration technique, to investigate whether the current inflation differential accounts for the difference between the present and previous exchange rate levels for two pairs of countries: Cote d'Ivoire and France, and Ghana and Britain, as well as between these two developing countries and two other developed countries, Japan and the US. Given the tighter trading relationship between the former two countries we expect a priori the PPP theory to yield more robust results here than in the latter case. The result is the reverse suggesting that indeed Ghana's significantly higher average annual inflation rate is a stronger determinant of exchange rates than the two nations' trading patterns.

## Introduction

This paper examines one of the oldest and still one of the most controversial issues in economic theory and practice, namely the Purchasing Power Parity (PPP) Hypothesis, primarily using Non-Stationarity and Cointegration tests. This is accomplished through an empirical investigation of the experience of price level and nominal exchange rate fluctuations of two West African Countries, Ghana and Côte d' Ivoire, and through their interactions with four of the primary industrialized economies. The PPP concept is vital because the establishment of a stable underlying relationship between national price levels and the exchange rate facilitates the use of the PPP as an equilibrium or steady state theoretical level for the exchange rate. Deviations of the actual exchange rate from this level can then benchmark the extent of currency misalignment, see for example Edwards (1988), Machlup (1973), and can form the basis of an evaluation of economic policy intervention that may be required to restore equilibrium.

The rest of the paper is organized as follows. The next section lays out the traditional empirical formulation of the PPP Hypothesis. This is followed by a brief description of the two techniques (the cointegration and unit roots test) that will be featured as the primary empirical framework for this study. The next section presents basic data description together with a look at Ordinary Least Squares (OLS) regression analysis of the PPP for these two countries. The Non-Stationarity and Cointegration results are then presented in a section which is followed by a brief conclusion.

## A Formulation of the PPP

In the most succinct formation, the PPP theory states that the nominal exchange rate (measured as the number of domestic currency units per unit of the foreign currency) should be equated to the domestic to foreign price ratio. In equation form this is often written as:

$$S_{it} = \beta_1 (P_{it} - P_{it}^*) + \mu_t \quad (1)$$

Where,  $S_{it}$  is the nominal exchange rate

$P_{it}$  is the domestic price level

$P_{it}^*$  is the foreign price level.

Quickly taking logs of an expression such as this (or expressing it in a long linear fashion), this becomes:

$$\text{Sit} = \beta_0 + \beta_1 P_t + \beta_2 P_t^* + \mu_t \quad (2)$$

This is the absolute version of PPP accompanied by either the symmetry condition<sup>1</sup>, that  $\beta_1$  and  $\beta_2$  be equal and of opposite signs, or the proportionality condition, that  $\beta_1$  and  $\beta_2$  be 1 and minus 1 respectively. A milder version (the Relative PPP) merely requires that a nominal exchange rate adjustment provide a percentage match for any relative price adjustment. This formulation implies that deviations from parity (such as excessive inflation in one country) create potentially profitable arbitrage opportunities which when exploited would result in a nominal exchange rate change that would restore PPP. It also implies that for a country with a flexible exchange rate system, the exchange rate becomes an endogenous variable.

Many variations of Equation 2 have over the years been estimated using OLS with generally negative results for the PPP theory. Fenkel (1978) is an example of one study that formally estimated values for  $\beta_1$  and  $\beta_2$  close to plus and minus 1 respectively for countries experiencing high inflation. However, when Frenkel (1981) examined countries during a period of real economic shocks (the 1970's) he finds no evidence to support the PPP. It must be mentioned that prior to the 1980's researchers failed to examine the issues of stationarity of the residuals from a formulation as Equation 2. If it is shown that the exchange rate and price variable in that equation are non-stationary, then OLS, even with a high coefficient of determination and strong T-statistics, will nevertheless provide a spurious relationship between these variables. Engle and Granger (1987) showed that even if the nominal exchange rate and price variable are non-stationary then if a linear combination of the two (say the residual in the equation) is stationary, then they are "Co integrated" and that there is an underlying long run relationship between them. The next step is to conduct a unit Roots Test to establish whether these variables are non-stationary.

**The Unit Root Test**

Starting from an AR (1) where a variable Y is specified as:

$$Y_t = \rho Y_{t-1} + SX_t + E_t \tag{3}$$

Where  $X_t$  represents regressors such as a constant or a time trend,  $\rho$  and S represent the parameters and  $E_t$  the white noise.

The series  $Y_t$  is stationary and will fluctuate around its mean value within a constant range provided that  $|\rho| < 1$ . However if  $\rho$  takes on the value absolute 1, the series becomes non-stationary with both a mean that is constantly changing through time and a variance that will change to match changes in the chosen sample space. One way to test for a unit root is to regress  $Y_t$  on its one period lagged value.

The series is confirmed to have a unit root and thus be non-stationary if the value for P estimated from this regression is 1. This is a description of the simple Dickey-Fuller Test. A testable version of Equation 3 is found by subtracting  $Y_t$  from both sides of this equation which gives:

$$\Delta Y_t = \alpha Y_{t-1} + S x_t + E_t \tag{4}$$

Where  $\alpha = \rho - 1$  and where  $\alpha$  becomes 0 if  $\rho = 1$ . Equation 4 assumes that at higher order lags the white noise term  $E_t$  is uncorrelated. To handle higher order series lag correlation, the above Dickey-Fuller formulation is extended to add P lagged differentiated terms of the dependent variable Y to get:

$$\Delta Y_t = \alpha Y_{t-1} + \beta_1 \Delta Y_{t-2} + \dots + \beta_{p-1} \Delta Y_{t-p} + SX_t + V_t \tag{5}$$

This is the Augmented Dickey-Fuller test construct that is used in this paper to conduct the non-stationary tests.

**Cointegration Test**

As set one by Engle and Granger (1987), if two variables Y and X is shown to contain a unit root and is both I (1), then we can regress Y on X, such as:

$$Y_t = \beta_0 + \beta_1 X_t + u \tag{6}$$

Now writing out that equation with the residual as the dependent variable yields:

$$u_t = Y_t - \beta_0 - \beta_1 X_t \tag{7}$$

If a unit root test establishes that u is stationary, i.e.: I (0) and is free of stochastic trends, this allows us to state that Y and X are cointegrated, implying that there is long term relationship between them. Then regression analysis based on Equation 6 gives an economically meaningful representation of that long term relationship.



In general for the cointegration test we hypothesize that the level data ( $Y_t$ ) above have linear trends but that the cointegrating equations merely have intercepts (i.e. no linear trends). The exact cointegration technique used in this paper is the one advanced by Johansen and Juselius (1990) and Johansen (1991).

#### **Data Description**

The bi-directional trading patterns of these two African countries are reported in Table 1. A few salient points may be quickly noted. Table 1 reflects a secular decline for both Ghana and Cote d'Ivoire in the share of trade done with the developed countries, and an implied increase in South-South trade. Overall trade with the US, which had been slightly behind that between Ghana and the UK and that between Cote d'Ivoire and France, declined in tandem with the volume of trade between each former colony and the respective former colonial power. Interestingly, trade between the UK and Cote d'Ivoire and between France and Ghana, which as expected was at a low level, hardly budged over the 35 year period examined by this table. The same is true for Germany's and Japan's trade with each of these two countries (even though only the 2004 figures are shown for Germany and Japan). The absence of any startling changes in Ghana and Cote d'Ivoire's trade with the developed countries is a reflection of a powerful surge in intra regional trade within Africa that was facilitated by the growing importance of ECOWAS as a vehicle for commerce in West Africa.

While both nations experienced what would be considered above normal inflation rates over the forty year period, Table 2 makes a distinction between the two countries in this regard. At 6.9%, Cote d'Ivoire retained what has to be regarded as some degree of control over its domestic price level. At an average annual rate of 33% over a 40 year span, Ghana toiled with an inflation rate that was sure to impact macroeconomic stability and growth. What is even more alarming is that over just the last 10 years, while there has been some decline in the average annual inflation rate, Ghana's rate was still more than four times that of Cote d'Ivoire.

One can speculate as to the reasons for these vastly different outcomes. For most of the period in question, monetary policy in Ghana was determined by the authorities with few restrictions imposed by foreign commitments. Unfortunately monetary policy was shaped in an environment where there was relatively little Central Bank independence from the governments, which permitted excessive amounts of domestic credit creation<sup>2</sup>. On the other hand Cote d'Ivoire was the leading proponent of the CEFA, a currency that was tied to the French Franc and was used by a group of former French colonies in Africa. For most of the period whenever inflation threatened, the authority managing this currency responded with draconian measures such as the 50% devaluation of the CEFA carried out on December 31<sup>st</sup>. 1992.

## **Empirical Results**

#### **OLS Regression**

Table 3 presents the OLS results for Equation 2 for both Côte d' Ivoire and Ghana. For both countries the signs on the foreign and domestic price coefficients are the expected ones, (negative for the foreign and positive for the domestic) and also the T statistics for the pair are significant. In the case of Côte d' Ivoire the coefficients are somewhat but not excessively different from 1 and -1 respectively, (to honor the symmetry and the proportionality conditions of the PPP hypothesis).

In the case of Ghana, the coefficients differ noticeably from 1 (especially that on the composite foreign price variable). The two reported Durbin Watson statistics imply the likely presence of Autocorrelation, while a comparison of the size of that latter statistic with the relatively high coefficients for determination ( $R^2$ ) suggests the possibility that the estimated OLS regressions could be spurious.

#### **Unit Root Test**

Tables 4 and 5 present the results of the non-singularity test for our two countries and the developed countries, where the null hypothesis is that there is a unit root. For both sets of countries the Augmented Dickey Fuller test critical values are -3.467, -2.878 and -2.575 respectively. For the level test the null hypothesis of a unit root is accepted at the 1% critical level for almost all of our exchange rate and price variables; the sole exception being the Japanese price level in Table 5, which is narrowly rejected<sup>3</sup>.

Additionally all of the first difference results allow us to reject the possibility for a unit root here (i.e. I(2)), with the one exception being the French price level where the null hypothesis of multiple roots is rejected only at the

10% level. In as much as all of the domestic price and bilateral exchange variables of both Ghana and Côte d' Ivoire have been shown to be non-stationary series, an appropriate next step would be to employ cointegration tests to determine whether there are long term relationships between these variables.

#### **Cointegration Test**

The Cointegration tests results employing the Johansen method using the Trace and the Maximum Eigen Value techniques are reported in Tables 6 and 7. In each case the test is run using the exchange rate shown (the SDR exchange rate and each of the four bilateral exchange rates), the country's domestic price level and the foreign price level as shown in Equation 1. The first column of this table provides the number of cointegrating relations as per the null hypothesis, with the number of reported cointegrating equations shown in the column after each exchange rate variable<sup>4</sup>.

For the Trace Test, the 5 percent critical values for a null hypotheses of at most 0,1 and 2 cointegrating vectors are 29.78, 15.49, and 3.84 respectively. The corresponding values for the Maximum Eigen Value test are 21.13, 14.26 and 3.84. All tests are run with an assumed linear deterministic trend.

While the results have thus far made little distinction for the PPP hypothesis between Ghana and Côte d' Ivoire, the cointegration test points to a significant difference. In the case of Ghana the results decidedly reject the null hypothesis of no cointegration. When the log of the SDR is used as the exchange rate variable together with the Ghanaian and developed country price indices, both the Trace and the Eigen Value test reject the hypothesis of no cointegrating relations but do accept the null of at most one.

The Trace reports identical results when the test is done on the Ghanaian bilateral exchange rate between each of the US, UK, France, Japan and the Ghanaian domestic price level together with the domestic price level of each of these countries. The Eigen Value similarly rejects the null of no cointegration when using the SDR exchange rate and the bilateral exchange rates of the US and France while narrowly rejecting the presence of cointegration in the case of the UK and Japan.

In the case of Côte d' Ivoire the null hypothesis of no cointegration is accepted in virtually every case. The lone exception being when the bilateral exchange rate with Japan is used, the Trace reports the existence of three cointegrating vectors. This result is contradicted by the Maximum Eigen Value test which finds no cointegration in this case nor when any of the other exchange rate variables is used. The implication of these results is that the empirical analysis for Ghana appears to confirm that there is an underlying long term relationship between the price level and the exchange rate, while this is denied in the case of Côte d' Ivoire.

Further the strength of the trade relationships does not appear to play any consistent role in determining the existence or lack thereof of any such long term relationship. This is because there is no cointegration of the bilateral exchange rate between Côte d' Ivoire and France with the two price levels, just as that for Ghana appears weakest with Britain. Instead the cointegration and validation of the PPP Hypothesis between the exchange rate and price differentials appear to hinge on the country experience with inflation over the 40 year study period: Ghana with an average annual rate of 40% and Côte d' Ivoire with 7%.

## **Conclusion**

In this paper Unit Root and Cointegration tests were the primary analytical tools used to evaluate the PPP Hypothesis of a link between the nominal exchange rate and the price level differentials between two countries. This is accomplished using data from two African countries (Ghana and Côte d' Ivoire) which had vastly different experiences with inflation, over the 40 year study period. In addition to using the traditional SDR exchange rate with the domestic and foreign price variables, this study used, for both countries, the bilateral exchange rate with each of four developed countries.

The initial OLS test showed that while for both countries price differentials play a role in determining nominal exchange rates, it was clear that some of the variables were stationary thus calling into question the reliability of these results. After stationarity tests established that just about all variables used in the paper had a unit root, the test turned to the issue of the long term relationship between exchange rates and the foreign and domestic price levels. Although there were some minor disagreements between the two tests employed, for both the SDR and

the bilateral exchange rates with the major developed countries, there was in the case of Ghana at least one cointegrating relationship with the price differential but none in the case of Côte d' Ivoire. These results constitute support for the belief that the long run PPP hypothesis works best in countries with long histories of inflation such as Ghana, but fails to unearth a link between price levels and the nominal exchange rate for countries with low inflation such as Côte d' Ivoire over the 40 year study period. In addition there was no greater likelihood that the cointegration results would be stronger in the relationship between former colonial trading partners Côte d' Ivoire and France, and Ghana and Britain. Taken as a whole these results imply that Ghanaian (more so than Côte d' Ivoire) nominal exchange rate may be more susceptible to developments in the western industrialized countries.

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## Appendix

TABLE 1: BIDIRECTIONAL TRADE FLOWS

Country & Year	Exports - % with DOT						Imports- % with DOT					
	Total	US	Japan	France	Germany	UK	Total	US	Japan	France	Germany	UK
Cote D'Ivoire		18.6										
	1970	468.7	8		32.66	3.34	387.7	7.91		46.22		2.5
	1985	2,933.9	11.6									
	2004	3,854.0	8		16.56	4.34	1,720.60	6.85		32.06		2.13
Ghana		7.78		14.08		2.33	2,913.00	3.05		17.3		1.95
	1970	5,990.9	11.5									
	1985	0	6	0.28	9.52	4.72	3,495.30	2.17	0.69	24.28	3.08	3.96
	2004	0	6									
Ghana		17.9				23.4		18.0				
	1970	317.8	6		0.49	1	410.67	6		3.64		23.64
	1985	635.2	7		1.68	6	726.9	8.07		2.31		22.91
	2004	7,488.3	1.94	1.27	2.07	1.38	5,265.50	6.4	2.01	4.89	3.69	6.56

Note. DOT Total is US\$ millions.

Source. Author's calculations from the IMF's Direction of Trade Statistics.

TABLE 2: AVERAGE ANNUAL INFLATION RATES

Country	40 Year Inflation Average	10 Year Inflation Average
Cote D'Ivoire	6.86	6.53
Ghana	33.18	28.40

Source. Author's calculations from the IMF's International Financial Statistics

TABLE 3: ORDINARY LEAST SQUARE (OLS) RESULTS

Country	LPD	LPW	R <sup>2</sup>	DW
Cote D'Ivoire	1.44 (18.76)	-1.34 (-13.71)	0.90	0.19
Ghana	1.60 (26.94)	-3.50 (-10.85)	0.96	0.13

TABLE 4: UNIT ROOTS TEST RESULTS

Country	LBXUS	DLBXUS	LBXUK	DLBXUK	LBXF	DLBXF	LBXJ	DLBXJ	LPD	DLPD
Cote D'Ivoire	-1.02	12.52	-0.89	-12.25	-1.10	-13.03	-0.51	-12.33	-0.56	-10.65
Ghana	-1.79	-17.85	0.33	-12.53	0.59	-12.49	0.45	-12.13	0.17	-8.53

Note. The second variable beginning with the letter D is the first difference of that variable

TABLE 5: UNIT ROOT TEST RESULTS FOR DEVELOPED COUNTRIES

Country	Level LP	1 <sup>st</sup> Difference DLP
US	-0.93	-4.21
UK	-1.64	-4.30
France	-1.93	-2.76
Japan	-4.14	-4.18
Composite Countries	-2.33	-3.17
SDR (Against US Dollar)	-0.49	-13.09

TABLE 6: TRACE COINTEGRATION TEST

Country	CE	LSDR	LBXUS	LBXUK	LBXF	LBXJ				
Cote D'Ivoire	0	26.69	26.41	29.30	28.46	36.55				
	1	15.49	11.70	17.15	13.34	22.69				
	2	6.99	0	2.91	0	6.05	2	5.17	0	9.83
Ghana	0	35.80	38.57	32.51	34.36	33.36				
	1	11.90	11.11	12.26	11.74	13.68				
	2	5.73	1	5.01	1	5.15	1	2.93	1	5.51

TABLE 7: MAX EIGEN VALUE COINTEGRATION TEST

Country	CE	LSDR	LBXUS	LBXUK	LBXF	LBXJ				
Cote D'Ivoire	0	11.20	14.71	12.15	15.12	12.86				
	1	8.50	8.79	11.11	8.17	9.96				
	2	6.99	0	2.91	0	6.65	0	5.19	0	8.29
Ghana	0	23.90	27.45	20.24	22.61	19.68				
	1	6.17	6.11	7.11	8.81	8.11				
	2	5.73	1	5.01	1	5.13	0	2.93	1	5.57

**End Notes**

1. The symmetry and proportionality conditions are supposed measures of the accuracy of the empirical results from an OLS regression as provided by the coefficient on the domestic and foreign price variables  $\beta_1$  and  $\beta_2$ . The symmetry condition states that these must be both equal and of opposite sign, while the proportionality condition (the more binding of the two) requires that  $\beta_1=1$  and  $\beta_2=-1$ .
2. A detailed analysis of the consequences of this extended period of weakness of monetary management is featured in Rawlins (2001).

3. The ADF test was done using ESP which for the level Test requires that the ADF test statistic exceeds (i.e. be less negative) than the test critical values in order to refrain from rejecting the null hypothesis of the existence of a unit root. The first difference test requires that the ADF test statistic be less (i.e. have a greater negative value) than the critical values in order to reject the hypothesis that the series is I (1), implying that it has more than 1 root, i.e. that the series is stationary.
4. The values reported in Table 7 reflect the first column of the Maximum Eigen Value Cointegration test using LSDR, LPD and LPW (the composite price variable) as in Table 6. Similar results came from the Trace test for each of the four bilateral exchange rates in Tables 6 and 7 but are not reported for the sake of brevity. These are available from the author.

# Trade, Growth and Poverty Alleviation in South Asia\*

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## Abstract

This paper examines the effects of trade liberalisation on economic growth and poverty alleviation in South Asia. After an introductory section, section two of the paper provides an overview of the performance of the major South Asian economies over the last two decades, focussing on growth, trade and FDI. Trade and FDI policies in these countries are also discussed. The next section examines the level and composition of trade and investment flows in the region. Section four reviews the literature on the influences of trade liberalisation on economic development and poverty alleviation and reports on the record of poverty reduction in the major South Asian economies.

## Introduction

### Overview

This paper examines the effects of trade liberalisation on economic development and poverty alleviation in South Asia.

Section two of the paper provides an overview of the performance of the major South Asian economies, focussing on growth, trade and FDI. Trade and investment policies in these countries are also discussed. The following section examines the level and composition of FDI into South Asian countries and the level and composition of trade flows between South Asian countries. Section four examines the literature on the influences of trade and investment liberalisation on economic development and poverty alleviation, and reports on poverty reduction in South Asia.

### South Asia

There is no agreement on the definition of South Asia as a geographical region. However, in the economic development and trade literature the countries of South Asia are often taken to be those belonging to the South Asian Association of Regional Co-operation (SAARC).

The Charter for the South Asian Association of Regional Co-operation was signed in December 1985 at Dhaka in Bangladesh. The co-signatory nations were Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan, and Sri Lanka. Afghanistan was subsequently admitted as a member nation.

For the purposes of this paper, we take South Asia to consist of the original seven founding nations of SAARC. Furthermore, most of the references and analysis in this paper will be to the four largest economies in South Asia – India, Pakistan, Bangladesh and Sri Lanka.

### Trade and Investment Liberalisation and Other Reforms in South Asia

In the 1980s and 1990s, at least five of the SAARC countries (Bangladesh, India, Nepal, Pakistan and Sri Lanka) made a major departure from *dirigiste* (state-directed) economic development and adopted the “Washington Consensus” in the form of liberalisation, privatisation, marketisation and modernisation (Lama, 2005:130).

Significant reforms were implemented in the areas of trade, investment, technology, and financial and capital markets. The private sector (both foreign and domestic) started playing a vital role in areas like energy, telecommunications, banking, trade and commerce (Lama, 2005:131). As a result, most countries subsequently recorded higher economic growth, albeit with some adverse socio-economic side effects.

These reforms and the consequent growth have been accompanied by moves to further integrate the regional market, culminating in the signing of the South Asia Free Trade Area (SAFTA) agreement and opening up a market of over 1.3 billion people.



## **Economic Growth and Economic Policies in South Asia**

### **Overview of Major South Asian Economies**

The following gives a brief overview of the economic performance of the major South Asian economies over the last two decades, focussing on rates of economic growth, FDI, trade, structural change and poverty.

#### **Bangladesh**

The Bangladesh economy had a growth rate, in terms of GDP per capita, of 3.2% p.a. over the decade from 1995 to 2005. This was a significant improvement over the 1.7% p.a. growth rate throughout the previous decade. The agricultural sector contracted in relative importance, falling from 37.8% of GDP in 1985 to 20.5% in 2005. Gross capital formation as a percentage of GDP rose from 16.3% in 1985 to 24.4% in 2005, in a welcome sign of greater investment activity. Over the same period, exports of goods and services as a percentage of GDP rose from 5.6% to 16.1%, indicating a strong growth in the openness of the Bangladesh economy. The World Bank Group's latest available figures (2005) list 50% of the population below the national poverty line. FDI in Bangladesh increased from US\$6m in 1995 to \$US385m in 2004, a substantial leap. (World Bank Organisation, 2006).

#### **India**

Economic growth in India has been impressive. Between 1984 and 1994, the annual growth rate in GDP per capita was 3.3%. This rose to 4.1% p.a. in the decade from 1994-2004, with an acceleration in this growth rate towards the end of the decade. The services sector has been expanding rapidly (from 38.7% of GDP in 1984 to 51.85% in 2004), with an offsetting decline in the relative importance of agriculture. The economy has opened up, with exports of goods and services as a percent of GDP rising from 6.5% in 1984 to 16.2% in 2004. FDI into India increased from US\$983m in 1994 to \$US4020m in 2004. A recent estimate by the World Bank Group is that 29% of the population lives below the national poverty line. (World Bank Organisation, 2006).

#### **Pakistan**

Unlike India and Bangladesh, growth in the Pakistan economy slowed in the 1995-2005 decade, in comparison with the previous decade. There was a growth rate in GDP per capita of 2.6% p.a. between 1985 and 1995. This fell to 1.2% p.a. in the following decade. However, the last two years indicate a reversal of this trend, with growth in GDP per capita of 3.9% in 2004 and 5.2% in 2005. Unlike India and Bangladesh, there was only a slight change in the sectoral composition of the Pakistan economy, with the agricultural sector falling in relative importance from 28.5% of GDP in 1985 to 21.6% in 2005. Gross capital formation as a percentage of GDP actually fell from 18.3% in 1985 to 16.8% in 2005. However, over the same period, exports of goods and services/GDP rose from 10.4% to 15.3% showing an increase in the openness of the economy. Furthermore, FDI into Pakistan increased from US\$131m in 1985 to \$US1162m in 2005. Recent World Bank figures estimate that 33% of the population were living below the national poverty line. (World Bank Organisation, 2006).

#### **Sri Lanka**

Growth in the Sri Lanka economy also slowed in the 1994-2004 decade. From 1994 to 2004 GDP per capita increased by 2.8% p.a. This compared to 3.0% in the previous decade. However, the growth rate rose above 4% in both 2003 and 2004, an encouraging sign. There was an increase in GDP per capita in 2003 of 4.8%. The agricultural sector fell from 28.7% of GDP in 1984 to 17.8% in 2004. Gross capital formation as a percentage of GDP remained fairly static over the twenty year period, being 25.8% in 1984 and 25% in 2004. The ratio of exports of goods and services to GDP increased from 28.9% in 1984 to 36.4% in 2004. However, FDI into Sri Lanka only increased from US\$166m in 1994 to \$US229m in 2003. There are no figures for the percentage of the population living below the national poverty line. (World Bank Organisation, 2006).

#### **Economic Growth in the Region**

The following figure (from Deverajan and Nabi, 2006) portrays the extent of economic growth in the region over the period 2001-4.

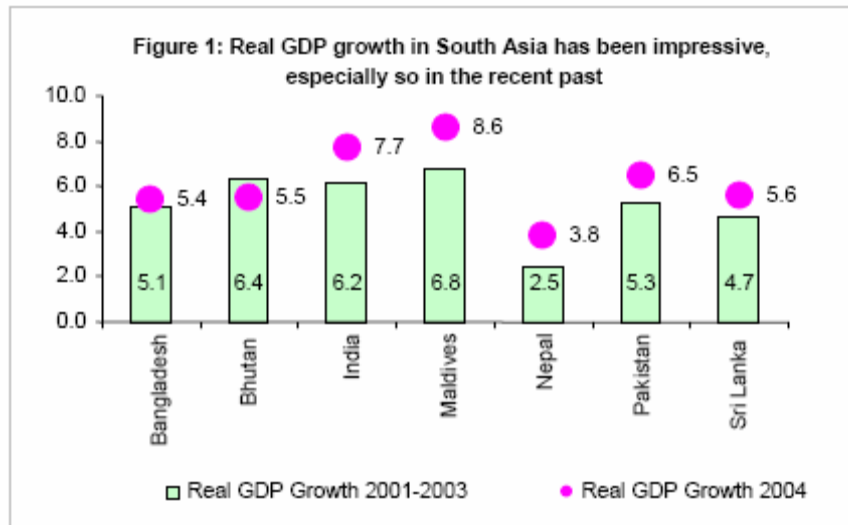


FIG. 1: REAL GDP GROWTH IN SOUTH ASIA HAS BEEN IMPRESSIVE, ESPECIALLY SO IN THE RECENT PAST  
Source: Devarajan and Nabi (2006)

Growth has been even higher over the last two years. South Asia's GDP growth is estimated to have reached 7.8% in 2005, higher than the region's growth rate of 7.2% in 2004. The higher growth was driven by the strong performance of the Indian and Pakistan economies (ADO, 2006).

According to the *Asian Development Outlook 2006*, India's GDP increased by 8.1% in 2005, Pakistan's by 8.4% (the largest annual growth in two decades), Sri Lanka's by 5.7% (an increase on the 2004 figures) and Bhutan's by 8.8%. For the other three SAARC nations - Bangladesh, the Maldives and Nepal - GDP growth slowed or the economy contracted in 2005 (ADO, 2006). The Indian and Pakistan economies are now growing at rates not far below that of the Chinese economy in recent years.

South Asia's growth is projected to moderate to 7.3% in 2006, as a result of some slowing in India and Pakistan. Bangladesh, Bhutan and the Maldives are projected to achieve higher economic growth than the previous year. In 2007, the subregion's growth rate is forecast to rise to 7.5%, when India and Pakistan are seen as resuming their recent growth trajectory (ADO, 2006).

#### Sources and Drivers of Economic Growth

Devarajan and Nabi (2006) examine the sources and drivers of economic growth in the SAARC countries in the tables below:

TABLE A.1: DIFFERENT SECTORAL GROWTH PATTERNS IN SOUTH ASIA  
TABLE A.2: DRIVERS OF GROWTH

Table A.1: South Asia: Recent Growth Performance (Average annual percentage change, 2001-2005)

	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka
Real GDP growth	5.1 (5.4)	6.4 (5.5)	6.2 (7.7)	6.8 (8.6)	2.5 (3.8)	5.3 (6.5)	4.7 (5.6)
Growth in agriculture	2.2	3.0	3.1	6.6	3.0	3.3	0.7
Growth in manufacturing	6.3	5.3	6.4	6.2	-0.9	9.0	2.1
Growth in services	5.5	6.9	7.9	6.6	2.8	5.3	5.2
Recent reduction in poverty (last 10 years or so)	9% (1991/92)		10% (93/94)		11% (95/96)	-3% (90/91, but 12 points reduction in the 1980's)	6.1 (94-95)
Population							
GDP at market prices (latest, \$)	62 billion	725 million	672 billion	753 billion	5.5 billion	104.9 billion	20.7 billion

Table A.2: South Asia: Drivers of Growth (Average annual percentage change, 2001-2005)

	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka
Export growth (last two years)	8.9 (15.0)	10.6 (20.3)	13.8 (22.7)	15 (14.3)	-0.5 (10.4)	11.5 (13.7)	1.5 (12.2)
Growth in remittances (latest in \$)	18.54 (\$2,932.53)*	No data	No data		10.8 (687.2 mil)	33.7 (\$4150)	7.9 (\$1,355)
Private investment growth (% of GDP)	2.13 (2.36)	23.5	14.8		8.2 (11.3)	9.3 (12.8) 13.2	-0.8 (17.9)
Public investment growth (% of GDP)	0.28 (0.44)	23.5	11		4.6 (2.4)	16.1 (2.7) (25.8)	-7.9 (-4.3)
Private consumption growth (% of GDP)	6.09 (6.41)	8.3	1.8		7.4 (7.5)	12.9 (75.6) (29.2)	1.3 (-0.3)

Notes: Bangladesh Remittances\* US\$2,932 is the average period amount from FY01-05. Remittance in FY05 is US\$3,848

Pakistan: Remittances average period amount is \$2,970, the third entry for Pakistan is growth in the last two years.

Table A.1 highlights the different sectoral growth patterns in South Asia and shows India relying heavily on growth in the services sector and Pakistan experiencing strong growth in manufacturing.

Table A.2 also reveals some interesting differences between the countries in the region, with India's growth being driven by private investment and exports, Bangladesh's growth by consumption and exports, and Pakistan's by public sector investment and exports.

#### Trade and Investment Policies in the Region

Trade liberalisation and other reforms in the 1980s and 1990s have led to an increase in the openness of South Asian economies. All of the South Asian countries have made substantial reductions in tariff rates over the last two decades; although, tariffs in the region are still high by international standards. The figure below (from Berg and Krueger, 2003:16) graphically illustrates this and compares South Asian tariff reductions with those from other regions.

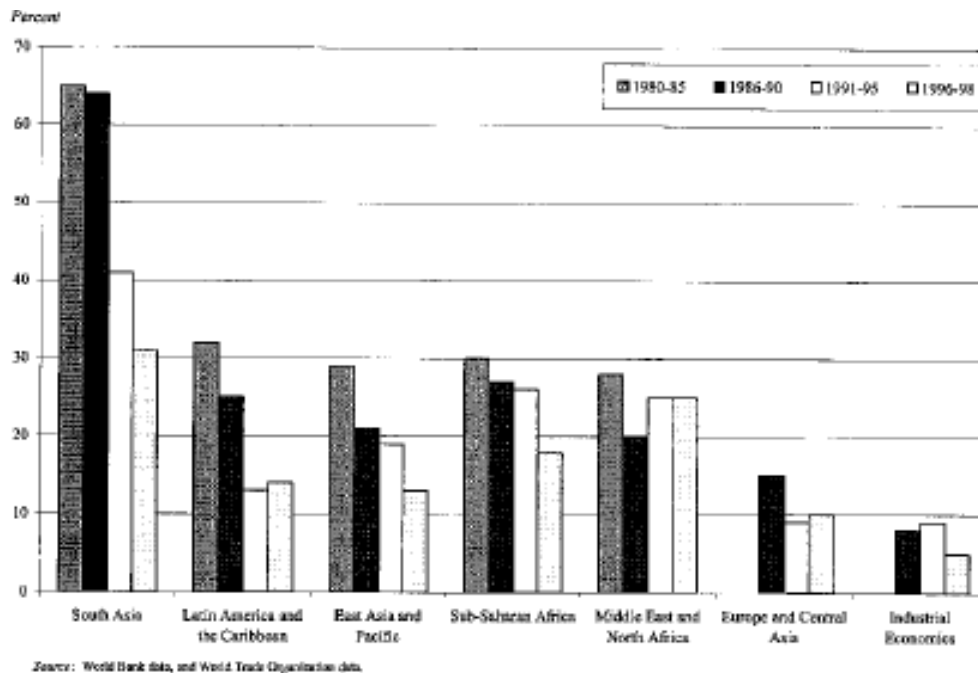


FIG. 2: AVERAGE UNWRIGHTED TARIFF RATES BY REGIONS

Athukorala and Sharma (2005) survey the range of foreign investment policy regimes in South Asian countries:

Only Sri Lanka protects a foreign company investing in Sri Lanka from nationalization by constitutional guarantee; both Bangladesh and Pakistan guarantee against nationalization, but not under their constitution. India gives no form of guarantee against nationalization, but the settlement of disputes is governed by the *Indian Arbitration Act 1940* and the United Nations Convention for matters arising from foreign arbitral awards. Bangladesh utilises international convention for the settlement of industrial disputes and Sri Lanka for the settlement of investment disputes. The International Commission on Settlement of Investment Disputes arbitrates disputes arising in Pakistan on foreign investment. (Athukorala and Sharma, 2005: 326-27, table 16.1).

The Pakistan government allows 100 per cent foreign equity participation, without requiring permission from the government. Bangladesh and Sri Lanka also allow 100 per cent equity (no indications of conditions). India allows 100 per cent equity in export-oriented industries, power, electronic and some technology parks, but only 24 to 51 per cent foreign equity can be held in industries that are not export-orientated.

Fiscal incentives vary between countries. No import duties or tariffs apply in Pakistan on the importation of plant, machinery or equipment for export-oriented or hi-technology industries, nor on agricultural plant and machinery. In Sri Lanka, capital gains on share transfers are exempt from income tax and a duty draw back applies to export-oriented industries (Athukorala and Sharma, 2005:326-27). There is a tax holiday for FDI in Bangladesh that varies between 5 and 7 years, depending on the location. There is also a tax exemption on capital gains on share transfers, interest on foreign loans and royalties. On the other hand, there is a 5 per cent duty on the initial importation of capital equipment and parts for the venture. In India investors in Export Processing Zones (EPZs) have a ten year tax holiday; for other investors a five year tax break applies. There is tax relief under the Avoidance of Double Taxation Agreements and access to low interest finance for investors in export-orientated industries. (Athukorala and Sharma, 2005:326-27).

Accompanying liberalisation of foreign investment policies in South Asia, there had been significant trade liberalisation in the 1980s and 1990s.

Up to the 1990 reforms, India's trade and investment regime for the previous 40 years had been based on a Soviet-style planned development programme that began with the commencement of the First Five Year Plan in 1951 (Chai & Roy, 2006: 114). The 1990s reforms, forced on India by a foreign exchange crisis, included liberalizing trade and foreign investment flows, floating the currency and virtually dismantling the industrial licensing system, except for 18 critical industries. Quantitative controls on imports of non-consumer goods have virtually disappeared, although controls on imports of consumer goods still remain. Foreign investment rules have been relaxed. The maximum nominal tariff rates for many products came down from around 400 per cent in 1990-91 to below 50% in 2000-01 (Chai & Roy, 2006: 117).

Nevertheless, India's openness to trade and investment has been marginal compared to China. The economic reform measures which would have considerably enhanced India's outward orientation have only been sought to be implemented partially, due to India's political situation. Chai and Roy believe that it is highly unlikely that this institutional impediment can be removed in the foreseeable future. Hence, FDI inflow to India will continue to increase only at a modest rate. After independence, during the regime of the 'Licence Raj', foreign investment had a limited role to play in India. But even after the dismantling of the regime, politicians continue to treat foreign capital as evil to win votes in elections (Chai & Roy, 2006: 142).

The Bangladesh economy experienced significant shifts in trade, fiscal, industrial, agricultural and financial policies over the last two decades. Bangladesh is significantly dependent on external resources and, at the behest of the World Bank and the International Monetary Fund, adopted a set of structural adjustment policies that impacted on all sectors of the economy (Alauddin, 2005:11).

The 1990s saw Bangladesh experience a more rapid growth of exports and imports than that experienced in the 1980s. Furthermore, there was significant change in the nature of the exports - by 2000, food and agricultural raw materials had fallen from a high of 31 per cent two decades earlier to only 9 per cent. At the same time manufactured goods increased from 68 per cent to 91 per cent of exports. Unfortunately, more than two thirds of these exports are accounted for by one item - ready made garments - which are exported mainly to the United States of America, the European Union and Japan.

While Bangladesh has experienced significant increase in trade overall, it has engaged in very little trade with its South Asian neighbours. True, about a sixth of Bangladesh's imports originate within the South Asian region; however, the majority of materials come from India. As for exports, even in the late 1990s Bangladeshi exports to South Asian countries were below 2 per cent of its total exports (Alauddin, 2005:16-19).

After an earlier experiment with trade liberalisation (1977-79), Sri Lanka implemented a second wave of trade and investment liberalisation in the early 1990s. There was an ambitious privatisation program, further tariff cuts and simplification of the tariff structure, removal of exchange controls on current account transactions and changes to FDI policy. Altogether Sri Lanka has become the most open economy in South Asia. Unfortunately, the reforms have not been accompanied by the rates of growth that were expected and the merits of trade liberalisation are being called into question (Athukorala and Jayasuriya, 2005:102-5).

Overall, there has been significant trade and investment liberalisation in South Asian countries over the last two decades. However, there is still need for further liberalisation.

## **FDI and Trade Flows in the Region**

### **FDI Inflows into South Asian Countries**

Foreign direct investment into South Asia still accounts for only a small fraction of global FDI and unfavourable comparisons are made with China's FDI inflows. Nevertheless, FDI into South Asia is on the rise, particularly FDI into India. The share of South Asia in global FDI flows increased from 0.23% in 1990 to 0.55% in 2001 (Lama, 2005:141).

The following table is reproduced from Lama (2005:142) and describes each country's share of the FDI coming into the region over the last two decades.

TABLE 2: SHARE OF SAARC MEMBER COUNTRIES IN THE TOTAL FOREIGN  
DIRECT INVESTMENT INFLOWS IN SOUTH ASIA:1986-2001

Year	Total FDI \$USm	B/desh %	India %	Maldives %	Nepal %	Pakistan %	S/Lanka %
1980-85	179	-0.06	34.68	-0.17	0.11	41.95	23.49
1990-95	1,185	0.51	59.33	0.59	0.51	32.83	9.28
1990	458	0.66	35.37	0.00	1.31	53.28	9.39
1995	2,753	0.07	71.34	0.25	0.18	26.12	2.03
2000	3,095	9.05	74.93	0.42	0.00	9.85	5.75
2001	4,069	1.92	83.63	0.29	0.47	9.46	4.23

Source: UNCTAD, *World Investment Report*, various issues.

Between 1980 and 1985 the total amount of FDI inflows into the SAARC countries was only US\$179 million. Of these funds Pakistan attracted 41.95 per cent, India 34.68 per cent and Sri Lanka 23.49 per cent. Although the next five year period, 1990-1995, shows a dramatic increase in the FDI inflows into the member countries to a level of US\$1,185 million, Pakistan and Sri Lanka's share fell to 32.83 per cent and 9.28 per cent respectively. For India, the share of FDI inflows increased by more than 20 percentage points, rising to 59.33 per cent, and Bangladesh moved into positive territory with FDI inflows of 0.51 per cent (Lama, 2005:142).

Although the total volume of FDI into the region has continued to rise, Sri Lanka and Pakistan have had their share eroded by growth in India's share. The Indian economy has attracted an ever increasing share of FDI, with the share doubling from 1990 to 1995.

The sections that follow summarise information on FDI projects by country (provided by Loco Monitor, 2006).

#### **Bangladesh**

In the period 2003-2006 the principal source countries investing in Bangladesh were India, the United States of America and the United Kingdom. Over this period investment by Indian companies in Bangladesh represented 27% (or 12 projects) of total FDI inflows into the country; companies from the United States invested 16% (or 7 projects), the third highest investor was the UK with 11% (or 5 projects). This investment by these three nations totalled 54% of the FDI inflows during that period and represented 24 from the total 46 projects. These investments were concentrated in the following industry clusters: Information Communication Technology (ICT) with 9 projects; Heavy Industry - 8 projects, Business & Financial Services - 7 projects. (Loco Monitor).

#### **India**

Whilst companies from the United States of America only represented 16% of FDI investment in Bangladesh, the USA was the principal source of FDI into India. In the period 2003 – 2006 investment by US companies represented 47% (or 999 projects) of total FDI inflows to India, with companies from the United Kingdom (12% or 243 projects) and Germany (6% or 131 projects) trailing a fair way behind. This investment by the top three source countries totalled 65% of the FDI inflows during that period and represented 1,373 of the total 2,474 projects. The industry clusters attracting the greatest number of investors were those in the areas of ICT - 807 projects, Electronics – 313, and Business & Financial Services - 311 projects. (Loco Monitor).

#### **Pakistan**

The principal source countries from which Pakistan attracted FDI inflows were the United States of America, the United Arab Emirates, and China. During 2003 – 2006 investment by American companies represented 21% (or 24 projects) of total FDI into Pakistan, companies from the United Arab Emirates (UAE) invested 11% (or 12 projects) and Chinese companies invested 10% (or 11 projects). The investment from these three countries represented 42% (or 47 projects) of total FDI into Pakistan. The industry clusters with the highest number of FDI projects were: Heavy Industry with 31; ICT - 22; Business & Financial Services and Transport Equipment had 16 projects each. (Loco Monitor).

#### **Sri Lanka**

In the period 2003 – 2006 the principal sources countries for FDI investment into Sri Lanka were India, the United States of America and the United Kingdom. Investment by Indian companies represented 40% (or 16 projects) of total FDI inflows, companies from the United States represented 12% (or 5 projects) and the United Kingdom invested 8% (in 3 projects). The FDI inflow by companies from these three countries totalled 60% (or 24 projects) and was spread across three industry sectors. Eleven industry sectors attracted FDI inflows (50 projects) but the industry clusters with the highest investment were: the Business & Financial Services - 11 projects, ICT - 9 projects, and Heavy Industry with 7 projects. (Loco Monitor).

**Trade Flows between South Asian Countries.**

Trade flows between South Asian countries are very low. The table below (taken from Lama, 2005: 135) gives an indication of the low volume of trade between SAARC countries, relative to their trade with the rest of the world. Intra-regional trade has been less than 5% of total trade over the two decades covered by the data in the table.

TABLE 3: SAARC TRADE

Year	<i>Intra-SAARC Trade</i> (a) (\$billion)	<i>South Asia's World Trade</i> (b) (\$billion)
1980	1.21	37.88 (3.19)
1985	1.08	43.75 (2.48)
1990	1.59	65.69 (2.42)
1995	4.25	104.16 (4.08)
2000	5.8	144.06 (4.08)
2001	6.53	143.44 (4.56)

Source: IMF, *Direction of Trade Statistics Yearbook, 2001* and previous issues.

Note: Figures in parentheses indicate (a) as a per cent of (b).

While intra-regional trade is still at low levels, intra-SAARC trade has been growing at a faster rate than trade with the rest of the world. Intra-regional trade recorded an average annual growth rate of 31.6% during the period 1991-2001, as against a very low growth rate of 3.4 % during the period 1980-90. On the other hand, South Asia's trade with countries outside the region grew at the rates of only 11.83% and 8.15%, respectively, over the same two periods (Lama, 2005:135)

The question arises: Why has intra-regional trade remained so low until now? Estimates show that trade between India and Pakistan is 70% lower than two otherwise identical economies (studies cited in Mehta and Kumar, 2005:280). The lack of trade complementarities is often cited as one of the main reasons for the lack of trade between the South Asian nations. Most of these countries export labour intensive products in which they have a better comparative advantage with the rest of the world than they have with each other. However, one area where trade complementarities do exist is in the services industry, in particular in the health and education sectors.

Another reason for historically low inter-regional trade has been the absence of trade preferences. Of course, this is changing with the introduction of SAFTA. Finally, there is a huge amount of border trade between South Asian countries which remains unrecorded, which through its informality does not pay taxes and often trades in prohibited goods. Were the informal trade to be recorded, trade statistics on intra-regional trade would be much higher (Mehta and Kumar, 2005:280-81).

For whatever reasons, the degree of integration experienced by other regional trade agreements has, in the main, been better than the SAARC countries. The intra-regional export shares within SAARC only increased from

3.2% in 1990 to 4.9% in 2001. However, over the same period, the Andean Group in Latin America experienced a rise in the intra-regional export share from 4.2% in 1990 to 11.2% in 2001. Within MERCOSUR, the export share increased from 8.9% in 1990 to 20.8% in 2001 and in southern Africa, SADC's intra-regional share rose from 3.1% in 1990 to 10.9% in 2001. On the other hand, there was little improvement in movement within the UEMOA and COMESA RTAs in Africa and ASEAN/AFTA has only increased its intra-regional export share from 19.0 to 22.4 (Mehta and Kumar 2005:282, Table 13.1). These statistics illustrate the potential increase in intra-regional trade that can result from a RTA.

Alongside the picture of low but growing intra-regional trade, there are some very significant imbalances in the bilateral trade flows between countries in the region, as evidenced in the following table (from Lama, 2005:136).

TABLE 4: INTRA-SAARC TRADE FLOWS

<i>Country</i>	<i>Exports</i>		<i>Imports</i>	
	1995	2000	1995	2000
Bangladesh	4.1	3.2	51.34	34.2
India	76.4	72.33	8.8	12.34
Maldives	0.54	1.07	2.0	4.79
Nepal	1.48	6.5	5.9	17.46
Pakistan	12.58	10.2	7.53	8.31
Sri Lanka	4.9	6.7	24.4	22.9
<b>Total Value (Million \$)</b>	<b>2021</b>	<b>2797</b>	<b>2242</b>	<b>3057</b>

*Source:* IMF, *Direction of Trade Statistics Yearbook*, 2001 and other issues.

As shown in the table, the volume of intra-regional trade between the SAARC countries increased slightly between 1995 and 2000. However, there are some substantial imbalances in the balance of trade. Indian exports to the rest of the region amounted to US\$76.4 million in 1995, but their imports from others in the region were at the relatively insignificant level of only US\$8.8 million. On the other hand, Bangladeshi exports to other countries in the region were miniscule in comparison to their imports over the same periods. The figures for Sri Lanka also reveal a significant imbalance between exports to and imports from other countries in the region.

#### **Trade Flows between South Asia and SE Asia.**

India has been a full dialogue partner of ASEAN since 1995 and the two are negotiating for a formal Comprehensive Economic Cooperation Agreement. ASEAN's trade with India has increased from US\$2.9 billion in 1993 to US\$9.9 billion in 2001, with ASEAN experiencing persistent and growing trade surpluses in its trade with India. In relative terms, ASEAN-India trade has not exceeded 2% of ASEAN's total trade, although 10% of India's imports have been sourced from ASEAN countries. (Ariff and Cheen, 2006:71).

ASEAN's exports to India are concentrated mostly in the industrial products area. For the period 1999-2001, industrial products constituted 77.7 per cent of the total trade between ASEAN and India. Lack of diversification in the ASEAN-India trade profile is clearly apparent (Ariff and Cheen, 2006:71).

## **Economic Growth and Poverty Alleviation: Influences of Trade and Investment**

### **Introduction**

During most of the twentieth century and earlier, South Asian economies suffered from low economic growth and widespread poverty. Twenty years ago a consensus had emerged that trade liberalisation strongly promoted growth and poverty reduction. The intervening period has seen a large wave of trade liberalisation in the developing world. It is important that the theoretical and empirical evidence for the beneficial effect of liberalisation on economic growth and poverty alleviation be examined.

### **The Influence of Trade on Growth**

Alan Winters (2004) reviews the evidence linking trade liberalisation to economic performance and reaches the broad conclusion that trade liberalisation and openness to trade enhance economic growth. However, he cautions



that the econometric evidence is not conclusive, due to problems encountered in cross-section studies with the definition and measurement of openness and the difficulty of establishing the direction of causality. Furthermore, he concludes that some of the benefits of trade liberalisation are dependent on a country having other supportive policies and institutions (investment, education, anti-corruption and other pro-growth policies).

Some of the sources of economic growth and the mechanisms through which international trade affects economic growth are highlighted in the following Table (UNCTAD, 2004:73).

TABLE 5: SELECTED MECHANISMS THROUGH WHICH INTERNATIONAL TRADE CAN HAVE GROWTH EFFECTS

Source of growth	Associated aspect of trade
1. Static and dynamic efficiency gains arising from specialization according to current comparative advantage	<ul style="list-style-type: none"> <li>• Openness</li> <li>• Exposure to international trade competition</li> </ul>
2. Exploitation of a "vent for surplus"	<ul style="list-style-type: none"> <li>• Export growth, particularly natural-resource-based or tourism-based</li> </ul>
3. Increased capacity utilization	<ul style="list-style-type: none"> <li>• Increased import capacity</li> </ul>
4. Increased investment	<ul style="list-style-type: none"> <li>• Economies of scale through selling to domestic and external markets</li> <li>• Reduced costs of capital goods through imports</li> <li>• Reduced costs of wage goods through imports</li> </ul>
5. Increased technology acquisition and learning	<ul style="list-style-type: none"> <li>• Buyer-seller links</li> <li>• Machinery and equipment imports embodying foreign technology</li> <li>• Exports that have great potential for learning through technology transfer</li> </ul>
6. Structural change	<ul style="list-style-type: none"> <li>• Composition of exports and imports</li> <li>• Product and market diversification</li> </ul>
7. Releasing the balance-of-payments constraint on economic growth	<ul style="list-style-type: none"> <li>• Export growth</li> <li>• Import substitution</li> <li>• Reduced income elasticity of imports</li> <li>• Increased elasticity of export growth with respect to growth of world income</li> <li>• Reduction of non-essential imports</li> </ul>

Static and dynamic efficiency gains result from international trade specialisation; technological transfer is embodied in importation of capital equipment; growth and trade are linked in a variety of ways.

#### Poverty in South Asia

There are many different measures of poverty, ranging from figures on the cumulative distribution of income, the Gini coefficient, the number or percentage of the population living below some specified minimum standard of living, the Human Poverty Index, and so on.

On most measures of poverty, there is still very substantial poverty throughout South Asia, although the percentage of the population living in poverty has decreased in most countries in recent years.

#### India

India has had some success in reducing the overall percentage of the population living in poverty. The table below (from Chai and Roy, 2006:192) reveals a steady decrease in the percentage of the population living in poverty over the period 1973/4 to 1999/2000. In India, 260 million people (26.1 per cent of the population) were living below the poverty line in 1999-2000. This represents a decrease from 321 million (54.9%) in 1973-1974.

TABLE 6: INDIA: NUMBER AND PERCENTAGE OF POPULATION BELOW THE POVERTY LINE

Year	Rural sector		Urban sector		India - Total	
	Number (millions)	Poverty ratio %	Number (millions)	Poverty ratio (%)	Number (millions)	Poverty ratio (%)
1973/74	261	56.4	60	49.0	321	54.9
1977/78	264	53.1	65	45.2	329	51.3
1983	252	45.7	71	40.8	323	44.5
1987/88	232	39.1	75	38.2	307	38.9
1993/94	244	37.3	76	32.4	320	36.0
1999/2000	193	27.1	67	24.0	260	26.1

Source: Government of India, *Economic Survey*, various issues

### Pakistan

According to Anwar (2005:99) whilst the economic reform programs instituted in Pakistan over the past 15 years were aimed at increasing efficiency and/or reducing poverty, the trends in almost all dimensions of poverty indicate poverty has worsened. Recent estimates show that more than 49 million people live below the official poverty line and 3.1 million persons are unemployed. The structural adjustment demanded by the IMF and World Bank policy has been to the detriment of the Pakistan economy, through “inappropriate sequencing of policies” and implementation of financial sector reforms “before achieving macroeconomic stabilization and reduction of the fiscal deficit” (Anwar, 2005:98). External debt increased due to the continual devaluation of the rupee against the US\$ and, in order to meet these rising costs and to decrease the fiscal deficit, less funding was available for public and social services. With improved capital from overseas and a restructuring of bilateral debts Pakistan has decided to exit from the IMF program (Anwar, 2005:98-99).

By 2001-2002, both the World Bank estimates and the official Pakistan government figures, whilst differing, show poverty increased in Pakistan between 1990-1991 and 2001-2002, rising from 34 percent to 37.3 per cent (World Bank figures) or from 26.1 per cent to 32.1 per cent (Pakistan Official FEI poverty line). According to the World Bank figures, during this latter period, urban poverty decreased to 26.4 per cent, but rural poverty rose to 41.6 per cent (Devarajan, 2006).

### Other South Asian Countries

The following table (from UNDP, 2005) provides information on both the Human Poverty Index and the percentage of the population living below the poverty line.

TABLE 7: HUMAN DEVELOPMENT REPORTS

HDI rank		GDP per capita (PPP US\$) (HDI)	Human poverty index (HPI-1) Rank	Population living below the national poverty line (%)
2003				1990-2002 a
Medium Human Development				
93	Sri Lanka	3,778	42	25.0
96	Maldives	.. b,c	37	..
127	India	2,892d	58	28.6
134	Bhutan	1,969b,e	..	..

135 Pakistan	2,097	68	32.6
136 Nepal	1,420	74	42.0
139 Bangladesh	1,770	86	49.8

*Notes:*

- a. Data refer to the most recent year available during the period specified.
- b. Data refer to year other than that specified
- c. In the absence of an official estimate of GDP per capita (PPP US\$), preliminary World Bank estimates, subject to further revision, were used as follows: Maldives 4,798; and Suriname 6,552.
- d. Estimate based on regression.
- e. Aten, Bettina, Alan Heston and Robert Summers. 2002. "Penn World Tables 6.1." University of Pennsylvania, Center for International and Interarea Comparisons, Philadelphia. Data differ from the standard definition.

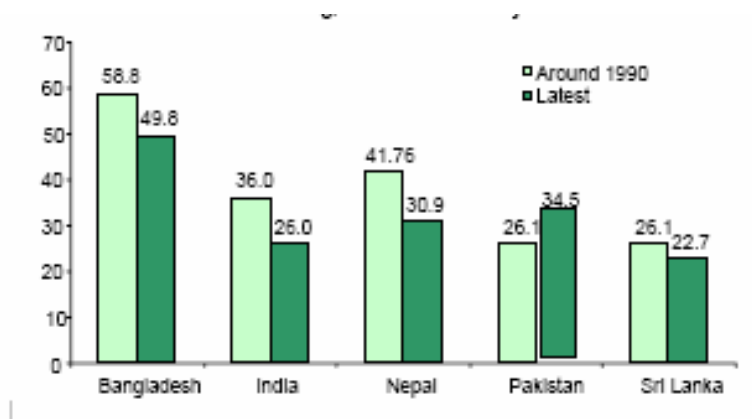
*Source:*

- column 1:* World Bank. 2005. World Development Indicators 2005. CD-ROM. Washington, DC., unless otherwise noted; aggregates calculated for the Human Development Report Office by the World Bank.
- column 2:* determined on the basis of the HPI-1 values in column 2 of Table 2 (HDR 2005).
- column 3:* World Bank. 2005. World Development Indicators 2005. CD-ROM. Washington, DC.

Bangladesh has the greatest degree of poverty, according to both measures of poverty, followed by Nepal, Pakistan, India and Sri Lanka, in that order. The country rankings for GDP per capita are almost the reverse, as can be expected.

**Changes in Poverty**

The following figure (from Devarajan and Nabi, 2006) gives an overview of the different fortunes of India and Pakistan and looks at the changes in poverty in five South Asian countries over the last decade.



*Source:* (Data) Bangladesh: HES 1991-92, 95-96 and HIES 2000; India: NSS 50<sup>th</sup> and 55<sup>th</sup> rounds; Nepal: NLSS 1995-96 and 2003-04; Pakistan: PIHS 1990-91, 2001-02; Sri Lanka: HIES 1991, 2002.

FIG.3: POVERTY IN SOUTH ASIA

Further information is provided, in the table below (from Devarajan and Nabi, 2006), on the urban/rural distribution of poverty and changes in this over the period from 1993/4 to 2001/2.

TABLE 8: POVERTY REDUCTION IN SOUTH ASIA

	Previous			Latest		
	National	Rural	Urban	National	Rural	Urban
India 1	36 (1993-94)	37.1	32.9	26 (199-2000)	26.8	24.1
Pakistan 2	34 (1990-91)	36.9	28	37.3 (2001-02)	41.6	26.4
Pakistan 3	26.1 (1990-91)	25.2	26.6	32.1		
Bangladesh	58.8 (1991-92)	61.2	44.9			
Sri Lanka	26.1 (1990-91)	29.4	16.3	22.7 (2002)	24.7	7.9
Nepal	41.76 (1995-96)	43.27	21.55	30.85	34.62	9.55

Notes:

1. Planning Commission headcount estimates,
2. Pakistan: World Bank estimate, Basic needs Poverty Line
3. Pakistan: Official FEI poverty line

It is evident, from the table above, that poverty is relatively greater in rural areas than in urban areas. This is what one might expect, given the relationship between the industry composition of the economy and the level of poverty. Primary producing and exporting countries are more likely to suffer poverty than those countries exporting manufactured products or services (UNCTAD, 2004:132).

#### **The Influence of Trade on Poverty**

Many commentators take the view that changes in poverty are almost entirely attributable to economic growth itself, not to changes in the world income distribution or policies that aim at redistributing income. Berg and Krueger, for example, state (2003:4) “Whatever the causal relationship between growth and changes in income distribution, most variation in income of the poor must be a result of changes in average growth, not changes in income distribution, unless the changes in income distribution are of historically unprecedented magnitudes.”

Warr points out (2005:345-6) that “the literature on poverty has exhibited a divergence between one school of thought, which places primary attention on economic growth as a means of reducing poverty and another, emphasizing the social nature of many of the dimensions of poverty, broadly conceived. Two kinds of empirical findings from existing studies are relevant for this discussion.

First, changes in income poverty over time are closely associated with, but not perfectly correlated with, changes in real output (real GDP) per person. This is equivalent to the finding that changes in inequality occur slowly and are not necessarily associated with changes in national income. The fact that a strong correlation exists means that policies affecting the rate of growth should rightly be considered an important component of a poverty reduction strategy. The fact that the correlation is imperfect means that other matters – other than simply the rate of growth – are also important determinants of the rate at which (income) poverty declines.

The second empirical finding is that many of the non-income dimensions of poverty are correlated (but not perfectly correlated) with income poverty. This finding means that the “go-for-growth” and “rights-based” approaches to poverty reduction are not in such strong opposition to one another as was earlier thought. The key point is that these various components of poverty, broadly conceived, are interdependent. The direction of causation runs in both directions.”

Warr, himself, finds that both agricultural and services sector growth in India over four decades (1957-1997) reduced poverty incidence significantly, but industrial growth did not reduce poverty and may actually have increased it (Warr, 2005:366).

Reimer (2002) undertakes a very comprehensive survey of empirical studies on the poverty impacts of trade liberalisation. His survey covers cross-country regressions, partial-equilibrium/cost-of-living analyses, general-equilibrium simulations, and micro-macro syntheses. He finds a substantial variety of research findings, although the majority support a definite poverty alleviation effect of trade liberalisation and economic growth.

The linkage between poverty reduction and economic growth is used by Devarajan and Nabi to project poverty reduction associated with economic growth in South Asia. They make projections of poverty incidence to

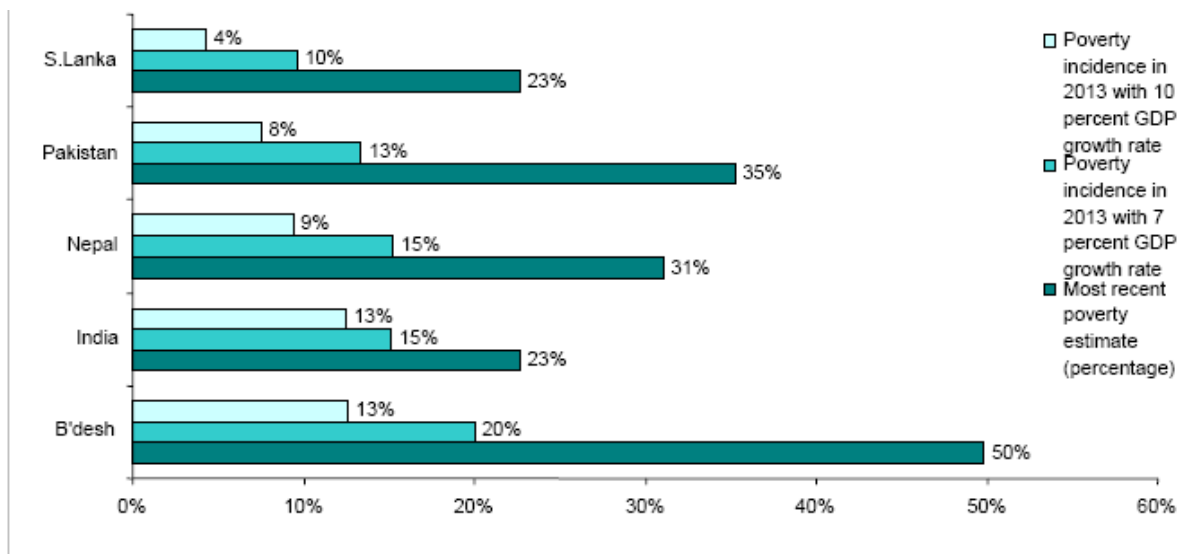
2013, based on alternative rates of growth of the economies of South Asia. The following table (Devarajan and Nabi, 2006:19) and figure (Devarajan and Nabi, 2006:4) summarise these projections.

TABLE 9: POVERTY REDUCTION ASSOCIATED WITH ECONOMIC GROWTH IN THE COMING DECADE

	Annual average GDP growth rate of the last two years	Annual Population growth rate	Latest available poverty estimate	Poverty incidence in 2013	
				Base case: (GDP growth of 7% per annum)	High case: (GDP growth of 10% per annum)
Bangladesh	5.4% <sup>1</sup>	1.7%	49.8% (2000)	20%	12.6%
India	7.7%	1.5%	22.7% (1999-2000)	15.1%	12.5%
Nepal	3.4%	2.3%	31% (2003-04)	15.2%	9.4%
Pakistan	7.4%	2.4%	35.2% (2201-02)	13.4%	7.5%
Sri Lanka	5.7%	1.2%	22.7% (2002)	9.6%	4.3%

The following factors are critical in determining the growth impacts on poverty reduction:

1. **The relationship between household consumption and GDP:** It is not always that GDP growth rate is identical to the growth rate of household consumption. In fact, the latter tends to be lower than the former in the South Asia region. This distinction is important since the growth elasticity is computed with household consumption, not with GDP. For the above simulations, we estimate the relationship between the growth rates of household consumption and GDP from available data.
2. **Impact of inequality.** In Sri Lanka, the growth has not benefited the poor much during the last decade. Widening inequality tends to lower the growth elasticity of poverty reduction. The first table assumes there is no change in inequality, but Table 2 assumes inequality changes at the rate that is estimated from household surveys.
3. **Methodology used for estimating growth elasticity:** For Sri Lanka and Pakistan, the same method (Bourguignon (2003)) is used, while a different method was used for India and Bangladesh.



*Note:* Most recent poverty estimates are those estimated by the World Bank and in some cases may be different from those reported in Figure 2. The method used for computing growth elasticity varies among countries. Bangladesh: Wodon (2001); India: Deaton and Dreze (2002); Nepal: Datt and Ravallion (1992); Pakistan: Bourguignon (2003); Sri Lanka: Bourguignon (2003).

FIG. 4: POVERTY REDUCTION IN SOUTH ASIA ASSOCIATED WITH HIGHER GROWTH RATES

## Conclusion

This paper has presented an overview of economic growth, trade flows, FDI and poverty in South Asia. Several important issues and policy debates have been briefly addressed, making it difficult to provide an in depth, detailed analysis of all aspects of the topic and to reach definitive conclusions. Nonetheless, there is sufficient evidence presented here to support the view that trade and investment liberalisation has been broadly successful in promoting economic growth and alleviating poverty in South Asia.

The issue of whether South Asian countries should “look east” (to ASEAN, China and elsewhere) or pursue further integration within South Asia through SAFTA is a non-issue. Policies and agreements to further integrate the South Asian economies within the SAARC framework are not incompatible with efforts to increase trade with ASEAN, JACIK (Japan, ASEAN, China, India and Korea) and other groupings. All of these avenues and opportunities for further trade, growth and poverty reduction should be vigorously pursued.

\* An earlier version of this paper was presented at an AusAID-Asia Pacific Futures Research Network Conference on *South Asia: Integrating an Looking East?* Canberra, Australia, September 25-6, 2006

## References

Contact author for the list of references

## **Phone Ladies- Change Agents to Shape the Bottom of the Pyramid: Experience of Bangladesh**

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### **Abstract**

**“If we stop thinking of the poor as victims of as a burden and start recognizing them as resilient and creative entrepreneurs and value –conscious consumers, a whole new world of opportunity will open up” (Pralhad, 2005). ‘Village phone’ is such a weapon of social revolution in rural Bangladesh that fights against poverty by facilitating entrepreneurship, reducing transaction costs, and substituting for slow, unreliable transport and postal systems. It is a tool to empower the nation’s rural women with earnings, information, dignity and status. The women are now acting as change agents in rural Bangladesh by serving the community as an umbrella of information to solve all the problems at the robust pace. This paper seeks to determine the factors that are influencing the growth of village phone in Bangladesh. Our findings suggest the role of personal characteristics and social factors as crucial determinants for playing the role of change agents in the society. Keywords: Grameen village phone, phone lady, Bangladesh, entrepreneurship.**

### **Introduction**

Information is power. And it is such a power that can open up the windows of opportunities for a person as well as for a nation. For Bangladesh, ‘village phone’ is such a platform which is empowering the rural villagers with up-to-date information, connecting the community under an umbrella of communication and above all creating an army of women entrepreneurs who are acting as change agents to shape the future of the country. Village phone program has turned the deprived and inactive women into ‘phone lady’, a successful entrepreneur, a person of standing in her community. The program is managed by Grameen Telecom in cooperation with Grameen Bank and Grameen Phone covering 50,000 villages through 260,000 village phone operators which is providing the rural poor with new, exciting income-generating opportunities with upgraded social status of women in the community.

### **Objectives**

This paper will explore the factors influencing the growth of ‘village phone based mobile entrepreneurship’ in Bangladesh. And our specific objectives are as follows:

- To conceptualize the village phone model activating in Bangladesh;
- To identify the role of core parties and determine the entrepreneurial factors influencing the growth of village phone model;
- To measure phone ladies’ satisfaction toward the core parties’ support and services;
- To evaluate the influence of social and entrepreneurial factors that are turning phone ladies into change agents;
- And finally, to determine the success rate of village phone model and giving guidelines for further improvement.

### **Methodology**

The study has initially focused on qualitative research to conceptualize the model and to determine the factors which

are influencing the model. And then through survey method under quantitative research, the proposed model has been tested. To conduct the study, primary data were collected through personal in home interviews of phone ladies unstructured questionnaires (Malhotra, 2005).

In this study, to evaluate the factors affecting the growth of village phone model in Bangladesh, the level of scale was interval and the technique was five point likert type scale anchored at the numeral 1 with the verbal statement 'strongly disagree' and at the numeral 5 with the verbal statement 'strongly agree'. (Elbeck, 1987; Steiber, 1989). Multiple items were used to establish appropriate measurement properties (reliability and validity) of the selected constructs. The scale was reliable as the cornbach's alpha was evidenced as .819. The questionnaire was pretested several times to ensure that the wording, format, length, and sequencing of questions were appropriate.

In designing the sampling process, the target population includes all the village phone operators of Grameen Phone. As a technique, simple random sampling (Zikmund, 2004) was applied as the samples elements were collected from pre specified list. In this case, sample units were 4 and sample size was 130 in total. A total of 124 surveys were completed. Of the total number of completed surveys, 4 were considered problematic due to excessive missing data. The data from these surveys were not included in the data set. Thus, a total of 120 surveys were analyzed.

Structured questionnaire were used using the existing village phone village phone model. The model has been developed through depth interview and focus group discussion with experts. To conduct data analysis, one sample t-test under SPSS program has been applied to measure all the dimensions of village phone model.

Simultaneously, to make this paper more informative different published text books, related journals, reports, seminar papers, magazines and research works have been consulted. Literatures were generally collected from said sources and the Internet. As a result, a through review of literatures enabled us to make a consistent presentation of the theme of study.

Thus the paper is fine tuned into the following several rhythms: The first one after the introduction and objectives focuses on the literature review to determine the factors pertinent to the model development process, the second one proposes the model on factors affecting the growth, the third one describes the hypotheses to test the model, the fourth one provides the results of the hypothesis, the fifth one measures the rate of success and finally we provides recommendations along with conclusions.

## Literature Review

"...In the developing world, things are very different. Mobile phones are increasingly recognized as powerful tools in the fight against poverty, since they reduce transaction costs, facilitate entrepreneurship and substitute for slow, unreliable transport and postal systems." (The Economist, October 1st-7th, 2005)

" Delora Begum's home office is a corrugated metal and straw hut in Bangladesh with a mud floor, no toilet and no running water., yet in this humble setting, she reigns as the 'phone lady'. A successful entrepreneur and a person of standing in her community. It's all due to a sleek Nokia cell phone. Mrs. Begum acquired the handset in 1999. Her telephone "booth" is mobile: during the day, it's the stall on the village's main dirt road; at night, callers drop by her family hut to use the cell phone. Once the phone hookup was made, incomes and quality of life improved almost immediately for many villagers. This new channel of communication allows villagers to learn the fair value of their rice and vegetables, cutting out middlemen notorious for exploiting them. They can arrange bank transfers or consult doctors in distant cities. Besides, a villager who is owner of a mobile phone earns about \$600 a year which is about twice the annual per capita income in Bangladesh."(Jordan, Wall Street Journal, June 25, 1999).

Like delora begum, Grameen phone now owns 260,000 village phone subscribers who are playing the role of a change agent in the rural parts of Bangladesh by connecting the community with their fingertips. And all these members who are mostly women have broken the vicious circle of poverty, elevated their social, economical and family status, quite well known in the locality and attained importance in the society, "Phones have helped elevate the status of the female phone operators in the village. Surveys have found that the Village Phone Operators become socially empowered as they earn an income, gaining participation in family decisions in which, in rural Bangladeshi society, women usually have no say"(WRI:2002). They are solving real problems and as a result, "the BOP



consumers get products and services at an affordable price but more important, they get recognition, respect and fair treatment”(prahalad,2005).One of the studies conducted by the TeleCommons Development Group (TDG) of Canada for the Canadian International Development Agency highlighted that "The Village Phone Program yields significant positive social and economic impacts, including relatively large consumer surplus and immeasurable quality of life benefits, The consumer surplus from a single phone call to Dhaka, a call that replaces the physical trip to the city, ranges from 264 percent to 9.8 percent of the mean monthly household income. The cost of a trip to the city ranges from 2 to 8 times the cost of a single phone call, meaning real savings for poor rural people of between BDT 132 to BDT 490 (USD 2.70 to USD 10) for individual calls," noted the TDG multi-media case study on the Village Phone Program."(www.grameenphone.com)

According to Dr. Muhammad Yunus, “Village Phone fosters meaningful, lasting change in people’s lives. It brings economic benefit to the local entrepreneurs who run the service like a public pay phone system, gives their communities greater access to government services and markets for their products, and connects them with friends and relatives living in other areas” (Keogh and Wood, 2005). This journey of such mobile entrepreneurship started in 1997 in Bangladesh and continued its dramatic growth till 2006 by connecting 60 million people and 61 zillas through it mobile entrepreneurs whom we are calling ‘phone ladies’. This unique program of Grameen phone paves the way for remote rural villagers to access into telecommunication facilities where no such services were available before. The Program enables mostly poor village women to own a Village Phone subscription and retail the phone service to her fellow villagers while providing them with a good income-earning opportunity. It is administered by Grameen Telecom in cooperation with Grameen Bank, the internationally renowned micro-credit lending institution.

#### **Village Phone and its genesis**

Village phone is the name of an information umbrella in rural Bangladesh to empower the rural community to access into telecommunication facilities and to solve their day to day problems. The business model is standing on a profitable partnership among the village Phone Company, telecommunication provider, and micro finance institute and phone users to present a win-win situation. By leapfrogging fixed infrastructure and leveraging existing wireless infrastructure, Village Phones offer a viable strategy for increasing teledensity in developing countries and helping the poor lift themselves out of poverty. (Keogh and Wood, 2005)

#### **Village phone model and its Mechanism**

In Bangladesh most of the people live in rural villages and until recently they were disconnected from urban cities and deprived of modern amenities due to lack of telecommunication facilities. With the advent of mobile communication, the situations improved a bit but telecommunication facilities remained beyond the reach of general people. In that critical situation Grameen village phone came up with a unique and solid business model to bring the village people under the communication network by facilitating entrepreneurship. To implement the model successfully, Grameen Bank (a micro finance organization) played a crucial role to interact with the customers at the bottom line, selling airtime and making financial transactions. These deep links into the community are essential for introducing new services which act as channel to market telecommunication services to the rural people. By utilizing microfinance institutions as a channel to market, Grameen phone in Bangladesh was able to tap a market that was previously inaccessible because of the prohibitively high cost of developing and maintaining a channel to this enormous market. As a member of a microfinance institution (Grameen Bank), a potential Village Phone Operator uses a loan to purchase everything needed to start their business. The Village Phone starter kit costs approximately US\$200-US\$250 and includes a mobile phone, prepaid airtime card, external Yagi antenna, charging solution, signage, marketing collateral, and other materials necessary to get started. The Starter Kit is created by the “Village Phone Company” (Grameen Telecom) which establishes relationships with microfinance institutions to bring this product to their customers. The Village Phone Company negotiates wholesale airtime rates from the Telecommunications Provider (Grameen phone) who provides access to existing telecommunications infrastructure for the Village Phone Operators. Individual villagers in rural areas can then visit their local Village Phone Operator and make an affordable phone call. With proceeds from the business, the Village Phone Operator contributes to their loan repayment and also purchases additional prepaid airtime cards. The microfinance institution earns money from the loan and also a percentage of the revenue from airtime sales. The Telecommunications Provider earns money through volume sales of airtime, and the Village Phone Company earns enough money to continue to promote and

expand the program. There are no subsidies in this model. It works because it is designed so that all parties in the partnership “win” (Keogh and wood, 2005).

**Win-win situation among the parties** (Keogh and wood, 2005)

partner	Essential service provided	Winning strategy
Telecommunication company	Communication structure coverage to the rural areas	New revenue generated from airtime sales from a previously inaccessible market.
Microfinance institution	Provide loans to village phone operators so they can purchase equipment to start a village phone business.	Income from loans and airtime sales and a new product to market to clients.
Village phone operator	Affordable telecommunications to members of their community.	Profitable business which earns a steady income.
Community members	Customer base for village phone operators.	Access to affordable telecommunication.
Village phone company	Crafts and manages relationships, facilitate supports, manage overall program.	Sustainable operation.

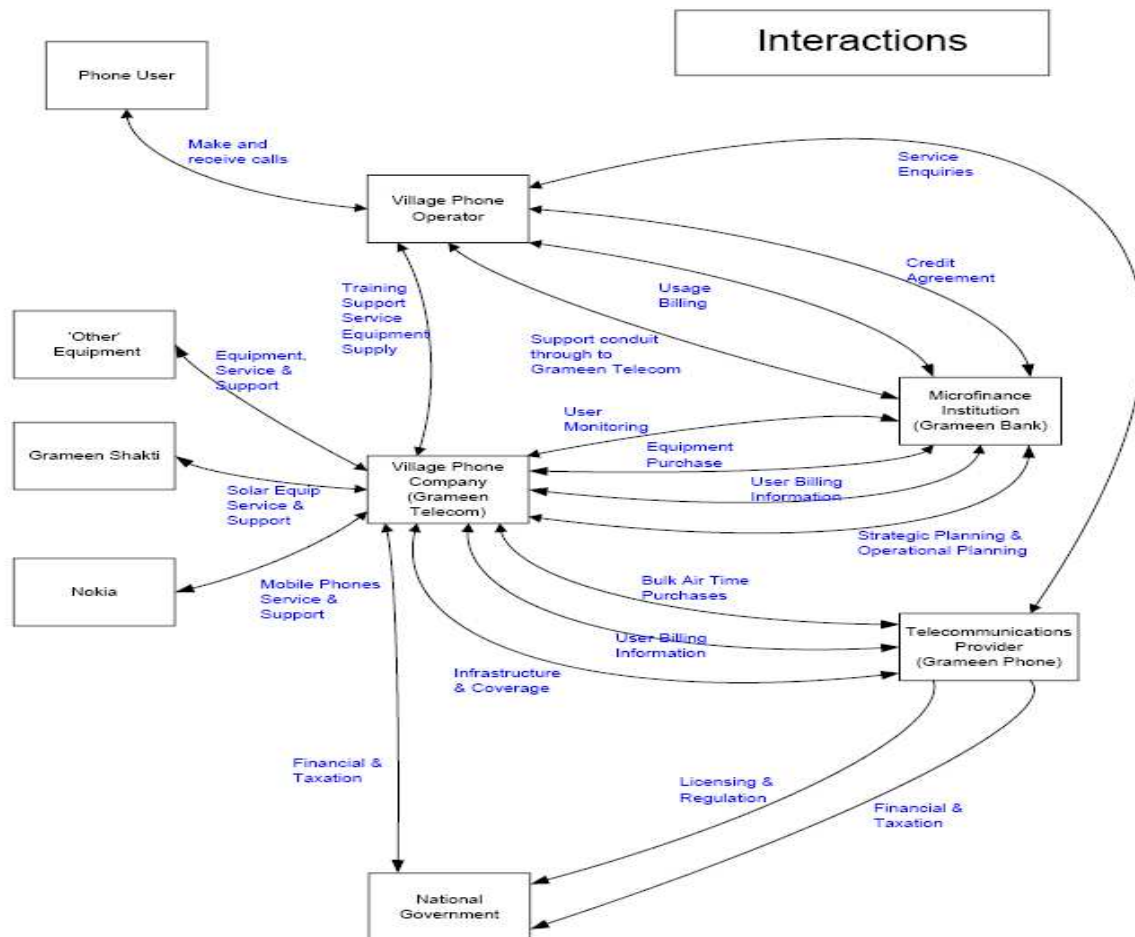


FIG1: INTERACTION AMONG THE PARTIES OF VILLAGE PHONE MODEL (KEOGH AND WOOD, 2005)

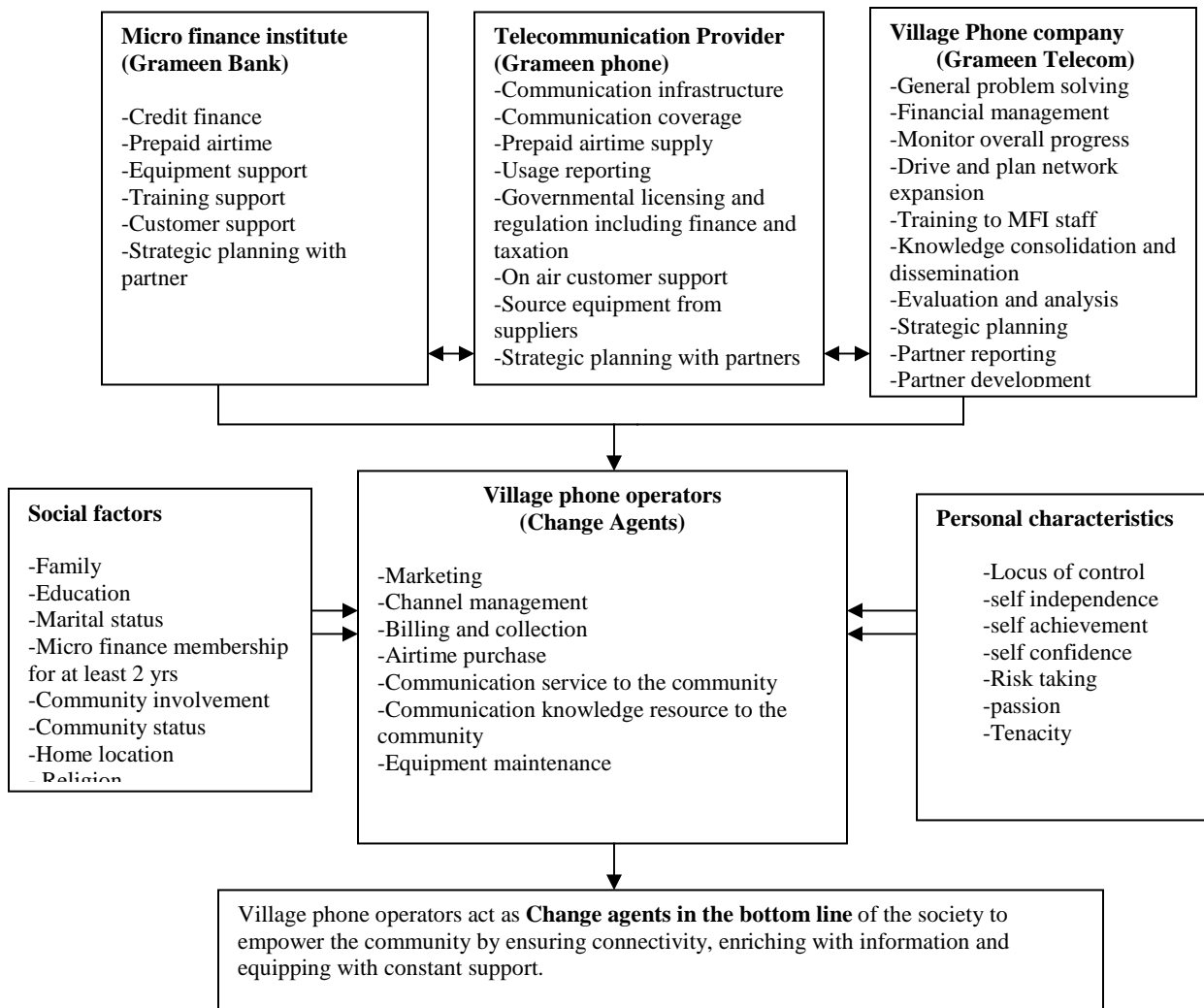
### Mobile entrepreneurs and their personal characteristics analysis

“Entrepreneurship is the pursuit of opportunity beyond the resources you currently control.” (Stevenson 1983, 1985, 1990). Examining history and culture in more than 40 countries over the last two decades, some findings (Baum and Locke, 2004) emerge as follows:

- Entrepreneurship flourishes in communities where resources are mobile;
- Entrepreneurship is greater when successful members of a community reinvest excess;
- Capital in the projects of other community members;
- Entrepreneurship flourishes in communities in which success of other community members is celebrated rather than derided;
- Entrepreneurship is greater in communities that see change as positive rather than Negative.

Personality traits, organizational factors, and environmental factors have been studied by entrepreneurship researchers as causes of new venture success; however, from 1961 to 1990, research about entrepreneurs' traits found only weak effects (Aldrich & Wiedenmayer, 1993). The weak results for traits were surprising because new venture financiers and entrepreneurs themselves pointed to entrepreneurs' personal characteristics as dominant reasons for success (Sexton, 2001; Smith & Smith, 2000). Recently, a growing cohort of psychology-based researchers has renewed interest in entrepreneurs' personal characteristics as predictors of success by moving beyond the past focus on traits to study competencies, motivation, cognition, and behavior. More complex models, better research tools, and concepts that are closer to performance in terms of causality have been used (Baron, 1998; Baum, Locke, & Smith, 2001; Busenitz & Barney, 1997; Mitchell, Smith, Seawright, & Morse, 2000). Early entrepreneurship research focused on finding general traits and motives of successful entrepreneurs (Brockhaus, 1980). Researchers hoped that personality screening could help entrepreneurs avoid personal disappointment and could help nations avoid wasted resources (McClelland, 1965). To cope with these challenges, we believed that entrepreneurs had to genuinely love their work and be tenacious about pursuing their goals given the many obstacles they would face. Thus, *passion* and *tenacity* seemed most promising in terms of leadership and entrepreneurship theoretical support (Locke, 2000; Yukl, 1989). Besides, passion and tenacity, in our case, we will analyze *locus of control* in entrepreneurship as there is a positive correlation between venture success and internality (Jennings and Zietz, 1966), *need for independence* as he has a desire to be his own boss and to do things in his own way (Hisrich and Brush, 1985), *need for achievement* refers to psychological characteristics moving toward recognition (McClelland, 1965) and *risk taking intention* is a part of entrepreneurial process whether financial, social or psychological (Hisrich and Brush, 1985). If we think about personal characteristics of women entrepreneurs, then females are motivated by the same need for money, wish to be independent, and identification of business opportunities as their male counterparts (Garritson, Beyer and Namaki, 1986). In fact, when traditional personality tests are conducted, no significant differences emerge with regard to achievement motivation, autonomy, persistence, aggression, independence, non-conformity, goal-orientation, leadership, or locus of control. On only one important factor do males and females appear to differ significantly: self-confidence (Chaganti, 1986).

## Model Development (on factors affecting the growth of mobile entrepreneurship)



It is quiet evident that the key parties which are moving the wheels of the model are microfinance organization, telecommunication provider, village phone company and village phone operators. The implementation of the model depends on successful execution of responsibilities of the key parties. Besides, village phone operators are also influenced by some social and personal factors which are influencing the growth of the business at the bottom line.

### Hypotheses development:

**H1: phone ladies' are satisfied toward the micro finance organization**

**H 1.1:** Credit finance is adequate to buy village phone

**H 1.2:** Interest rate is within the tolerance level

**H 1.3:** Training is helpful to operate the business

**H 1.4:** Customer support GB is helpful to operate the business

**H2: phone ladies' are satisfied toward the telecommunication provider**

**H 2.1:** My village phone is under the network coverage

**H 2.2:** I can connect to the network at any time

**H 2.3:** Customer support of GP is satisfactory

**H3: phone ladies' are satisfied toward the village phone company**

**H 3.1:** Mobile set is satisfactory

**H 3.2:** Antenna can capture the network

**H 3.3:** Any Problems of set is fixed up promptly

**H 3.4:** we can gain profit after paying the bills

**H4: phone ladies are possessing some specific entrepreneurial factors.**

**H 4.1:** I have control over my business

**H 4.2:** I want to be self independent

**H 4.3:** I have a desire to achieve my goal

**H 4.4:** I have confident to reach my target

**H 4.5:** I have a passion for success

**H 4.6:** I will be stick to my business in any difficulty

**H5: social factors influence the growth of village phone model**

**H 5.1:** my family is supporting me to conduct my business

**H 5.2:** my primary education is helping me to operate my business

**H 5.3:** I am not facing any religious restrictions from my community.

**H 5.4:** I have got recognition in society.

**H 5.5:** other ladies want to follow me.

**H6: overall, phone ladies are satisfied with their present venture.**

**H 6.1:** village phone operators are satisfied with their venture

**H 6.2:** village phone operators recommend others to undertake this venture.

**Results of Hypotheses Testing**

TABLE 1: PHONE LADIES' ARE SATISFIED TOWARD THE MICRO FINANCE ORGANIZATION

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
to determine the attitude toward credit finance	17.195	119	.000	1.233	1.09	1.38
to determine the attitude toward interest rate	31.795	119	.000	1.450	1.36	1.54
to determine the attitude toward training	31.795	119	.000	1.450	1.36	1.54
to determine the attitude toward service	11.317	119	.000	.908	.75	1.07

Through this analysis we have tried to figure out the role of grameen bank in facilitating the village phone program. It is evident from the analysis that the phone ladies are very much satisfied with the support of the grameen bank because here all the hypotheses have been accepted according to our one sample t-test.

**H 1.1:** Credit finance is adequate to buy village phone

Here the hypothesis is accepted since the calculated value (.000) is less than the critical value (.05). So we can conclude that Phone ladies are satisfied with the amount of credit provided by grameen bank to be an owner of a village phone.

**H 1.2:** Interest rate is within the tolerance level

Here the hypothesis is accepted since the calculated value (.000) is less than the critical value (.05). So we can conclude that Phone ladies are satisfied with the interest rate provided by grameen bank to be an owner of a village phone.

**H 1.3:** Training is helpful to operate the business

Here the hypothesis is accepted since the calculated value (.000) is less than the critical value (.05). So we can conclude that Phone ladies are satisfied with the training provided by grameen bank to be an owner of a village phone.

**H 1.4:** Customer support GB is helpful to operate the business

Here the hypothesis is accepted since the calculated value (.000) is less than the critical value (.05). So we can conclude that Phone ladies are satisfied with the customer support provided by grameen bank to be an owner of a village phone.

**Table 2: phone ladies' are satisfied toward the telecommunication provider**

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
to determine the attitude toward network coverage	16.353	119	.000	1.108	.97	1.24
to determine the attitude toward instant connection	16.279	119	.000	.992	.87	1.11
to determine the attitude toward customer support	13.362	119	.000	.892	.76	1.02

The above output clearly says that phone ladies are satisfied with the services of grameen phone (telecommunication provider) in terms of network coverage, instant connection and on air customer support. So this hypothesis is accepted as all the items' calculated value (.000) is less than the critical value (.05).

**H 2.1:** My village phone is under the network coverage

Phone ladies are satisfied with the network coverage set up by the grameen phone. So the hypothesis is accepted since the calculated value (.000) is less than the critical value (.05).

**H 2.2:** I can connect to the network at any time

Phone ladies can easily access into network whenever they want to meet up their clients' demand. So the hypothesis is accepted since the calculated value (.000) is less than the critical value (.05).

**H 2.3:** Customer support of GP is satisfactory

Phone ladies have expressed their satisfaction with the on air customer support of telecommunication provider (Grameen Phone). So the hypothesis is accepted since the calculated value (.000) is less than the critical value (.05).

TABLE 3: PHONE LADIES' ARE SATISFIED TOWARD THE VILLAGE PHONE COMPANY

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
to determine the attitude toward mobile set	22.024	119	.000	1.342	1.22	1.46
to determine the attitude toward antenna	14.037	119	.000	1.117	.96	1.27
to determine the attitude toward services of grameen telecom	27.671	119	.000	1.675	1.56	1.79
to determine the attitude toward profit	31.670	119	.000	1.442	1.35	1.53

Village Phone Company, that is, Grameen Telecom assists the village phone operators with mobile set, network connecting antenna, billing on calls and overall services. Our analysis says that phone ladies are satisfied with the village phone company from all dimensions.

**H 3.1:** Mobile set is satisfactory

Phone ladies are satisfied with the mobile set provided by the village phone company which is reflected in our hypothesis testing in which the calculated value (.000) is less than the critical value (.05).

**H 3.2:** Antenna can capture the network

Network connecting antennas provided by the village phone companies working well and assisting phone ladies to connect with the network at any time. This hypothesis is accepted as the calculated value (.000) is less than the critical value (.05).

**H 3.3:** Any Problems of set is fixed up promptly

Village Phone Company serves phone ladies promptly with their sales representative who are closely connected with the customers for dealing with the credit issue. So this hypothesis is accepted as the calculated value (.000) is less than the critical value (.05).

**H 3.4:** we can gain profit after paying the bills

Village phone operators are satisfied with the profit amount after paying their bills to the village phone company. And it is reflected in our hypothesis testing as the calculated value (.000) is less than the critical value (.05).

TABLE 4: PHONE LADIES POSSESS SOME SPECIFIC ENTREPRENEURIAL CHARACTERISTICS

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
to determine the attitude locus of control	22.809	119	.000	.992	.91	1.08
to determine the attitude toward self independence	30.860	119	.000	1.325	1.24	1.41
to determine the attitude toward self achievement	31.553	119	.000	1.433	1.34	1.52
to determine the attitude toward self confidence	16.572	119	.000	1.000	.88	1.12
to determine the attitude toward risks	31.296	119	.000	.892	.84	.95
to determine the attitude toward tenacity	30.017	119	.000	.883	.83	.94



At this phase of analysis, we have evaluated all the entrepreneurial factors which are influencing the growth of village phone based entrepreneurship in Bangladesh. Here it is clearly evident that phone ladies who have been proved as successful entrepreneurs by possessing some specific personal characteristics like locus of control, self independence, a strong desire of self achievement, self confidence, an easy mentality of taking risks and an aggressive mind to stick with the business in any difficulty.

- H 4.1:** I have control over my business  
(Hypothesis is significant as calculated value .000 is less than .05)
- H 4.2:** I want to be self independent  
(Hypothesis is significant as calculated value .000 is less than .05)
- H 4.3:** I have a desire to achieve my goal  
(Hypothesis is significant as calculated value .000 is less than .05)
- H 4.4:** I have confident to reach my target  
(Hypothesis is significant as calculated value .000 is less than .05)
- H 4.5:** I have a passion for success  
(Hypothesis is significant as calculated value .000 is less than .05)
- H 4.6:** I will be stick to my business in any difficulty  
(Hypothesis is significant as calculated value .000 is less than .05)

**H5: SOCIAL FACTORS INFLUENCE THE GROWTH OF VILLAGE PHONE MODEL**

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
to determine the attitude toward family support	34.233	119	.000	1.558	1.47	1.65
to determine the attitude toward community support	8.792	119	.000	.558	.43	.68
to determine the attitude toward primary education	3.802	119	.000	.108	.05	.16
to determine the attitude toward religious restriction	-2.087	119	.039	-.200	-.39	-.01

In addition to entrepreneurial factors, we have also analyzed the social factors which are fostering the growth of village phone model in Bangladesh. Here in our case, we have evidenced positive support from family, community, primary education and religion which are accelerating the growth of village phone in Bangladesh.

- H 5.1:** my family is supporting me to conduct my business  
Phone ladies are satisfied with the support from the family which is reflected in our hypothesis testing in which the calculated value (.000) is less than the critical value (.05).
- H 5.2:** my primary education is helping me to operate my business  
Phone ladies are expressing their positive intention toward primary education as it is helping them to run their business successfully. And it is reflected in our hypothesis testing in which the calculated value (.000) is less than the critical value (.05).
- H 5.3:** I am not facing any religious restrictions from my community.  
Phone ladies are not facing any religious restrictions from the community to run the business as local NGOs are creating a lot of awareness programs over the issue. And it is reflected in our hypothesis testing in which the calculated value (.000) is less than the critical value (.05).
- H 5.4:** I have got recognition in society.

Phone ladies have got recognition to elevate their status in society which is reflected in the hypothesis testing as the calculated value (.000) is less than the critical value (.05)

**H 5.5:** other ladies want to follow me.

Phone ladies have become 'a role model' to others in the society and they also want to follow them. This is supported by our hypothesis testing as the calculated value (.000) is less than the critical value (.05).

TABLE 6: PHONE LADIES ARE SATISFIED WITH THEIR PRESENT VENTURE

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
to determine the attitude toward satisfaction	24.818	119	.000	1.550	1.43	1.67
to determine the attitude toward recommendation	16.553	119	.000	1.008	.89	1.13

Finally we have determined the level of satisfaction of village phone operators toward their ventures. It is clear that village phone operators are very satisfied with their business and they are ready to recommend others to undertake this venture and become successful entrepreneur.

**H 6.1:** village phone operators are satisfied with their venture

Phone ladies have expressed their utmost satisfaction toward their venture which is reflected in our hypothesis testing as the calculated value (.000) is less than the critical value (.05).

**H 6.2:** village phone operators recommend others to undertake this venture.

Phone ladies are also ready to recommend the venture mechanism to others to follow the way of development. And it is also reflected in our hypothesis testing as the calculated value (.000) is less than the critical value (.05).

### Rate of Success in Bangladesh:

One of the greatest success stories in international development has been Grameen Village Phone program in Bangladesh. "... [Grameen Village Phone] has had considerable development benefits. It has reduced the cost of communications relative to other services such as transportation...the program has enabled the village pay phone entrepreneurs, poor by most standards but among the better-off in their villages, to turn a profit" (The World Bank Group Report: 2000) .

- The poor, disconnected and deprived people are now empowered with instant information to solve their problems. Now they don't need to make a costly physical trip to go to the city rather they can get the prompt support of phone ladies at their next doors. And in this way, the phone ladies are acting as change agents to shape the fates of their families and their neighbors.
- The typical "village phone lady" has an average income three times the national average. The most obvious benefit of the Village Phone program is the economic and social impact that this communications tool brings to the entire village.
- The local farmers are no more victims of unscrupulous middlemen, parents are no more worried about their kids' health and education and local community are no more afraid of the sudden attack of disasters, "Farmers from the villages use the phones to call the city markets to find out prices for their produce. Previously they were a little bit short-changed by their middlemen. The middlemen would say a lower price than what the actual market price was. So now they can call the market themselves to find out what the actual price of eggs or whatever their produce is. An independent study found that half the people who use the phones regularly, traders in rice or bananas for example, make more money from their business and they save 10 hours in travel time" (NPR: 2002).

- According to Prof. Iqbal Qadir(Cofounder, Grameen Phone), “If the Grameen Telecom experience is a reliable guide, then providing phone service yields powerful social and economic benefits in rural communities....Empowering poor communities by providing a wide range of digitally enabled self-help tools – via the private sector – could become a crucial part of an effective rural development strategy ... Business is a proven method of solving their [poor individuals] problems in a sustainable way.” (Keogh and wood, 2005).
- In a Canadian International Development Agency (CIDA) commissioned study, the consumer surplus for a single phone call ranges from 2.64% to 9.8% of mean monthly household income. The cost of a trip to the city ranges from two to eight times the cost of a single phone call, meaning that the real savings for poor rural people is between \$2.70 and \$10.00 for individual calls (Keogh and wood, 2005).
- The income that Village Phone Operators derive from the Village Phone is about 24% of the household income on average – in some cases it was as high as 40% of the household income. Because the phone operators are typically female and the phones are in their places of business, women who might otherwise have very limited access to a phone feel comfortable using Village Phones. Furthermore, as these phones become important for the whole village, the status of women in the communities where they work is enhanced.

### **Overall Findings and Recommendations:**

Village phone program is an integrated model of development at the bottom line to turn the inactive workforce into successful entrepreneurs with the help of microfinance organization and mobile phone operators. Through our analysis it is clear that this dynamic entrepreneurship is not a one way journey, rather it is impacted by the personal characteristics, social factors and the pertinent organizations who are paving the way for this revolution.

- Since micro finance organization initially provides the credit to be a village phone owner, so they are in charge of selecting capable phone ladies which can be justified by our entrepreneurial factors of locus of control, self independence, self achievement, self confidence, tenacity and mentality to take risks.
- Village Phone Company can create social awareness programs highlighting the success of phone ladies and positioning them as ‘role models’ for others for development. They can also handle positively all social factors like the importance of primary education, religious flexibility the support of family and community to smooth the growth of village phone.
- The village phone company can target un-served and under-served regions and provide support for acquisition of quality market appraisal knowledge and market data through market research in the field.
- The Village Phone programme appears to be the best available technical solution for rural universal access under current regulatory and commercial circumstances. The Village Phone programme is the best solution to rural telecommunication access partly necessitated by a regulatory environment that is not conducive to advancing rural telecommunication infrastructure. So regulatory bodies can reduce taxes over this venture to smooth the growth of root level development.
- Finally, since phone ladies are acting as change agents, so we can turn them into information hub by linking with contend providers to a large extent. In this way, we can create a knowledge based community for radical development of society.

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# The Critical Success Factors for Six Sigma Implementation: Empirical Evidence in Malaysia

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## Abstract

Six Sigma has grown quickly throughout the world, in terms of companies' performance, quality, cost reduction and customer satisfaction. The research examined the critical success factors of Six Sigma which gives perceived Six Sigma success to the organizations. Out of the many companies in the Sirim QAS International Directory a simple sample of 200 electronics companies chosen. The response was 60 companies, which gives a 30% of the sample. Finding revealed that there is a positive relationship between critical success factors with the perceive Six Sigma success implementation in the Malaysian companies. With this the final analysis resulted that the perceived Six Sigma successes are dependent on the critical success factors of implementation. *Key words:* Six Sigma, Success Factor, Electronic, Malaysia

## Introduction

Industries around the world need to continue to improve the quality of its products and services if it is to continue to compete effectively in both domestic and world markets. Statistical methods are an important tool in the quality improvement activities because they provide both descriptive and analytical methods for dealing with the variability in observed data. One of the most widely used tools is the Six Sigma method. Six Sigma has been around for decades many of them neglected it due to the difficulty and its discipline. Furthermore the use of computers has made this application possible where the outputs can be made to be very presentable. Industries often use this Six Sigma tool in various areas from improving the lead-time, quality and management.

Six Sigma is a powerful breakthrough improvement business strategy that enables companies to use simple and powerful statistical methods to define measure, analyze, improve and control processes for achieving and sustaining operational excellence. Today's leaders from the industries fond of Six Sigma simply because it has generated bottom-line results for all kinds of organizations in hundreds of cases. As the inventor of Six Sigma, Motorola has used Six Sigma methodology in product design, manufacturing, and services in every business unit where in one particular case Motorola have brought down manufacturing time for a product from 40 days to less than 1 hour. Six Sigma also drives strategy execution where in today's demanding business environment; organizations need reliable management systems capable of aligning strategy and delivering breakthrough results. In addition Six Sigma generates flexible and robust business processes. It can be applied to tackle a specific problem in a single department or to renew the entire business.

Six Sigma provides companies with a common vehicle and language to frame business goals focus organizational energy and drive results. Its implementation involves building human capability with common approaches and tools to address business process issues. Industries found Six Sigma as a low risk investment the financial returns that far outweigh the investments required (Pande et al, 2000). That is why a lot more companies have followed the footsteps of Motorola, for example Pentagon, Nasa, Sony, 3M, Citicorp, General Electric, Texas Instruments, Intel, Seagate, Xerox and Hewlett Packard. The outcome implications are the benefits prevailed from these critical success factors of Six Sigma to the firms. This benefit includes customer satisfaction, cost reduction, transformation of quality embracement culture and establishing an efficient organization.

The focus of this paper is to identify the most critical factors for the implementation of Six Sigma programs that will lead to success in Malaysian companies. The outcome or the findings of this paper is to understand how well implemented critical success factors contribute to the total success of Six Sigma. The rest of the paper is organized as follows. First, an overview of relevant literature review in respect to identified Six Sigma factors. After

that, the methodology and the data analysis of the results are presented. The end of this paper concludes with discussion and suggestion for further research.

## **Literature review**

Six Sigma is a rigorous, focused and highly effective implementation of proven quality principles and techniques. A company's performance is measured by the sigma level of their business processes. Traditionally companies accepted three or four sigma performance levels as the norm, despite the fact that these processes created between 6,200 and 67,000 problems per million opportunities. The Six Sigma standard of 3.4 problems per million opportunities is a response to the increasing expectations of customers and the increased complexity of modern products and processes. A higher sigma quality level value is better. A Six Sigma quality level is said to equate to a 3.4 parts per million outside specification limits. Most organizations today operate between two and three sigma, however in U.S. the manufacturing firms frequently attain four sigma quality levels, whereas service firms often operate at quality levels of one or two sigma (Montgomery & Runger, 1999).

For Motorola, the originator of Six Sigma, the answer to the question "Why Six Sigma?" was simple which is survival. Motorola came to Six Sigma because it was being consistently beaten in the competitive marketplace by foreign firms that were able to produce higher quality products at a lower cost. Today, Motorola is known worldwide as a quality leader and a profit leader. After Motorola won the Malcolm Baldrige National Quality Award in 1988 the secret of their success became public knowledge and the Six Sigma revolution was on. Initially, the concept of implementation of Six Sigma methodology at Motorola is to reduce quality costs, i.e. costs of not doing things right first time, costs of not meeting customer requirements, etc.

However, Six Sigma stresses the application of statistical and problem-solving tools and techniques in a methodical and systematic fashion to gain knowledge that leads to breakthrough improvements with dramatic impact on the bottom-line results. While the original goal of Six Sigma was to focus on manufacturing process, in the present day, marketing, purchasing, billing and invoicing functions are also embarked on Six Sigma strategies with the aim of continuously reducing defects throughout the organization's processes (Dale, 2000).

### **Infrastructure for Six Sigma**

There are previous study has shown that failure to provide this infrastructure is the number 1 reason why 80% of all TQM implementations failed in the past. Six Sigma makes improvement and change the full-time job of a small but critical percentage of the organization's personnel. The key to Six Sigma improvement success is the building up of an effective infrastructure. An effective infrastructure lays the foundation for the success of the organization in its implementation of Six Sigma. It is a known fact today that the success of Six Sigma lays on the projects selected and their link to the strategy of their organization.

The fundamental idea behind the Six Sigma philosophy is to continuously reduce variation in processes and aim at the elimination of defects or failures from every product, service and transactional process (Hoerl, 1998). Six Sigma can be defined in both statistical and business terms. In business terms, Six Sigma is a business improvement strategy used to improve profitability, to drive out waste, to reduce quality costs and improve the effectiveness and efficiency of all operations that meet or even exceed customers' needs and expectations (Antony & Banuelas, 2001). In statistical terms, Six Sigma is a term that refers to 3.4 defects per million opportunities (DPMO), where sigma is a term used to represent the variation about the process average.

There are 10 myths of Six Sigma (Snee, 1999) which needs dispelling as listed below:- (a) Works only in manufacturing (b) Ignores the customer in search of bottom-line benefits (c) Creates a parallel organization (d) Is an add-on effort (e) Requires massive training (f) Requires large teams (g) Creates bureaucracy (h) Is just another quality program (i) Requires complicated, difficult statistics (j) Is not cost-effective

### **Factors for the Success of Six Sigma**

In order to manage and optimize the process output, it is important that we identify the main factors which influence the output. The first step was to carry out an exploratory study on the topic as similar studies were performed by authors such as Pande et al. (2000) and Henderson and Evans (2000). Moreover, it is also important to learn the importance of these success factors in a ranking or prioritized order, particularly in the Malaysian companies. The

relative weightings of critical success factors (CSFs) would assist people to understand what factors are essential for making Six Sigma process successful and what factors are not important to the success. It would also assist people in organizations to gain a better understanding of the process of Six Sigma implementation. The following CSFs are identified from the literature.

#### **Management involvement and commitment**

The underlying principles of Six Sigma must be taught to senior managers within the organization. Jack Welch, the CEO of General Electric has strongly influenced and enabled the restructuring of the business organization and changed the attitude of the employees towards Six Sigma (Henderson and Evans, 2000). Without the continuous support and commitment from top management, the true importance of the initiative will be in doubt and the energy behind it will be weakened (Pande et al., 2000).

#### **Cultural change**

Six Sigma initiatives require the right mindset and attitude of people working within the organization at all levels. The people within the organization must be made known and be aware of the need for change. Companies that have been successful in managing change have identified that the best way to tackle resistance to change is through increased and sustained communication, motivation and education (Henderson & Evans, 2000). With a true cultural revolution in an organization come two basic fears on an individual level: fear of change and fear of not achieving the new standards. To overcome fear of change in any industrial environment, the people involved must understand the need for change.

#### **Organization infrastructure**

The employees in an organization practicing Six Sigma are generally highly trained, have undergone rigorous statistical training, and lead teams in identifying, executing and managing Six Sigma projects. In many multinational corporations, Six Sigma initiatives are led by the CEO or vice-president, who is considered as the Six Sigma champion. This will be followed by the formation of master black belts, black belts, green belts and other team members who are individuals who support specific projects in their area (Harry & Schroeder, 2000). The timing and readiness of the organization is also important. This is because Six Sigma effort requires a great deal of resources such as staff commitment, top management commitment, time, energy and costs, etc.

#### **Training**

It is critical to "communicate both the 'why' and the 'how' of Six Sigma as early as possible, and provide the opportunity to people to improve their comfort level through training classes" (Hendricks & Kelbaugh, 1998) before unleashing the employees into the world of Six Sigma. There is usually a hierarchy of expertise, which is identified by the "belt system". The belt system ensures that everyone in the organization is speaking the same language. This makes the setting up and execution of Six Sigma projects much easier throughout the organization. The curriculum in the belt system varies from organization to organization and consultant to consultant; however it needs to be provided by identifying the key roles of the people directly involved in applying Six Sigma.

As mentioned that training is a crucial factor in the successful introduction and development of Six Sigma program. There is usually a hierarchy of expertise, which is identified by the belt system. Within GE, the belt system is fundamentally divided into (Henderson & Evans, 2000): (a) Champions – fully trained business leaders promoting and leading the Six Sigma deployment in significant or critical areas of the business. (b) Master Black Belts (MBBs) – fully trained quality leaders responsible for Six Sigma strategy, training, mentoring, deployment and results. (c) Black Belts (BBs) – fully trained experts leading improvement teams across the business. (d) Green Belts (GBs) – individuals trained in Six Sigma supporting Six Sigma projects. (e) Team members – individuals supporting specific projects in their areas.

#### **Project management skills**

As Six Sigma is a project driven methodology, it is good practice for the team members to have project management skills to meet the various deadlines or milestones during the course of the project (Antony & Banuelas, 2001). Most of the projects on Six Sigma fail due to poor project management skills, setting and keeping ground rules, determining the meeting's roles and responsibilities.

#### **Project prioritization and selection, reviews and tracking**

There have to be proper criteria for the selection and prioritization of projects. Poorly selected and defined projects lead to delayed results and also a great deal of frustration. Pande et al. (2000) provide three generic categories of

projection selection criteria. These are:- (1) Business benefits criteria (a) impact on meeting external customer requirement; (b) financial impact; (c) impact on core competencies. (2) Feasibility criteria (a) resources required; (b) complexity; (c) expertise available, etc. (3) Organizational impact criteria (a) cross-functional benefits; (b) learning benefits, i.e. new knowledge gained about the business, customers and processes.

#### **Understanding the Six Sigma methodology, tools and techniques**

A healthy portion of the Six Sigma training involves learning the principles behind the Six Sigma methodology, i.e. DMAIC methodology. During the training, employees learn three groups of tools and techniques, which are divided into process improvement tools and techniques, leadership tools and team tools. For many Six Sigma projects, generally simple statistical tools or quality tools are more than enough to tackle the problem at hand (Hoerl, 1998). However, for greater breakthrough improvements in business processes, certain advanced statistical tools and techniques (such as design of experiments, statistical process control, regression analysis, analysis of variance, etc.) are needed. In addition, there has to be a clear set of metrics that are used to measure process performance against customer requirements. Examples of metrics include defect rate, cost of poor quality, throughput yield, rolled throughput yield, etc. Accurate data are also required for analyzing potential root causes and support the team's decisions (Harry & Schroeder, 2000).

#### **Linking Six Sigma to business strategy**

Six Sigma cannot be treated as yet another stand-alone activity. It requires adherence to a whole philosophy rather than just the usage of a few tools and techniques of quality improvement (Dale, 2000). It needs to be clear how Six Sigma projects and other activities link to customers, core processes and competitiveness (Pande et al., 2000). Since the goal of every organization is to make profits, Six Sigma projects make business processes profitable while attacking variability which leads to high scrap rate, high rework rate, low productivity, etc. In every single project, the link between the project objectives and the business strategy should be identified.

#### **Linking Six Sigma to the customer**

A key element of the success of Six Sigma program is its ability to link to the customers. Projects should begin with the determination of customer requirements (Harry & Schroeder, 2000). However Pande et al. (2000) argue that before customer needs can be met successfully, there has to be a good understanding of the organization and its linkage to various business activities. The process of linking Six Sigma to the customer can therefore be divided into two main steps:- (a) Identifying the core processes, defining the key outputs of these processes (b) defining the key customers that they serve. Identifying and defining the customer needs and requirements. An important issue here is the selection of critical-to-quality characteristics (CTQs). These CTQs must be identified quantitatively in the starting phase of the Six Sigma methodology. Quality function deployment is a powerful technique to understand the needs and expectations of customers and translate them into design or engineering requirements. In service industry, the customer requirements are often ambiguous, subjective and poorly defined.

#### **Linking Six Sigma to human resources**

Human resources-based actions need to be put into effect to promote desired behavior and results. Some studies show that 61 per cent of the top performing companies link their rewards to their business strategies, while lower performing companies create minimal linkage (Harry & Schroeder, 2000).

#### **Linking Six Sigma to suppliers**

Many organizations that implement Six Sigma find it beneficial to extend the application of Six Sigma principles to management of their supply chain. The concept that "everybody plays" created special challenges for General Electric Appliances (GEA). You cannot be a Six Sigma company without your suppliers participating in the culture change (Hendricks & Kelbaugh, 1998).

## **Methodology**

This is a correlation study; it is expected to conduct in normal condition of the organization with minimum interference by the third party or the researcher with the normal work flow or which is normally known as the field study. The population of this study comprises of all the electronics companies operating in Malaysia that is registered under SIRIM QAS International Directory of certified Products and Companies (2004). This study is using the directory as the population frame. Out of the many companies in the SIRIM QAS International Directory a



sample of 200 electronics companies chosen. The response was 60 companies, which gives a 30% of the sample population, using the rule of thumb method criterion (Sekaran, 2003). The unit of analysis in this study is the individual firm. The study used a random sampling method, which involves electronic companies in SIRIM QAS International Directory (2004). A random sampling procedure assures that each element in the *population* has an equal chance of being selected is referred to as *random sampling*.

#### **Variables and Measurement:**

##### **Independent Variables**

(a) Management involvement and commitment, there are seven items.

(b) Project prioritization and selection, reviews and tracking, there are four items.

(c) Understanding the Six Sigma methodology tools and techniques, there are four items

(d) Linking Six Sigma to business strategy, there are three items

(e) Linking Six Sigma to suppliers, there are four items

(f) Training, There are three items

(g) Company Infrastructure, There are three items

(h) Project Management Skills, There are two items

(i) Linking Six Sigma to human resources, there are four items

(j) Linking Six Sigma to customers, there are four items. All independent variable is measured on a five-point Likert-type scale ranging from 1, low level to 5, high level.

##### **Dependent Variable: Perceived Six Sigma Success**

This is measured on a five-point Likert-type scale ranging from 1, low level to 5, high level. There are four items that cover whether cost saving projects, efficient and improve culture, transformation in quality, engineering and cost in performance of the company and lastly meeting customers' requirements.

## **Results and discussion**

Majority of the companies surveyed are wholly-owned by non-Malaysian (93.3%) and 6.7% are jointly owned by Malaysian and non-Malaysian. Annual gross revenue of these companies consists of RM51- 100 million (5%) and more than RM100 million (95.0%). They were mostly operating more than 10 years (95.0%) and followed by 5 – 10 years (5.0%). The study also found that all of the companies surveyed employed more than 500 people of full time employees. Besides that, 81.7% of the respondents export their products, whereas 18.3% market their products both in domestic and export. About 45% respondents hold Six Sigma certification and 55.0% in progress of implementation. However, 50.0% of the respondents implemented Six Sigma to high extent, 35.0% at high level and 15.0% are neutral. Table 1 summarizes the respondents' companies.

TABLE 1: PROFILE OF RESPONDENTS' COMPANIES

Variables	Category	n = 60	(%)
<i>Operating Duration</i>	< 5 years	0	0
	5 – 10 years	3	5.0
	> 10 years	57	95.0
<i>Company Ownership</i>	Wholly owned by Malaysian	0	0
	Jointly owned by Malaysian	4	6.7
	Non-Malaysian		
	Wholly owned by non-Malaysian	56	93.3
<i>Full-Time Employees</i>	Less than 50 people	0	0
	50 – 150 people	0	0
	151 – 500 people	0	0
	More than 500 people	60	100.0
<i>Annual Gross Revenue</i>	Less than RM10 million	0	0
	RM10 – 50 million	0	0
	RM50 – 100 million	3	5.0
	More than RM100 million	57	95.0
<i>Product Market</i>	Domestic market	0	0
	Export market	49	81.7
	Both	11	18.3
<i>Six Sigma Certification</i>	Yes	27	45.0
	No	33	55.0
<i>Extent of Implementation</i>	Very Little	0	0
	Little	0	0
	Neutral	9	15.0
	High	21	35.0
	High Extent	30	50.0

TABLE 2: SUMMARY OF RESPONSE ON CRITICAL SUCCESS FACTORS FOR SIX SIGMA

Dimensions	Mean	Std. Deviation
Linking with Supplier	3.85	.799
Company Infrastructure	2.87	.769
Training	3.35	.988
Project Management Skills	3.65	.659
Linking with customers	3.77	.621
Cultural Change	4.05	.622
Linking with Business Strategy	3.73	.578
Project prioritization and selection, reviews and tracking	3.82	.725
Linking with human resources	3.03	1.057
Understanding the Six Sigma methodology, tools and techniques	3.68	.651
Management Involvement and Commitment	3.73	.578

Perceived Six Sigma Success	3.35	.799
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*1 = low level to 5 = high level.*

TABLE 3: RELIABILITY OF INDEPENDENT AND DEPENDENT VARIABLES

Variables	Cronbach's Alpha
Management Involvement and Commitment	.823
Understanding the Six Methodology, tools and techniques	.774
Project prioritization and selection, reviews and tracking	.616
Linking with Business Strategy	.615
Linking with Supplier Management	.790
Linking with Human Resoucre	.727
Focus on customer satisfaction management	.592
Focus on Cultural change and new practices in organization	.517
Training	.679
Project Management skills	.606
Perceived Six Sigma Success	.531

Mean and standard deviation were obtained for all twelve variables from independent and dependent. From Table 2, it can be seen the means for all twelve variables are quite close, which is around the range of 2.87 to 4.05. The variable Cultural Change was the highest with the mean of 4.05 and lowest was 2.87, Company Infrastructure. The possible reason why cultural change is having a high mean is due to the way of life and practice in the organization. A new company culture, a way of life seems to be a key to the future.

Cronbach Alpha method is used to determine the reliability coefficient. It is to ensure that the items comprising factors produced a reliable scale. According to Sekaran (2003), reliability less than 0.60 are generally considered to be poor, those in a range of 0.70, to be acceptable, and those over 0.80 to be good. In this study, reliability test was run for the twelve factors. Cronbach's alpha for Factor 1, Management Involvement and Commitment is .82 for 7 items. For Factor 2 until Factor 10, alpha ranged from .52 to .82. It indicates greater consistency in Factor 1 compared to others.

Cronbach alpha reliability coefficient was highest 0.823 for management involvement and commitment. Meaning the Six Sigma implementation highly needs management involvement to give and set direction and executive plan. Lowest was 0.517 for focus on cultural change and new practice in organization. This perhaps the new practice will have some resistance at begin because the old culture needs to undergo some level of assimilation. Perceived Six Sigma Success shows a Cronbach alpha that is .531. This is low perhaps due to the adopted measurements of dependent variable is from an established variable which has been measured before. The statistical output for reliability is presented in Table 3.

TABLE 4: MULTIPLE REGRESSION ANALYSIS: - CRITICAL SUCCESS FACTOR FOR SIX SIGMA

Model	R	R Square	Adjusted R Square	F	Sig
1	0.667 <sup>a</sup>	0.445	0.332	3.926	0.001 <sup>a</sup>
Variables	B	Std. Error	Beta	t	Sig
(Constant)	6.280	1.630		3.852	.000
Management Involvement and Commitment	.014	.054	.047	.266	.079*
Understanding the Six Sigma Methodology, Tools and Technique	.029	.140	.034	.208	.002***
Project prioritization and tracking	.024	.099	.045	.245	.034**
Linking with Business Strategy	.243	.175	.237	1.388	.043**
Linking with Supplier Management	.040	.063	.105	.640	.075*
Linking with Human Resource	.018	.096	.030	.191	.001***
Focus on customer satisfaction management	.245	.135	.294	1.815	.000***
Focus on Cultural change and new practices in organization	.058	.153	.067	.379	.023**
Training	.107	.196	.099	.545	.018**
Project Management skills	.424	.194	.316	2.185	.034**

*Dependent Variables: Perceived Six Sigma Success*

*Note: 2- tailed significant level at .05 (\*\*\* < .001 \*\* < .05 \* < 0.1)*

Overall, using multiple regression, it is found that all ten dimensions of critical success factors of Six Sigma (independent variable) as a group, explained 45% ( $R = .667$ ,  $R^2 = .445$ ,  $F = 3.926$ ,  $p = <.005$ ) in order to perceive Six Sigma success as shown in Table 4. Somehow, factors for Management Involvement and Commitment, and Linking with Supplier Management could not explain the relationship with Perceived Six Sigma Success at the significance level of  $p < .05$  with beta of 0.14 and 0.40. However, all other factors show significance level of  $p < .05$  with beta ranged from .040 to .424. So, hypotheses H1; Management involvement and commitment is positively related the success of Six Sigma implementation. and H5; Linking Six Sigma to supplier management is positively related to the success of Six Sigma implementation in the Malaysian companies are rejected. Besides that, H2, H3, H4, H6, H7, H8, H9 and H10 were accepted at significance level of  $p < .05$ .

Management Involvement and Commitment showed Cronbach alpha reliability coefficient was highest, but on contrary the Multiple Regression Analysis could not explain the relationship perceived Six Sigma success at the

significance level. This perhaps due to successful deployment of Six Sigma is not an end; obviously it is only the beginning. Like any business function, it requires the ongoing care and attention of those who are invested in its success. That is especially true in regards to how well the business has come to accept Six Sigma into its culture. So indeed the harder time getting management and managers to pay attention to them or to assign people to projects. There is little commitment to putting team members through any kind of training, so the Black Belts have to spend more time dealing with conflict and confusion and less time helping team members improve processes. The Black Belts also are beginning to be the butt of in-house jokes and resentment, and as a result are becoming a tight-knit group who do not welcome outsiders (Pande & Holpp, 2002).

During the earliest part of a Six Sigma implementation, the company watches closely all signs of success so the successes can be built upon, and all signs of failure so course corrections can be made. Everyone in the management chain is alert (George, 2003). But it is not unusual for organizations that have already implemented Six Sigma to let down their guard. Fortunately there are warning signals of trouble that can be acted upon. Sometimes, those signals are just gut feelings or uneasiness that employees are just paying lip service to Six Sigma. But in many cases, more concrete signals indicate that Six Sigma is beginning to become disconnected from the core business. Alert for these signs and engage the appropriate management to bolster or restore the original enthusiasm and commitment to Six Sigma. Any delay in taking corrective action could mean a lost window of opportunity for an on-going quality improvement program. Remember Six Sigma is about results, it is not about meeting training goals, counting the number of project teams working, or making presentations about what is going to be done (Montgomery & Runger, 1999). Management must insist there be a P&L financial validation to "book" the savings as real by constantly asking the right questions and specific.

The next was, *Linking with Supplier Management* showed poorly correlated, while the Cronbach alpha reliability was 0.790, show the measurements are reliable and good. The argue-mental reason could be the responsibility to make sure supplier management continues to meet customer and business needs today and into the future. Unfortunately, this role is difficult and could be overlook. A good process owner must understand about the output from the supplier, which is important to customers and to the business, and must have a thorough understanding of how his or her supplier management fits into the overall scheme of the business. This allows understanding there is other important factors which are relevant to perceived Six Sigma success. These discussions vary greatly in depth of coverage but usually include a variety of content on, Executive Engagement, Communications, Discipline and Consequences. Further more, each one of these Critical Success Factors may be broken down into sub-factors to further define the actions, measurements, roles, responsibilities and behaviors that each slice of the organization must demonstrate to assure Six Sigma successes and get significant results.

Consider the cost savings most often discussed in the annual reports of the best Six Sigma companies. They are usually discussing savings in a range of 2 - 3% of sales per year. Other organizations that have adopted Six Sigma success with far lesser amounts of financial success in the range of 0.5% to 1.0% of sales. Some discussion of critical success factors takes place greatly in depth of coverage but usually include a variety of content. Each one of these Critical Success Factors may be broken down into sub-factors to further define the actions, measurements, roles, responsibilities and behaviors that each slice of the organization must demonstrate to assure success and get significant results. These critical success factors and their sub-factors is merely a first step in the process of assuring their implementation and making them a permanent part of a company's culture and operating system.

The study also reveals that all ten dimensions of critical success factors of Six Sigma (independent variable) as a group explained 45%, in order to perceive Six Sigma success. This reveals, that there must be more these 10 independent critical success factors. So, it can be concluded that all the independent effects of critical success factors of Six Sigma were collectively predicting the perceived Six Sigma success. As a conclusion this research question is answered and indicated that the relationships of critical success factors of perceive Six Sigma success in the Malaysian companies and identifying the critical success factors for Six Sigma success in the

Malaysian companies. Impact of employee competencies on Perceived Service Quality has played an important role in service quality.

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## Globalization and Wage Inequality in South and East Asia, and Latin America

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### Abstract

In this paper we analyse the reasons behind the evolution of the gender gap and wage inequality in South and East Asian and Latin American countries during the decades 1970-2000. Health human capital improvements, the exposure to free market openness and equal treatment enforcement laws seem to be the main exogenous variables affecting women's economic condition. During the second globalization era (in the years 1975-2000) different combinations of these variables in South East Asian and Latin American countries have had as a result the diminution of the gender gap. These results have further normative consequences for the measure of economic inequality. The improvement of women's condition has as a result the diminution of the dispersion of wages. Key words: wage inequality, gender gap, market openness, human capital. JEL CODES: J22, J13, J16

### The Data

It is well known that when we include women's income information in world's international comparisons the first problem we have is the lack of reliable data. In poor countries part of the work performed by women is in the informal economy, performed at home and for piece rates. The available information on this kind of work is still scattered in few datasets and not comparable across countries. The same problems arise to evaluate women's income derived from properties and other financial assets. This lack of information makes the comparison of women and men's incomes very difficult, almost impossible.

This is why we have limited our observations to urban wage earnings. As we shall see different sources report female and male wage earnings in a very systematic way, although this analysis also has some limitations. Income inequality measures are higher than earnings inequality indexes, since waged earnings show a lower dispersion than total incomes. Additionally, poor people, workers in the informal sector of the economy, employers and property owners are excluded from our analysis, which means that our data is not useful to analyse some economy-wide changes. But instead our data allows us to analyse rigorously and systematically gender differences in wage earnings, the main engines causing them and their implications for income inequality evolution.

In parts 5 and 6 of this paper we want to explain the gender gap in Asian and Latin American countries by means of regression analysis. The data come from the UN datasets. UN uses them to calculate Gender Development Index and the Gender Empowerment Index. These data are available in the Human Development Report (2005). It is important to stress here that UN data referring to female incomes and the ratio male/female incomes are different from the data we use to compute inequality. To estimate gender differences in incomes (and not earnings), the UN uses the ratio of the female non agricultural wage over the male non agricultural wage, the female and male shares of the economically active population, the total female and male population, and per capita GDP(PPP US\$).<sup>1</sup> When data on gender wages are not available, the UN assumes a rate of 75% in female/male wages outside the agriculture. This is certainly a limitation of this source. We use this data because they are the first available that make possible worldwide comparisons. But we are aware of the deficits of this data, particularly when we compare our results on the wage gender gap with the UN indicator of income gender gap. Nonetheless, we think it is worth to make use of the first evidence available on gender income differences in order to make the first comparative analysis.

To complete the variables that can be included in the econometrical analysis we have matched Asian and Latin American country level information of the Human Development Report (2005) with the variables available in Barro-Lee (1994) dataset. The resulting sample includes 180 countries. We have updated the values of human capital variables up to 2000 since in the original dataset the last variables' observations are for the year 1985. Barro-Lee dataset only includes 138 countries and this fact is a source for missing values. But there are also other important sources for missing values. A lot of variables recording women's empowerment are missing for the developing world. In poor countries of Asia and Latin America statistically significant variables on women empowerment like women officials and legislators have a lot of missing values. This may be a restriction of our analysis that for the moment cannot be improved by means of secondary sources.

In part 7 of this paper we estimate the inequality indexes and gendered inequality indexes of wage workers for a sample of six countries of Asia and Latin America: Brasil, Argentina and Uruguay (1975-1995) in Latin America and China, Korea and Singapore (1985-1995) in South East Asia.

For China, South Korea, Singapore and Brasil in 1999, the data source is the October Inquiry (OI). OI is an annual survey conducted by ILO since the mid 20<sup>th</sup> century. The Inquiry collects returns on wages by occupation in October every year as reported by the Statistical Institutes of different national governments. The number of countries and the scope of information it covers has enlarged and improved over time. Since 1983, the survey includes 140 wage categories for very thin and well-specified occupations. In some cases specific information is missing, in which case ILO fills it in by using average wages. Other problems arise from this source when you want to make the information comparable. Wages can be expressed hourly, daily, weekly or monthly with very few scattered information on the number of working hours per day or per week according to the country. All these problems are being analysed by R.Oostendrop and R. Freeman who are calibrating the data to make feasible international comparisons<sup>2</sup>.

In the countries we have chosen the wage rate information refers always to monthly earnings and the male and female earnings are specified in all the occupations. These wage rates refer to net earnings of the basic wage and do not include earnings derived from productivity plusses or extraordinary hours. Therefore the observations from our sample once standardised are homogeneous and allow for international comparisons.

To calculate the inequality indexes we have matched the gendered wage rates by occupation as specified by OI with the gender employment of the census returns according to ILO classification criteria<sup>3</sup>. Wage and employment information do not always have a single match, and our criteria has been to maximize employment and to calculate average wages per employment category. The census employment categories that do not have any match with OI wage information are ignored. Since most of the wage information refers to the economy of urban areas the final employment categories derived from this matching process belong to the industrial and services sectors and can be considered representative of the urban setting. In the case of China OI makes explicit that the wage information is urban. South Korea and Singapore are highly urbanized countries and OI gives very little information on rural agrarian wages. The main exception to this rule is the case of Brasil, 1999. In this last country the wages reported refer both to urban and rural scenarios.

Data on gender wage earnings for the cases of Argentina, Uruguay and Brasil in 1976 come from the Household Surveys of every country. These surveys are normally used to analyse household income inequality, but they also provide information on wage earnings of individual members of the household, men and women. For the Latin American case this information is increasingly available since the 1970s and can be regarded as a rich reservoir of data for the analysis of living standards and income distribution. Household Surveys inquire on the basic wage weekly or monthly. In the case of Argentina and Uruguay they are representative of urban settings, while the inquiry of Brasil covers all the national area.

## **The Methodology**

In parts 5 and 6 we present a regression analysis on the exogenous factors behind female income and the gender gap. In our dataset most of the variables used here are presented in a panel format. Nonetheless all variables on Gender Development and Gender Empowerment from UN dataset are just available for the year 2003. This is why for the



moment we present the results in a cross section multivariate regression analysis. On the other hand it is important to stress the limitations we face when applying regression analysis with variables that contain a lot of missing values. The values of N drastically diminish when we include women empowerment variables. This is crucial when we restrict our sample to the countries in which we are interested: Latin America and South East Asian countries. Our strategy has been to yield the maximum statistical significance with small values for N. As we already pointed up in many poor countries the number of professional women, women legislators or officials, are not recorded in our data source. Countries with missing gender empowerment information should also be the countries with most gendered culture. This is a threat of our analysis which must contain some sample selection bias. In terms of the internal validity of our estimates the may cause reverse causality and omitted variable effects. The incidence of women's empowerment on the gender gap should be overestimated in our sample as a result of a problem of self-selection in the recording of women empowerment in poor countries.

When measuring inequality, the Gini index is the most widely used indicator. In part 7, we have calculated the Gini index for earnings inequality in the economy as a whole as well as for inequality within men and within women. But since the Gini index for a population is not a linear function of the Gini indexes of its subgroups if these subgroups overlap in the earnings distribution, as it happens gender, we cannot decompose the relative contribution of gender inequality to inequality in the economy using Gini. The alternatives are the so-called generalized entropy measures, of which the best known are the Theil indexes. These indexes, while keeping the same properties as the Gini index, allow estimation of how much inequality is explained by inequality within groups and how much by inequality between groups. We use these indexes to decompose inequality into its gendered sources. More specifically, this paper uses the so-called Theil's L index or mean log deviation measure, the most commonly used in the literature. Its formula can be expressed as follows:

$$I_0 = \frac{1}{N} \sum_{i=1}^n \ln \frac{\bar{y}}{y_i}$$

where  $I_0$  is the inequality index, N is the total size of the population, and y is income or earnings. One of the properties of these indicators, as already said, is that they can be decomposed as a function of some subgroups characteristics. Subgroups can be defined according to occupation, age, or gender, amongst others. Let  $y_k$  be the average income of a subgroup,  $n_k$  the population in the subgroup, and  $I_0^k$  the inequality index for the subgroup, then,

$$I_0 = \sum_{k=1}^n \left( \frac{n_k}{N} \right) I_0^k + \sum_{k=1}^n \frac{n_k}{N} \ln \frac{1}{y_k / \bar{Y}}$$

The first term represents within-group inequality, and the second term between-group inequality (Mookherjee and Shorrocks, 1982). We will use this to assess how earnings inequality within and across gender contributes to inequality in the economy. Within-gender inequality refers to the diversity of male wages and female wages. If over time wages become less spread out in one of the subgroups, women for example, this would contribute to reduce inequality in the economy, other things equal. The second term, between-gender inequality, refers to inequality between subgroups, that is, it ignores the spectrum of wages within each subgroup and looks at differences in average wages across subgroups. In other words, it measures the contribution of the gender gap to overall inequality. If women's average earnings increase, for example –and taking into account that women are the lowest paid subgroup–, inequality will increase, *ceteris paribus*.

Another indicator of gender inequality is occupational segregation, that is, the tendency for men and women to be employed in different occupations. High levels of segregation have been considered to be a significant factor in the discrepancy between the wages of women and men, and generally to be at the root of gender inequalities. In order to measure segregation, the most common indicator is the dissimilarity index, which generally measures whether a particular group is distributed across occupations in the same way as another group. The formula to calculate gender occupational segregation is the following:

$$S = \frac{1}{2} \sum_i |m_i - f_i|$$

where  $m_i$  and  $f_i$  are the percentage of male and female employment in occupation  $i$ . The dissimilarity index is a measure from 0 to 1. The closer to 1 the values, the more segregated the two groups are.

## Female Human Capital in South and East Asia, and Latin America

In tables 1 and 2 we provide the world indicators on women's levels of participation and female human capital. A first result from table 1 is that participation levels are very high in East Asia, much higher than in Latin America and South Asia. This result is influenced by the very high levels of female participation attained in the most populated country of the world: China. In this country after the one child policy (and also before) women have been participating in all stages of production. The participation of Chinese women in blue collar positions (e.g. in the textiles) is particularly outstanding. In China the gender gap do not arise from economic participation but instead it can be explained by the lower education attainment and by the lower enrolment in the Chinese communist party, being the latter one of the main sources of social promotion in this country (see Gustafsson, Shi, 2001). In the other East Asian Nic's women participation levels are also very high. This fact together with the quick fertility reduction in the last few decades of the 20<sup>th</sup> century shape a different model in East Asia with respect to South Asia and Latin America (see Mason, 2001).

We think that the model for South Asia established by the literature is India and has been thoroughly analysed by Dreze and Sen (1995). In this case a combination of cultural and economic factors have shaped a subordinate position of women in the family and also in the labour market. The key factor explaining the very gendered situation in this case is the unequal access to human capital services by men and woman. In table 2 we can see that in South Asia women attain the lowest levels of adult and young literacy in the world. This fact is crucial because it restricts the capabilities potential by women and also their chances to actively participate in the economic life. In spite South Asian women's levels of economic participation are similar to those of Latin America the illiteracy rates are higher in the first case showing the situation of higher social exclusion.

The patterns of participation in Latin America are different. In this second case patterns of female participation vary a lot according to the racial composition of the population of the country and in broad terms we can say that non white women have very few chances to meet jobs with regular earnings in the formal economy.

If we measure education by means of literacy we obtain similar results in Latin America and East Asia, a bit more egalitarian in Latin America. This result is confirmed by Barro-Lee (2000) data set. In terms of years of educational enrolment the ratio women/men has improved from 82,9 in 1960 to 95.7 in 2000 in Latin America while in East Asia the figures 49.0 in 1960 and 83.5 in 2000. Nonetheless, when considering the real meaning of this result it is important to bear in mind that in absolute terms the number of years of enrolment of women are similar in both set of countries. The differences observed in the ratio women/men are explained by the longer enrolment of men in East Asia. The second remark we must make refers to the nature of education in Latin America (in contrast with East Asia). In average terms the number of years of enrolment in Latin America has doubled between 1960 (3.30 years) and 2000 (6.06 years). But the results in terms of educational attainment are very poor. Between 1960 and 2000 the situation only slightly changes and the percentage of people having completed primary school moves from 12.8 in 1960 to 13.8 in 2000. The data for completed secondary school are 4.1 per cent in 1960 and 8.6 in 2000 and tertiary education 0.9 and 4.9 respectively. The basis of the educational system at the primary level has enlarged only marginally while the achievements of the educational system affect the higher opportunities of educational attainment by the elites of Latin America.

Nonetheless the worst situation is attained in South Asia. The gender ratio of school enrolment (female average years in school/male average years) was 25.3 in 1960 and 53.1 in 2000 while the proportion of people with no access to school was 74.3 in 1960 and 45.2 in 2000. Indeed the relative differences between East Asia and South Asia can be explained by the most successful path of growth of China and the NICS with respect to India. In spite

India is also growing fast since the 1990s the levels of education were and are lower than those of China particularly those of women (see Dreze Sen, 1995). This is may be one of the most outstanding legacies of the communist political regime in terms of economic growth.

In figures 1, 2 and 3 we present the gender results on health measured by life expectancies. Notice in figures 1 and 2 that the income variable in the X axis is not per capita GDP but the UN estimation of men, women income by country.

Figures 1 and 2 clearly establish that health improvements measured by life expectancies have a positive impact on income evolution but the marginal returns of this second variable on life expectancies are diminishing both for men and women. For the overall population this was pointed out for the first time by Becker (2005) who also stated that health improvement act as a means for poor countries to converge with rich. From the figures 1 and 2 we can also see that East Asian Nics (excluding China) are on the top of the income and life expectancy levels of both regions. Latin American and South Asian countries are instead placed in the low middle ranks of poverty and life expectancies.

In figures 5 and 6 we plot the relationship of income according to gender and levels of per capita GDP as calculated by UN. We can see that both for men and women PPP income in absolute terms is a linear function of per capita GDP. But the slope is flatter for women and steeper for men fostering the increase of the gender gap with development improvements in these 3 sets of countries and according to UN methodology to measure income according to gender. From this result and in these world regions we can advance the hypotheses that culture and in general non economic factors have an important role shaping the gender gap.

Another result from a gender perspective from figures 1 and 2 is that the elasticities of health on income are much higher for men than for women in spite in both cases a life expectancy increases are crucial to achieve income improvements particularly after the threshold of 70 years of average life. But health improvements originate larger income increases for men than for women (the elasticities are for men > women ). This last fact is coherent with the incidence of GDP levels on gendered income reported in figures 5 and 6. In spite human capital is basic to improve women's condition, gender disparities increase as a result of development showing the incidence of social capital on the gender gap in Asian and Latin American countries.

The paradox just presented on the relationship of development on the gender gap is presented in figure 3 following Sen methodology. Sen recorded the world gender relations by means of the ratio attained in female life expectancy/male life expectancy and its variance with respect the biological rule achieved in Europe and North America. According to this methodology we can see in figure 3 that most of the countries here under study are over the wished threshold ratio of 1.05, with India, China and Jamaica at the threshold level and Bangladesh, Nepal and Pakistan below. But we can also see that the highest levels of relative women well being are attained in relatively poor Latin American countries. In the richest countries (Hong Kong, Japan, Australia, New Zealand) the relative well being of women is lower than in Latin America. This fact shows that human capital is only one of the ingredients to explain gender relations. Culture and social capital factors are also basic to understand gender relations and this fact is crucial in the comparative analysis of Asia and Latin America.

## **Explaining Female Real Income**

Since the classical book by Ester Boserup (1970) many authors have insisted on the importance that all factors fostering female market power have in the erosion of the gender gap. Human capital and exposure to the labour market are some of these factors. Institutional and cultural factors promoting more bargaining power by women are other elements (Field, 2003; 2005). But in several poor countries of Asia and Latin America women may have problems to develop market power. One of their main restrictions refers to available time to devote to market activities. In table 3 we present the working time balance on men and women in several countries of Latin America and Asia. This table is based on scattered data at the country level, and must be analysed with caution. But as a general remark table 3 shows that in poor countries women work more hours than men because of the loads of work in non-market activities<sup>4</sup>. With the available technologies for domestic work, in poor countries women must deploy between 5.5 and 6 hours daily to unpaid work. Part of this work is addressed to supply goods and services that in

rich countries are offered by the market. This is an important time restriction when considering the possibilities of women's market exposure in poor countries<sup>5</sup>. This situation of time collapse between alternative activities only gradually changes as a consequence of human capital investments and improvements, which increase women's capabilities and market dexterity and as a result the value of their market activities also improves (Becker, 1991).

Before considering the factors explaining the gender gap, we want to present the factors affecting the value of women's time devoted to market activities in nowadays South and East Asian and Latin American countries. In table 4 we try to reconstruct the impact of human capital on the marginal increase of women's real earnings. Table 4 presents the results for the total sample of 180 world countries while table 5 presents the results for the sample of 50 South and East Asian and Latin American countries. The regressors of human capital variables presented in the tables represent the elasticities of women's income to marginal increases in health and education. Variables promoting equal treatment and women's empowerment of the same tables are presented in absolute terms.

In table 5 we can see that in the countries here analysed female real earnings are extremely elastic with respect to health improvements. For all countries of the sample presented in table 4 female income elasticities with respect to health and education are statistically significant. On education we obtain significant results at the 1% level both for female literacy and primary school completed. The statistical significance of life expectancy varies according to the model but from our results we can state this second human capital variable is basic to explain women's income. An endogenous factor of education, fertility, has significant negative outcomes on women's income. Child bearing and child rearing, in promoting household working loads drive women efforts towards unpaid work and at the expenses of paid work and income increases. This is why the negative marginal impact of fertility on income is very high and statistically significant.

When we restrict the sample to South and East and Latin American (table 5) countries the results vary somehow. The most remarkable result refers to the value of health in these sets of countries. The value of the coefficient on life expectancy is very high in all models (much higher than for all the countries presented in table 4) and the results are statistically significant at the 1% level of error. Women's wages, therefore, are very sensitive to health improvements measured through the life expectancy at the moment of birth, which cause a sharp increase in the value of female labour productivity (see part 3 of this essay). In South East Asian and Latin American countries life expectancies have improved a great deal since 1950 as a result of the exogenous impact of the assimilation of medical scientific innovations stored by the Western World (Bloom, Williamson, 1998). However, in countries in the tropical zone survival is still hazardous. Epidemic tropical pandemics still cause high mortality amongst children and population at the working age. Aids is also causing an important number of premature deaths. Epidemic blows mainly affect the economically active population (women in the case here studied) and children, something that helps to explain why good health (the absence of pandemics) has such a big economic value in labour terms. (See the life expectancy evolution in Latin American countries in Thorp, 2000 and the East Asian results in Bloom, Williamson, 1998; see the gendered picture of life expectancies in part 3 of the paper in figure 3 ).

The role of education is more controversial than the role of health. If we measure education through literacy the elasticity is statistically significant at the 10% level in model 2. But we don't obtain significant results for education measured as the proportion of women with primary studies completed. In the Latin America case the inadequacy of part of the schooling supplies has been highlighted and can help explain this result (Reimers 2000, 2006). Education supplies are totally segmented, and while the well-off white urban population has access to good schools, the non-white poor rural population is sent to bad schools. This is how Latin American educational institutions are responsible for the aforementioned segmentation of schooling supplies (Engerman, Sokoloff, 2002, 2005).

From results of table 5 and in contrast with results of the world's sample we can assert that human capital achievement acts on the very basic levels in these set of countries. Good health and literacy are the main factors affecting women's real earnings and productivity increases.

We already stated that fertility rates are endogenous to human capital accumulation. Nowadays it is well established that the improvement of women's levels of education has a direct effect on the decrease of fertility in rich and poor countries (Galor, Weil, 1996; Hazan, Berdugo, 2004). And the impact of a marginal increase in fertility on women's real earnings is also strongly negative in Latin American and Asian countries. Childrearing and childbearing directly affect the amount of non-market work of women we have presented in table 1. This is why the

fertility rate has a very negative incidence on women's paid labour reward. We can say that the value of this coefficient may represent the opportunity cost of non-market work in a situation in which human capital is improving and fertility is diminishing more remarkably in East Asian countries.

Bloom and Williamson (1998) have stressed the positive economic impact of the demographic transitions in East Asia and in general in developing countries. The initial decrease of child and youth mortality has as a consequence the formation of larger size cohorts that after a time span of 10-15 years glut the economically active population. The subsequent diminution of fertility rates additionally diminishes the dependency ratio. From a gender perspective, the impact of this demographic shift cannot be analysed in an isolated way. The increase of female labour productivity and real earnings brought by the improvement of mortality health conditions and the diminution of fertility rates are associated factors to the demographic shift. We have proved through the elasticity analysis that the economic impact of these demographic events on women's labouring lives is enormous. Apart from the impact of fertility and mortality patterns on cohort sizes, the dependency ratio has also diminished because young and healthier married women are increasingly involved in market activities, attracted by the higher reward of their paid labour. The impact of the demographic transition (improvement of life expectancies and fertility decline) has affected before and in a more remarkable intensity to East Asian countries. This is why the levels of women economic participation in this area are also higher. According to our analysis the transition to higher levels of women's participation levels is endogenous to the demographic transition and educational improvement. The elasticity analysis of the variables affecting women's income (life expectancy, literacy and fertility) sheds light on the engines behind the changes of value of women's time and their final impact on the share of time spent in market activities.

## **Explaining the Gender Gap**

In this part of the paper, we use the UN data on female and male incomes to analyse the determinants of the gender gap. We already stressed the limitations of these data, and indeed provide in the next section (Table 9) our own calculations on the gender gap based on much more reliable data on wage earnings. We think nonetheless, that the composed index provided in the UN publication is useful to make the first comparative regression analysis. Mainly because it provides an indication of the income gender gap that not only based on the value of wage work but also on the weight of the paid work and women's participation levels in market activities.

In table 6 we present the results for the world wide sample. The first remark we can make is that Models 2 and 4 of table 6 confirm Becker's hypotheses on the factors influencing the gender gap (Becker, 1957). Market openness and the exposure to competitive forces reach significant coefficients. In model 1 we also obtain statistically significant results for the role of equal treatment enforcement laws measured here with the number of women legislators and officials. The influence of women's empowerment is lower than the effects of the exposure to the market forces but it also represents a second significant set of variables.

Instead the role of the relative achievement on human capital formation by woman is negative and statistically significant (models 2 and 4). Here we measure some of the gendered human capital elasticity factors we pointed up in section 3. Results on human capital achievement on the gender gap exposed in table 6 reflect the different income human capital elasticity according to gender. While we have seen female life expectancies are important to explain women's income, the result is different in terms of gender gap because human capital accumulation has much larger multiplying effect on men's income than on women's income. The same is true for education. In model 4 we prove that the ratio female primary school completed/male primary school completed has a negative significant impact on the gender gap. This is because the income elasticity of primary school is higher for men than for women. We must remind the reader that the gendered income elasticity calculation from the UN dataset which is on the bases of this part of our analysis is a linear function of levels of per capita GDP, levels of paid work participation a part from data on gendered non agrarian wages when available.

But in what concerns the sample of countries studied here we obtain different results. When we restrict the sample to South East Asian and Latin American countries and include the Latin American dummy in the control variables the role of the exposure to open market forces on the gender gap decreases and loses statistical

significance. Instead in the restricted sample the variables strongly improving the gender gap are female literacy and female legislators. Notice in table 8 that the value of all variables directly affecting economic competitiveness decreases when the Latin American dummy is included.

From table 8 we can infer that the variables affecting the gender gap are different in the subset of East South Asian and specially Latin American countries. Latin America changes in gender wage differentials are less sensitive to the open market globalization forces. Indeed during the 19<sup>th</sup> and a large part of the 20<sup>th</sup> centuries protectionist barriers in Latin America have been among the highest of the world (Coatsworth, Williamson, 2004). Economic adjustment and liberalization policies during the 1980s implied a severe crisis in most of the countries of the continent. Another transformation since the 1980s is the formation of an economic model based on the increasing role of the informal sector that according to some authors has increased the magnitude of economic inequality (Blumer-Thomas, 1996; Wood, 1994; Psacharopoulos, Morley, Fiszbein, Lee, Word, 1992; Prados de la Escosura, 2004, 2005). The lower exposure of Latin America to globalization may be the reason behind the lower impact of market openness on gender gap.

But in spite of the minor role of globalization in this second case other factors associated to literacy and women's empowerment have had an enormous incidence in the diminution of the gender gap. Exception for Indian and Black women, a more equal access to literacy and health services may explain a less gendered culture in Latin America with respect to East Asia. Indeed Amartya Sen (1990, 1992, 2003) has identified 100,000,000 missing women by premature death in South and East Asia and North Africa (50,000,000 in China). Women's unequal access to health services and food consumption goods in Asian countries is a clear sign of women's social exclusion. According to the same author in East Asia this particularly applies to the Chinese case. But we shall see in part 7 of this writing that in East Asia, gender discrimination also has effects on wage determination of other countries like South Korea.

## **The Implications of the Gender Gap for the Study of Economic Inequality**

The Gini and Theil results on total inequality and gendered inequality evolution for the six Asian and Latin American countries of our sample are presented in table 9. It is important to stress that these results refer to wage urban population. This makes our data difficult to compare with the standard Gini coefficients of inequality of household income or expenditure, which are generally higher and show very low tendency to change over time (Deiniger, Squire, 1996). By definition, our data does not include the inequality shares of the top (owners and employers) and the bottom (poor and employed in the informal economy) of the income distribution. With the exception of the Brazilian case our wage information doesn't capture the increasing inequality between urban and rural settings, which explains the sharp increase of inequality in countries like China. In spite of all these problems, by studying waged labour we are able to identify some of the gender inequality patterns that arise from changes in the gender gap.

In table 8 we present the evolution of the gender gap (or, to be more precise, the female/male earnings ratio) and index of dissimilarity for the six countries of our sample. The latter ranges from 0 to 1. When the dissimilarity index of occupations is close to 1 this means that occupations are more segregated according to gender than when the index is close to 0. This index quantifies the extent to which men and women can be substitutes in the labour market but it does not explain if the occupation segregation or its absence involves changes in income levels.

A first result we can stress from this table is that gender inequality has improved in all countries with the exception of China in recent decades. In all Latin American countries, including Brasil, the gender gap has eroded from 1975 to 1995.<sup>6</sup> Regarding the influence of ethnicity on economic inequality among women we have pointed out in section 6 of this paper, we must bear in mind that in the Argentinean and Uruguay cases most of the population is white (or mixed) and the proportion of Indian people is residual. In the Brazilian case 1999 we do not exclude the possibility that the source, OI, minimizes the impact of social exclusion of black women<sup>7</sup>. In fact, Argentina and Brasil are especially outstanding because in few decades women have attained nearly the same economic condition than men. Therefore from our case studies we can infer that in Latin America women's situation has improved a great deal. When we try to explain why, we must bear in mind the variables affecting the gender gap

in this continent: life expectancy and equal treatment laws. Both variables have improved in recent decades Latin America, especially life expectancy (see Camou et al, 2006). We have seen this is the most powerful variable explaining the gender gap in this case. According to the index of dissimilarity more economic equality according to gender does not imply that women perform the same jobs than men. The indexes of dissimilarity are high and imply that women are employed in different occupations than men. We can also see in tables 1 and 2 of this paper that women's participation levels are lower in Latin America than in East Asia. Indeed we have identified that Latin American working women from these 3 countries concentrate in the employment opportunities provided by liberal professions (teachers, nurses) clerical work (administrative) and services.

The gender gap information arising from the South East Asian case is very different. Except for Singapore, gender economic inequality is higher in East Asia than in Latin America. The gender gap only slightly improves in the case of South Korea and worsens in the case of China. The Chinese case deserves special attention. Before the economic reforms that began in 1978, the wage distribution in this communist country was very egalitarian and inequality has specially increased after 1991 when the scale and scope of the economic reforms intensified (see the Chinese inequality patterns in Knight, Shi, Renwei, 2001; Gustafsson, Shi, 2001; Guthrie, 2006).

We have seen for the Asian case that market openness is the main engine behind the erosion of the gender gap. On the other hand the dissimilarity index shows that in this case women's are less segregated. In this respect the Chinese example is illustrative. Urban women have very low fertility rates and they are present in the blue-collar spheres of the economy. In the case of China (like in most developing countries) real wages were very low because the productivity levels were also very low. The strategy has been to specialise in the production of export goods like textiles that make intensive use of the pool of cheap and unskilled female labour. By means of the production of labour intensive products, they could compete at the international markets. In these East Asian cases the causes of women's discrimination are found inside the household and the family human capital decision making. As a general rule men are educated in preference to women (Sen, 1990, Barro, Lee, 2000) and men also have more and better access to health services (Sen, 1990, 1992, 2003). Although in global cities like Hong Kong or Singapore the presence of women in well paid technical and liberal professions is increasingly important (see Brooks, 2006), in the other countries like China and South Korea women continue to concentrate in the unskilled ranks of employment. The gender gap has improved in most of the cases and the participation levels are higher in East Asia than in the Latin American (see part 3). But gender structural problems linked to the social capital and the historical customary role of women in this set of countries makes the magnitude of the gender gap also higher than in Latin American countries. In 1995 women's earnings (all occupations) represented 70% of men's earnings in South Korea and 74% in China, while at the same date this percentage attained levels of 91% in Argentina and 98% in Brasil.

The main consequence of the relative improvement of women's condition in our set of countries (with the exception of China) is the decrease of the levels of within-country inequality (see Table 8). Levels of total (men and women) inequality diminish. This trend is different from the result obtained using World Bank household data, which show a stagnant or slightly increasing trend in inequality in the same period (Deininger, Squire, 1996). In this respect our findings, still impressionistic, have further normative methodological consequences. Inequality at the household level hides the changing unequal situation of men and women. When we include women in the calculation of within-country inequality the result is the improvement of inequality levels. Traditionally women have concentrated in the most poorly paid and unskilled jobs being a factor that was breeding inequality. The improvement of women's condition brought by the improvement of their human capital stock, the effects of globalization forces and equal treatment enforcement laws have implied that the dispersion of wage earnings has narrowed. Therefore in these developing countries inequality has improved thanks to the improvement of women's condition and the narrowing of the gender gap.

Again the main exception is China. But levels of total inequality are lower in China than in any of the other countries. To explain this fact we must consider two factors: the egalitarian role of the communist tradition in urban wage determination<sup>8</sup> and the fact that our wage data just include the basic wage. Extraordinary payments like productivity surpluses and extraordinary hours represent an important share of the final wage in the Chinese case (see Knight, Shi, Renwei, 2001, p.139). Indeed taking into account all these factors the Gini levels and trends observed in our case are similar to those reported by the bibliography that deals with urban wage incomes of China of the post 1978 period (Khan, Griffin, Riskin, 2001; Lina, 2001; Gustafsson, Shi, 2000).

From our analysis the inherent different gender discrimination levels in Latin America and East Asian models can be explained when comparing within-gender inequality and between-gender inequality. In the Latin American case the improvement of total inequality levels from 1975 to 1995 is explained by the sharp decrease of the gender gap (between-gender inequality). We have tried to explain in parts 5 and 6 of this essay that the exogenous factors behind these trends are the improvement of women's health human capital and the establishment of equal treatment enforcement laws. In this respect Latin America is different from East Asia since human capital (health and education) is more equally distributed according to gender. The more egalitarian patterns of Latin American families in the human capital decision making of their members (enhanced by gender enforcement laws) are the main exogenous force explaining the observed diminution of inequality levels brought by the improvement of the gender gap.

The conclusions we can frame on the Asian case are more diverse and complex. In this second case we need more case studies in order to be able to frame a general model. Here the diminution inequality at the country level is mostly explained by means of the decrease of within gender inequality. The contribution of the gender gap to total inequality in China and South Korea increases. In spite of the influence of open market forces in shaping a more equal gender situation as observed in the case of Singapore (see part 6 of the paper) other cultural and historical forces counterbalance them. In the case of South Korea the parallel diminution of within-gender inequality and the slight improvement of the gender gap explain the resulting trend of the total diminution of inequality. In the case of China economic reforms have brought with them the increase of between men and women inequality. Nonetheless we must stress this case is very special. In absolute terms the inequality levels measured by the basic wage of urban workers are the lowest of the sample both for men and women<sup>9</sup>. In the point of departure, 1978, urban wages were extremely equally distributed both within and between gender groups (Lina, 2001). Economic reforms have brought with them the liberalization of the labour market and therefore the increase of inequality levels. Nonetheless the increasing magnitude of between-gender inequality (the gender gap) reveals the situation of social exclusion by women as reported by Sen and other authors.

## Conclusions

In these pages we have tried to show the reasons behind the gender gap in South and East Asian and Latin American countries and their influence in the final evolution of wage inequality. In a context in which the demographic transition is still operating, female life expectancies and fertility decline have proved to be the most powerful variable explaining women's wages and the improvement of women condition. Health human capital, but also literacy are on the basis of women's labour economic improvement. A more egalitarian gender behaviour in the access to health and school services supplies among the white population of Latin America seem to be the exogenous factor behind the important diminution of the gender gap in this set of countries. Instead in the East Asian case the erosion of the gender gap seems to be mainly explained by the Stopler-Samuelson and Becker simple model. With the exception of China, the exposure to international trade openness acts as an engine of erosion of the gender wage differences in this second set of countries. The Chinese case deserves special attention. In this last case economic reforms since 1979 seem to cause the increasing wage inequality between men and women. In our universe of countries we also obtain very statistically significant results for equal treatment enforcement laws.

The improvement of women's condition in most of the cases has further consequences for the analysis of wage inequality. Since traditionally women have been at the bottom of the wage hierarchy, their economic improvement also narrows wage dispersion and income inequality. This result is confirmed both by means of Gini and Theil coefficients. Therefore we think our results have further normative consequences for the study of income inequality. The often neglected information regarding women's economic condition has hidden the impact of their changing condition inside the household and the labour market. In the period under study, the second global era, and with the exception of China, the inclusion of women's wages in the calculation of inequality has as a consequence the diminution of the indexes of wage dispersion.

We think that in this paper we have provided the first evidence concerning the relationship between globalization and the gender gap from a comparative perspective. Our next step shall be to enlarge the sample of



countries (and continents). But we also want to further explore the features of gender inequality patterns by means of intensive research at the national level of the countries explored in this paper. Brasil or China deserve more attention and are cases that can highlight the future forthcoming patterns on the role of women in economic development.

## Acknowledgement

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## Tables

TABLE 1: FEMALE ECONOMIC ACTIVITY. WORLD INDICATORS

	RATE (%2003) >15	INDEX (1990=100)	% OF MALE RATE
World	55.6	103	69
OECD	51.8	107	72
Developing count.	56.0	102	67
Arab States	33.3	119	42
East Asia & Pac.	68.9	100	83
Latin America	42.7	110	52
South Asia	44.1	107	52
Sub-Saharan Africa	62.3	99	73

Source: Human Development Report, 2005, p. 314

TABLE 2: FEMALE LITERACY. WORLD INDICATORS, 2003

	ADULT LITERACY		YOUTH LITERACY	
	Female rate >15	Female/male	Female rate 15-24	Female/male
Developing count.	69.6	84	81.2	92
Arab States	53.1	71	75.8	87
East Asia & Pacific	86.2	91	97.5	99
Latin America	88.9	98	96.3	101
South Asia	46.6	66	63.3	79
Sub-Saharan Africa	52.6	76	67.9	88

Source: Human Development Report, 2005, p.310

TABLE 3: THE USE OF WORK TIME ACCORDING TO GENDER IN POOR COUNTRIES, 1990-2000.  
(UNWEIGHTED AVERAGES).

	URBAN AREAS		RURAL AREAS	
	HOURS/DAY	%	HOURS/DAY	%
<b>TOTAL WORK TIME</b>				
<b>WOMEN:</b>	8.01		10.28	
MARKET ACTIVITIES	2.48	31	3.6	38
NON-MARKET ACTIVITIES	5.52	69	6.03	62
<b>MEN:</b>	7.55		8.58	
MARKET ACTIVITIES	5.96	79	6.52	76
NON-MARKET ACTIVITIES	1.58	21	2.05	24
<b>WOMEN/MEN %</b>	107		120	

Source: Human Development Report(2005), calculated from table 29, p.315. Based on time surveys. Urban areas based in Colombia, Indonesia, Kenya, Nepal, Venezuela. Rural areas based in Bangladesh, Guatemala, Kenya, Nepal, Philippines.

TABLE 4: ELASTICITIES OF WOMEN'S REAL INCOME (PPP) W.R.T. FEMALE HUMAN CAPITAL FORMATION.  
WORLD WIDE SAMPLE, 2000-2003.

DEPENDENT VARIABLE: LOG FEMALE INCOME.  
OLS REGRESSORS. ROBUST STANDARD ERRORS.

	(1)	(2)	(3)	(4)	(5)
Log female literacy	1.857 (0.383)***	0.598 (0.127)***			
Log female life expectancy	0.845 (0.433)*	2.2 (0.298)***	0.879 (0.510)*	1.471 (0.435)***	
Female legislators and officials	-0.006 (0.009)*		0.017		
Female professionals	0.007 (0.06)		0.024		(0.006)***
Latin America	-0.45 (0.164)***	-0.217 (0.161)	-0.421 (0.182)**	-0.138 (0.167)	0.119 (0.138)
East Asia and the Pacific	-0.181 (0.214)	-0.049 (0.192)	0.442 (0.271)	-0.036 (0.224)	-0.001 (0.151)
Developing countries	-0.672 (0.238)***	-1.052 (0.241)***	-1.166 (0.206)***	-1.266 (0.210)***	-0.976 (0.185)***
Women in government	0.019 (0.007)***		0.018 (0.006)***		
Log women primary school compl.	0.959 (0.540)*	0.743 (0.160)***			
Log fertility					-1.323 (0.132)***
Political rights					-0.052 (0.092)
Civil liberties					-0.033 (0.105)
Constant	-2.798 (2.017)	-3.049 (1.196)**	0.007 (2.432)	-0.412 (1.586)	10.653 0.235***
N	55	116	52	103	120
R-squared	0.69	0.66	0.73	0.71	0.86

Standard errors in brackets.

- significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%

TABLE 5: EXPLAINING THE GENDER GAP. WORLD WIDE SAMPLE, 2000-2003.

DEPENDENT VARIABLE: FEMALE/MALE REAL INCOME (PPP)					
OLS REGRESSORS. ROBUST STANDARD ERRORS.					
	1	2	3	4	
Lof female life literacy	0.187 (0.094)*	0.026 (0.052)			
Log female life expectancy	-0.404 (0.234)*	-0.302 0.097***			
Female legislators and officials	0.004 (0.002)*		0.002 (0.003)		
Market free openness	0.551 (0.361)	0.68 (0.366)*	0.884 (0.512)*	0.747 (0.341)**	
Distance from international markets	0.006 (0.013)	0.024 (0.011)**	0.006 (0.024)	0.033 (0.011)***	
Revolutions and "coup d'etat" (number)	-0.001	-0.011 (0.60)	(0.061)		
Latin America	-0.115 (0.044)**	-0.026 (0.049)	-0.065 (0.086)	-0.004 (0.051)	
Developing countries	0.048 (0.074)	-0.021 (0.083)	-0.034 (0.110)	-0.123 (0.064)*	
Women in government		0.003	(0.02)	0.005	(0.002)***
Female/male primary school compl.			0.88	-0.261 (0.542)	(0.145)*
Female/male life expectancy			0.945	-1.201 (1.628)	(0.835)
Constant	1.116 (0.819)	1.309 (0.434)***	-1.692 (1.792)	1.651 (0.874)*	
N	29	65	29	56	
R-squared	0.65	0.38	0.49	0.41	

\* significant at 10% , \*\*significant at 5%, \*\*\* significant at 1%

Source: see part 1

TABLE 6: GENDER GAP EVOLUTION AND DISSIMILARITY INDEX IN A SAMPLE OF ASIAN AND LATIN AMERICAN COUNTRIES, 1975-1995 (\*).

COUNTRY	YEAR	INEX DISSIMILARITY	GENDER GAP (female/male earnings)
Argentina	1975	0.68	0.55
Argentina	1985	0.41	0.79
Argentina	1995	0.34	0.91
Brasil	1976	0.56	0.59
Brasil	1999	0.62	-
Uruguay	1985	0.54	0.65
Uruguay	1995	0.56	0.84
China	1990	0.35	0.84
China	1997	0.38	0.74
South Korea	1985	0.35	0.6
South Korea	1995	0.34	0.7
Singapore	1985	0.49	0.82
Singapore	1995	0.52	0.95

Source: see part 1 of the paper.

TABLE 7

COUNTRY	GINI			THEIL			INEQUALITY		
	Total	Men	Wom	Total	Men	Wom	Men%	Wom%	%
Arg 1975	0.026	0.176	0.226	0.098	0.065	0.084	51.18	19.94	28.87
Arg 1985	0.266	0.252	0.26	0.119	0.104	0.123	51.91	42.24	5.84
Arg 1995	0.223	0.221	0.217	0.084	0.087	0.079	61.06	37.62	1.32
Brasil 1976	0.406	0.418	0.421	0.275	0.234	0.288	60.44	30.24	9.33
Brasil 1999	0.401	0.286	0.33	0.163	0.152	0.193	68.35	31.63	0.02
Urug 1985	0.306	0.318	0.229	0.156	0.17	0.086	61.54	24.01	14.4
Urug 1995	0.286	0.278	0.287	0.13	0.124	0.129	56.44	40.76	3.37
China 1990	0.132	0.145	0.086	0.027	0.032	0.013	63.18	22.33	14.49
China 1997	0.14	0.124	0.084	0.03	0.025	0.013	49.45	16.89	33.66
Korea1985	0.258	0.193	0.269	0.109	0.062	0.122	37.65	37.32	25.03
Korea1995	0.156	0.125	0.122	0.039	0.024	0.027	39.79	24.80	35.41
Singap1985	0.254	0.264	0.238	0.113	0.111	0.103	63.94	32.04	4.02
Singap1995	0.244	0.238	0.24	0.098	0.098	0.096	60.15	39.51	0.34

Source: see part 1.

## References

Contact authors for the list of references.

## End Notes

<sup>1</sup> The precise arithmetical formula for the calculation is specified in technical note 1, Human Development Report (2005), pg. 346.

<sup>2</sup> See Freeman, Oostendrop, 2000. The detailed series of male wages 1983-2003 are already available in Occupational Wages Around the World (OWW) Database [www.nber.org/oww/](http://www.nber.org/oww/)

<sup>3</sup> This data are available at the ILO website [www.ilo.org/public/english/bureau/stat/child/actrep/octing.htm](http://www.ilo.org/public/english/bureau/stat/child/actrep/octing.htm) the dataset Laborsta.

<sup>4</sup> This data refers to unweighted averages of time devoted by women to paid and unpaid works. It has meaning in relative terms and not in absolute terms. Time devoted to work in unpaid non-market activities (as well as to paid activities) may vary a great deal according to the social class or women's economic status. Evidence from Spain supports this assertion both in the 19<sup>th</sup> and 20<sup>th</sup> century. See Perez-Fuentes (2005); Carrasco (1991).

<sup>5</sup> With an ordinary duration of the paid day's work, 8 hours, the total time women must devote to work in a urban setting is 13,5 hours according our estimations of time necessary to perform non-market activities. It is well known that many women of poor countries perform part time, out doors work in the informal economy, more compatible with the loads of unpaid work as shown in table 1.

<sup>6</sup> The changes observed in table 7 have a meaning in terms of trend of improvement and before we can make more general conclusions we need to enlarge our sample of countries.

<sup>7</sup> By this date we can make the hypotheses that most black population work in the informal economy or are integrated in the pool of poor people and therefore are not registered in the sample of wage workers.

<sup>8</sup> Still part of the wages are determined in State owned firms.

<sup>9</sup> We must pay attention to the nature of the data when considering this result. See explanation in page 15.

# International Oil Market Regime

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## Abstract

This paper analyzes the international oil market from the 1920's to today applying the "International Regime" theory, which was introduced and developed primarily in the U.S. since the 1970's to reflect the growing interdependence of states and growing involvement of non-state players in international politics. Stephan Krasner defines the "International Regime" as: "...sets of implicit or explicit principles, norms, rules, and decision-making procedures around which actors' expectations converge in a given area of international relations. Principles are beliefs of fact, causation, and rectitude. Norms are standards of behavior defined in terms of rights and obligations. Rules are specific prescriptions or proscriptions for action. Decision-making procedures are prevailing practices for making and implementing collective choice. (Krasner, 1983). Analysis finds that there has been an International Regime in the oil market in the form of the International Petroleum Cartel and OPEC Cartel identifies the principles, norms and rules in each regime. Factors which worked for establishing an international regime are identified.

## Background for the Regime Formation

Regime formation began with oil companies concern over the cut throat competition between Shell and Mobil in the Indian oil market which prompted discussions among top executives of the Big Three Oil companies; Standard Oil of New Jersey, Royal Dutch Shell Oil Company and Anglo-Persian Oil Company (later British Petroleum Company) at Achnacarry castle in Scotland. The subject of discussions was to find measures to eliminate the competition and ways to steadily develop the world oil market. In more concrete terms, the problem for them was to find and set a pricing system and other related rules which would allow them to earn profit while keeping the market share of each member in a market which was basically on a growing trend but fraught with danger of overproduction at any time. The situation was a dilemma of common interest. Cooperation was necessary among players to reach the best solution for all. After long and hard work, they reached an agreement and adopted a document dated September 17, 1928 which was titled simply "Pool Association". This document is more often referred to, however, as the "as is agreement of 1928" or the "Achnacarry agreement". The system based on and managed by this document was later called the "International Petroleum Cartel".

## Principles, Norms and Rules

### Principles

The big three oil companies worked out principles, norms, rules and decision-making procedures and they controlled other oil companies and hence the world oil market with this framework. Background and basic philosophy of the Pool Association is stated in "the introduction" of the document as follows:

The petroleum industry has not of late years earned a return on its investment sufficient to enable it to continue to carry in the future the burden and responsibilities placed upon it in the public's interest, and it would seem impossible that it can do so unless present conditions are changed. Recognizing this, economies must be affected, waste must be eliminated, the expensive duplication of facilities curtailed. (U.S. F.T.C., 1952)

This introduction says that the principle of this cartel is to avoid excessive competition so as to attain sufficient profit for providing an enough investment and to make possible paying off burden and debt in future which oil companies undertake for the public interest. It could be further simplified, "to supply oil steadily coping with the growth of world oil demand at a reasonable price guaranteeing a future investment by avoiding excessive competition and waste."

### Norms

And to realize this principle seven norms were developed which include the importance of cutting waste and curtailing expensive duplication of facilities and the necessity to control the industry for this purpose. The 7<sup>th</sup> and final norm says, "The best interest of the public as well as the petroleum industry will be served through the discouragement of the adoption of any measures the effect of which would be to materially increase costs with consequent reduction in consumption. (U.S. F.T.C., 1952)"

This norm says that control of the industry will also be beneficial for consumers. The US Federal Trade Commission criticized this point as saying that it gives a consumer-interest spin to the purpose of accomplishing savings and stabilizing the industry (1952). But I support the view of the oil companies', namely, the system introduced by them protected consumer interest by stabilizing the world oil market. This is evident when looking back the long history of the world oil market. The market was most stable and oil price was kept low under the regime of the "International Petroleum Cartel" in 1950's and 1960's .

#### **Rules and Decision-making Procedures:**

These were prescribed in detail in "a policy and a procedure rule" of the document (U.S. F.T.C., 1952).

According to Yoshinobu Yamamoto, there are three processes, i.e. through compulsion-rule, negotiations and autogenetic way, three factors i.e. power, profit and creed system in regime formation, and 9 types of regime formation by the combination of these three processes and three factors (1996). To apply this categorization, "International Petroleum Cartel" is a type formed by negotiations over a factor of profit by international oil companies which are non-governmental players. Here, the specific international field of international relations is the world oil market.

### **Managing the Cartel**

To prevent betrayal is crucial for a cartel and they worked out a detailed rule on actions of members for that purpose. Since the number of the members of the International Petroleum Cartel was small, just seven, and among them three companies were very big and the other four companies were related with these big three companies in one way or another. So the concern for betrayal within the members was small and the main concern for them was outsiders. They dealt with the outsiders case by case and tried to protect the cartel. And when this problem became a big issue in the cartel administration, they concluded the "Memorandum for European Market" in 1930 to be able to deal with this problem properly by such means as making a special regional agreement in areas having problems.

The most crucial issue in this regard was one of whether producers in Romania, a main oil producer in the 1930's in Europe, would obey a cartel rule or not. In 1930, the cartel concluded an agreement with Romania , but it was contested. Renegotiations were made and new Romania production agreement was concluded by introducing an arrangement that the cartel members would contribute a quota bigger than the original production quota given to the independent suppliers of Romania as a standard right in 1928.

With these efforts, the International Petroleum Cartel companies established control of almost all big production areas in the world by the middle of the 1930's. But to strengthen this dominance, cartel members gathered in London in 1934 and rebuilt the agreement with revised principles<sup>1</sup> of "status quo" and worked out the "Draft Memorandum of Principles" (U.S. F.T.C., 1952). The cartel solved many difficult problems in this way and managed the difficult task to smoothly deliver oil to the world market.

It is, however, generally believed that the cartel agreement ended during World War II, since Standard Oil of New Jersey which seemed to lead other American companies made an oral announcement of its withdrawal from the Draft Memorandum Agreement in 1943 and also from the activities that may stay afterwards.

On this point, U.S. Federal Trade Commission argued as follows. "However, the U.K. and the Dutch collaborative relationship never cooled off with the withdrawal of Standard Oil and the companies of U.S.A. cooperated to some extent in wartime and after the war. (1952)" In this way, Federal Trade Commission judged that the cartel system was maintained by tacit consent after World War II, virtually, as a business custom based on long run cooperative relations.



Tosuke Inoguchi argued also that the business tie up of Japanese oil companies with U.S. and British oil companies during the time of industrial rebuilding after W.W.II was carried considering carefully the norms of the cartel (1963).

Also, it was made clear that the basing point system for oil price, which was one of the most essential norms of the cartel, was maintained after the war by adding new basing points and also by moving the basing points (Inoguchi, 1968).

A report of the American Multinational Enterprise Committee (the so-called Church committee) reported in January, 1975 that American major oil companies controlled the world oil market with cartel market control rules over the period of 1950-72 (U.S.S. C.F.R.).

After World War II, supplying Middle Eastern oil to the world oil market without inviting confusion was a big task for not only International Oil companies but also the governments of U.S.A and United Kingdom.

The two countries concluded the International Oil Trading Agreement in August, 1944 to solve this problem. This agreement says that oil must be supplied from each production area in the world for the purpose of giving sufficient satisfaction for all people taking into account the available reserves, application of suitable technology and economic factors and interests of consuming countries and developed countries. Additionally, it stated that these principles can be promoted most effectively through an international agreement among all countries having an interest in oil trade as a producer or a consumer. The two countries agreed to the establishment of the International Oil Committee, which has a function of research and consulting.

This agreement was signed but not ratified ,however, because of possible conflicts with the US anti-trust law .

"However, this agreement was not necessary for managing ordered trade in the world oil market. Since only seven or eight International Oil companies had power to do it and actually they could manage the task for further 10 years. (Inoguchi, 1968)"

In this way the International Petroleum Cartel functioned up to World War II effectively and after the war it continued to work well in a way that the basic frame of the cartel permeated into the world oil market as an established business practice.

Thus I showed that the "International Petroleum Cartel" is an International Regime and that it has been managed tacitly and skillfully and in spite of the public announcement of abolition it permeated into the world oil market as a business custom after W.W. II and through the beginning of the 1970's.

## **Transformation of International Oil Market Regime**

The International Oil Market Regime established by the big international oil companies seemed to have collapsed in the early 1970's through the power shift from big oil companies to OPEC producers. However, looking back at the cartel behavior of OPEC, it is better understood that the regime transformed; the principles of the International Petroleum Cartel were essentially maintained despite the changes in members and changes in accompanying norms and rules.

Here, I will first discuss what changed through this power shift, and then what did not.

### **What Changed**

First, power to decide production level and price moved from the International Oil Companies to the governments of the OPEC countries.

Second, this change weakened the International Oil Market Regime in many ways:

a. Because OPEC Cartel consists of sovereign states, it became difficult to introduce a sanction clause for the violation of decisions. b. It also became more complicated to adopt common policy and measures due to differences in oil reserves and economic and political situations in the OPEC countries. c. OPEC policy tends to be influenced by the political situation in the Middle East and US policy for the area because large OPEC producers concentrate in this area. d. The OPEC Cartel has no strong leading players comparable to the Big Three oil companies in the International Petroleum Cartel, though Saudi Arabia has played a limited role as a swing producer. e. The International Petroleum Cartel had been administered secretly, but the OPEC Cartel is managed basically in

the open. This is also a weak point. f. The members of the International Petroleum Cartel preferred to commonize the interests through capital ties such as joint stock holding, establishment of joint enterprise and interposition of a neutral financial institutions; For OPEC, state sovereignty was a barrier to such a strategy (Iwasaki, 1989).

Third, rules and procedures are not set in detail in a strict way in the OPEC Cartel. OPEC lacks an adjustment and or penalty clause for violation of the decisions. Rules and procedures adopted in the Establishing Agreement of OPEC (November 6, 1962) set only administrative procedures and a large part of the rules and the operation procedures are left for the unanimous decision at the general meeting.

The most important thing for the OPEC Cartel is the setting of price and production level like other cartels. These issues are discussed and decided based on advice prepared by the long-term strategy committee of OPEC based on it's world supply and demand forecast. Total level of production is subsequently allocated for each member considering deposits, recent production as well as such factors as population and necessity of finance of each member. Defiance to the decision made at the General Meeting has not been rare in OPEC. For example, during the second oil crisis in 1979 and 1980, several OPEC members added allowance over the price decided at the General Meeting for various reasons.

#### **What Did Not Change**

Next, I will discuss the points that did not change.

The principle of the International Petroleum Cartel "to supply oil coping with the growth of world oil demand at a reasonable price guaranteeing a future investment by avoiding excessive competition and waste" is basically seen to be succeeded by the OPEC Cartel. The reasonable price for the members of the International Petroleum Cartel was a price to guarantee a future investment, and this is true also for the OPEC Cartel, though the expression might be different.

The first resolution in the establishing agreement of the OPEC on September 14, 1960 asked oil companies to consult with the OPEC members in case of price modification and second resolution expressed its principle to unify the petroleum policy of member countries and determine the best means for safeguarding the interests of member countries individually and collectively. Thus these resolutions expressed its original aims and objectives to protect profit of OPEC member countries and imply that first, oil resources belong to the country and, secondly, the oil-producing countries aim to decide production level and price by themselves and to produce oil to contribute to the development of the oil-producing countries.

To achieve this goal, oil-producing countries with small reserves prefer a high oil price policy keeping the production level low, and oil-producing countries with large reserve prefer a low oil price with large oil production. Specifically, Saudi Arabia prefers the policy to restrict development of oil alternative energy in the world by keeping the oil price low and prolonging the era of oil. This factor has disturbed the solidarity of OPEC, but it was recognized that to make decision with no consideration for the situation of other countries would cause a negative effect not only for OPEC as a whole but for the country itself. Therefore, effort was made to compromise at a certain price and production level which would guarantee the future production of OPEC and which would be beneficial for OPEC as a whole.

At the occasion of the second oil crisis, when it was possible for OPEC to have an very bullish view about future price of oil, a goal was set to gradually raise the price of oil to the price of alternative energy. This price policy is understandable because with this price, oil can be competitive and necessary capital for future production can be gained.

It is naturally important for OPEC to avoid excessive competition in achieving this goal. As for cutting waste by excluding overlapping investment, it is valid both for both the International Oil Market Regime under the International Petroleum Cartel and the regime under the OPEC Cartel.

## **Conclusion**

To conclude, principle of the International Oil Market Regime under the International Petroleum cartel was succeeded in its essence by the regime under the OPEC Cartel.

As for the norms, most important norms both for the OPEC cartel and International Petroleum cartel are for members to abide by the production and price of oil as agreed by the cartel.

Unlike the International Petroleum cartel, the OPEC Cartel does not have detailed adjustment clause nor penalty clause for violating the agreements. This is a weak point of the OPEC Cartel.

The norm of the International Petroleum Cartel to keep the market share of each member is expressed in a different way in the OPEC Cartel. Namely, OPEC aims to use oil resources in the most proper way to contribute to the development of economy of each member state. It certainly does not say to keep the market share of each member but the allocated production level for each member stayed fairly stable except for some drastic changes in a specific country at the occasion of political turmoil.

Vinod Aggarwal separates the items of rules and procedures from the items of principles and norms from the point of significance of them to the regime, calling the former the “regime side” and the latter the “meta-regime side”(1985). Stephan Krasner calls regime change in which changes occur only in the regime side as the transformation of the regime (1983). I conclude that the change of the regime from the one under International Petroleum Cartel to the one under OPEC Cartel applies this case . And this regime transformation was brought about by the shift of the power underlying the regime. Namely, this transformation was triggered by the power shift from major oil companies to the OPEC producers as a result of the Fourth Middle East War.

As for the effectiveness of International Regime, judging from the fact that after the transformation of the regime, oil price started sharp fluctuation typically shown in the time of second oil crisis and collapse of the oil price in 1986, regime under the OPEC Cartel lost effectiveness largely compared to the regime under International Petroleum cartel.

In spite of the weakness, however, OPEC contributed to the stabilization of the world oil market through setting an index price, setting total OPEC production and setting each individual OPEC members production until the mid-1980's. The collapse of oil prices in 1986 showed clearly the diminished cartel power of OPEC. The expanding wave of globalization and a growing future's oil market tends to be led by the NYMEX WTI future's price. Today, OPEC can just set the production level following the market situation with the hope of its desired price. Also, the share of the Non-OPEC producers in the world oil production has increased as well. With these factors, OPEC's market controlling power has been eroded significantly. But OPEC is only one international body in the world oil market which cooperates to control the world oil supply. Considering this, we need OPEC if it is weak. We need an international regime in the world oil market for various reasons. I argue this point to finish my paper.

## **Why International Regime in the World Oil Market**

Why has an international regime been established in the world oil market ?

First, because this is a global issue. Oil is a commodity traded around the world and is indispensable for the life and industrial activities everywhere in the world.

Secondly, oil is a natural resource unevenly distributed in the world. Supply cost is principally dependent on geological conditions. Short term price elasticity of supply as well as demand is very small.

Thirdly, oil is strongly linked with politics. Oil was a big factor in World War I and II and has been woven into the politics of the Middle East.

Fourthly, oil is surrounded by inherent uncertainty. Proven oil reserves, prospects of technology development for new and renewable energy and for oil substituting fuel, they are all uncertain.

Fifthly, there exists a dilemma among suppliers and between producers and consumers and, through collaboration, better outcomes for all players is expected in longer term.

From these reasons, a framework supplementing market mechanisms is required for stable supply of oil in the world oil market.

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## End Notes

<sup>1</sup> It is confusing that the “Pool Association” uses the word “Principle” for which International Regime theory uses the word “Norm”. In this paper, quoting the text of the “Pool Association”, the original expression is taken.

## Role of Non-oil Exports in Enhancing Iran's Economic Capacities

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### Abstract

Applying Johansson's multivariate procedure and vector error correction model to historical data of 1967-2003, this study investigates the role of export in Iran economy. Results of this study showed that in the short run, causality direction is from non-oil export growth to non-oil GDP and in the long run this is expected to be reverse. Therefore, in the short run, non oil export growth has a positive influence on non oil GDP growth, whilst in the long run, non-oil GDP growth has a positive influence on non-oil export growth and not vice versa. Thus, export supporting policies are expected to lead to increased export and GDP only in the short run. Keywords: export-led growth, Johansson's procedure, short and long run causality, Iran

### Introduction

Since 1970, export growth strategies have been undertaken by many countries as one of the most efficient tools for growth and development. As stated by Abou-Stait (2005), such strategies aim to improve the capability of producing goods and services that are able to compete in the world market, to use advanced technology, and to provide foreign exchange needed to import capital goods. Analyzing the role of exports in the economic growth and the causality directions between them have been of economists' interests specifically for developing countries. According to the literature, there are several studies (e.g. Bahmani-Oskoei and Alse, 1993; and Levin and Raut, 1997) revealing that export growth promotes overall economic growth. Investigating the causality between export growth and output growth has been the focus of many studies in recent years. Combining Granger causality with Akaike's Final Prediction error (FPE), Bahmani-Oskoei, et al (1991) obtained some support for the export-led growth hypothesis. Dodaro (1993) investigated the issue of causality by employing Granger's approach to a set of 87 countries. He found a very weak support for the contention that export growth promotes GDP growth or the opposite that GDP growth promotes export growth. Bahmani-Oskoei and Alse (1993) using Engle and Granger (1987) two-step approach for co-integration and error correction modeling and employing quarterly data instead of annual data for the eight countries, find that there is a strong empirical support for two-way causality between export growths in eight out of nine countries. Love and Chandra (2005) utilized Johansson's multivariate approach and found that long and short run causality directions run from GDP growth to export growth and reverse relationship is insignificant. Motavaseli (1998) applied a Granger causality procedure to annual data of 1967-1995 and recognized two-side causality between export growth and GDP growth in Iran.

This short review refers to the fact that a unique causality direction does not exist between the variables of our interest and therefore further studies are needed to clarify dominant relationships in transition economies such as Iran. The rest of this paper is structured as follows: a background of Iran export is discussed following by methodology specifications and findings are discussed afterward. At the end, some policy implications are provided.

#### Background on Iran Exports

As the fourth largest oil producer in the world, Iran is slowly integrating into the global economy and financial markets. The Fourth Five-Year Economic Development Plan (2005-10) focuses on expanding trade interaction with the global community and pursuing an active presence in international markets. This would require to increase exports substantially.

Petroleum constitutes the bulk of Iran's exports, valued at USD 46.9 billion in 2006. However, non-oil exports play a significant role in Iranian export and enjoyed a growing share in total foreign earnings in recent years. Exports

resulted in easing the pressure on the balance of payments and creating employment opportunities. According to the Iranian Ministry of Trade, total exports of non-oil commodities were at USD 4 billion in 2001 and more than USD 4.4 billion in 2002. The figure reached USD 6 billion in 2003, surpassed USD 10.5 billion in 2005 and rose to USD 12 billion in 2006. The figure hit USD 16.3 billion in the year ending March 20, 2007, which was an increase of 47.2 percent from the previous period. The rapid growth in Iran's non-oil exports in recent years was due to a policy of non-dependence on oil income and diversification of goods and services exported.

By 2003, a quarter of Iran's non-oil exports were agricultural based. Iran's agricultural sector contributed 11 percent of the GDP in 2004 and employed 23 percent (1996) of the labor force. Since 1979 commercial farming has replaced subsistence farming as the dominant mode of agricultural production.

Agricultural products as a whole have been an important contributor to the country's non-oil exports that has been of the Iranian government interest in recent decades. However, the agricultural export potential has not been fully tapped.

The Iranian government has made significant progress in implementing trade reforms and intends to do more according to the ambitious plan outlined in the Five-Year Development Plans. Many non-tariff barriers on imports have been replaced by their tariff equivalents. During the year 2000, restrictive import licensing requirements were lifted on 895 products. At the same time, import taxes on many of these items were increased in an attempt to compensate domestic producers for loss of protection. Despite the important reforms conducted as part of the recent Government's trade liberalization agenda, important areas were additional substantial steps to use market mechanisms as means of regulating foreign trade remain.

Implementing successful non-oil trade intensification and a shift from import substitution to export-oriented activities will require a new set of policies that affect agricultural trade beyond the ratification process carried recently.

The upward trend in value of non-oil exports in recent years is consistent with the trend of development largely due to the government's policies, particularly its policy of weaning the country from its dependence on oil exports. This may be attributed to the redirection of general policy in Iran. Yet, a study is required to investigate the impacts of such policy switching to economic growth.

This study investigates relationship between non-oil exports and non-oil GDP growths, direction long and short run causality these variables are from export growth to GDP growth, reverse or two-way causality and the end exhibit commendation policy.

## Methodology

Johansen's multivariate framework and vector error correction model are used in this study to investigate short run and long run causality between non-oil exports and growth. The first step is to determine whether the variables in the model are stationary. If they are non stationary, then the issue is to what degree they are integrated. This can be addressed by Augmented Dickey-Fuller (ADF) tests. In this study Microfit 4.0 is used to perform computations.

The next step is to find out whether the variables are co-integrated. Within the Johansson's framework, an unrestricted VAR model is defined by (1):

$$x_t = \mu + \pi_1 x_{t-1} + \dots + \pi_k x_{t-k} + \varepsilon_t \quad , \quad t = 1, 2, \dots, T \quad (1)$$

Where  $\varepsilon_t$  is i.i.d (independently and identically distributed) p-dimensional Gaussian error term and white noise,  $X_t$  is a Vector of I (1) variable and  $\mu$  is a vector of constants. Since  $X_t$  is non stationary, the above equation can be expressed in first differenced error correction (2) that is expressed as a traditional first difference VAR model except the term  $\pi x_{t-k}$ :

$$\Delta x_t = \mu + \Gamma_1 \Delta x_{t-1} + \dots + \Gamma_{k-1} \Delta x_{t-k+1} + \pi x_{t-k} + \varepsilon_t \quad (2)$$

Where  $\pi = -(I - \pi_1 - \dots - \pi_k)$  ,  $i = 1, \dots, k-1$  ,  $\Gamma_i = -(I - \pi_1 - \dots - \pi_i)$ .

The coefficient matrix  $\pi$  contains information about long run relationships between the variables, and  $\pi = \alpha\beta'$ , where  $\alpha$  and  $\beta$  are  $P \times r$  matrix. The co-integrating vectors  $\beta$  have the property that  $\beta'x_t$  is stationary even though  $x_t$  itself is non stationary. In this case, equation (2) can be interpreted as an error correction model. Johansen (1988) and Johansen and Juselius (1990) derived the likelihood ratio test for the hypothesis of  $r$  cointegrating vectors or  $\pi = \alpha\beta'$ . The co-integrating rank,  $r$ , can be tested with two statistics, namely Trace and Maximal Eigen value. The likelihood ratio test statistics for the null hypothesis that are at most  $r$  cointegrating vectors against the alternative of more than  $r$  cointegrating vectors is the Trace test and is computed as:

$$\lambda_{trace} = -T \sum_{i=r+1}^P \ln(1 - \hat{\lambda}_i) \quad (3)$$

Where  $\hat{\lambda}_{r+1}, \dots, \hat{\lambda}_P$  illustrate  $P - r$  smallest estimated Eigen values. The likelihood ratio test statistic for the null hypothesis of  $r$  co-integrating vectors against the alternative  $r+1$  co-integrating vectors are the maximal Eigen value test and are given by:

$$\lambda_{max} = -T \ln(1 - \hat{\lambda}_{r+1}) \quad (4)$$

The numbers of co-integrating vectors after the model was find out by Trace and Eigen value test statistics are determinates. In this way, where the first is to test null hypothesis that there is zero cointegrating vector by use of Trace and Eigen value tests and if it is rejected, the next step, null hypothesis of one cointegrating vector is tests and stop while the first time the null hypothesis is not rejected. After having established the number of cointegrating vectors, the next step is to determine the direction of both, long and short run Granger causality. Vector error correction model for three variables can be written as:

$$\begin{aligned} \Delta LRGDP &= \alpha_1 + (\Delta LRGDP, \Delta LRX, \Delta LTOT)_{-1} + \lambda_1 e(-1) \\ \Delta LRX &= \alpha_2 + (\Delta LRGDP, \Delta LRX, \Delta LTOT)_{-1} + \lambda_2 e(-1) \\ \Delta LTOT &= \alpha_3 + (\Delta LRGDP, \Delta LRX, \Delta LTOT)_{-1} + \lambda_3 e(-1) \end{aligned} \quad (5)$$

Where LRGDP denotes log of real non-oil GDP, LRX is log of real non-oil exports, and LTOT represents log of terms of trade and  $e(-1)$  is the lagged value of the error correction term. While error correction term captures the long run relationship, short run dynamics are provided by the lagged values of different terms. This study uses historical annual data for the period 1959-2003 and applies the above described methods to non-oil real gross domestic production, non-oil real export and terms of trade in Iran.

## Results

As the first step, all three variables and their first difference were tested for stationary and the results are given in Table 1. It appears that for none of level variables is the calculated ADF statistic less than its 90% critical value and for the first differences of all variables, the ADF statistics are less than their corresponding 90% critical values and thus, all level variables are I(1) since their first differences are I(0).

TABLE 1: ADF TESTS FOR UNIT ROOTS

Variable	Test statistic		95% critical value	
	levels	First difference	levels	First difference
LRGDP (log of real non-oil GDP)	-1.847(1)	-3.424(0)	-2.937	-2.94
LRX (log of real non-oil exports)	-1.115(0)	-6.176(0)	-2.937	-2.94
LTOT (log of terms of trade)	-1.854(0)	-6.652(0)	-2.937	-2.94

TOT is defined as proportion value index of exports upon value index of imports; terms in the parenthesis show the number of augmentations or lags (k) in ADF regressions; k is chosen with the help of a model selection criterion such as Akaike information (ADF), Schwarz Bayesian Criterion and Hannan-Quinn criterion (HQC)

As shown in Table 2, the null hypothesis of zero cointegrating vector by use of Trace and Eigen value statistics is rejected and the null hypothesis of one cointegrating vector is not rejected. Thus, the number of cointegrating is one.

After having established the number of co-integrating vectors and model where intercept is presented in the cointegration relation, the restricted co-integration vector (-LRGDP+0.377LRX+1.341LTOT+1.257) is obtained after Normalization. It can be seen that both real non-oil exports and terms of trade have positive influences over real non-oil GDP.

TABLE 2: COINTEGRATION RANK SELECTION

H <sub>0</sub>	H <sub>1</sub>	Test statistic	90% critical value
$\lambda_{trace}$ :			
$r = 0$	$r \geq 1$	33.95	31.93
$r \leq 1$	$r \geq 2$	12.33	17.88
$r \leq 2$	$r = 3$	3.08	7.53
$\lambda_{trace}$ :			
$r = 0$	$r = 1$	21.61	19.86
$r \leq 1$	$r = 2$	9.25	13.81
$r \leq 2$	$r = 3$	3.08	7.53

$r$  is the cointegration rank of the cointegrating vectors

The next step is to determine both the long and short run Granger causality. The presence of one co-integrating vector allows using Engle and Granger error correction to test for Granger causality. Since the error correction model are written in the first difference form and with justification order of VAR, which is 2, the optimal lag length in them gets reduced by one. The results of the causality analysis are presented in Table 3. It can be seen that the error correction term with  $\Delta$ LRGDP as the dependent variable is insignificant at even 10% level of significance. Therefore, in the long run, non-oil export and terms of trade do not Granger causes the non-oil GDP. The error correction term with  $\Delta$ LRX as the dependent variable is significant; therefore, non-oil GDP and terms of trade Granger cause non-oil export in the long run. So, it can be concluded that there is long run one-way causality between real non-oil export and real non-oil GDP, which the direction being from real non-oil GDP to real non-oil export.

TABLE 3: RESULTS OF GRANGER CAUSALITY IN A MULTIVARIATE FRAMEWORK

Dependent variable	Coefficients of lagged $\Delta$ LRGDP	Coefficients of lagged $\Delta$ LRX	Coefficients of lagged $\Delta$ LTOT	Joint significance	Error correction term (Prob)
$\Delta$ LRGDP	—	(0.047) <sup>S</sup>	(0.01) <sup>S</sup>	(0.004) <sup>S</sup>	-.52(0.37)
$\Delta$ LRX	(0.403) <sup>NS</sup>	—	(0.001) <sup>S</sup>	(0.001) <sup>S</sup>	-1.868(0.00)
$\Delta$ LTOT	(0.275) <sup>NS</sup>	(0.473) <sup>NS</sup>	—	(0.541) <sup>NS</sup>	-0.194(0.847)

NS: not significance; S: significance

Note: (1) figures in the parenthesis are the probability values showing the exact level of significance; (2) the positive sign of the error correction term with  $\Delta$ LRGDP as the dependent variable is incorrect but the coefficient itself is insignificant.



The short run dynamics can be seen by looking at the coefficients of lagged differenced terms. Coefficients of lagged  $\Delta LRX$  and  $\Delta LTOT$  with  $\Delta LRGDP$  as the dependent variable are significant. This implies that growth of real non-oil export and terms of trade in short run does exercise a significant influence on real non-oil GDP. Coefficients lagged  $\Delta LRGDP$  and  $\Delta LTOT$  with  $\Delta LRX$  as the dependent variable, respectively are insignificant and significant, implying growth of non-oil GDP in the short run does not have a significant influence on growth of non-oil export, and growth terms of trade significantly affects the growth of non-oil export in the short run. In same way, non-oil export and non-oil GDP do not significantly influence on the terms of trade neither in the short run nor in the long run. It may also be noted that non-oil GDP on their own may exercise insignificant influence on non-oil export in short run, but conjunction with other variables they become important as the tests of joint significance show.

## Concluding Remarks

Based on the findings of this study, the direction of short run causality is from real non-oil export growth to real non-oil GDP growth in Iran whilst the long run causality direction is reversed. Furthermore, the hypothesis of export-led growth is to be existed in the short run. This result implies that support policies such as export subsidies lead to increase export and GDP only in the short run, whereas in the long run export may be increased via well-being infrastructure economic and increasing production in the country. In other words, expanding export as one of the long run purposes of macro programming in the country can be achieved through increasing capacity utilization, improving productivity, and greater product variety. This can provide the opportunity to compete in the international markets that leads to technology transfer and improvement in managerial skills. Although protection policies in foreign trade has conflict with the WTO agreements, implementing strategies that increase productivity and production are corresponding with principals of this organization. Therefore, utilizing convenient strategies that improve Iran's infra-structure of production, it is expected that joining Iran to WTO can increase its non-oil exports. Although Iran has made significant progress in implementing trade reforms and intends to do more in the future in accordance with the WTO requirements, it should be noted that, as reviewed by Gunter, et. al. (2005), any gains from trade liberalization are often associated with external effects that are dynamic in nature.

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# The Effect of RIA Partners' Income Levels on Home Country Economic Growth

—Based on an Empirical Study of 106 Countries During 1981-2005

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## Abstract

Since midterm of 1990s the world has been experiencing a new wave of Regional Integration Agreement (RIA). This paper extends the growth model to panel data and applies this model to test the growth effect of Economic Regional Integration in the period 1981-2005 related to 106 countries. Empirical study shows that RIA partners' income levels have exerted positive effects on home country growth, and the effects on home country growth of different type of agreements are different: North-South and North-North agreements have significant growth effects; there is no clear answer for South-South agreements.

## Introduction

Regional integration refers to the process which two or more economies set up regional integration agreements to achieve economic development through the trade liberalization or more intensive economic cooperation. According to the extent to which regional integration members remove trade barriers, regional integration can be divided into various types such as free trade area, custom union, common market and economic alliance etc; according to levels of economic development of its members, regional integration can be divided into three types: regional integration among the developed countries (North-North regional integration), regional integration among developing countries (South-South regional integration) and regional integration between developing and developed countries (North-South regional integration).

Since the establishment of European Community (EC) in 1950s, regional integration experienced a speedy development. Since the mid-1980s, regional integration speeded up. According to WTO statistics, there are 214 regional trade agreement notified to WTO/GATT up to September 2006. More than half of the agreements entered into force after the Agreement Establishing the World Trade Organization went into effect. According to the World Bank statistics, about 60% of world trade took place within the regional groups.

Strengthening regional economic cooperation and promoting national economic growth have become an important trend in the world economy nowadays. However, how does the participation in regional integration affect member's economic growth? Is the growth effect of integration related to the income level of the partners among the regional integration agreement? What is the favorite type of the RIAs? Answers to these questions are helpful for China to develop regional economic cooperative strategy and select regional integration partners.

This paper is structured as follows. Section I is introduction. Section II reviews the literatures on the relationship between economic growth and regional integration, It shows that different opinions about the impact of regional integration on economic growth. Section III sets up a model to test the effect of RIA partners' income levels on home country economic growth by using the panel data in the period 1990-2005 related to 106 countries.

We introduce the absolute and relative indicators of regional integration into economic growth model. In addition, This section classified regional economic integration into three models of regional economic integration: North-North, North-South and South-South and test the effects of different type of agreements on home country growth. Section IV is the result analysis. Appendix is attached.

This paper used data from the World Development Indicators (WDI) database and the United Nations Comtrade database<sup>1</sup>. And test the growth effect of regional integration in the period 1981-2005 related to 106 countries (see Appendix).

## Literature Review

Since Tinbergen(1954)and Balassa(1961) introduced the empirical method in testing the growth effects of regional integration, a significant number of empirical studies on the impact of regional economic integration on growth have utilized various econometric approaches. These have included: time-series analysis (e.g. Landua 1995), standard growth regression analysis (e.g. Henrekson et al. 1996), static panel data models (e.g. Torstensson 1999) and dynamic panel data models (e.g. Badinger 2001).As to growth effects of regional integration with different samples, their results are different.

Henrekson et al. (1996) deals with the effects of European integration in the EC and EFTA on economic growth. Regression results suggest that EC and EFTA memberships do in fact have a positive and significant effect on economic growth, and that there is no significant difference between EC and EFTA membership. The results suggest that regional integration may not only affect resource allocation, but also long-run growth rates. Badinger (2001) uses time series data and dynamic panel data model to estimate the effect of the European Union (EU) on economic growth. The study found that regional integration has not led to sustained increase of EU members' growth, but the real GDP per capita of EU members would be 20% lower if there is no regional integration.

Torstensson (1999) conducted an analysis of a data panel consisting of 20 OECD countries and covering the period between 1976 and 1990. The result didn't support the correlation between the economic growth and the economic integration. Anyway in an indirect analysis he empirically identified two channels linking economic integration to growth through investment and knowledge transfers.

Brada and Mendez (1988) revealed that members of the regional integration have a positive impact on the rate of investment by OLS method, but they had failed to confirm the direct link between regional integration and economic growth.

The study of Landau (1995) found that there had been no statistically significant difference between the growth of EEC member and non-member countries in a sample of 17 OECD countries in the period of 1950-1990. That would suggest that there was no long-term growth effect associated with the membership in the EC. Vanhoudt (1999) utilized panel data to analysis 23 OECD countries, finding that there were no positive or negative effects for EC members in comparison to non-member OECD states.

Brodzicki(2003)utilizes a two-way panel data approach to analyze a balanced panel of data composed of a group of 20 developed countries covering eight consecutive subperiods between 1960-1999, finding that being an EU member did not effect economic growth significantly, while the size of EU affect its members' economic growth greatly. Waltz(1997a , 1997b , 1998)used dynamic general equilibrium growth models that account for regional aspects, finding that the growth rate after integration depends on several factors, such as whether the integration agreement causes trade creation or trade diversion, the comparative advantage of each member, and initial trade barriers.

Most empirical literature tried to assess whether regional integration affects growth through the use of dummy variables for a country's participation in regional integration agreement (RIA). An important disadvantage of this approach is that a simple dummy variable will not capture a country's features that may have growth effects once an integration agreement comes to true. Matias(2003)introduced a new way to measure regional integration by creating the absolute RIA and the relative RTA indicators, which not only consider whether a group of economies

have signed the RIA, but also captures the world market combined with domestic markets once the agreement takes place.

Venables and Puga (1998) have reached conclusions regarding the effects of different types of agreements on income and welfare. Specially, they investigate the effects of trade arrangements between developed and developing countries, i.e. North-North and South-South agreements, on industrial development. They concluded that unilateral liberalization is beneficial, but also that the gains from integration agreements are likely to bring greater gains from integration. Moreover, they found that the North-South agreements are more likely to bring greater gains to developing countries than South-South agreements. Liu Li (1999) argued that most developing countries take part in South-South regional integration agreements, but the South-South agreements were not successful. So the North-South agreements are more beneficial. Liu Jing (2005) took Australia, New Zealand-ASEAN FTA as an example, suggesting that establishment of the FTA will benefit the three parties. Cai Penghong (2005) argued that China should establish FTA with individual member among ASEAN while establishing China-ASEAN FTA, so as to achieve common development. Zhao Nan (2003) indicated that China should actively participate in APEC activities, pushing the establishment of 10 +3 model at the same time.

The existing literature shows that relatively little attention has been devoted to study the effect of different types of RIAs on economic growth.

## Model

### Absolute and Relative Regional Integration Agreements Indicator

We will use the Absolute and Relative RIA Indicator to test the effect of the partners' income level on the home country's growth.

The absolute RTA is an indicator as follows:

$$AbsoluteRIA_{jt} = \sum_{\substack{i=1 \\ j \neq i}}^N (D_{it}^j \cdot SWGDP_{i,2000}) \quad (1)$$

Where N is the number of countries in the world,  $D_{it}^j$  is a dummy variable that takes the value of 1 when country j has an integration agreement with country i in period t, and  $SWGDP_{i,2000}$  is the share of world GDP of the countries with which country j has signed regional integration agreements<sup>2</sup>. So the Absolute RIA Indicator in equation (1) measures the absolute size of the market after entering into an regional integration agreement.

Also the relative RIA indicator is constructed as follows:

$$RelativeRIA_{jt} = \frac{\sum_{\substack{i=1 \\ j \neq i}}^N (D_{it}^j \cdot SWGDP_{i,2000})}{SWGDP_{j,2000}} \quad (2)$$

where  $SWGDP_{j,2000}$  is the share of world GDP of the countries with which country j has signed regional integration agreements(The base year is 2000).

Comparing the two indicators, we can find that the latter conveys information regarding the size of the partners' market relative to the domestic market.

### Growth Model of regional integration

In this paper, we quote identities as follows:  $Y=C+I+G+(X-M)$ , where Y represents GDP, C represent consume, I represents investment, G represents government expenditure, X represents exports and M represents imports.

According to the purpose of this paper, we select and adjust relative variables on the basis of the above model. In particular, we add the variable indicating "be whether or not member of a regional integration organization", "Absolute and Relative Regional Integration Indicators" etc. Thus we get the following growth model:

$$GGDP = \alpha + \beta_1 GE + \beta_2 FDI + \beta_3 TS + \beta_4 NS + \beta_5 ME + \beta_6 TPG + \beta_7 Labor + \beta_8 RD + \beta_9 BTRIA + \beta_{10} AbosoluteRIA + \beta_{11} RelativeRIA + \varepsilon \quad (3)$$

Where

GGDP is growth rate of Real GDP Per Capita in constant dollars (International prices, base year 2000);

GE is general government consumption expenditure (% of GDP);

FDI is FDI net inflows as % of GDP;

TS is exports as % of GDP;

NS is the share of world GDP of all neighboring countries (%);

ME is the ratio of manufactured exports to merchandise exports (%);

TPG is the exports growth rates of top 10 trading partners (%);

Labor is annual growth rate of labor force (%);

RD is R&D expenditure as % of GDP;

BTRIA is a dummy variable which takes value 1 if country i belongs to a regional integration agreement;

*AbosoluteRIA* is absolute regional integration indicator;

*RelativeRIA* is relative regional integration indicator;

Implementing backward method to delete insignificant variables, we can get the following growth model:

$$GGDP = \alpha + \beta_1 FDIRate + \beta_2 RD + \beta_3 Labor + \beta_4 ME + \beta_5 GE + \beta_6 TS + \beta_7 BTRIA + \beta_8 AbosoluteRIA + \beta_9 RelativeRIA + \varepsilon \quad (4)$$

## Results analysis

### Effect of RIA Partners' Income Levels on Home Country Economic Growth

#### (1) Analysis of Dummy Variables Coefficient

From column (1) - (3) of Table 1 we can see that coefficient of BTRIA variable is positive but not significant. It's well known that only use of the dummy variable is not enough to explain the growth effect of regional integration and lackage of theoretic foundation exists.

#### 2) Analysis of Absolute RIA and Relative RIA variables Coefficients

In this paper, we test the impacts of Absolute and Relative variables with three methods: firstly, retaining theAbsolute RIA variable, removing theRelative RIA variable; secondly, Removing the absolute integration variable, retaining the integration variable; thirdly, retaining these two variables at the same time. Empirical results are shown in Table 1 (column 4 - 12).

Column 4 of Table 1 uses Absolute RIA variable instead of the dummy variable BTRIA. It can be seen that the coefficient of Absolute RIA variable is positive and significant while using OLS regression method, which indicating that market size of integration partners has a positive and significant impact on economic growth. If a country comes to regional integration agreement with a partner whose GDP share of world is 1%, then the growth rate of the country will increase by 1.20% in long-term.

Column 5 and 6 also show that Absolute RIA variable has a positive and significant impact on economic growth. Hausman test rejected the results of random effects estimation, suggesting that fixed effect model can explain the growth effect of regional integration better.

The regression results of fixed effect model reveal that the higher RIA partners' income levels are, the greater home country economic growth rate is.

Column 7, 8, and 9 include Relative RIA variable in the model instead of Absolute RIA variable. Results show that coefficients of Relative RIA variable are all positive and significant, indicating that RIA partners' income levels had a positive and significant impact on economic growth of home country.

Column 10, 11, and 12 include both Relative RIA variable and Absolute RIA variable in the model. OLS regression results show that coefficients of the two variables are both significant, while they are both insignificant in fixed and random effect model. One of the reasons is that there exists collinearity<sup>3</sup>.

In choosing the model we shall notice that to specific countries the constant item represents the factors not to change with time trend (also called "individual effect"). These factors may also have an impact on a country's economic growth, such as the country's social system and the current economic cycle. There are two main channels in treating of individual effects: fixed effect model and random effect model. In this paper results of fixed effect model show that being a member of RIA did not have an significant effect on economic growth, but RIA partners' income levels exert a positive and significant effect on home country economic growth rate, and RIA partners' relative income levels promote home country economic growth rate even higher.

#### **Growth Effects of Different Regional Integration Modes**

Implementing same method used above to verify growth effects of different regional integration models, that is to say, EU<sup>4</sup> (on behalf of North-North integration), NAFTA (on behalf of North-South integration), and ASEAN (on behalf of South-South integration).

General speaking, GE, TS, FDI have significant impacts on economic growth. We compare the coefficients of Absolute RIA and Relative RIA variables only. Column 1, 2, and 3 of Table 2 retain Absolute RIA variable and remove Relative RIA variable. We can conclude that North-North integration agreements have a positive effect on economic growth; North-South integration agreements have a more significant positive effect on economic growth.

Column 4, 5, and 6 include the Relative RIA variable. Again North-North agreements have a positive and significant effect on economic growth. When both variables are included in column 7, 8, and 9, the above results remain unchanged, that is to say, both North-North and North-South integration have significant growth effect. So we can come to a conclusion that North-North and North-South integration has a positive effect on economic growth, and the growth effect of South-South integration is ambiguous.

Overall, empirical results suggest that RIA partners' income levels have exerted positive effects on home country growth, and the effects for different type of agreements on home country growth are different: North-South and North-North agreements have significant growth effects; there is no clear answer for South-South agreements.

TABLE 1: PANEL DATA GROWTH REGRESSIONS, 1981-2005

	(1) OLS	(2) FE	(3) RE	(4) OLS	(5) FE	(6) RE	(7) OLS	(8) FE	(9) RE	(10) OLS	(11) FE	(12) RE
FDIRate	0.042** (0.038)	0.123*** (0.011)	0.119*** (0.017)	0.053** (0.029)	0.125*** (0.011)	0.113*** (0.019)	0.149** (0.124)	0.125*** (0.012)	0.151*** (0.027)	0.089** (0.292)	0.125*** (0.021)	0.119** (0.016)
RD	-1.735* (0.663)	-0.118 (0.601)	-0.516 (0.395)	-1.668* (0.677)	-0.346 (0.619)	-0.721 (0.408)	-1.628* (0.6656)	0.162 (0.598)	-0.342 (0.396)	-1.618* (0.679)	-0.253* (0.620)	-0.637 (0.411)
Labor	0.035 (0.048)	0.018 (0.037)	0.014 (0.037)	0.044 (0.0486)	0.021 (0.037)	0.017 (0.037)	0.047 (0.048)	0.025 (0.037)	0.021 (0.037)	0.178 (0.048)	0.0232 (0.037)	0.019 (0.037)
ME	0.052** (0.003)	0.015 (0.003)	0.011** (0.003)	0.052*** (0.0031)	0.025*** (0.003)	0.0112** * (0.004)	0.052*** (0.003)	0.026 (0.003)	0.012** (0.003)	0.052** (0.002)	0.025* (0.003)	0.011** (0.003)
GE	-0.022 (0.019)	-0.069* (0.028)	-0.027 (0.026)	-0.022 (0.0198)	-0.073 * (0.028)	-0.032 (0.026)	-0.021 (0.019)	-0.071* (0.028)	-0.032 (0.026)	-0.021 (0.019)	-0.067*** (0.028)	-0.028** (0.026)
TS	0.002* (0.003)	0.027* (0.005)	0.013* (0.005)	0.003* (0.003)	0.028*** (0.006)	0.014** (0.005)	0.002*** (0.003)	0.028*** (0.005)	0.014** (0.005)	0.0028 (0.123)	0.026* (0.006)	0.013* (0.005)
BTRIA	0.015 (0.002)	-0.012 (0.002)	0.013 (0.002)									
Absolute RIA				0.012** (0.011)	0.041* (0.012)	0.042** (0.012)				0.011** (0.011)	0.033 (0.013)	0.034 (0.012)
Relative RIA							3.95e-04*** (2.27e-04)	8.15e-06** (2.81e-06)	8.09e-06** (2.72e-06)	4.01e-04* (2.31e-04)	5.82e-04 (2.96e-04)	5.79e-04 (2.85e-04)
constant	-0.021* (0.004)	0.011*** (0.006)	0.010*** (0.007)	-0.011** (0.003)	0.016* (0.006)	0.016* (0.007)	-0.011 (0.004)	0.0145** (0.006)	0.016* (0.007)	-0.0112* (0.004)	0.015*** (0.006)	0.016* (0.007)
Observations	2650	2650	2650	2650	2650	2650	2650	2650	2650	2650	2650	2650
$R^2$	0.374	0.427	0.422	0.363	0.424	0.379	0.364	0.523	0.518	0.424	0.625	0.621
F/Wald Value	79.52	25.98	54.18	73.80	26.47	42.71	74.30	26.36	39.67	64.99	26.48	46.97
P-Value(Hausman Test)			0 . 00			0 . 00			0 . 00			0 . 00



TABLE 2: CROSS-COUNTRY GROWTH REGRESSIONS FOR RIA VARIABLES BY MODE OF RIA, 1981 - 2005

	(1) OLS	(2) FE	(3) RE	(4) OLS	(5) FE	(6) RE	(7) OLS	(8) FE	(9) RE
Absolute RIA(North-North Integration)	0.0253** (0.0069)	0.0511*** (0.0036)	0.0247** (0.0095)				0.0121 (0.0377)	0.0386* (0.0278)	0.0125 (0.0395)
Absolute RIA(South-South Integration)	0.0274** (0.0052)	0.1010 (0.1500)	0.0274 (0.0152)				0.1956** (0.0689)	0.0520 (0.1695)	0.1956 (0.118)
Absolute RIA(North-South Integration)	0.0126*** (0.0041)	0.0180* (0.0067)	0.0112* (0.0041)				0.0270* (0.0143)	0.0023 (0.0160)	0.0070 (0.0343)
Relative RIA(North-North Integration)				8.1e-04* (1.96e-04)	0.0015** (0.0001)	0.0017** (0.0001)	13.06e-04* (6.17e-04)	9.62e-04** (1.65e-04)	10.97e-04 (8.89e-04)
Relative RIA(South-South Integration)				-1.60e-04 (0.0001)	-4.07e-04 (2.13e-04)	-10.6e-04 (4.35e-04)	-5.427e-04* (2.56e-04)	4.61e-04 (4.85e-04)	-5.42e-04* (2.55e-04)
Relative RIA(North-South Integration)				14.2e-04** (5.067e-04)	-5.79e-04** (2.31e-04)	14.21e-04** (5.06e-04)	14.71e-04 (7.22e-04)	3.11e-04* (1.18e-04)	2.47e-04 (7.22e-04)

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## Appendix

### Sample Countries

Europe	America	Asia	Africa	Oceania
Luxembourg	Bahamas	Japan	Algeria	Australia
Norway	Argentina	Singapore	Angola	Fiji
Swaziland	Bolivia	Cyprus	Benin	New Zealand
Ireland	Brazil	Bangladesh	Botswana	Tonga
Denmark	Canada	Brunei	Burkina Faso	
Iceland	Chile	China	Burundi	
Sweden	Colombia	Egypt	Cameroon	
United Kingdom	Costa Rica	India	Central African Republic	
Austria	Ecuador	Israel	Chad	
Netherlands	Guatemala	Indonesia	Gabon	
Finland	Guyana	Iran	Gambia	
Belgium	Haiti	Jordan	Ghana	
France	Honduras	Korea	Kenya	
Germany	Jamaica	Kuwait	Lesotho	
Italy	Mexico	Malaysia	Liberia	
Spain	Nicaragua	Nepal	Libya	
Greece	Panama	Oman	Madagascar	
Portugal	Papua New Guinea	Pakistan	Malawi	
Slovenia	Paraguay	Philippines	Mali	
Malta	Peru	Sri Lanka	Namibia	
Hungary	Trinidad and Tobago	Thailand	Niger	
Czech Republic	United States	Turkey	Nigeria	
Albania	Uruguay	United Arab Emirates	Rwanda	
Switzerland	Venezuela		Senegal	
			Sierra Leone	
			Somalia	
			South Africa	
			Sudan	
			Togo	
			Tunisia	
			Zambia	
(24)	(24)	(23)	(31)	(4)

## **End Notes**

<sup>1</sup> <http://unstats.un.org/unsd/comtrade>.

<sup>2</sup> The base year is 2000.

<sup>3</sup> Relative RIA indicators are calculated on the basis of Absolute RIA indicators.

<sup>4</sup> Here EU means EU15.

# On R&D Internationalization Decisions in Developing Countries: A Theoretical Framework

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## Abstract

This paper presents simple theoretical frameworks taking into account R&D internationalization decisions by TNCs. We consider three types of R&D internationalization: internationalization by advanced-country TNCs in developing countries, internationalization by developing-country TNCs in advanced countries and internationalization by developing-country TNCs in other developing countries. Our analysis leads to the following results. First, the larger the market and the greater number of rival firms a subsidiary in a developing country faces, the more attractive internationalizing R&D in the developing country becomes for advanced-country TNCs. Second, the enforcement of intellectual property rights and a general knowledge pool encourages advanced-country TNCs to internationalize R&D in a developing country. Third, when developing-country TNCs can increase their knowledge base, they internationalize R&D in an advanced country. Fourth, developing-country TNCs have an incentive to internationalize R&D in other developing countries in which advanced-country TNCs never engage in R&D because of a small general knowledge pool.

## Introduction

R&D internationalization by transnational corporations (TNCs) expanded significantly in the last two decades. UNCTAD (2005) reported that global R&D expenditure of TNCs' foreign affiliates amounted to \$30 billion in 1993 and \$67 billion in 2002. Roberts (2001) also pointed out that the average share of R&D conducted abroad in total expenditure steadily rose from 15% to 22% between 1995 and 2001. The expanding internationalization of R&D is reflected in the growing role played by foreign subsidiaries in the R&D activities of many countries. Total R&D expenditure of foreign affiliates in host countries worldwide rose from \$29 billion to \$67 billion between 1993 and 2002, and their share in global business-related R&D jumped from 10% to 16% (UNCTAD, 2005).

Growing interest in R&D internationalization has led to rapidly expanding literature on the determinants and role of R&D conducted in foreign subsidiaries (e.g., Kuemmerle 1997, 1999; Florida, 1997; von Zedtwitz & Gassmann, 2002; Le Bas & Sierra, 2002; Shimizutani & Todo, 2007). These papers are mainly concerned with R&D

internationalization between advanced countries, such as North America, Europe, and Japan. Although advanced countries remain the main host locations of foreign R&D activities by TNCs, recent studies suggest that more R&D activities of advanced-country TNCs are located in developing countries, especially Asian countries such as China, India, Singapore, etc. In developing countries, the share of foreign subsidiaries in business R&D increased from 2% to 18% between 1996 and 2002, and rose faster than in advanced countries (UNCTAD, 2005). von Zedtwitz (2005) used a database comprising the locations of 776 internationalized R&D units, and showed that 194 R&D units, constituting about 25% of all internationalized R&D, are located in developing countries and controlled by advanced-country TNCs.<sup>1</sup> Moreover, developing-country TNCs are also internationalizing R&D activities. von Zedtwitz (2005) showed that 64 R&D units, constituting about 8% of all internationalized R&D, are located in advanced countries and controlled by developing-country TNCs, and 22 R&D units, constituting about 3% of all internationalized R&D, are located in developing countries and are controlled by other developing-country TNCs.<sup>2</sup>

The main purpose of this paper is to present simple theoretical frameworks that analyze the decision of R&D internationalization by TNCs. These frameworks consider three types of R&D internationalization: a) foreign R&D by the advanced-country TNC in the developing country, b) foreign R&D by the developing-country TNC in the advanced country, and c) foreign R&D by the developing-country TNC in another developing country. In this paper, we present that there are two incentives to internationalizing TNCs' R&D activities. One is a 'home base exploiting' incentive, henceforth the HBE incentive, and the other is a 'home base augmenting' incentive, henceforth the HBA incentive. These motivates are pointed out in many empirical studies (e.g., Kuemmerle 1997, 1999; Le Bas & Sierra, 2002).<sup>3</sup> The HBE incentive is the need to enhance the competitiveness of the subsidiary by adapting technological advantages possessed by TNCs to local input conditions, demand conditions, and regulations (Hakanson & Nobel, 1993; Fors, 1997). The HBA incentive is the need to gain access to foreign local knowledge that would otherwise be unavailable in the home country (Almeida, 1996; Florida, 1997).

Although many R&D internationalization studies exist in the empirical and business literatures, there are few theoretical economic analyses of R&D location decisions by TNCs. In the foreign direct investment (FDI) literature, Siotis (1999), and Bjorvatn & Eckel (2006) show that, when FDI generates technology spillovers between TNCs and local firms, a technologically lagging firm may engage in FDI that allows for technology sourcing from a technologically advanced firm. Although such FDI is caused by the same motivation as the HBA incentive, they do not consider R&D location decisions. Franck & Owen (2003) analyze how country-specific knowledge stocks affect R&D internationalization. In their model, TNCs localize a part of their R&D activities abroad to enhance the absorbing capacities of fundamental foreign R&D, which is nonrival firms' local R&D activities and R&D conducted at public institutions. This is R&D internationalization motivated by the HBA incentive.

Our models are mainly based on Belderbos, Lykogianni, & Veugelers (2005, 2006). They consider a two-country, two-firm model of strategic R&D location decisions by TNCs, when intrafirm and interfirm knowledge spillovers are allowed. In their model, henceforth the BLV model, two TNCs based in different countries operate subsidiaries in each others' home markets. The total R&D level of both TNCs is fixed, and they decide on the share of R&D to be conducted in the foreign subsidiary. They consider the potential outgoing R&D spillovers to the rival firm, and foreign technology sourcing opportunities from the foreign rival and the general knowledge pool available in the host country. The BLV model shows that the optimal share of R&D performed abroad by TNCs depends on the degree of intrafirm international technology spillovers and local interfirm R&D spillovers, and the size of the local knowledge pool.

Two differences exist between our models and the BLV model. First, the BLV model mainly focuses on the role of the interaction of R&D spillovers between two TNCs, and does not analyze the role of the relative size of the product markets in the two countries. In our model, however, the difference in the product markets' size in the two countries is explicitly considered, and R&D internationalization motivated not only by sourcing technologies from the local knowledge pool (the HBA incentive) but also by enhancing technological efficiency of the subsidiary located in a country having a large market (the HBE incentive) is analyzed. Second, our models consciously focus on R&D internationalization between the advanced country and the developing country, or between two developing countries, while the BLV model does not.

The remainder of this paper is organized as follows. Section 2 describes the simple monopolistic firm model and examines two incentives to internationalize TNC's R&D activities. Section 3 considers R&D internationalization by the advanced-country TNC in the developing country, and section 4 considers R&D internationalization by the developing-country TNC in the advanced country and another developing country. Section 5 presents the main conclusions.

## **The Monopolistic Firm Model**

In this section, a simple model with one TNC and two countries is constructed. It is assumed that the TNC enjoys a monopolistic position and has production facilities in both countries (the home and foreign countries). The home and foreign markets are completely separated, and the TNC's parent (subsidiary) supplies its products to the home (foreign) market. Linear inverse demand functions for the home country  $h$  and for the foreign country  $f$  are given by  $p_h = a - q_h/b_h$  and  $p_f = a - q_f/b_f$ , where  $q_h$  ( $q_f$ ) denotes the TNC's sales in the home (foreign) country.<sup>4</sup> The parameters  $a$ ,  $b_h$  and  $b_f$  are positive constants and  $b_h$  ( $b_f$ ) measures the size of the home (foreign) country.

Similar to the BLV models, the TNC has fixed budgets for R&D activities, and decides what share of R&D resources to allocate to the foreign subsidiary. The R&D location decision has an impact on the effective knowledge base of the parent and subsidiary. An increase in the effective knowledge base positively affects parent's and subsidiary's profits by reducing marginal costs. Let  $K_P$  and  $K_S$  be the level of the effective knowledge base of the parent and subsidiary, and  $m_P$  and  $m_S$  be their marginal costs. The relations between marginal costs and the effective knowledge base are given by  $m_P = A - K_P$  and  $m_S = A - K_S$ , where  $A$  can be considered the initial marginal costs that prevails with no effective knowledge base.<sup>5</sup>

The effective knowledge base consists of own R&D resources in the location, international intrafirm knowledge transfer, and incoming knowledge spillovers from the locally available general knowledge pool, which represents nonrival's R&D activities and R&D conducted by public institutions. Let  $X_T$  denote the level of TNC's total R&D budgets and  $\lambda$  denote the share of TNC's R&D resources allocated to the subsidiary, with  $\lambda \in [0,1]$ .

The TNC can transfer knowledge internally from the parent to the subsidiary and vice versa. These international intrafirm knowledge transfers are imperfect, not only because of the costs associated with transferring knowledge internationally within the TNC, but also because of the need to adapt the transferred know-how to local conditions. Adaptation costs arise because the products and processes developed by the parent need to be modified to satisfy requirements in the host country. The intrafirm transfer efficiency is indicated by the parameter  $\beta$  ( $0 < \beta < 1$ ), representing the share of knowledge that survives if transferred intrafirm across countries.

Moreover, the TNC can gain knowledge spillovers originating from the local general knowledge pool.  $G_h$  ( $G_f$ ) denotes the size of the general knowledge pool available in the home (foreign) country.  $\gamma$  represents the share of knowledge that spills over from the local knowledge pool to the TNC. Incoming spillovers are enhanced by the absorptive capacity of the TNC in the country represented by the TNC's own local R&D resources. For example, in the case of the foreign subsidiary, the impact of incoming spillovers on the subsidiary's knowledge base depends on the subsidiary's absorptive capacity represented by its R&D resources, such that  $\gamma G_f \lambda X_T$  is the addition to the knowledge base of the subsidiary because of incoming spillovers.

Given the above assumptions, the effective knowledge base of the parent is given by:

$$K_P = (1 - \lambda)X_T + \gamma G_h (1 - \lambda)X_T + \beta(\lambda X_T + \gamma G_f \lambda X_T). \quad (1)$$

The effective knowledge base consists of three parts. The first term represents the internal R&D allocated to the parent. The second term represents incoming spillovers from the general knowledge pool in the home country. The third term is the internal knowledge flowing back to the parent from the subsidiary. It is the combination of the internal knowledge transfer efficiency parameter  $\beta$  and the potential knowledge base to transfer, with the latter consisting of the subsidiary's own R&D activities and incoming spillovers from the general knowledge pool in the foreign country. The effective knowledge base of the subsidiary is similarly given by:



$$K_S = \lambda X_T + \gamma G_f \lambda X_T + \beta[(1-\lambda)X_T + \gamma G_h (1-\lambda)X_T]. \quad (2)$$

The TNC's profit function is given by:

$$\Pi = \pi_P + \pi_S - \frac{\delta(\lambda X)^2}{2}, \quad (3)$$

Where  $\pi_P$  and  $\pi_S$  are profits of the parent and the subsidiary, and the third term of the right side of (3) is the costs of decentralizing R&D activities, captured by a quadratic cost function.  $\pi_P$  and  $\pi_S$  are given by:

$$\pi_P = \frac{b_h(a - A + K_P)^2}{4}, \quad (4)$$

$$\pi_S = \frac{b_f(a - A + K_S)^2}{4}. \quad (5)$$

The TNC internationalizes its R&D activities if  $\partial\Pi/\partial\lambda > 0$  at  $\lambda = 0$ . As shown in (4) and (5), profits of the parent and subsidiary depend on their level of effective knowledge bases  $K_P$  and  $K_S$ , and the knowledge bases are functions of  $\lambda$ . Then the total marginal impact on profits of a change in the R&D resources ratio  $\lambda$  is:

$$\frac{\partial\Pi}{\partial\lambda} = \frac{\partial\pi_P}{\partial K_P} \frac{\partial K_P}{\partial\lambda} + \frac{\partial\pi_S}{\partial K_S} \frac{\partial K_S}{\partial\lambda} - \delta\lambda(X_T)^2. \quad (6)$$

$\partial K_P/\partial\lambda$  and  $\partial K_S/\partial\lambda$  represent the marginal impacts of the share of R&D resources in the subsidiary on the knowledge bases of the parent and subsidiary. From (1) and (2), those are given by:

$$\frac{\partial K_P}{\partial\lambda} = -(1 + \gamma G_h) + \beta(1 + \gamma g G_h), \quad (7)$$

$$\frac{\partial K_S}{\partial\lambda} = 1 + \gamma g G_h - \beta(1 + \gamma G_h), \quad (8)$$

where  $g = G_f/G_h$  represents the ratio of the general knowledge pool between the home and foreign countries.

From (4)-(8), the following proposition is obtained.

**Proposition 1:** *When the TNC is a monopolist in the home and foreign markets, the TNC internationalizes its R&D activities iff:*

$$\frac{b_f}{b_h} > \underline{b} = \frac{\{1 + \gamma G_h - \beta(1 + \gamma g G_h)\}\{a - A + (1 + \gamma G_h)X_T\}}{\{1 + \gamma g G_h - \beta(1 + \gamma G_h)\}\{a - A + \beta(1 + \gamma G_h)X_T\}}. \quad (9)$$

$\underline{b}$  is the minimum ratio of the size of both markets, for which the TNC transfers its R&D resources to the foreign subsidiary. The line AA' in Fig.1 indicates the combination of  $\underline{b}$  and  $g$ , and the shaded area constitutes the region of parameter values for which internationalizing R&D activities is profitable for the TNC.<sup>7</sup>

Proposition 1 implies that, for the TNC to internationalize its R&D activities, the foreign country needs to have sufficiently larger markets or a more general knowledge pool than the home country. As shown in Fig.1, the

TNC never transfers its R&D resources to the foreign subsidiary when both countries are symmetric (i.e.,  $b_f/b_s = 1$  and  $g = 1$ ). When the sizes of the general knowledge pool in both countries are equal, transferring TNC's R&D resources to the subsidiary brings about an increase in the subsidiary's knowledge base, which equals a decrease in the parent's knowledge base.<sup>8</sup> However, the marginal profits of the parent's knowledge base are larger than the subsidiary's knowledge base (i.e.,  $\partial\pi_P/\partial K_P > \partial\pi_S/\partial K_S$ ), because the marginal profits are increasing for their own knowledge bases, as shown in (4) and (5), and  $K_P = X_T$  and  $K_S = \beta X_T$  at  $\lambda = 0$ . Therefore, R&D internationalization is not profitable for the TNC, because an increase in the subsidiary's profits by transferring R&D resources cannot compensate for a decrease in the parent's profits as a result of it.

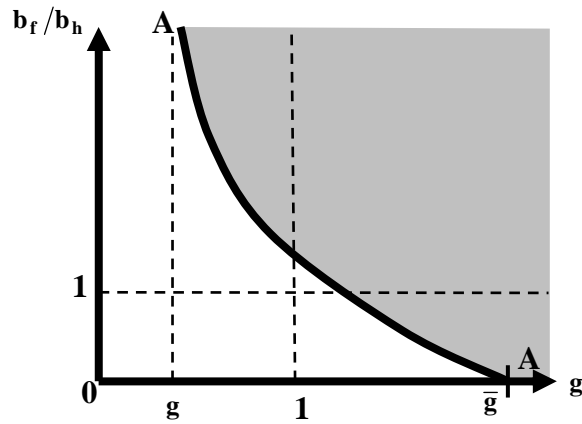


FIG.1: THE CONDITION FOR INTERNATIONALIZING R&D ACTIVITIES

For  $\underline{g} < g < \bar{g}$ , the subsidiary's profits increase by internationalizing R&D activities, while the parent's profits decrease because its knowledge base declines. The larger the foreign market, the larger the marginal gains of the subsidiary. Therefore, when the foreign country has a sufficiently large market, the TNC has an incentive to internationalize R&D activities to enhance the competitiveness of the subsidiary. This means the HBE incentive. On the other hand, if the foreign country has a more general knowledge pool than the home country ( $g > 1$ ), an increase in the subsidiary's knowledge base is larger than a decrease in the parent's knowledge base. Thus, when the foreign country has a sufficiently abundant general knowledge pool, the TNC has an incentive to transfer its R&D resources to enhance an access to a rich local knowledge pool. This means the HBA incentive.

The TNC never internationalizes its R&D activities for  $g < \underline{g}$ , because internationalizing R&D activities decreases the knowledge bases of not only the parent but also the subsidiary. As shown in (8), accepting R&D resources from the parent increases the subsidiary's knowledge base at the expense of decreasing intrafirm spillovers from the parent. If the disparity in the general knowledge pool between the parent and subsidiary is sufficiently large, an increase in the subsidiary's knowledge pool by spillovers from the foreign general knowledge pool

becomes so small that it cannot compensate for a decrease in spillovers through the parent from the home general knowledge pool. On the other hand, the TNC always internationalizes its R&D activities for  $g > \bar{g}$ , regardless of the difference in market sizes between the home and foreign country. This is because the parent's knowledge base increases from spillovers from the foreign general knowledge pool through the subsidiary, when the general knowledge pool in the foreign country is sufficiently larger than the home country.

### **R&D Internationalization by the Advanced-Country TNC in the Developing Country**

In this section, we consider how the advanced-country TNC determines the transfer of R&D resources to the subsidiary in the developing country. Assume that the home country is the advanced country and the foreign country is the developing country, and that the general knowledge pool is more abundant in the home country than in the foreign country (i.e.,  $g < 1$ ). Proposition 1 implies that the advanced-country TNC transfers its R&D resources to the subsidiary in the developing country, if the developing country has a sufficiently larger market than the advanced country, and the disparity in the general knowledge pool between both countries is not as large. Because the developing country has a smaller general knowledge pool than the advanced country, the HBE incentive is the main motivation for the advanced-country TNC to transfer its R&D resources to the subsidiary in the developing country. The larger the market in the developing country, the stronger the HBE incentive of internationalizing R&D activities. However, large market is not enough for the TNC to transfer its R&D resources. If the developing country has a small general knowledge pool, transferring R&D resources to the subsidiary is not profitable for the advanced-country TNC, because the TNC cannot increase the subsidiary's profits enough to compensate for the parent's losses by transferring R&D resources to the subsidiary.

The HBE incentive is also affected by the difference in the degree of competition between the home and foreign markets. Now, we modify the model shown in the previous section. It is assumed that the TNC is still a monopolist in the home country, but the foreign subsidiary competes with other rival firm—that is, a local firm or another TNC's subsidiary. Assume that the knowledge base of the rival firm in the foreign market is  $X_R$ , so that equation (7) is replaced by:

$$\pi_S = \frac{b_f (a - A + 2K_S - X_R)^2}{9}. \quad (10)$$

From (4), (6), (7), (8), and (10), the following proposition is obtained.

**Proposition 2:** *When the TNC is a monopolist in the home market and competes with a rival firm in the foreign market, the TNC internationalizes its R&D activities iff:*

$$\frac{b_f}{b_h} > \underline{b}^* = \frac{9\{1 + \gamma G_h - \beta(1 + \gamma g G_h)\}\{a - A + (1 + \gamma G_h)X_T\}}{8\{1 + \gamma g G_h - \beta(1 + \gamma G_h)\}\{a - A + 2\beta(1 + \gamma G_h)X_T - X_R\}}. \quad (11)$$

$\underline{b}^*$  is the minimum ratio of the size of both markets, which is needed to realize R&D internationalization.

Comparing  $\underline{b}^*$  with  $\underline{b}$ , the following lemma is obtained.

$$\textbf{Lemma.1: } \underline{b}^* < \underline{b} \text{ iff: } X_T > \frac{a - A + 8X_R}{7\beta(1 + \gamma G_h)}. \quad (12)$$

Inequality (12) is satisfied when the TNC has large R&D resources, the competitor with the subsidiary does not have a large knowledge base, and the TNC's intrafirm knowledge transfer efficiency is high. If inequality (12) is satisfied, the subsidiary's marginal profits of the knowledge base ( $\partial\pi_S/\partial K_S$ ) are larger when the subsidiary competes with the rival firm than when it has a monopolistic position. This means the HBE incentive becomes stronger when the subsidiary faces more rival firms in the foreign market.

Fig.2 demonstrates that the stronger competitiveness of the TNC widens the range of parameter values of  $b_f/b_h$  and  $g$  where the TNC internationalizes its R&D activities. The line AA' is the same as the line AA' in Fig.1, and shows the border line as to whether the TNC internationalizes its R&D activities when it has a monopolistic position in both markets. If inequality (12) is satisfied, the border line is located below the line AA', such as line BB' or line CC'. For  $\beta > 1/2$ , the border line moves from line AA' to line BB' and line CC' as the TNC's total R&D resources increase or the knowledge base of the rival firm decreases. The line BB' is the border line at  $X_T = (a - A + 8X_R)/(16\beta - 9)(1 + \gamma G_h)$ , and the line CC' is the border line at  $X_T > (a - A + 8X_R)/(16\beta - 9)(1 + \gamma G_h)$ . Fig.2 implies that even if the developing country has a smaller market than the advanced country, the advanced-country TNC has the incentive to allocate its R&D resources in the developing country when the subsidiary faces more competitors than the parent and the TNC has stronger competitiveness towards its rival firms.

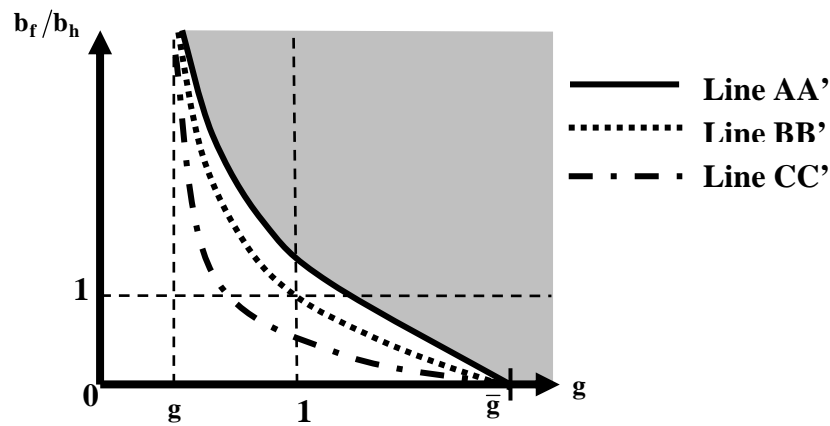


FIG.2: THE RELATIVE COMPETITIVENESS OF THE TNC AND R&D INTERNATIONALIZATION

Next, we consider how intellectual property rights protection in the developing country affects the decision of R&D internationalization. Now it is assumed that the TNC's subsidiary competes with a foreign local firm, which has R&D resources  $X_L$ , and the local firm can get spillovers from the general knowledge pool and the TNC's subsidiary. The size of the local firm's knowledge base  $K_L$  is given by:

$$K_L = X_L + \gamma g G_h X_L + \alpha_f \lambda X_T X_L. \quad (13)$$

The third term of the right hand side of (13) represents incoming interfirm spillovers.  $\alpha_f$  represents the share of knowledge spillovers from R&D resources, which is transferred to the subsidiary by the TNCs, and the impact of incoming spillovers depends on the local firm's absorptive capacity represented by its R&D resources  $X_L$ .  $\alpha_f$  reflects the effectiveness of intellectual property rights protection in the foreign country and declines as intellectual property rights are tightened.

When the local firm's knowledge base is affected by the subsidiary's R&D resources, the total marginal impact on profits of a change in the R&D resources ratio is given by:

$$\frac{\partial \Pi}{\partial \lambda} = \frac{\partial \pi_p}{\partial K_p} \frac{\partial K_p}{\partial \lambda} + \frac{\partial \pi_s}{\partial K_s} \frac{\partial K_s}{\partial \lambda} + \frac{\partial \pi_s}{\partial K_L} \frac{\partial K_L}{\partial \lambda} - \delta \lambda (X_T)^2. \quad (14)$$

The third term of the right side of (14) represents the marginal impact of changing local firm's knowledge base by knowledge spillovers from the subsidiary.

From (1), (2), (4), (10), (13) and (14), the following proposition is obtained.

**Proposition 3:** *When the TNC is a monopolist in the home market and competes with the local firm in the foreign market, and there are spillovers from the TNC's subsidiary to the local firm, the TNC internationalizes its R&D activities iff:*

$$\frac{b_f}{b_h} > \underline{b}^{**} = \frac{9\{1 + \gamma G_h - \beta(1 + \gamma g G_h)\}\{a - A + (1 + \gamma G_h)X_T\}}{4[2\{1 + \gamma g G_h - \beta(1 + \gamma G_h)\} - \alpha_f X_L]\{a - A + 2\beta(1 + \gamma G_h)X_T - (1 + \gamma g G_h)X_L\}}, \quad (15)$$

$$\text{and } \alpha_f < \frac{(1 - 2\beta^2)(1 + G_h) + \beta}{\beta X_L}. \quad (16)$$

Fig.3 indicates the combination of  $\underline{b}^{**}$  and  $\underline{g}^{**}$  is the same as  $\underline{g}$  when  $\alpha_f = 0$ .<sup>10</sup> Inequality (16) is the condition that  $\underline{g}^{**} < \bar{g}$ . Proposition 3 implies that the TNC never transfers its R&D resources if intellectual property rights protection is so weak in the foreign country that  $\alpha_f$  does not satisfy inequality (16). When the foreign government tightens intellectual property rights, the line that shows the combination of  $\underline{b}^{**}$  and  $\underline{g}$  moves from line DD' to line EE', as shown in Fig.3, because  $\partial \underline{b}^{**} / \partial \alpha_f > 0$  and  $\partial \underline{g}^{**} / \partial \alpha_f > 0$ . This implies that, if the developing country government enforces intellectual property rights protection, the advanced-country TNC is likely to transfer its R&D resources to the subsidiary in that country.

We summarize the determination of R&D internationalization by the advanced-country TNC in the developing country as follows. Because the developing country has a smaller general knowledge pool than the advanced country, the advanced-country TNC transfers its R&D resources to the subsidiary in the developing country if the subsidiary faces a sufficiently larger market or more rival firms than the parent. This is because the TNC has the HBE incentive to internationalize R&D activities, which is the need to allocate its R&D resources to a large market or a market where competition is intense. However, a large market and many rivals are not enough for the advanced-country TNC to allocate its R&D resources to the subsidiary in the developing country. The developing country needs to increase its own general knowledge pool and tighten intellectual property rights for the advanced-country TNC to transfer R&D resources to that country.

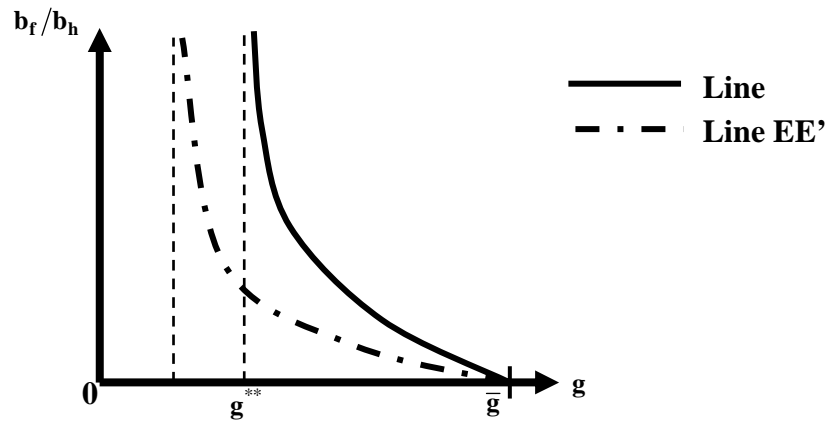


FIG.3: INTELLECTUAL PROPERTY RIGHTS AND R&D INTERNATIONALIZATION

### R&D Internationalization by the Developing-Country TNC

In this section, we consider how the developing-country TNC determines the transfer of R&D resources to the subsidiary in the advanced country or the other developing country. At first, we focus on R&D internationalization by the developing-country TNC in the advanced country. Proposition 1 implies that the developing-country TNC has the HBA incentive to internationalize its R&D activities in the advanced country, because the advanced country has a larger general knowledge pool than the developing country. Now, we consider the developing-country TNC that has only a production facility in the developing country and establishes the R&D center in the advanced country. The R&D center is established just to only absorb knowledge from the advanced-country TNC's parent and the abundant local general knowledge pool. It is assumed that the home (foreign) country is still the advanced (developing) country and the local firm is the developing-country TNC, which has the R&D center in the advanced country. When the advanced-country TNC has already divided  $\lambda$  of its total R&D resources in the subsidiary, the

knowledge base of the developing-country TNC, which allocates  $\lambda^*$  of its R&D resources to the R&D center in the advanced country, is given by:

$$K_L = (1 - \lambda^*)X_L + \gamma g G_h (1 - \lambda^*)X_L + \alpha_f \lambda X_T (1 - \lambda^*)X_L + \beta [\lambda^* X_L + \gamma G_h \lambda^* X_L + \alpha_A (1 - \lambda) X_T \lambda^* X_L]. \quad (17)$$

The fourth term of the right side of (17) is the intrafirm spillovers from the R&D center in the advanced country, and  $\alpha_A$  represents the share of knowledge spillovers from R&D resources of the TNC's parent to the R&D center of the developing-country TNC. The profits of the developing-country TNC depend on the knowledge base denoted by (17), and  $\partial K_L / \partial \lambda^* > 0$  is the condition under which the developing-country TNC transfers R&D resources to its R&D center in the advanced country. From (17), the following proposition is obtained.

**Proposition 4:** *When the developing-country TNC has an R&D center in the advanced country, and the advanced-country TNC has already transferred  $\lambda$  of its total R&D resources to the subsidiary in the developing country, the developing-country TNC transfers its R&D resources to the R&D center iff:*

$$g < \frac{[\beta(1 - \lambda)\alpha_A - \lambda\alpha_f]X_T + \beta(1 + G_h) - 1}{\gamma G_h}. \quad (18)$$

Proposition 4 implies that the developing-country TNC transfers its R&D resources to the R&D center in the advanced country, if the disparity in the general knowledge pool between both countries is large. Inequality (18) implies that if intellectual property rights are tighten in the developing country or the intra-firm knowledge transfer efficiency of the developing-country TNC is improved, the incentive for the developing-country TNC to internationalize its R&D activities is enhanced.

Next, we focus on R&D internationalization by the developing-country TNC in the other developing country. Now we replace the home country from the advanced country with the other developing country, which has the general knowledge pool  $G_h^+ (< G_h)$ , and the TNC is assumed to have total R&D resources  $X_T^+ (< X_T)$ . If the TNC has a monopolistic position in both markets like the model in section 2, inequality (9) changes to:

$$\frac{b_f}{b_h} > \underline{b}^+ = \frac{\left\{ [1 + \gamma g^+ G_h - \beta(1 + \gamma g G_h)] \{ a - A + (1 + \gamma g^+ G_h) X_T^+ \} \right\}}{\left\{ [1 + \gamma g G_h - \beta(1 + \gamma g^+ G_h)] \{ a - A + \beta(1 + \gamma g^+ G_h) X_T^+ \} \right\}}, \quad (19)$$

where  $g^+ = G_h^+ / G_h < 1$ . Compared with (9), it is explicitly shown that  $\underline{b} > \underline{b}^+$ . In Fig.4, the line AA' shows the combinations of  $\underline{b}$  and  $g$ , and line FF' shows the combinations of  $\underline{b}^+$  and  $g$ .<sup>11</sup> The shaded area in Fig.4 constitutes the region of parameter values for which internationalizing R&D activities is not profitable for the advanced-country TNC but is profitable for the developing-country TNC.

Fig.4 implies the developing-country TNC, which has less R&D resources than the advanced-country TNC, has the incentive to transfer its R&D resources to a country that has such a small general knowledge pool that the advanced-country TNC never transfers its R&D resources to that country. This is because the parent's losses suffered from transferring R&D resources to the subsidiary are smaller for the developing-country TNC than the

advanced-country TNC. There are two reasons for this. First, the occasional costs of losing spillover gains from the home general knowledge pool are smaller for the developing-country TNC than the advanced-country TNC, because the developing country has a smaller general knowledge pool than the advanced country. Second, the parent's marginal profits of its knowledge base are smaller for the developing-country TNC than the advanced-country TNC, because the developing-country TNC has less R&D resources than the advanced-country TNC.

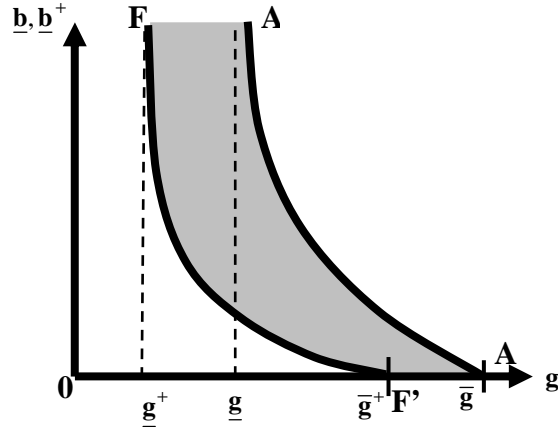


FIG.4: THE COMPARISON OF ADVANCED AND DEVELOPING-COUNTRY TNC IN R&D INTERNATIONALIZATION

## Conclusions

This paper presents simple frameworks that analyze the R&D internationalization decision by TNCs and shows that there are two incentives to internationalizing R&D activities. First, the HBE incentive is the need to enhance the competitiveness of the subsidiary that faces a larger market or more rival firms than the parent. Transferring R&D resources to the foreign subsidiary causes a decrease in the parent's profits by decreasing its knowledge base unless the foreign country has an abundant general knowledge base. If the foreign subsidiary faces a larger market or more competitors than the parent, internationalizing R&D activities brings subsidiary's profit gains that are greater than the parent's losses. Second, the HBA incentive is the need to enhance the access to the abundant local knowledge pool. If the foreign country has a larger general knowledge pool than the home country, the TNC can increase its profits by transferring R&D resources to the foreign subsidiary, because an increase in the subsidiary's knowledge base by spillovers from a rich general knowledge pool overcome a decrease in the parent's knowledge base. Moreover, the TNC can increase not only the subsidiary's but also parent's knowledge base by transferring R&D resources to the foreign subsidiary, if the foreign country has such an abundant general knowledge pool that spillover gains from the foreign general knowledge pool overcome spillover losses from the home general knowledge pool.



Our frameworks analyze the determination of R&D internationalization in three cases. At first, as for the R&D internationalization by the advanced-country TNC in the developing country, our model shows the HBE incentive is a main motivation for the advanced-country TNC to transfer its R&D resources to the subsidiary in the developing country. Because the developing country has a smaller general knowledge pool than the advanced country, transferring R&D resources to the subsidiary always brings about losses to the parent. And then, for attracting R&D internationalization by the advanced-country TNC, the developing country needs to have a large market or to create an environment where many firms compete in that country. On the other hand, our model also shows that the developing country needs to enhance the general knowledge pool or to tighten intellectual property rights. As represented by Propositions 1 and 3, even if there is a large market or many firms competing in the developing country, the advanced-country TNC never transfers its R&D resources to its subsidiary when the foreign country has a small general knowledge pool or does not apply strong intellectual property rights protection.

These results explain the background of the increasing establishment of R&D units in several developing countries these days. Recently, the emergence of newly industrialized countries, represented by BRICs (Brazil, Russia, India and China), has induced FDI to these countries by advanced-country TNCs. In addition to the growing GDP, the situation in which many TNCs compete against each other in these countries increasingly stimulates the establishment of R&D units by advanced-country TNCs in these emerging countries. Moreover, our model shows that the policy of widening the local knowledge pool, such as improving the national innovation system, training scientists and engineers, and tightening intellectual property rights, are effective for attracting R&D units from the advanced countries.

Second, as for the R&D internationalization by the developing-country TNC in the advanced country, Proposition 1 shows that the developing-country TNC has the HBA incentive to internationalize its R&D activities in the advanced country. Moreover, even if the developing-country TNC does not have the production facilities and only has an R&D center in the advanced country, the developing-country TNC transfers its R&D resources to the R&D center when the gap between the general knowledge pool in both countries is so large that the developing-country TNC increases its effective knowledge base by spillovers through the R&D center from the abundant general knowledge pool in the advanced country. In addition to that, Proposition 4 shows that tightening intellectual property rights in the developing country stimulates R&D internationalization by the developing-country TNC in the advanced country. Propositions 3 and 4 imply that tightening intellectual property rights in the developing countries promotes not only R&D internationalization from advanced countries to developing countries but also vice versa.

Thirdly, as for the R&D internationalization by the developing-country TNC in the other developing country, our model shows that the incentive to transfer R&D resources to the developing country is stronger for the other developing-country TNC than the advanced-country TNC. This is because the occasional costs of transferring

R&D resources to the subsidiary, which involves parent's losses, are smaller for the developing-country TNC than the advanced-country TNC. R&D internationalization by developing-country TNCs in other developing countries is observed very recently, and the scale of this is still small. However, our model suggests that R&D internationalization between developing countries could grow rapidly in the future.

Finally, we make suggestions for future research. At first, our analysis focuses on the decision of whether or not the TNC internationalizes its R&D activities. A more complex question would be to allow for endogenous determination of the size of the R&D share allocated to the subsidiary  $\lambda$  and the total R&D budgets  $X_T$ . Second, compared with the BLV model, our models do not explicitly consider the strategic interaction between oligopolistic TNCs. In our model, TNCs strategically interact through product market competition and R&D spillovers, whereas TNCs strategically interact only through R&D spillovers in the BLV model. Therefore, it would be interesting to extend our model to analyzing the strategic interaction between TNCs.

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## End Notes

<sup>1</sup> For examples of advanced-country TNCs' R&D units in developing countries, von Zedtwitz (2005) examines IBM's establishment of R&D unit in India, Microsoft's Research lab in China, and Fujitsu's Development Center in Malaysia.

<sup>2</sup> von Zedtwitz (2005) examines Samsung of Korea investing in R&D in Europe, and Acer of Taiwan in the U.S. as examples of developing-country TNCs' R&D units in advanced countries. Moreover, he examines Acer's R&D lab in China, and Huawei of China establishing an R&D center in Bangalore, India, as examples of developing-countries TNCs' R&D units in other developing countries.

<sup>3</sup> von Zedtwitz & Gassman (2002) refer to R&D internationalization motivated by the HBE incentive as 'market-driven' R&D, and R&D internationalization motivated by the HBA incentive as 'technology-driven' R&D. Shimizutani & Todo (2007) refer to R&D internationalization motivated by the HBE incentive as overseas 'adaptive' R&D, and the R&D internationalization motivated by the HBA incentive as overseas 'innovative' R&D.

<sup>4</sup> It is assumed that  $0 \leq q_i \leq ab_i$ ,  $i=h,f$ .

<sup>5</sup> It is assumed that  $A \geq K_p, K_S$ .

<sup>6</sup> It is assumed that  $a > A > 0$ .

<sup>7</sup> In Fig.1,  $\underline{g} = \{\beta(1 + \gamma G_h) - 1\} / \gamma G_h$  and  $\bar{g} = (1 - \beta + \gamma G_h) / \beta \gamma G_h$ .

<sup>8</sup> This means that  $\partial K_S / \partial \lambda = -\partial K_P / \partial \lambda = (1 - \beta)(1 + \gamma G_h) X_T$ , if  $b_f / b_S = 1$  and  $g = 1$ .

<sup>9</sup> It is assumed that  $X_R < a - A + 2K_S$ .

<sup>10</sup> In Fig.3,  $\underline{g}^{**} = [2\{\beta(1 + \gamma G_h) - 1\} + \alpha X_L] / \gamma G_h$

<sup>11</sup> In Fig.4,  $\underline{g} = \{\beta(1 + \gamma g^+ G_h) - 1\} / \gamma G_h$  and  $\bar{g} = (1 - \beta + \gamma g^+ G_h) / \beta \gamma G_h$ .

# Quality FDI and Economic Development

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## Abstract

Foreign Direct investment (FDI) contributes to a significant share of the domestic investment, employment generation, exports etc., in a number of economies in the world. It is, however, important to weigh the costs and the benefits of FDI to gauge whether FDI has positive impact on economic development. It is not surprising that there is a lot of hype surrounding FDI. Arguments and counter arguments about FDI and its relationship with development can take highly polarized positions. A number of studies conclude that FDI can have beneficial effects on a host economy if right policies and regulatory conditions are in place. This paper examines whether the positive impact of FDI on development in a country depends on the quality of FDI it is receiving besides the identifying the determinates of the Quality of FDI, global FDI trends and also elaborates the need of effective development strategy for quality FDI.

## Introduction

Foreign direct investment (FDI) is considered to be a major catalyst in promoting sustainable development in developing countries. FDI has the potential to generate employment, raise productivity, transfer skills and technology, increased income, enhance exports and contribute to the long-term economic development of the world's developing countries. More than ever, countries at all levels of development seek to leverage FDI for development. Liberalization policies have led to rapid growth in FDI flows in recent years. Basing on the benefits associated with FDI several developing, as well developed countries, compete fiercely for FDI. They try to attract foreign investors by providing financial and fiscal incentives, undertaking corporate restructuring and economic reforms and inviting foreign investors in the privatization of state-run units. In 2001, for example, 71 countries made 208 changes in their FDI regulatory regimes, out of which 194 were done to attract higher FDI.

FDI is one of the means of achieving the targets of higher economic growth and development. But not all countries have succeeded in attracting FDI, and for some who have, FDI has not brought the expected benefits to their economies. FDI can have negative impacts on sustainable development, such as environmental degradation, poor labour standards, crowding-out of domestic companies, and corruption. Thus recent approaches to FDI have

focused on the quality of FDI rather than the quantity. But the notion of “quality” FDI is still narrow and focuses on the economic rather than the environmental and social dimensions of sustainable development.

Merely receiving more FDI is no panacea for developing countries' problems. The challenge before several developing countries like India is to get quality FDI that fosters development. This paper discusses the main elements required for policies aimed at attracting quality FDI and how best it improves the economic development of the country besides providing supportive framework for effective foreign corporate, social and environmental responsibility.

## **Determinants of Quality FDI**

One of the factors said to be bringing about contrasting impacts of FDI on economic development in different countries is the quality of FDI they have been receiving. Quality of FDI can be determined by how much the foreign affiliates have linkages with the economy. How much a country would benefit from FDI depends on the quality and quantity of FDI and the domestic economic environment, e.g., whether and how the benefits are distributed among the people.

The quality of FDI can be determined by:

- The extent of localization of affiliates' output: how much linkage foreign affiliates have with the local economy.
- Its contribution to the development of modern industries: foreign affiliates entering into relatively technology-intensive industries, which are new to the host country, bring more benefits.
- Its extent of export-orientation: FDI in export-oriented units can have substantial balance of payments benefits and positive external effects.
- Research and development (R&D) activity of affiliates: such activities have substantial positive externalities.

## **FDI and Economic Development**

The aim of attracting FDI should fit into a country's overall development strategy. It is also necessary to encourage domestic investment, along with FDI, in a country to increase its total investment. East and South East Asian (ESEA) countries, which are said to have experienced a favourable effect of FDI on economic development, took steps to increase domestic as well as foreign investment. Further, foreign companies may be reluctant to invest in an economy, if domestic investors are reluctant. For example, it is said foreign investors prefer not to invest in South

Africa because investment by domestic investors is very low, even though domestic investors have adequate resources.

Regulation of foreign, as well as domestic, investment is another major element in the development strategy of any developing country. The motive of any company, domestic or foreign, making investment is to make profits. Countries have to make sure that the profit-making activities of the companies do not clash with their overall development strategies, by regulating both domestic and foreign investment.

FDI, however, is neither a necessary nor sufficient condition for economic growth and development: higher FDI may not imply faster economic development. A lot depends on the strategies a country adopts to attract FDI. East and South East Asian countries, for example, have utilized FDI to stimulate economic growth by taking a selective and strategic approach to FDI.

South Korea and Taiwan, for example, did not receive very high FDI, as they had imposed restrictions on entry of FDI and the degree of ownership. The two countries, however, took steps to maximize the spillover effects of FDI by encouraging FDI, accompanied with certain kinds of technology, imposing strict local content requirements and encouraging investors, such as sub-contractors, who were willing to transfer technology to domestic companies. China, Malaysia and Singapore, in contrast, had greater FDI flows but did make sure that they receive FDI in line with their national development priorities.

There are, however, other countries, which imposed local content requirements, such as Brazil, that had imposed such requirements in high technology sectors but were not much successful in benefiting from FDI. ESEA countries might have been able to benefit from FDI, by imposing local content requirements because of the accompanying high economic growth. In this context, the question is, whether FDI benefits growth or growth benefits FDI.

## **Positive Impacts of FDI on the Economies of Developing Countries**

Countries seek FDI because of its potential benefits. The most often cited benefit of FDI is that it can supplement a shortfall in domestic savings. Countries, which do not have a domestic resource crunch, may seek FDI for other potential benefits. The potential benefits of FDI can be classified into trade benefits, non-trade benefits and other benefits.

### **Trade Benefits**

Traditional theory states that FDI substitutes trade, while empirical analyses show that the former complements the latter. If a company decides to set up a unit in a country to which it used to export, FDI substitutes trade. If local affiliates of foreign companies import inputs to manufacture products for domestic and international markets, then

FDI complements trade. FDI can stimulate exports, if the motive of foreign investors is to exploit the export potential of the country. FDI usually stimulates exports in the natural resources sector. Transnational corporations (TNCs), such as mining and oil companies, play a leading role in this.

#### **Non-Trade Benefits**

Flow from the fact that TNCs possess assets such as advanced technology, managerial know-how, skills, international production networks, brand names and access to international markets, which are not easily obtainable by developing countries. These resources are not easily obtained in the market. One way to obtain them is by letting FDI enter a country. These factors help in the modernization of an economy, increase productivity and bring about high economic growth.

#### **Other Benefits**

Expand and diversify the production capacity of an economy;

Relatively stable than other forms of international capital flows as it has a longer-term perspective;

Establish backward and forward linkages with the rest of the economy;

Provide access to advanced technologies and facilitate the transfer of technologies;

Bring in improved management practices;

Transfer best practices in corporate governance and accounting practices; and

Integrate the domestic economy with the global economy and infuse competition in the domestic economy.

## **Strategies for Maximizing the Benefits of FDI for Economic Development**

### **Green Field Investment Strategy**

FDI through Greenfield investment has better chances of generating positive externalities, compared to the acquisition of a running enterprise (though, at times, acquisition can be favourable). Some countries discourage the latter.

### **Export-oriented Strategy**

Export-oriented FDI has better chances of favourable externalities compared to FDI targeting the domestic market. Export-oriented FDI minimizes the possibilities of crowding-out of domestic investment and generates favourable spillovers by creating demand for intermediate goods. Export-oriented FDIs have other externalities— information on export potential for domestic firms, and transfer of best technological practices. Therefore, a number of host countries adopt policies to channel FDI into export-oriented production.

In this context, China's record is most impressive in pushing FDI through performance requirements to develop export-oriented industries, which now account for 55% of its manufactured exports and as much as 80% of



high-tech exports. MNCs, in contrast, account for less than 10% of India's exports. Experiences of other Southeast Asian countries such as Malaysia, South Korea, and Thailand in this direction—through selective policies and export obligations imposed at the time of entry also deserve careful consideration. India's own experience with export performance requirements, direct or indirect, has been successful.

#### **Strategy for encouraging Joint Ventures**

Joint ventures improve the chances of learning by local joint venture partners, absorbing the know-how and building on it. This has been seen in several cases, including the auto industry, where local partners built their technological capability and became globally competitive. Therefore, many countries tend to limit the extent of foreign ownership to encourage joint ventures. India's vibrant domestic entrepreneurial pool actually makes the joint venture mode an interesting proposition even for the foreign entrant, who can use the resources and networks of local partners to get off the ground quickly.

#### **Encouraging Manufacturing Industry**

FDI in manufacturing generally may have more favourable spillovers, such as employment generation and backward linkages for the domestic economy than in services. For this reason governments have generally been more restrictive to FDI in services. In China, the bulk of FDI is directed to manufacturing.

The relative strengths of the costs and the benefits of FDI depend on whether the economy has a sound investment climate. An investment environment is said to be a sound one if the country have the following policies and institutions.

- A sound macroeconomic environment, which depends on monetary and fiscal policies and conditions such as stability of interest rates and status of fiscal accounts;
- Appropriate institutions, which depend on the existence of effective legal and regulatory structures, a competition authority and investment promotion and facilitation institutions; and
- Adequate basic infrastructure, which implies adequate supplies of power, water, land, transport and communications.

It can be said that these factors are the "right conditions" to ensure that FDI has beneficial effects on the economy. There is, however, no single winning formula for maximizing benefits from FDI, in that there is no single set of right conditions for all countries. For example, several countries have managed to benefit from FDI without the presence of a competition authority.

A sound investment environment is needed to establish linkage with the rest of the economy. If a country lacks basic infrastructure, linkages of FDI with the rest of the economy might not be established and the country, most likely, would not benefit from FDI. Countries such as Angola and Nigeria attract FDI in sectors such as mining and petroleum, but they lack good infrastructure. Consequently, FDI has not been bringing benefits to large

segments of population in these economies. While all the “right conditions” need not be present in countries, which open up their regimes to attract FDI, it is usually believed that some of the basic conditions should be present. It is said that a number of African countries did not benefit from FDI because they opened up their economies to foreign investors without the accompanying economic, institutional or infrastructural reforms.

### **The Following are the Some of the Important Measures Taken before to Attracting FDI**

Define the country’s development priorities first and then channelise FDI accordingly;  
Implement poverty reduction and income redistribution measures along with FDI liberalization measures;  
Put in place a regulatory structure to prevent any corporate mal-practices;  
Promote FDI with the potential of having deep linkages with the local economy;  
Develop an investment environment, which ensures that benefits of FDI outweigh costs;  
Being cautious as to not to open up the economy to allow more FDI than that it can absorb;  
Disseminate information and build the capacity of its citizens on the various aspects of FDI and development; and  
Conduct research and outline a clear country position on FDI before committing themselves to any agreement relating to investment at the WTO.

### **Negative Impacts of FDI on the Economies of Developing Countries**

When countries try to attract FDI for their own sakes, they may overlook negative effects of certain types of FDI, such as adverse environmental effects of extractive industries. In an industry such, as petroleum exploration, refining and distribution, which are highly environmentally sensitive, the major businesses are transnational companies. There are allegations that many of these companies do not follow proper environmental practices in several least developed countries and that many of these countries overlook environmental hazards posed by the companies.

FDI, which brings in environmentally harmful technologies, may do more harm than good to a country. It is alleged that similar other threats posed by foreign companies, such as displacing domestic investment or creating economic and social Inequalities are ignored by host developing countries. It is necessary for countries to adopt strategies to attract “quality” FDI and maximize benefits from it. However, it could be the other way round, domestic companies may have poorer performance than the foreign ones in social and economic terms. Therefore, countries should regulate foreign as well as domestic investment.

It is often alleged that FDI causes “mal-development” by impoverishing developing countries: it increases

poverty in the countries. The potential costs of FDI are:

- Negative impact on balance of payments (increases balance of payments deficit), if it increases imports of raw materials and inputs and remittances of royalties and dividends;
- Leads to inaccurate transfer pricing, if the products, which are imported by foreign affiliates from parent companies, are overvalued and the exports to the parent company are undervalued. This may also lead to balance of payments deficit;
- May reduce domestic investment or replace domestic monopolies by foreign companies. This leads to unemployment; and
- May transfer outdated or environmentally harmful technologies.

FDI can harm a country through the same route by which it can benefit the country. If trade effects of FDI are considered, balance of payments crisis can be caused if foreign investors import more than they export. Further, TNCs with a large size and market power may hinder proper development of domestic markets. Moreover, FDI may be costlier than other means of acquiring the factors, such as advanced technology and managerial practices. It may be cheaper for a country to develop these domestically. If a country has the potential to develop its domestic resources, then a better way of utilizing FDI could be to strategies the role FDI can play in the development of domestic resources rather than depending on FDI to acquire technology and other resources.

There is, however, no evidence to show that FDI has a negative impact on poverty reduction. It may have an indirect effect on poverty, if it leads to higher economic growth and employment. However, there is a weak link between an increase in economic growth and a reduction in economic inequality and poverty. Traditionally, it is thought that growth is important for reducing absolute poverty; though higher growth may not reduce countries in Latin America have experienced increases in FDI and economic growth and an increase in inequality at the same time. On the other, ESEA countries have experienced simultaneous increases in FDI and economic growth and decreases in economic inequality and poverty over the past two decades.

By itself, FDI is unlikely to make much of a dent in the poverty situation. Government-initiated programmes, which improve social safety nets and redistribute income and profits, complementing its policies, have proved to be more useful for this. FDI-led higher economic growth can provide funds for such programmes. FDI can also help in the provision of social services, such as delivery of water and power, especially in countries where the state has failed to provide such services adequately. Proper regulation of FDI in these sectors is usually necessary to ensure that the poor have proper access to the services. In recent times, Peru and Bolivia have had unpleasant experiences with the privatization of the water sector.

In the World Trade Organization (WTO), there have been proposals on having agreements to liberalize public services, such as water delivery, power, health care, primary education and postal services, under the General

Agreement in Trade in Services (GATS). However it is feared that if public services are liberalized, TNCs would enter these sectors in developing countries and deprive a large number of poor people from the services by charging high prices. It is important, they point out, that developing countries study the impact of the entry of foreign investors in these sectors before they make any such commitments at the WTO.

There are also concerns that FDI, mainly TNCs, drains resources from developing countries and is a new form of economic imperialism. Many in developing countries fear that FDI flows will be followed by developed countries taking over of their countries. FDI policies of several developing countries, such as India, were moulded by this belief- the “East India Company syndrome”, for a long time. India, now, officially welcomes FDI and has been taking policies and measures to attract FDI. In today’s information age, it might be difficult for a company to do a repeat of what the East India Company did in India. The global political, social and economic conditions have changed beyond recognition in the last 50 years. It might be fanciful to compare foreign capital that had entered developing countries, say, about a hundred years back with today’s FDI flows.

It is, however, important to weigh the costs and the benefits of FDI to gauge whether FDI has a positive impact on economic development.

## **Conclusion**

However, the enthusiasm shown by most developing countries today in attracting FDI is more because of ideological factors rather than ground-level changes. The propaganda of the World Bank and the IMF, among others, on the importance of FDI has been such that it is now believed that a country cannot develop without FDI. But the fact is, receiving more FDI is no panacea for developing countries.

China has maintained high GDP growth along with huge FDI flows. However, it started receiving FDI only after it got into a high growth path. Hence, large FDI flow is the effect of high growth and not the other way round. Even today, China's growth is largely driven by domestic capital formation, and FDI as a proportion of total investment is barely 10 per cent.

Very often there is talk about the South-East Asian miracle. Again, these countries have achieved high growth by mainly depending on their domestic capital accumulation rather than FDI. The experience of Brazil and Argentina, the two Latin American nations that attracted huge FDI throughout the 1990s, is even more telling. Argentina is in a deep crisis and the Brazilian economy has remained stagnant for long. It is, therefore, quite clear that huge FDI flows have not been of any real value to these countries.

FDI, reportedly, has had a more favourable effect on economic development in more advanced developing countries than poorer developing countries. It is said that economic and structural reforms undertaken in ESEA

economies have facilitated FDI. Their experience suggests that FDI depends on the availability of adequate infrastructure, appropriate labour, per capita income and economic growth of a country. It is also said that these countries were able to achieve high economic growth because of high FDI flows. FDI and development, it seems from the evidence, have a symbiotic relationship. One induces the other and vice versa. Therefore, an effective development strategy for developing countries would be to undertake measures for economic reforms and governance as well as to FDI at the same time.

A country can lose from FDI through the same routes by which it can benefit from FDI. It should take measures to improve its investment environment before liberalizing its FDI regime to allow more foreign investors. FDI would have a positive effect on development, if a country is able to make sure that it has adopted measures, which would maximize benefits from FDI. At the least, a country should adopt minimum regulatory measures to ensure that FDI or domestic investment does not harm its economy.

The challenge before developing countries is not to attract more FDI but to get quality FDI that fosters development. As it is, getting FDI is quite a challenge, and making it development-friendly is even more difficult. But there is no need to go out of the way to attract FDI. Increasing FDI inflow may be desirable but it is equally important to pay attention to quality, as it is the means for development and not an end in itself.

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## **Causality between Financial Development and Economic Growth in Iran**

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### **Abstract**

**In this study the causality relation between the financial development and the economical growth in Iran is studied using time series data of 1961-2004. The results of this study showed that there is not any mutual relationship between financial development and the economical growth in Iran and only the economical growth leads to financial development.**

**Therefore, the financial development will not be an effective factor to the economical growth.**

### **Introduction**

One of the most important goals of every economical development is achieving economical growth and development. One of the most important dimensions of economical developments is financial development. Because of having an advanced financial system beside other economical parts, there is the possibility of better funds and savings transition in society. It can also lead to an increase of generating investments in social and economical substructure and in human resource as well as increase the skill and expertise level of human force. In such a way it can help the economical development in society. In fact, the effect of a good financial structure on the economical structure is very important that the economical growth and development will have trouble without it. For the first time, in this direction the great economists like Schumpeter (13) explained the importance of financial system rather than the economical growth. Goldsmith (3) also indicated the positive relation between financial development, economical preferences in the case of 35 advanced and advancing countries. He also showed that the economical growth of these countries had been affected by financial development based on the increase of average finances ratio in financial institutions. Mackinnon and Shaw (9,15) believed that the government interferences in financial development system is an obstacle for the economical growth process also the financial development has an affective role on the economical growth ,and the financial systems with better operations have faster growth. King

and Levine (6) began to analyze the correctness of Schumpeter theory which was based on the importance of financial development in a study with the title “financial development and economical growth”. Their results showed that better financial development cause better economical growth. In recent years many studies had been done on the effects of financial development on the economical growth using some economical techniques. Levin and Zervos (7) showed that there is a positive and significant relationship between the components for developing the stocks and for growing the gross domestic product. Colderon and Liu (2) said at firstly, financial development leads to economical growth in general, secondly there is a mutual Granger causality between the economical growth and financial development, and thirdly financial development shared in developed countries in a causality relation is greater than in developing countries. Financial development can also lead to economical growth by forming more investment and more efficiency. Hondroyiannis, Lolos (5) showed that there is a mutual Granger causality between financial development and economical growth in Greece. Nieuwerburgh, Buelens, Cuyvers (11) showed that the increase of the market stocks led to economical growth in Belgium. Such studies had been done in Iran. Hadian and Tourkey (16) said that the theory of supply leadership had been rejected but the demand following is confirmed in Iran. Results of financial indexes also showed instability in the financial system of Iran economy. Shiva (14) declared that the economical growth in Iran had a positive relationship with financial development indexes. The relationship between economical growth and developing financial market is also one side and is from economical growth toward financial development in Iran. Nazifi (10) began to analyze effects of financial development on economical growth and he studied transferor channel for effects using granted credit indexes in private sector. Results of this model showed that during the studies, the financial development had negative effect on economical growth. Also with because of attention to importance of financial structure in economical growth process, we are trying to know if financial development leads to economical growth or economical growth leads for financial development.

## **Model Specification and Method**

In order to examine the short run and long run relationship between economic growth and financial development, the following relationship is specified:

$FD = g(Y, R)$ , where FD is an indicator of financial development, y is an indicator of economic growth and R is real interest rate (deflated by inflation). Different indicators like real interest rate, different definition of monetary aggregate and deposit ratio in gross domestic production in other countries were examined as indication of financial development. However, studies show that these indicators are not suitable factors to show degree of financial development (10). In this paper annual data of real GDP is an indicator for economic growth and data of granted



credit of banks to private sector is an indicator of financial development for 1961 to 2004 time period. Also real interest rate for above period is calculated. All of the variables in model are to show real price (1998=100) and are specified in the following form:

$LGDP$  is the natural logarithm of the real GDP,  $LBCR$  is the natural logarithm of granted credit of banks to private sector and  $R(-1)$  is the real interest rate with one lag. Two variables such as granted credit of banks to private sector and real interest rate have been one lag because their impact is not usually shown instantaneously in the same year.

In order to study causal relationship between economic growth and financial development, for the reason of using time series statistics, beginning determinants degree of integration of variables are used in this study with Augmented Dickey Fuller (ADF) test. For the next step to study a long run relationship between variables, we used Johanson method which determines a short run relationship between variables in model used from vector error correction model (VECM). Johanson's method is a framework of vector autoregressive model (VAR), which is as follows:

$$x_t = \sum_{i=1}^k A_i x_{t-i} + \varepsilon_t, \text{ where, } \varepsilon_t \text{ is a vector column of error terms and } x_t \text{ is a vector of variables.} \quad (1)$$

By adding terms  $x_{t-1}, x_{t-2}, \dots, x_{t-k}$  and  $A_1 x_{t-2}, A_2 x_{t-3}, \dots, A_{k-1} x_{t-k}$  to both sides of the above equation,

Equation (1) can be expressed in the first differenced error correction form:

$$\Delta x_t = \sum_{i=1}^{k-1} \delta_i \Delta x_{t-i} + \pi x_{t-k} + \varepsilon_t, \text{ where } \pi_{m \times n} = -(I_{n \times n} - A_1 - A_2 - \dots - A_K), I = -I + A_1 + A_2 + \dots + A_i \quad (2)$$

and  $I$  is a  $n \times n$  square matrix. In this method the coefficient matrix  $\pi$  contains information about long run relationship between the variables in the data vector. Therefore, variables can be evaluated by the number of co-integration vectors, with rank of  $\pi$  matrix. It shows that there are three forms: 1) when rank of  $\pi$  matrix is equal to number of variables in vector autoregressive model, then all variables are co-integrated; 2) when rank of  $\pi$  matrix equals zero, then  $\pi$  matrix is a null matrix and no long run relationship exists between variables in the  $x_t$  vector; 3) when the rank of  $\pi$  matrix shows that  $r$  is lower than  $n$  (number of variables in model). Usually  $r < n$  in the form of  $\pi = \alpha' \beta$  where  $\beta$  matrix is a co-integration matrix and their columns, if normalized, indicate a long run relationship between variables. Elements of  $\alpha$  indicate adjusted rate in a long run relationship. Therefore, Equation (2) produced a vector error correction model.

Johanson (1992) suggests the need to import the variables like intercept. Such trend has been tested jointly with determinate rank of matrix. These models measure if there is a relationship between trend and intercept, no relationship between trend and intercept or existence of one of the variables. Hypothesis of existence of zero co-

integration vector is tested ( $r=0$ ), with more than respective likelihood of ratio test statistics ( $\lambda_{trace}$ ) and maximal eigenvalue test ( $\lambda_{max}$ ). The likelihood ratio test statistic (trace test) is computed as follows:

$$\lambda_{trace} = -n \sum_{i=r+1}^k \ln(1 - \hat{\lambda}_i)$$

The null hypothesis that there are  $r$  co-integrating vectors against the alternative of more than  $r$  co-integrating vectors is tested and when accepted the trace statistic is lower than critical value suggested by Johanson and Juselius (1990). Other test is maximal eigenvalue test which is following:

$$\lambda_{max} = -n \ln(1 + \hat{\lambda}_{r+1}) \quad r = 0, 1, \dots, k - 1$$

This statistic tested for the null hypothesis of  $r$  co-integrating vectors against the alternative of  $r+1$  co-integrating vectors. When existence of  $r$  co-integrating vector is accepted the maximal eigenvalue statistic is lower than critical value. Then it has been suggested that the ratio test statistic and maximal eigenvalue test determine the presence or absence of the long run relationship between variables in the model. The next stage is to determine short run and long run relationship. If there is one or there are more than one co-integrating vectors between variables, one can use error correction model for testing Granger outcome. The error correction model for three variables can be written as:

$$\Delta LGDP = \alpha_1 + lag(\Delta LGDP, \Delta LBCR(-1), \Delta R(-1)) + \lambda_1 e(-1)$$

$$\Delta LBCR(-1) = \alpha_2 + lag(\Delta LGDP, \Delta LBCR(-1), \Delta R(-1)) + \lambda_2 e(-1)$$

$$\Delta R(-1) = \alpha_3 + lag(\Delta LGDP, \Delta LBCR(-1), \Delta R(-1)) + \lambda_3 e(-1)$$

Where  $e(-1)$  is the lagged value of the error correction term  $e$  and error correction term indicates that the long run relationship and short run dynamics is provided by the lagged values of the difference terms.

## Results

### Stationary

In order to study presence or absence of a long run relationship between financial development and economic growth, the Augmented Dickey-Fuller test (ADF) is used to determine co integration. Results of this study which were calculated using Microfit 4.0 are reported in table 1.

TABLE 1: ADF TEST FOR UNIT ROOTS

Variabl	With trend and no intercept		with intercept and tren	
	ADF statistic	95% critical value	ADF statistic	95% critical
LGDP	-1/94	-2/95	-2/91	-3/54
D(LGDP)	-3/31	-2/95	-3/38	-3/54
LBCR(-1)	-2/57	-2/95	-2/87	-3/54
D(LBCR(-1))	-3/37	-2/95	-3/62	-3/54
R(-1)	-1/46	-2/95	-1/34	-3/54
D(R(-1))	-6/34	-2/95	-6/43	-3/54

The results in table 1 indicate that all variables in level and the first difference are stationary at 95% level of confidence. Thus, using ADF unit root test, we conclude that all variables in this model are non stationary: I (1) since the first difference are I (0). In the next step and in order to apply Johansen’s procedure, first we must set the appropriate lag length of the VAR model to ensure that serial correlation problem does not exist in this model. Microfit 4.0 determines the number of appropriate lag length with Akaike Information Criterion (AIC) and Schwarz Bayesian Criterion (SBC). In this paper AIC is used to select VAR and a number of co-integrating vectors with trace test when the model includes intercept and no trend. These results are presented in table 2.

TABLE 2: TRACE TEST OF CO-INTEGRATION VECTORS IN VAR MODEL WITH INTERCEPT AND NO TREND

Null	Alternative	Statistic value	95% Critical value	90% Critical value
$r=0$	$r>=1$	35/18	34/87	31/93
$r<=1$	$r>=2$	17/66	20/18	17/88
$r<=2$	$r=3$	4/14	9/16	7/53

Based on the results of null hypothesis in table 2, the co-integrating vectors are rejected. In the next step we test null hypothesis that there is one or lower than one co-integrating vector. Because the test statistic is lower than the 90% and 95% critical value, the null hypothesis is not rejected. In other means we accept existence of one co-integrating vector between variables in model. Therefore, accepted model is model 2, which has no intercept and no trend in a short run. Also no trend has restricted intercept in a long run and the number of co-integrating vectors is therefore one. The result of estimated coefficient of co-integrating vector is reported in table 3.

TABLE 3: CO- INTEGRATING VECTOR ESTIMATED IN SECOND MODEL (LONG RUN RELATIONSHIP)

Variable	Coefficient of co integrating vector
LGDP	-1/3233
LBCR(-1)	0/8877
R(-1)	-0/9367
intercept	6/1559

Based on table 3, there is a normalized relationship, which is gaining from this vector for gross domestic product variable is as follows:

$$LGDP = 4 / 6520 + 0 / 6709LBCR(-1) - 0 / 07079R(-1)$$

Next step is to determine Granger relationship in the short run and the long run. The result of this causality analysis has been offered in table 4.

TABLE 4: RESULT OF MEANING ESTIMATED COEFFICIENT IN MULTIVARIATE GRANGER CAUSALITY

Dependent variable	$\tau$ static of $\Delta LGDP$	$\tau$ static of $\Delta LBCR(-1)$	$\tau$ static of $\Delta R(-1)$	F static	Error correction term(ECT)
$\Delta LGDP$		0/26(0/79)	-0/41(0/68)	1/9(0/14)	0/29(0/77)
$\Delta LBCR(-1)$	4/03(0/00)		-1/7(0/09)	24/9(0/00)	-4/2(0/00)
$\Delta R(-1)$	-1/32(0/17)	1/1(0/27)		0/24(0/86)	0/91(0/36)

Figures within parenthesis are the marginal p values. From the base result in table 4, it can be seen that error correction term with  $\Delta LGDP$  as the depended variable is insignificant at 10% level. This implies that in the long run banks granted credit to private sector and real interest rate, Granger causality of real income growth or real gross domestic product and only coefficient of error correction term in the equation that  $\Delta LBCR(-1)$  is the depended variable, is 100% significant. Therefore, real income and real interest rate are the Granger causality of growth of granted credit to private sector in the long run. This object implies onside relationship in the long run between financial development and economical growth.

In case of the short run relationship, result in table 4 shows that the short run coefficients in equation 1 are insignificant, which means that interest rate and credit in the short run do not effect real income growth alone. Because of F statistic these variables are significant. In fact, these two variables jointly influenced growth in the short run. Coefficient of variables in the short run (in the second equation) implies that both variables real income and interest rate in the short run exclusively influenced financial development or credit. Furthermore, F statistic

shows that these two variables jointly have a significant effect on credit. The variable coefficient in equation three shows that in the short run real income and credit do not influence real interest rate.

## Conclusions

Results of this paper show that in the long run financial development does not lead to economical growth, but economical growth leads to financial development. This result arises from Iran economical situation, saving distribution in society, investment level, and government intervention in private and governmental sector. Financial development in Iran would come to an end by level investment in governmental sector and by combination of benefits of oil sale and the domestic taxes from private sector. In other words, Iranian gross domestic product colluded to oil and had a positive effect on financial development. However, because Iran has a lot of problems in financial structure there was no positive effect on gross domestic product. Current financial structure in Iran is not moving in the right direction towards economical growth due to inefficiency. Thus, financial structure in Iran must change to enable savings and facilitate investment in order to improve economical growth.

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# Development of Two Transitional Economies and The Role of Foreign Direct Investments

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## Abstract

Foreign Direct Investment capital represents an indispensable source of capital for economy. Cross border capital flows could be traced to the Middle Ages in Europe, but the current reference to Foreign Direct Investment (FDI) is based on the role of multinational enterprises to transfer capital to other nations during the Industrial Revolution and throughout the twentieth century and beyond. The growth of FDI has surpassed the growth of the world trade and has been the engine of growth for many countries, particularly in Europe and Asia. The importance of FDI in financing growth and investment in many countries is well documented. However, the evidence to determine the impact of foreign capital investment on some of the emerging countries of eastern/central Europe is lacking and somewhat mixed. The main objective of this paper is to examine the role of foreign direct investment on the growth of GDP and trade in some emerging European countries.

## Review of Literature

### Trends in FDI

In the past twenty years, the inflow of FDI has increased tremendously in the world economy. In particular, it grew from 13 to 31% of GDP on average for all developing economies (Henriot, 2003). The biggest reason for the rapid growth of direct investment in Eastern and Central Europe is the movement of these countries towards free trade accompanied by political and economic reforms. According to Henriot (2003), FDI stock in this region jumped from 2% of GDP in 1990 to 32% in 2002. Curiously, FDI tends to be concentrated in small economies. For example, it reached 57% of GDP in Czech Republic, 43% in Estonia and Slovakia, and 38% in Latvia (Henriot, 2003). According to the IMF, there has been a shift in relative shares of net private investment in different regions of the world during the past ten years. As shown in Table 1, the capital flows to emerging market economies were relatively even at around 4% of GDP in 1996. However, by 2002, while the Asian share had dropped to 1% of GDP

and the share of Latin America was only 0.5% of GDP, the share of the European accession countries had increased to 7% of their GDP. In addition, FDI seemed to stimulate trade in these countries as their exports increased more than four times between 1990 and 2000 and their imports were more than 5 times higher. Thus, FDI cannot only stimulate economic growth of the host economy but also affects other variables that favorably impact the growth of GDP.

TABLE 1: FDI FLOWS TO EMERGING MARKET ECONOMIES 1990-2003

Countries	Annual Average		1996	1997	1998	1999	2000	2001	2002	2003
	1990-1996	1997-2002								
All Countries	62.0	156.8	114.4	141.7	153.6	164.0	158.0	172.1	151.3	160.9
Africa	2.5	10.9	3.6	7.8	6.4	9.3	7.7	22.3	11.8	10.1
Asia	31.7	56.3	53.4	56.8	59.7	61.2	54.2	47.1	58.7	59.0
Middle East & Turkey	3.5	7.5	4.8	5.5	6.5	5.5	7.9	10.8	8.8	11.5
Western Hemisphere	18.2	58.7	40.3	56.1	60.1	64.1	64.7	66.9	40.4	45.6
Countries in transition	6.1	23.4	12.3	15.5	20.9	23.9	23.4	25.1	31.5	34.7

Source: IMF, World Economic Outlook, September 2003; IMF Database

FDI can take the form of greenfield investments in new facilities as well as mergers and acquisitions of existing firms. Mergers and acquisitions are more common types of FDI because they are easier to be executed and already have established customer base, production and distribution systems. In post-Soviet countries, large-scale privatization, which permits national enterprises to be acquired by private investors, outweighs greenfield investments.

Even though foreign investors have different options such as exporting, licensing, joint ventures or FDI when deciding to expand their activities abroad, many of them may choose FDI due to OLI paradigm (Dunning, 1993). The Ownership advantage occurs when the transfer of technology and management know-how permits the company to compete in the local market. The Location advantages occur when a country can provide location-specific resources such as good infrastructure or low-cost inputs. Finally, the Internalization advantage is realized if it is cheaper to invest than export to a particular country.

The governments of host countries are also interested in FDI, which positively impacts the economic development of their countries. Because of low domestic savings in the emerging and transition economies, FDI is an essential impetus to the economic growth as well as a source of finance for the host economies.



## **The Determinants and the Impact of FDI**

The most important effect of FDI on the growth of a country is to bring much needed capital to a country to overcome the pervasive investment-saving gap. Additionally, the inflow of FDI brings more efficient technology and new management techniques to a developing country. The main problem of assessing the impact of FDI on economic growth is its association with other growth-driven factors. On the one hand, FDI stimulates economic growth (Bernstein et al., 1998), while, on the other hand, high growth rate attracts FDI (Barrel and Pain, 1996). Therefore, FDI and economic growth can be interrelated. For example, Ericsson and Irandoust (2001) examined the causal relationship between FDI and economic growth for four European countries of Denmark, Finland, Norway, and Sweden. The results are controversial: the existence of causality was shown for Sweden and Denmark, being bi-directional for Sweden and unidirectional for Denmark; no causality link was detected for Finland and Norway. Lheem and Guo (2004) who tested both FDI-led growth model and growth-driven FDI model in China found that China might have experienced these two effects simultaneously. In summary, empirical studies provide mixed results finding both unidirectional and bi-directional causality.

The impact of FDI on economic growth is a controversial topic among economists. Some researchers confirm the positive impact of FDI on a host country's development (Borensztein et al., 1998, Baliamounte-Lutz, 2004, Asheghian, 2004), while others insist that its influence is ambivalent or negative (Haddad and Harrison, 1993). According to modernization hypothesis, FDI is the most critical impetus for economic growth because it brings with it advanced technology and managerial knowledge and spreads the benefits thereof throughout the economy (Tsai, 1994, Makki and Somwaru, 2004).

Other researchers argue that even if the inflow of FDI has a positive impact in the short run, it has an adverse long-term impact on economic growth, as reflected in the negative correlation between the stock of FDI and economic growth (Bornschiefer, 1980).

In addition, political, social and cultural factors are major determinants of FDI (Borensztein et al., 1998, de Mello, 1999). The location of the host country also plays an important role in the flow of FDI because it is easier to manage a subsidiary that is close to the home country. Gopinath and Echeverria (2004), however, found that distance has a negative effect on the trade-FDI ratio, which means that countries switch from trade to FDI the farther the receiving economy is from the home country. The market size can be another determinant of FDI, although Brenton and Di Mauro (1999) found no significant impact of market size on FDI in Central and Eastern European countries. According to Zhang and Song (2000), the impact of FDI varies across countries because of different stages of their development.

Another influence of FDI is on the trade balance of a country. The effect of FDI depends primarily on whether the motivation for the inflow of capital is 'market seeking' or 'efficiency seeking'. In the first case, the effect of FDI inflow on trade balance of the host country is expected to be negative (Varamini and Matty, 1998) as the product produced by the MNC is expected to be sold primarily in the host country. In this case, there is an inflow of intermediate goods to the host nation without much contribution to exports. On the other hand, if the main motivation for undertaking FDI is to seek lower cost input, it is quite likely that the net export in the host country could increase, creating a positive effect on the trade balance of the nation.

### **FDI in Central and Eastern European Countries**

Central and Eastern European countries have witnessed a considerable increase of FDI inflows since beginning of 90' and the potential to join the European Union. FDI has been an important source of financing and a catalyst for the economic development for many of these nations. Therefore, while competing for FDI, countries tried to implement structural reforms aimed at improving their investment climate. Deichmann et al. (2003) found that the level of reforms is a significant positive determinant of FDI inflows into transition economies. Since FDI in developing countries is usually export-oriented, the policies that a host country implements are also designed to facilitate trade. Thus, FDI not just stimulates the growth of the economy but also accelerates international trade, which in turn favorably affects the economic growth of the country. The leading recipients of FDI in eastern/central Europe were Poland, Czech Republic, Hungary and Slovakia. These countries were the first ones to reform their economies and they are among the first countries that joined the European Union in 2004.

Investors in Central and Eastern European countries have a variety of motives when choosing a recipient of FDI. Lankes and Venables (1996) show that FDI projects in these countries are very heterogeneous and differ in terms of their size, objectives, technology, location, ownership, and control requirements. Therefore, when assessing the impact of FDI, it is important to study it on a country-by-country basis. Brenton and Di Mauro (1999) analyzed FDI inflows to the CEEC and their results show that FDI is positively affected by GDP but market size, measured by population, does not appear to significantly influence FDI inflows. They also found that the distance coefficient was significant and negative because the cost of managing a subsidiary increases with the distance. In addition, FDI may substitute exports in distant countries. Aturupane et al. (1999) and Walkenhorst (2001, 2004) found a positive correlation between trade and FDI in transition economies, suggesting that FDI and trade are complements rather than substitutes in these countries.

In another empirical analysis of FDI inflows to the CEEC, Bevan and Estrin (2000) took the host country's credit risk into account. Their results show that FDI is determined by the host country's risk and size, labor costs

and distance. They also found the evidence that an announcement about future admission to the European Union had a direct and positive influence on FDI. Contrary to this study, Altomonte (2000) concluded that FDI appears to be influenced by GDP per capita and by population, but not by distance. In addition, in emerging and transition economies, certain sectors such as manufacturing and science-based attract FDI, mainly due to lower labor costs.

## **Comparison between Slovakia and Slovenia**

The interest for comparing Slovakia and Slovenia is based on economic as well as cultural and historic reasons. They are both Slavic countries, which are relatively small, even if Slovakia is more than twice bigger as Slovenia, (see table 2). From a cultural point of view it is interesting that they have almost the same name, which causes, sometimes (even high-level politicians) to confound them. The origin of both probably came from the old Slavonic “slovo”, meaning simply, “word”, so that Slavs would be those who know “words”, contrasted to “non speakers”, from which derives the Slavonic name for Germans, “Nemci”, meaning “deaf”. Another cultural aspect is that both populations are in majority catholic, even if historically in both also the protestant movement played a role in the past.

There are also other historical similarities: both populations awakened to national consciousness in the nineteenth century in the Habsburg Monarchy, even if Slovenes in the Austrian and Slovaks in the Hungarian part of it. After World War I, they were part of two different federate states: Czechoslovakia, the Slovaks and Yugoslavia, the Slovenes. After Second World War they both adopted the socialist system and when it collapsed in the 90's they became independent states.

The main differences, in our opinion, are connected mostly with the different policies adopted after World War II by Czechoslovakia and Yugoslavia. The first one was considered as one of the showcases of the eastern political and economic system, playing the role of a faithful satellite of the Soviet Union, if we make exception to the Prague spring period. Whereas Yugoslavia played in Tito period, an independent political role. Another important difference is that in post World War II period, Slovenia played the role of the most developed part of the federation, whereas Slovakia was the less developed part of it.

Given these premises, it is interesting to analyze some data showing the transition pattern of both countries after the collapse of the former socialist system, and the results obtained by them until now, considering also the role of FDIs for both of them.

Firstly, we can say that the transition process was pretty successful for both countries. In 2005 they got membership of EU. At the end of 2007, they both are going to enter into the Schengen area and at the beginning of the same year, Slovenia became also member of the Euro zone, as the first East European country, whereas Slovakia

forecasts the same objective in 2009. The Euro area membership is an important criterion of judgement, as it implies a very strict adherence to Maastricht criteria. There are old members of the EU, which still don't comply to Maastricht completely, but the new ones are compelled to pass a restricted gauge, probably as a consequence of the recent political problems, faced by the Union.

The elements of the strategy adopted can be deduced from the table 2.

TABLE 2: ANNUAL INDICATORS FOR SLOVAKIA (1) AND SLOVENIA (2)

Years	2002 <sup>a</sup>	2003 <sup>a</sup>	2004 <sup>a</sup>	2005 <sup>a</sup>	2006 <sup>b</sup>	2007 <sup>c</sup>	2008 <sup>c</sup>
(1) GDP (US\$ bn)	24.5	33.0	42.0	47.4	55.0		
(2) GDP (US\$ bn)	22.3	28.1	32.6	34.1	36.8		
(1) Real GDP growth (%)	4.1	4.2	5.4	6.0	7.5	6.3	5.4
(2) Real GDP growth (%)	3.5	2.7	4.4	4.0	5.1	4.0	3.8
(1) Consumer price inflation (av;%)	3.3	8.6	7.5	2.7	4.5 <sup>a</sup>	2.8	2.5
(2) Consumer price inflation (av;%)	7.5	5.6	3.6	2.5	2.5 <sup>a</sup>	2.3	2.5
(1) Population (m)	5.4	5.4	5.4	5.4	5.5		
(2) Population (m)	2.0	2.0	2.0	2.0	2.0		
(1) GDP per capita (US\$)	4,537.0	6,111.1	7,777.8	8,777.8	10,000.0		
(2) GDP per capita (US\$)	11,150.0	14,050.0	16,300.0	17,050.0	18,400.0		
(1) Current-account balance (US\$ m)	-1,924.0	-276.0	-1,507.0	-4,091.0	-4,442.0		
(2) Current-account balance (US\$ m)	244.0	-215.0	-892.0	-682.0	-835.0		
(1) Current-account balance (% of GDP)	-7.9	-0.8	-3.6	-8.6	-8.1	-6.2	-4.6
(2) Current-account balance (% of GDP)	1.1	-0.8	-2.7	-2.0	-2.3	-1.6	-0.8
(1) Unemployment Rate (average)	18.7	17.5	18.2	11.7	10.4	9.8	9.5
(2) Unemployment Rate (average)	10.1 <sup>d</sup>	10 <sup>d</sup>	9.01 <sup>d</sup>	10.1	9.6	9.3	9.5
(1) Government Balance (% of GDP) <sup>d</sup>	-7.76	-3.78	-3.15	-2.9	-2.6	-3.0	-2.5
(2) Government Balance (% of GDP) <sup>d</sup>	-2.5	-2.8	-2.3	-1.1	-0.9	-1.2	-1.4
(1) FDI Inward (US\$ bn)	4.1	0.8	1.3	1.9	3.3		
(2) FDI Inward(US\$ bn)	1.6	0.3	0.8	0.5	1.9	0.0	
(1) FDI Inward (% GDP)		2.3	3.0	4.0	6.0		
(2) FDI Inward (% GDP)		1.2	2.5	1.5	5.1		

Sources: The Economist Intelligence Unit, 2007; OECD, 2006; Slovenski Statistični Letopis, 2006, World Investment Report 2006, UNCTAD. (a Actual, b EIU estimates, c Forecast, d Our elaboration on the basis of the Slovene Statistical Yearbook 2006).

Fig. 1 is showing the data of the GDP growth in the period between 2002 and 2008. The data for 2006, 2007 and 2008 are calculations and forecasts. The growth data are higher for Slovakia than for Slovenia. They are reaching an apex in 2006 for both countries, after which they bend down. Anyhow, the data are higher than the EU average, which is around 2% in the same period.

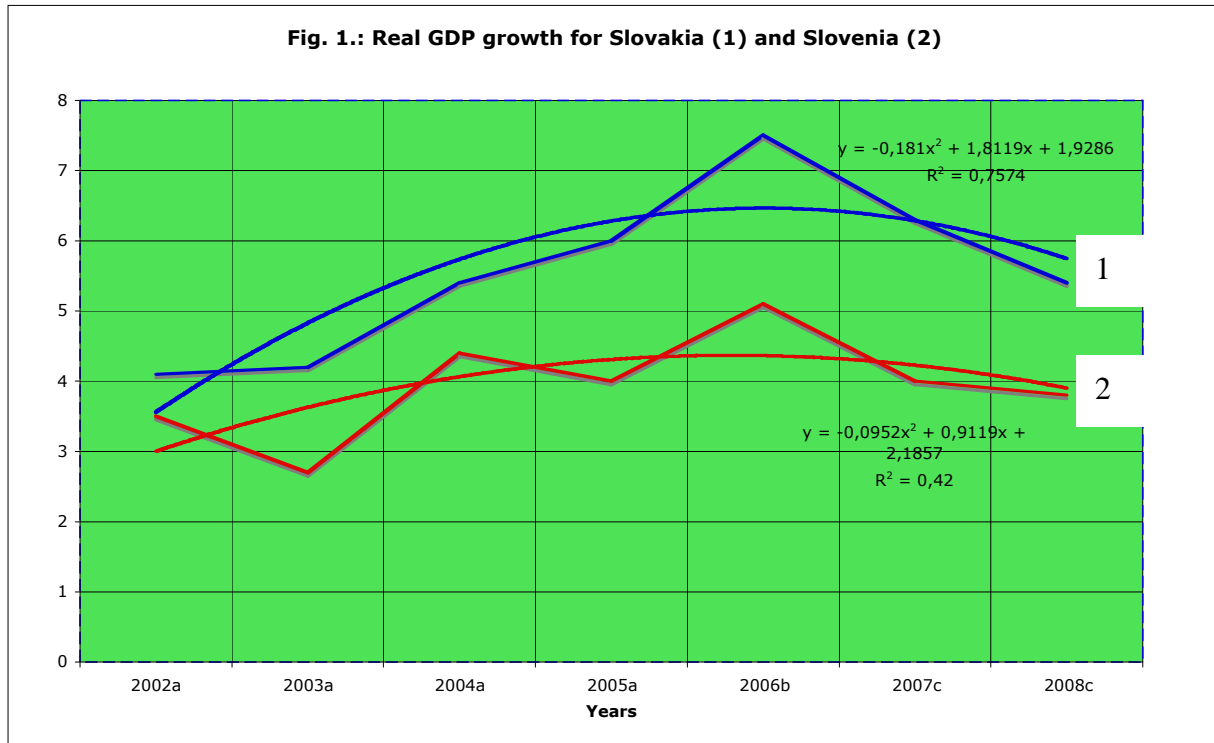


FIG. 1: REAL GDP GROWTH FOR SLOVAKIA (1) AND SLOVENIA (2)

Another interesting data we can see from Fig. 2 Both countries reduced inflation in the observed period, reaching almost 0 in 2006, but the forecast for 2007 and 2008, is about a small rising, within the Maastricht allowance. The impression is that reduced inflation was possible also because of heavy foreign investment particularly in the area of large distribution, which helped to push down domestic prices in both countries.

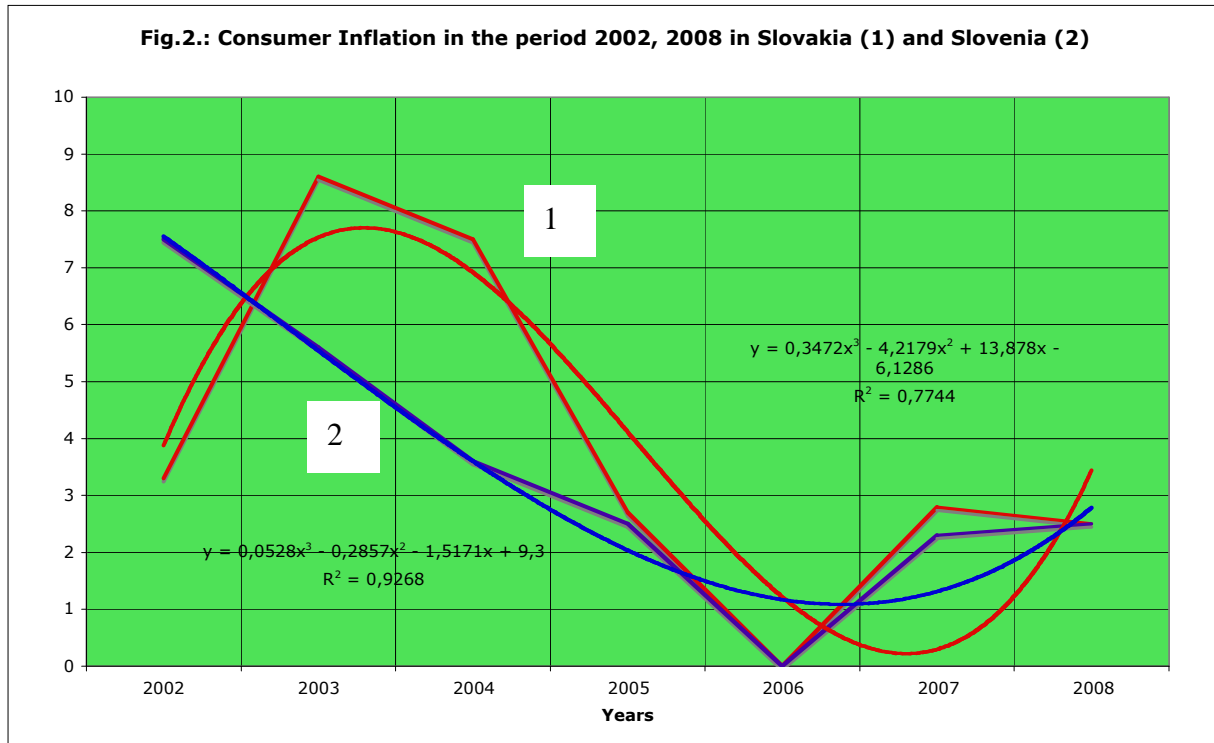


FIG. 2: CONSUMER INFLATION IN THE PERIOD 2002, 2008 IN SLOVAKIA (1) AND SLOVENIA (2)

Fig. 3 is showing the data of GDP per capita, which in 2002 was twice as high for Slovenia than Slovakia. The forecast is for a quick growth of it until 2008, but the distance between two lines looks as remaining at the same level and even expanding a little bit. Slovenia had a higher per capita GDP and was able to increment it, reaching a level close to the EU average, whereas Slovakia is still on a level which is below that EU average and is catching up only slowly.

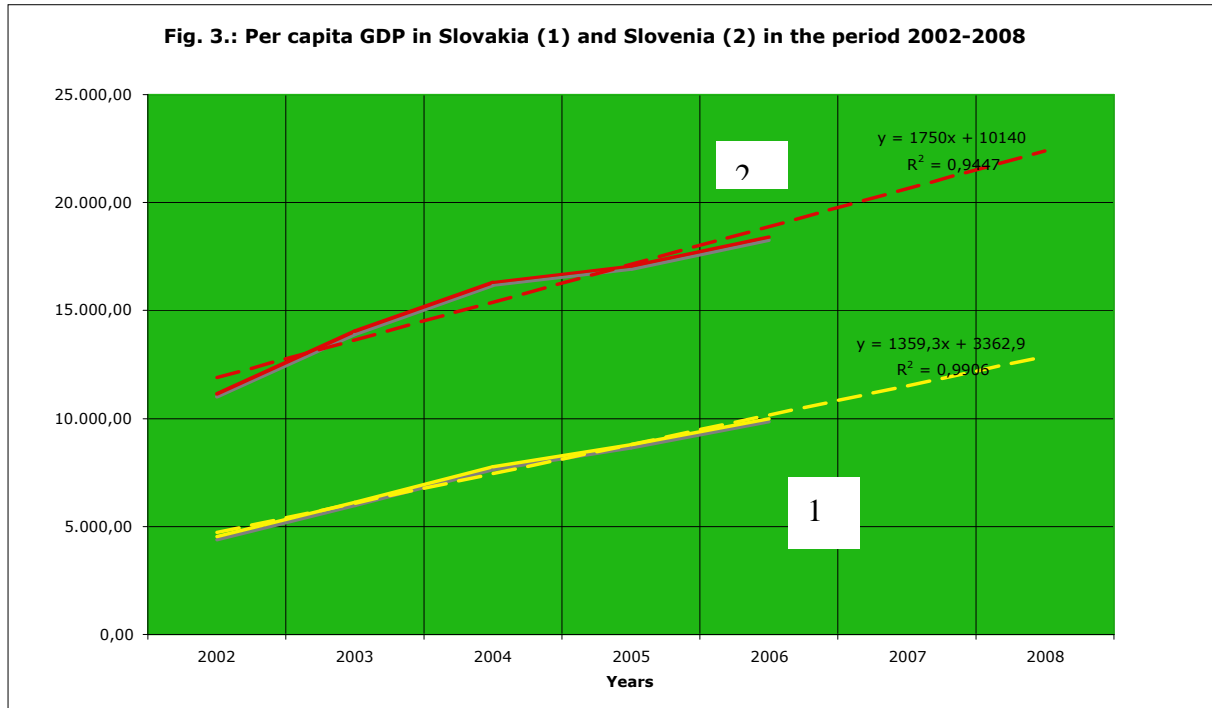


FIG. 3: PER CAPITA GDP IN SLOVAKIA (1) AND SLOVENIA (2) IN THE PERIOD 2002-2008

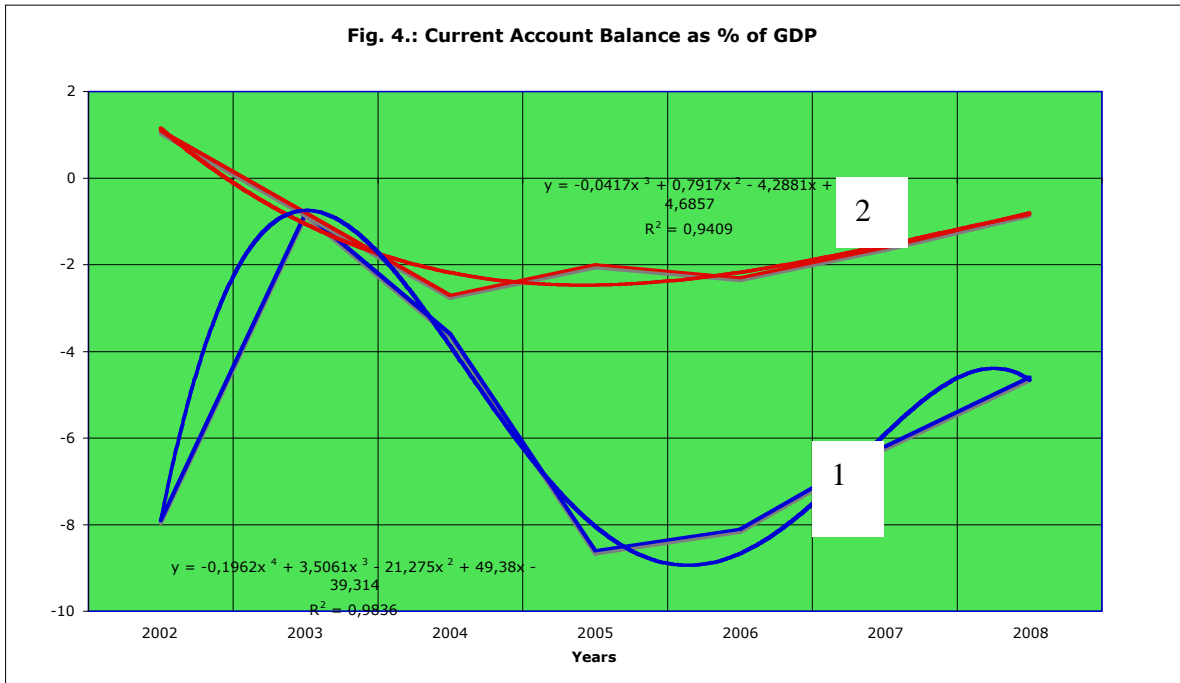


FIG. 4: CURRENT ACCOUNT BALANCE AS % OF GDP

Another interesting picture of the two countries, is given by Fig. 4, showing the pattern of the current account balance. We see here a marked difference between the two, which is probably explaining also the differences exhibited by GDP. Slovenia has a current account, which is in the whole period much more balanced than Slovakia, the last exhibiting a wave-like pattern in the negative quadrant. The explanation can be only that Slovenia has a better trade balance, i.e.: it has companies, which are able to export to the world markets, keeping tighter the balance between imports and exports. Moreover, Slovenia has a better service sector, which is also creating financial inputs to the country, offsetting possible deficits in the trade area.

It is known that FDIs, when they arrive to a country, can create problems to the host, if they implement a huge demand for products, before provoking exports, as it might take time for an investment to be fully efficient, from a global point of view. It looks like that such a situation may have acted in Slovakia, creating the patterns shown in Fig. 4, with large deficits of the current account. Maybe also the service sector, which can help to buffer such a situation, was less effective in Slovakia than Slovenia. In order to know that, it would be necessary to make a more detailed analysis.



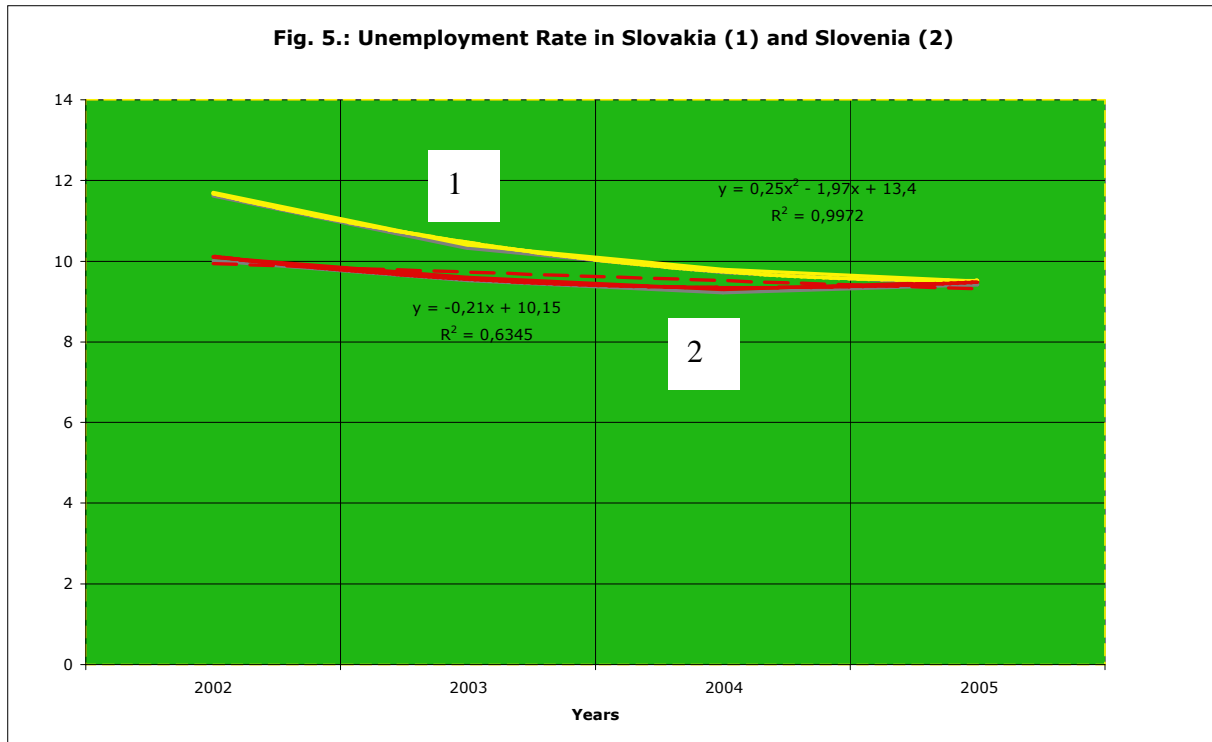


FIG. 5: UNEMPLOYMENT RATE IN SLOVAKIA (1) AND SLOVENIA (2)

Fig. 5 is showing another important indicator of overall economic performance: the unemployment rate. In 2002 it was higher in Slovakia, but after it is around 9%. This phenomenon may be a sign of the good Slovak policy, in order to attract FDIs to the country, also by the use of fiscal measures, like the famous flat tax rate at 19% in all areas, from VAT to profit taxation.

Fig. 6 shows the fiscal deficit of the two countries: we can observe that Slovenia again has a fiscal policy which is much more equilibrated than Slovakia, which was one of the reasons for accepting the country into the Euro area, whereas Slovakia looks like to be “fighting” with this problem. But in the last time, the fight appears to be pretty successful, closing on the target given by the Maastricht rules, which are, as known -3%.

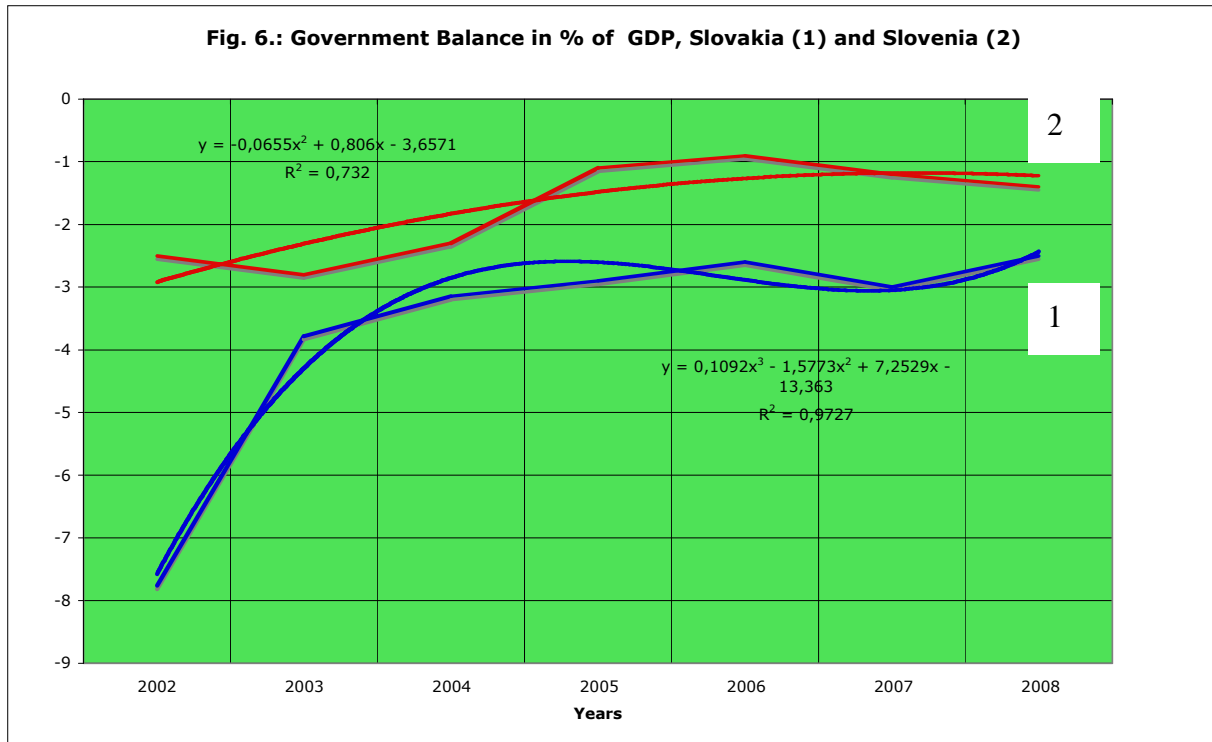


FIG. 6: GOVERNMENT BALANCE IN % OF GDP, SLOVAKIA (1) AND SLOVENIA (2)

The Fig. 7, shows inward FDIs in both countries as percentage of GDP. Of course, there is a difference between the two countries: the FDIs in Slovakia are bigger than in Slovenia, but we can observe that, as a percentage of GDP, the difference is not so large as thought. Moreover, the forecast is showing that Slovenia might catch up in the next years. It would be a premium for the more equilibrated economic policy of the country.

Fig. 7.: FDI Inward as % of GDP, Slovakia (1), Slovenia (2)

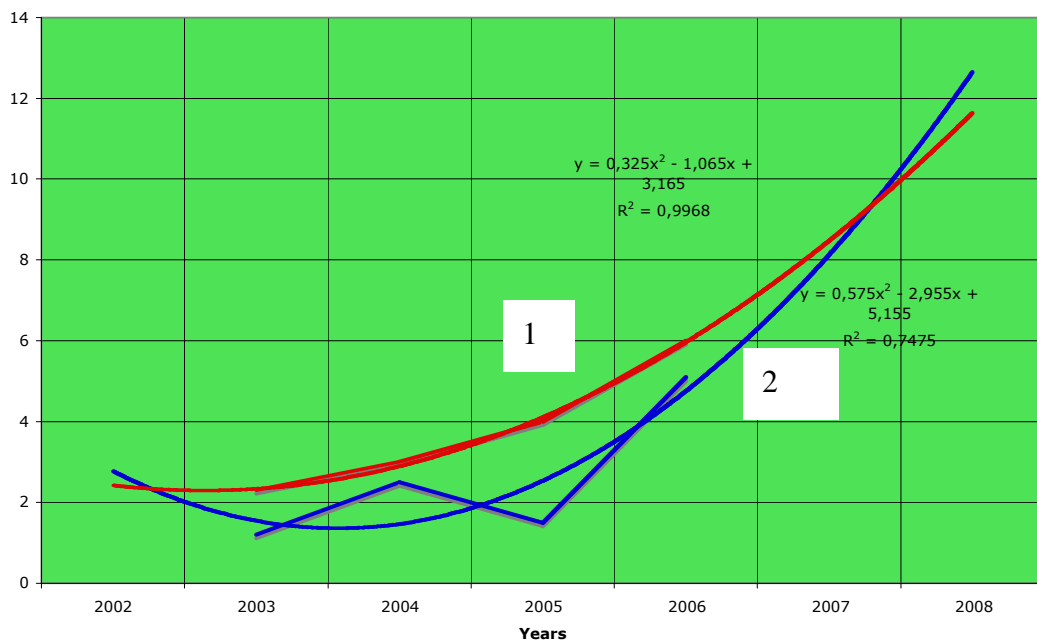


FIG. 7: FDI INWARD AS % OF GDP, SLOVAKIA (1) AND SLOVENIA (2)

The coherence and consistency of the reforms, together with EU membership, has helped to convince large multi-national corporations that the Slovak economy is an attractive investment destination. The penetration of foreign direct investment has been high, with business investment particularly in the export-oriented manufacturing sector becoming the prime engine of capacity and output growth. FDI has brought with it new technology and better business practices, many of which have now trickled down to domestic firms who have been forced to compete in the more dynamic business environment. Indeed, productivity gains have been most notable in those sectors that have seen significant FDI inflows and in those where competition is strongest. At the same time, interest rates, inflation, and the public deficit have been converging to European Union benchmarks, further enhancing the credibility of the reform agenda and increasingly facilitating the access of smaller firms to credit. Thanks to a robust increase in potential output, strong export and domestic demand over the past two years have faced no major supply constraints and the economy has remained on a balanced growth path of around 5% per year. Looking ahead, however, the extent of excess capacity in the economy is diminishing, suggesting possible risks for inflation.

## Conclusions

The two countries Slovakia and Slovenia have some historical, cultural and economic elements in common: they were both part of socialist federal states, from which they seceded. The main difference was that Slovakia was the less developed and Slovenia the most developed part of the respective systems. Moreover, Tito's Yugoslavia introduced earlier market reforms and Slovenia had the possibility of developing its infant industry in a more open economic environment, getting used to market rules. During transition, Slovenia followed a more cautious policy, paying attention to the fiscal balance. The current account balance was kept under control also by developing service activities in the areas of tourism, transports and similar areas.

Slovakia, on the other hand, was more interested to develop at any cost, having the preoccupation of a high unemployment rate, as a result of the failure of a large number of companies of the previous socialist period.

Also in the FDI area Slovenia was more cautious, keeping in mind that in general they are beneficial to a given country, but sometimes they might have also a negative impact, especially in the short run, if they unbalance the current account of the host country.

So that an equilibrate policy might have a reward in growth, which comes not immediately, but with some delay in the medium or long period.

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# **Analysis of Factors Contributing to Low FDI in the Agricultural Sector in Tanzania**

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## **Abstract**

**In this paper impact of FDI on agriculture productivity and poverty reduction are examined. Factors that hinder FDI flow to agriculture sector in Tanzania are assessed. Specifically, the role FDI in improving agriculture firm's efficiency in Tanzania and reforms required for more effective investment promotion in agriculture are examined. The study uses literature review to draw its conclusion and policy recommendations. It is observed that FDI has positive impact on productivity especially to smallholder farmers who are linked in the integrated producer schemes. The study recommends rethinking of the smallholder institutional setup for increasing productivity and FDI flow to the agriculture sector. An important implication of the result is that, FDI to Tanzania specifically to agriculture sector has much more reaching economic and social impact than in other sectors.**

## **Introduction**

FDI has been shown to play an important part in promoting economic growth, raising a country's technological level, and creating new employment in developing countries (Blomström and Kokko, 2003; Klein, Aaron, and Hadjimichael, 2003; Borenstein, De Gregorio, and Lee, 1998). It has also been shown that FDI works as a means of integrating developing countries into the global marketplace and increasing the capital available for investment thus leading to increased economic growth needed to reduce poverty and raise living standards (Rutihinda, 2007; Dollar and Kraay, 2000; Dupasquier and Osakwe, 2005).

According to the World Bank's "World Development Report", in 2000 over 1.1 billion people were subsisting on less than US\$1 a day and around 2.1 billion people on less than US\$2 a day of whom between two-thirds to three-quarters live in rural areas. In Sub-Saharan Africa (SSA), where about 43 percent of its population is living below the international poverty line, the incidence of poverty is the highest among smallholder farmers residing in rural areas. Thus, if the war on poverty is to be won, developing countries need to place more emphasis on the agricultural sector (Mangisoni, 2006; IFAD, 2002).

Growth in agriculture and its productivity are considered essential in achieving sustainable growth and significant reduction in poverty in developing countries. Both development and agricultural economists view productivity growth in the agricultural sector as critically important if agricultural output is to increase at a sufficiently rapid rate to tackle poverty (Rao, Coelli and Alauddin, 2004). In view of the declining arable land per capita, high production costs, combined with rapid population growth and the resulting need for human settlement and rising urbanization significant improvements are required in productivity growth in agriculture in order to increase agricultural output through technological innovations and efficiency. Limited development and adoption of new production technologies essential for improving productivity by the poor are mostly due to limited income and source of credit among others. FDI play a significant role in increasing productivity by offsetting the investment and technological gap. This is shown in much literature (e.g. Chen and Démurger, 2002; FAO, 2001; and Buckley, Clegg and Wang 2006) by significant levels of TFP growth between sectors dominated by FDI and those dominated by domestic investment. Much of this productivity is a result of technological improvement through spillovers and improved efficiency (Blomström and Kokko, 2003).

In the light of the above, the evaluation of impact of FDI on the agriculture productivity in Tanzania is an essential step in studying the relationship between FDI, agriculture-sector productivity and poverty reduction. There are a small number of literatures dealing with FDI flows to Tanzania (see for example, Rutihinda, 2007; Ngowi, 2002; and Mkenda, 2005). However, the existing literature focuses on the determinants of FDI to the country, impact of FDI on local firms (spillover effect), and FDI entry modes to Tanzania, with very little discussion on the impact of FDI on agriculture productivity, and the resulting impact on poverty reduction. The present paper attempts to overcome this limitation. It examines the impact of FDI on agriculture productivity in Tanzania by reviewing empirical evidence. More specifically this paper examines the role of FDI in increasing efficiency of smallholder farmers and thus their productivity. Factors that hinder FDI flow to the agriculture sector are also highlighted. It emphasizes a new approach to the promotion of investment to the sector that is based on further integration of smallholder farmers in national, regional, and global value chain.

Flow of FDI into agriculture sector in Tanzania is important for three main reasons. The first is that, the agriculture sector plays an important role in the Tanzanian economy and possesses the potential to advance the country's objectives of growth and poverty reduction. The sector contributes the most to GDP (over 45% of the GDP) and supports livelihoods of over 80% of Tanzanians living in the rural areas. Agricultural products contributed about 21.3% in 2005 (URT, 2006a) of Tanzania's export earnings. Second, since over 80% of the population in Tanzania lives in rural areas and agriculture is the mainstay of their living, any strategies to address poverty must involve actions to improve agricultural productivity and farm incomes. As growth is the single most important factor affecting poverty reduction, FDI flow into the sector is thus central to achieving that goal. Third,



FDI to the sector has remained very small<sup>1</sup> (about 2.1% of total FDI inflow) despite the sector's impressive growth rate (5.5% in 2005; URT, 2006b); being the most efficient sector in creating employment<sup>2</sup> and given its role in addressing both urban and rural poverty.

The paper is organized as follows. Section 2 builds a conceptual framework for the impact of FDI on agriculture productivity. Section 3 presents a descriptive analysis of Tanzania's FDI flows while section 4 summarizes evidence of FDI impact on agriculture productivity and poverty reduction in Tanzania. The way forward is presented in section 5 followed by concluding remarks.

### **Literature Review**

The importance of FDI in the economic performance has been extensively discussed in the economic empirical literature. Analyses may be divided in two main categories: those looking at the determinants of FDI and those looking at the impact of FDI on the domestic economy. From the theory of determinants of FDI the major determinants include domestic market size and its growth, domestic business environment, technological capability, trade policy, investment policy, commitment to international rules and agreements, and other factors. The second group includes a growing number of empirical papers studying at various levels of aggregation, how FDI influences economic growth process. The main focus of this paper being on the impact of FDI on the agriculture productivity and poverty reduction, the following review concentrates on the literature investigating the role of FDI in the increasing productivity. Within this literature, two different approaches can be distinguished. One aims at measuring the contribution of FDI to output growth and productivity. The other assesses the performance of sectors dominated with FDI in comparison with domestic firms, in order to appreciate their potential impact on industrial structure and efficiency.

### **Theories and Empirical Studies**

According to Blomström and Kokko, (2003) and Borenzstein, De Gregorio, and Lee (1998), the contributions of FDI to the development of a country are widely recognized as filling the gap between desired investment and domestically mobilized saving, increasing the tax revenues, and improving management, technology, as well as labor skills in host countries. These could help the country to fight its way out of poverty (Borenzstein, De Gregorio, and Lee. 1998).

According to neoclassical theory, FDI influences income growth by increasing the amount of capital per person. It spurs long-run growth through such variables as research and development (R&D) and human capital. Through technology transfer to their affiliates and technological spillovers to unaffiliated firms in the host economy, MNCs can speed up the development of new intermediate product varieties, raise product quality, facilitate international collaboration on R&D, and introduce new forms of human capital (Ikara, 2003).

Empirical studies suggest that FDI is very important because it provides a source of capital and complements domestic private investment. Many studies (e.g., Blomström and Kokko, 2003; Chen and Démurger, 2002; and FAO, 2001), conclude that FDI contributes to total factor productivity and income growth in host economies, over and above what domestic investment would trigger. These studies find, further, that policies that promote indigenous technological capability, such as education, technical training, and R&D, increase the aggregate rate of technology transfer from FDI and that export promoting trade regimes are also important prerequisites for positive FDI impact.

For instance, a study by Borenzstein, De Gregorio, and Lee (1998) using data on FDI received by developing countries tested the effect of FDI on economic growth in a cross-country regression framework. They found some indications that FDI has a positive effect on economic growth, but this impact was dependent on the human capital stock in the host economy. The higher productivity of FDI holds only when the host country has a minimum threshold stock of human capital. Similarly, Sun (1998) in Chen and Démurger's (2002) work, also finds evidence on a generally higher level of productivity growth of foreign-funded firms in China as compared to domestic firms. As most of these studies use data cross-cutting different sectors it is assumed that the results and implications hold true on agriculture firms. Therefore, based on this, the first research question (R1) is: *If inflow of FDI in Tanzania agriculture sector has a positive impact on productivity. This is expected to be the case especially for smallholder farmers who are linked to FIEs through integrated producer schemes<sup>3</sup>.*

However, there is growing empirical evidence suggesting that the impact of FDI on economic growth is not automatic. For example, Borenzstein, De Gregorio, and Lee (1998) show that for FDI to contribute to economic growth, the host country must have achieved a minimum threshold level of development in education, technology, infrastructure, financial markets, and health. Thus, FDI contributes to economic growth only when a sufficient absorptive capability of the advanced technologies that it brings is available in the host economy. This suggests that most of the effect of FDI on economic growth likely derives from efficiency gains rather than an overall higher induced level of investment. In a similar perspective, Fan (1999, chapter 7) quoted in Chen and Démurger (2002), shows that "positive and significant spill-over appears only in industries which are mainly labor-intensive and have a low to moderate technology gap between Chinese and foreign firms". Therefore, based on this and the fact that agriculture production in developing countries is mainly labor-intensive the second research question (R2) is: *If agriculture firms (smallholder farmers) with strong links (through vertical integration) to FIEs are likely to be more efficient than their counter parts that are not.*

### **Conceptual Framework**

This paper is based on the concept that; achieving the MDGs requires more rapid and broad-based economic growth. An estimated rate of gross domestic product (GDP) growth of 7% a year is needed to achieve the Millennium

poverty target (IFAD, 2002). In many low-income countries, given the importance of the agriculture sector in employment and output, the best way to raise the overall rate of economic growth and promote broad-based and sustainable development is through more rapid agricultural development. FDI can play an important role through increasing efficiency and productivity.

Although growth is not a sufficient condition for poverty alleviation, there is evidence that higher incomes in developing countries benefit the poor segments of the population proportionately (Ikara, 2003). FDI is a key figure for generating growth and thus it is an important ingredient for poverty reduction. Dollar and Kraay, (2000) indicate that on average the poor do benefit from the growth as an increase in the rate of GDP per capita leads to a one for one increase in the average income of the poorest. FDI is thought to contribute to economic development (and therefore poverty reduction) through initial macroeconomic stimulus and by raising total factor productivity and efficiency of resource use in the recipient economy.

FIG. 1 below present a conceptualization of the way in which FDI can contribute to poverty reduction. In Ikara (2003) work, FDI contribute to poverty reduction by raising total factor productivity and efficiency of resource use. This leads to economic growth and ultimately poverty reduction. He points out the transmission mechanism between FDI and poverty reduction is through; direct technology transfer, technological spillovers, human capital formation, international trade integration, and competitive business environment. Most literature on FDI agrees with the above mentioned transmission mechanism (see Blomström and Kokko, (2003) for a review).

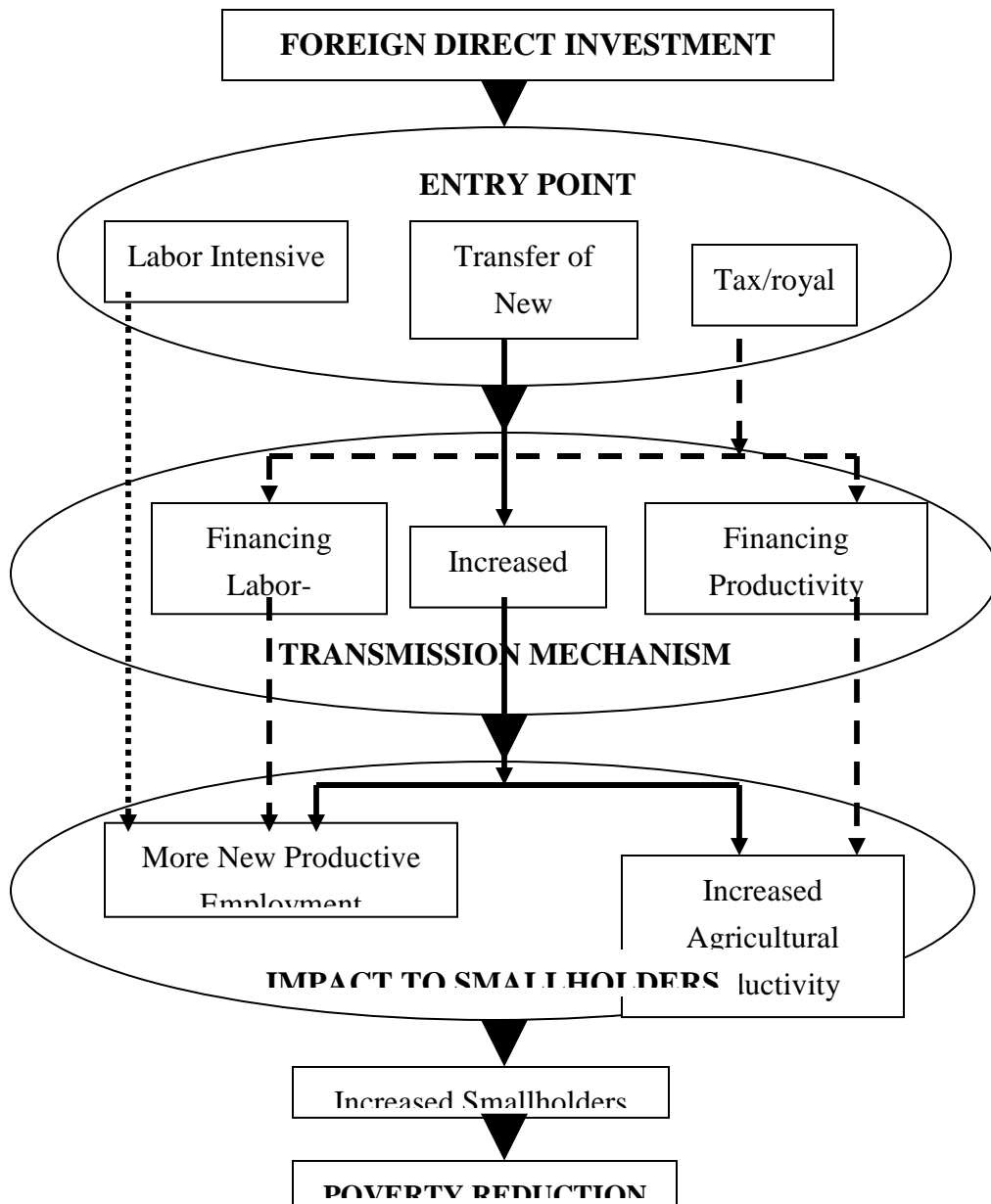


FIG. 1: FDI IMPACT ON POVERTY REDUCTION; TRANSMISSION MECHANISM

As it can be observed from FIG. 1, the pattern of inter-relationships among the economic variables impacting on poverty reduction is complex and, given time and other constraints, cannot be entirely cover in this study. However,

Tambunan (2004) shows that much contribution of FDI to poverty reduction is through widening access to employment, especially productive employment. He points out that "...in many developing countries insufficient job opportunities are the result of inadequate levels of investment, both domestic and foreign" and that "... low investment makes other forms of poverty alleviation more difficult, because lower rates of economic growth than the rate of population growth means that each year more people are added to the ranks of the poor...". In developing countries where domestic savings are very small, FDI is a potential source for capital formation. As pointed earlier the ultimate impact of FDI on economic growth in the host countries (leading to poverty reduction) depends not only on the performance of foreign firms, but also on the diffusion of new technologies, innovations, knowledge, new best practices and other intangible assets from FDI throughout the economy of the host countries (Tambunan, 2004; Borenstein, De Gregorio and Lee, 1998).

The literature reviewed shows that most previous studies on FDI impact on productivity focused on different countries and sectors of the economy although, some focused on a single country or a single branch at a time using a variety of methodologies (see Hansen, Jervelund and Olsen, 2006 for a summary). On the other hand, most researchers (both development economists and agricultural economists) have examined the sources of agricultural productivity growth over time. Most of these studies used cross-sectional data to estimate a Cobb-Douglas production technology using regression methods. The focus was generally on estimating production elasticities and investigating the roles of farm scale, education, research and presence of FIEs in explaining the determinants of productivity. A number of studies have conducted panel data analysis of agricultural sector comparisons. Rao, Coelli and Alauddin, (2004) provide a brief review of these literature.

#### **FDI Inflows in Tanzania**

Table 2 below shows selected economic and financial indicators of Tanzania. Domestic savings are about 12 percent of Gross National Disposable Income. Although this might seem to be high, one can observe that the rate of saving is somehow very small. In this small saving rate Tanzania economy needs a lot of support from outside. FDI could be a better way for injecting the much needed capital for rapid economic growth.

TABLE 2: TANZANIA ECONOMIC AND FINANCIAL INDICATORS

Indicator	Unit	2000	2001	2002	2003	2004	2005
Change in GDP at Factor Cost-- Constant 1992 Prices	Percent	4.9	5.7	6.2	5.7	6.7	6.7
GDP Per Capita--Current Prices	USD	262.7	264.4	267.9	276.2	303.0	319.8
Inflation	Percent	5.9	5.2	4.5	3.5	4.1	4.4
Saving to GNDI Ratio	Percent	11.6	11.1	12.7	11.8	12.3	12.5
Population (TZ Mainland)	Million	31.9	32.1	33.6	34.2	34.8	36.2
Total External Debt as % of GDP	Percent	80.7	78.5	75.9	83.5	77.5	77.5

Source: Bank of Tanzania

Despite a fall in FDI into Sub-Saharan Africa, Tanzanian's FDI inflows have increased impressively over the years. Flow of FDI into Tanzania has been on the increase over the past decade (Table 3). According to the World Investment Report 2006 (UNCTAD, 2006), Tanzanian's inward FDI stock in 2001 reached a record high of US\$224 million, before jumping to US\$ 6,028.8 million by the end of 2005, placing the country among the top dozen recipients of FDI in Africa, just behind oil producing countries and South Africa. This trend is partly explained by the continually improving economic performance and investment climate created by the economic and political reforms in the early 1990s.

TABLE 3: SUMMARY OF FDI FLOW AND STOCK IN TANZANIA

No.	Variable Inward Outward	Inward (Millions of dollars)
1	FDI flows, 2002-2005 (annual average)	475.0
2	FDI flows as a percentage of GFCF, 2002-2005 (annual average)	21.5
3	FDI stock, 2005	6028.8
4	FDI stock as a percentage of GDP, 2005	49.6

Source: UNCTAD, FDI/TNC database

About 85 percent of the Foreign Private Capital (FPC) stock in Tanzania is FDI. FPC such as portfolio and other foreign investment, mainly debt (short and long-term borrowings) account for the remaining 15 percent. Other types of external capital to Tanzania are bilateral and multilateral aid from the World Bank and other partner countries. Since 1993, FDI inflows into Tanzania have taken predominantly the form of Greenfield investment in spite of some participation by foreign investors in Tanzania's privatization programme and a few cases of acquisitions of foreign affiliates by foreign investors. Tanzania has been able to attract both market-seeking FDI and export-oriented FDI to different sectors of her economy (Table 4).

Survey results from a study by the Tanzania Investment Center (TIC) show that, FDI stock in Tanzania is dominated by OECD countries particularly UK, Canada, Japan and USA as observed in Table 4. As a group, OECD countries, accounted for 57.2 percent of the stock of FDI in 2001, followed by SADC (24.5 percent) and EAC (7.3 percent) (URT, 2005).

TABLE 4: SUMMARY OF TYPE OF FDI AND COUNTRY OF ORIGIN

No.	Type of FDI	Industry	Country of Origin
1	Market-seeking FDI	Brewing	South Africa
		Tobacco	Japan
		Electronic Equipments	Japan; Republic of Korea; UK;
		Cement	Norway; Zambia
		Sugar Processing	South Africa; UK
		Financial services	South Africa; UK; Saudi Arabia; US; Belgium; France; Kenya; Malaysia
2	Export-oriented FDI	Mining	UK; SA; Ghana; Canada; Australia;
		Textile	China;
3	FDI in infrastructure and utilities	Energy (electricity)	Malaysia; Canada;
		Telecommunication	German; Netherlands; US; EU;
		Port handling facilities	Philippines; UK; EU

Source; UNDP, 2007

Regional distribution of FDI in Tanzania shows that high concentration is in regions endowed with a variety of natural resources and have better social and economic infrastructure. Dar es Salaam the largest city in the country was leading with 51.7 percent of total FDI stock during 1999 – 2001, followed by Shinyanga and Mwanza (11.5% and 10.8%); Arusha – including Manyara (8.3 percent) all of which have natural resources. Others are Morogoro (5.5 percent) and Urban West – Zanzibar (2.4 percent) (URT, 2005). Development of social and economic infrastructure is thus necessary in order to increase the prospects of other regions to attract investments.

Mining, manufacturing, wholesale and retail trade (including tourism) sectors have attracted more investments since the middle of 1990s. These sectors have been dominated by TNCs, which also dominates the power generation and telecommunication industries. According to recent data from TIC (URT, 2005), between 1990 and 2003, 2288 projects with total investment of \$11.9 billion were registered. Figure 2 and 3 below show number of projects and FDI stocks distribution by sector. The surge of investments in the manufacturing sector reflects a response to the reform programme and privatization process started in 1993. Failure of the agriculture sector to attract much FDI needed to bring about rapid growth and thus help in fight against poverty is discussed further in the coming section.

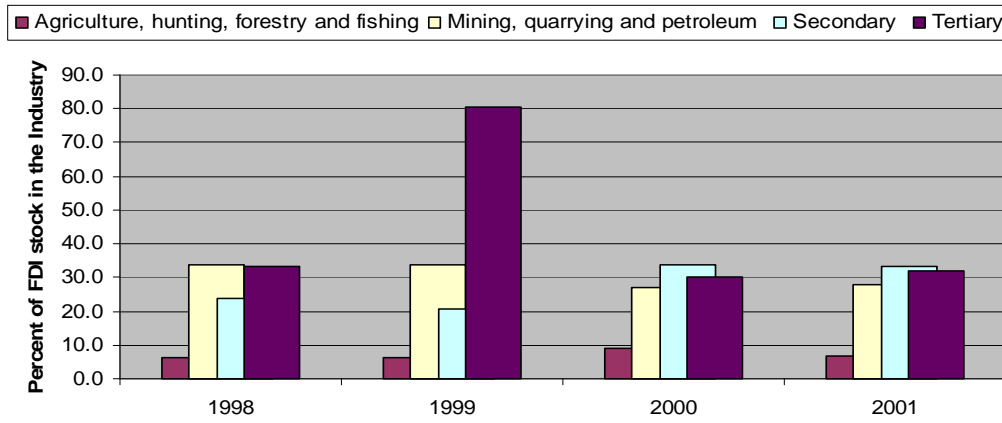


FIGURE 2: DISTRIBUTION OF FDI STOCK (%) BY SECTOR, 1998-2001

Source; Tanzania Investment Center (TIC) reports

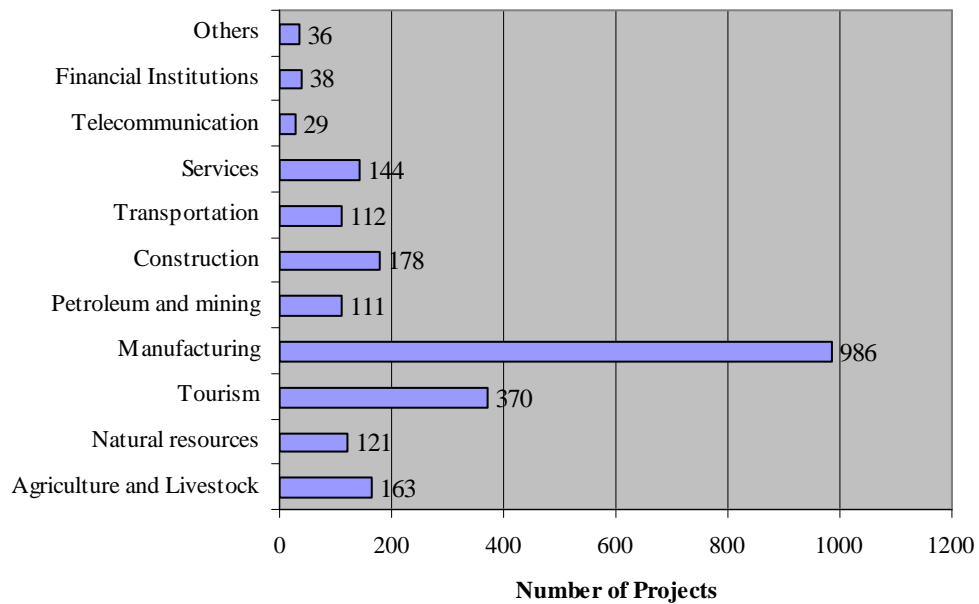


FIGURE 3: NEW (1990-2003) INVESTMENT PROJECT IN TANZANIA BY SECTOR

Source; Tanzania Investment Center (TIC) reports



Despite the fact that agriculture sector has immense investment potentials, employing about 89 percent of the total population, contributing about 47 percent of GDP, directly producing about 45 percent of total exports, and a key sector in the fight against poverty, it has attracted the smallest share of FDI to Tanzania.

#### Impact of FDI on Agriculture sector in Tanzania

The qualitative impact of FDI on the Tanzania economy has become noticeable, especially in the industries in which FDI is concentrated. FIG. 4 below, indicate that there is a strong positive relationship between FDI stocks and GDP growth rate. In mining, FDI has served as an engine of growth and has helped increase gold exports. Gold exports amounted to USD 703.7 million contributing about 42% of total exports value for the year ending September 2006 (BOT, 2006). Gold exports remain dominant in total non-traditional exports, followed by manufactured goods and fish and fish products. Increase of FDI inflows has also contributed to the modernization of the different industries. Foreign investors have restructured privatized enterprises, boosting their competitiveness, typically contributing to the transfer of technology and skills. Although the impact is strongest in the industries in which FDI is concentrated, it has limited implications for the entire economy.

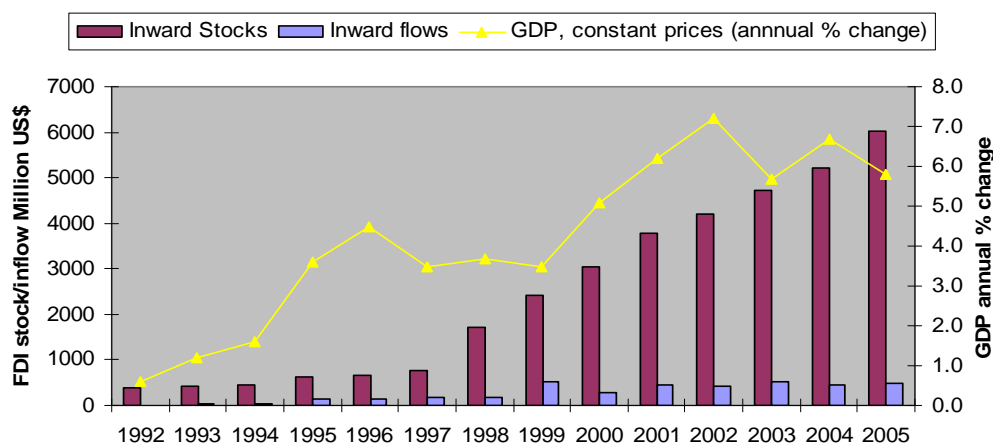


FIG. 4: FDI INFLOWS/STOCK AND GDP GROWTH 1992-2005

Source: UNCTAD, FDI/TNC database; Bank of Tanzania

The scale of these impacts is still small and a number of desired impacts are not occurring (such as linkages to the local economy and thus impacting poverty reduction or the encouragement of local science and technology capacities). For example most FDI, currently has little impact on the employment situation, as it is directed toward capital-intensive sectors. Thus, after initial successes with FDI, the challenge for the Tanzania is now to push FDI to new frontiers, such as agriculture sector which is important in the fight against poverty.

### **Impact on Agriculture Productivity**

On his speech to commemorate the 16<sup>th</sup> Africa Industrialization Day the Tanzania Minister for Industry and Trade Dr Juma Ngasongwa stressed among other things that “...low productivity, inadequate physical and economic infrastructure, dependence on export of primary goods without value addition through manufacturing and low standards and standardization are key constraints adversely affecting Tanzania economic growth...,” (IPP, 2005). Dr. Ngasongwa pointed out that, the government through the Tanzania Development Vision 2025 has “...assigned the industrial sector a very central role of transforming the economy from a low productivity agriculture to semi-industrialized one led by modernized and highly productive agricultural activities which are effectively integrated and buttressed by supportive industrial and service activities...”. Given the limited financial capabilities of the government, FDI is expected to play a central role in this task.

As shown in the literature review section above, several studies have found local firm’s productivity increases with sales to multinational enterprises. Similar results have been obtained in Tanzania by Rutihinda, (2007), when exploring the impact of globalization on SMEs firms in Tanzania. In her regression model both specification coefficients for capital, raw materials, domestic sales to FIEs and joint ventures were positive and significant. This indicates that Tanzania firms like firms in other developing countries are affected equally by FDI flow. This trend is assumed to hold true in all sectors.

Tanzania agriculture is dominated with smallholder farmers cultivating an average of 0.5 ha to 2 ha. Productivity has been especially low for smallholders compared to agricultural undertakings by estates or large commercial farms, which have been able to attract considerable amount of FDI. Records from TIC show that more than 90% of FDI into the agriculture sector went to crops sub-sectors (e.g. sugarcane, barley, sisal) whose smallholder farmers have been well organized to support the foreign investments (URT, 2005). Two examples (The production of sugar cane in Mtibwa<sup>4</sup> and Kilombero<sup>5</sup>; and tea in Rungwe District through the Wakulima Tea Company<sup>6</sup>) demonstrate that FDI flow to agriculture sector is viable and beneficial to smallholders and FIEs (Box 1). These two cases are picked as they show incentives from FIEs (such as reliable markets, stable prices and technology development) can lead to high increase in smallholder productivity. Secondly they are picked due to the large number (about 30,000 smallholders) of smallholders integrated with the FIEs. Given that these smallholders normally represent households, the impact of the increased productivity is far reaching. In the sisal industry similar trends have been observed through Katani Ltd<sup>7</sup>. FDI has been proved (R&AWG, 2005; URT2006a; and Msuya and Ashimogo, 2006) to be able to stir up agriculture productivity and thus impacting on poverty reduction in Tanzania. However, more empirical studies are required to prove beyond doubt the impact of FDI on Tanzania agriculture productivity.

#### BOX 1: PRODUCTIVITY OF IMPACT FROM FDI

*In these two schemes driven by FDI, positive results have been recorded in expanded area cultivated, in increased production and productivity and in improved quality.*

##### **Tea Industry**

*In Rungwe, annual green leaf production has increased fivefold in the last four years from 3,774,912 kg (2000/01) to 15,285,451 kg (2004/05). The average yields of green leaf from smallholders have increased consistently from around 1,000 kg/hectare (2000) to around 5,000 kg/hectare (2004), while the overall quality of tea from smallholders is reported to be above the standards set by the company. Productivity performance is best for those smallholders with links to integrated producer schemes. Their average yield increased from 939 kg/hectare (2000/01) to 3,249 kg/hectare (2002/3). Although there is room for improvement when compared with tea estates' productivity that averaged 9,128 kg/hectare (2000/01–2003/4), the yields from smallholders in integrated producer schemes have improved consistently and significantly since 2000. In Rungwe the scheme is operating with 15,000 tea-producing smallholders.*

##### **Sugar Industry**

*Sugar cane recorded a much higher growth in production from 2001 after several years of stagnation. The smallholders increased production from 907,000 tonnes (1999/00) to 1,594,000 tonnes (2004/05) accounting for about 68 percent of total production of sugarcane in 2004/2005 season. This significant growth can be attributed to the privatization of sugar cane estates and the adoption of the out grower model of production which began in early 2000. Smallholders producing sugar cane are integrated through growers associations which have direct links with FIEs (MSE and KSCL). The FIEs provide extension services, transportation of cane to the factories, and direct markets. Combined the two FIEs supports about 14,000 (2006) sugarcane-producing smallholders.*

#### **Impact of FDI on Efficiency**

A number of studies in Tanzania agriculture sector have shown that smallholders with strong links to FIEs are more efficient compared to their counter parts. Msuya and Ashimogo, (2006) used cross-sectional data to estimate technical efficiency of smallholders farmers in the Tanzania sugar industry. The results obtained from the Cobb-Douglas stochastic frontier estimation, showed that the average technical efficiency of outgrowers (smallholders with links to FIEs) was higher than that of non-outgrowers. Although they found several factors (age, origin of the farmer, educational level, and farm area) affecting technical efficiency of smallholders, the integration of

smallholder with FIEs (Mtibwa Sugar Estate (MSE)) was a major factor. For example they found out those smallholders who are close to the factory were more efficient compared to those who are far. This was closely associated with high transportation cost to smallholder farmers far from the factory as the MSE provide transportation for farmers close to the factory and others forced to use private transportation.

On the other hand a work by Admassie and Matambalya (2002) shows that firms that are not integrated with FIEs are more likely to be inefficient. In their study, the level of technical efficiency of SMEs in Tanzania was examined using a Cobb-Douglas stochastic frontier production function. They found high levels of technical inefficiency characterizing the Tanzanian SMEs. They showed that the inefficiency reduced SMEs potential output levels significantly. They suggested in assisting these firms to improve their technical efficiency efforts should be put on ensuring "...adequate supply of inputs, markets, and credit facilities, and undertaking extensive infrastructural development and training...". It should also be noted that these SMEs were mostly agricultural based.

Impact of FDI on efficiency and thus poverty reduction is also shown in a work by ESRF, (2002) which focused on the impact of MSE and KSCL in economic development of Morogoro Region. In their review ESRF (2002) showed that the two factories had an impact on poverty reduction in the surrounding areas as a result of the outgrower schemes. They showed that higher prices and assured markets had led to increased productivity and efficiency of smallholder cane farmers. As pointed earlier in the introduction section, there are a few literatures discussing the impact of FDI on Tanzania agriculture firms and/or smallholder farmers. An empirical analysis linking the above observed efficiency increase to FDI will help in determining if mechanisms suggested in section 2 above hold in all crops sub-sectors.

#### **Factors Contributing to Low FDI in the Agricultural Sector in Tanzania**

Domestic policies vis-à-vis FDI falls into two broad categories; regulation and promotion, both of which have substantially been used in Tanzania. With respect to the regulation of FDI, the general trend over the past decade has been for the gradual liberalization of rules governing foreign investors and their investments. Furthermore, privatization programmes from early 1990s have expanded the opportunities for foreign investors in the country. For example in June 2003, the Finance Minister announced that the Government would introduce reforms to the 1999 Land Act. The intent of the reforms is to facilitate the use of land as collateral in bank borrowing and to spur private investment in agriculture. Investment promotion has concurrently become an important policy tool for attracting FDI. Policies aimed at attracting FDI have ranged from relatively passive and general promotion schemes to much more aggressive targeting of foreign investors combined with the use of investment incentives. Investment incentives Package in Tanzania agriculture sector includes among others: - Zero-rated duty on capital goods, all farm inputs including fertilizer, pesticides and herbicides; reduced import tariff on project capital items to 0% for investors with Tanzania Investment Centre (TIC) Certificate of Incentives; Deferment of VAT payment on project

capital goods; Zero-rated VAT on agricultural exports and for domestically produced agricultural inputs. All exports of locally produced goods from Tanzania are charged 0% of VAT; and an indefinite carry-over of business losses against future profit for income tax.

Despite these efforts and recent growth of the sector, together with observed productivity and efficiency increasing capabilities, FDI flow into the agriculture sector has remained very small in Tanzania. Fig. 4 above shows among projects approved by Tanzania Investment Centre between September 1990 and June 2004, agricultural and livestock projects accounted for only 5 percent of the total value of investment (URT, 2005). It has been shown agricultural and livestock projects are most efficient in creating employment (Figure 5), indicating that agriculture sector has what is needed (ability to create productive employment) to address both urban and rural poverty.

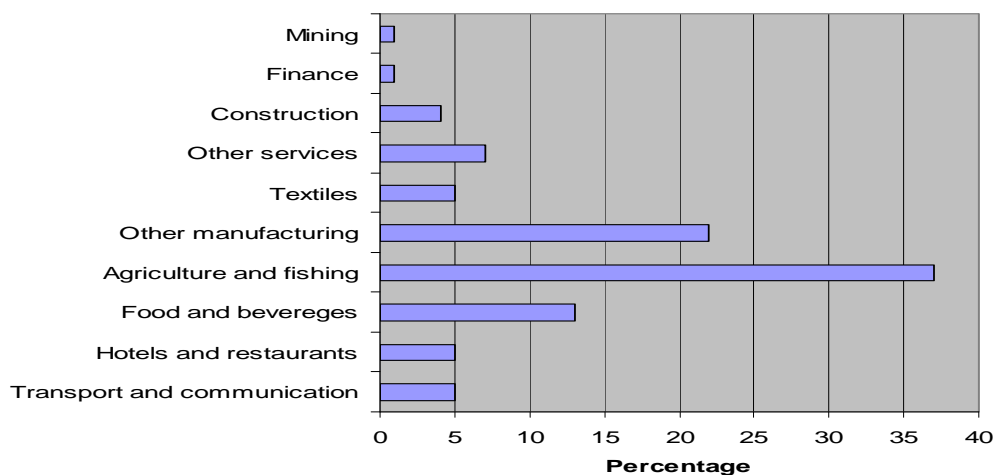


FIGURE 5: EMPLOYMENT OF APPROVED FOREIGN AFFILIATES BY INDUSTRY, 1990-2000

Expansion of private investment in the agricultural sector is limited by several factors. A study (Amani *et al*, 2003) has observed that Tanzania’s agricultural export is constrained more by domestic (supply-side) factors than international trade barriers. For instance, lack of adequate infrastructure has resulted into high energy and transportation cost, thus rendering Tanzania’s commodities uncompetitive. Low level of domestic entrepreneurship coupled with poor quality products have resulted into loss of market share. Limited financial capital, and unfavorable land and labor laws deter the growth of medium and large-scale agricultural production leading to export sector’s dependency on poor quality high cost products from small-scale production sector (refer Amani *et al*, (2003) for a detailed review).

On the other hand as Tanzanian agriculture sector continue to depend on smallholder producers, characteristics and institutional setup of smallholders' have impact on the performance of the sector and thus its ability to attract FDI. Tanzania smallholder farmers have limited education and experience, frequently exposed to shocks and have to deal with weak institutional arrangements for production. This has led to low increases in agricultural productivity and insufficient improvements in the quality of production (R&AWG, 2005). This has been truer when productivity of smallholders is compared to that of agricultural undertakings by estates or large commercial farms. As discussed above this difference in productivity had led to more than 90% of FDI into the agriculture sector to be directed to crops sub-sectors (e.g. sugarcane, barley, sisal) whose smallholder farmers have been well organized to support the foreign investments.

Although factors mentioned in Amani *et al.*, (2003) work are important and significant in addressing low levels of investment in the sector, institutional setup of smallholders seems to be the single major determinant of FDI inflow into the sector through increased agricultural productivity and efficiency. Therefore, to promote production and quality in an environment/economy such as Tanzania's, there is a need to reconsider the traditional approach to agriculture - based on smallholder farmers competing in liberalized markets - and to consider new approaches to promote sustained, high quality production. These justify the consideration of alternative institutional arrangements for smallholder farmers that will attract more FDI inflow and improve smallholder productivity leading to poverty reduction.

#### **The Way Forward**

In order to transform the agriculture sector into one with high productivity and high quality output, efforts are needed toward understanding and eliminating the barriers to smallholders that inhibit the growth of productivity. The structural problems facing smallholders (such as limited access to information, to inputs, and to output and financial markets) need rethinking in a different institutional arrangement that will attract more FDI to the sector. Such an arrangement would involve smallholders being better organized (in producer associations). Producer associations can improve productivity, reduce costs through supply chain linkages and improve competitiveness. They manage to do so by improving access to required and affordable inputs (technologies and credit).

Although cooperatives are the dominant form of smallholder producer association, they are faced with some challenges in addressing investment and productivity to the sector. In Tanzania restoring the confidence of smallholders toward cooperatives is a big challenge. The second challenge is to build the integration of production, transport, processing and marketing to take advantage of supply and demand value addition without complicating the institutional arrangements of the unmanaged levels. Third is to ensure the introduction of innovation and knowledge in a continuous basis without subjecting members to payment of high consultancy fee given the socio-economic conditions of smallholders (read R&AWG, 2005 for challenges of reintroducing cooperatives in Tanzania).

Integrated producer schemes on the other hand are designed to develop the capacities of smallholders through extensive provision of extension services and close monitoring of production and quality control. The model links production to investments in agro-industrial activities and markets. It has typically involved technical assistance from foreign or local private companies. This setup typically operates an integrated system that links production, extension services, transportation, processing and marketing. As the integrated producer schemes have an inbuilt supply chain system, they allow the realization of value addition for the benefit of all involved. In Tanzania, integrated producer schemes have so far been organized in sugarcane, tea, sisal, and dairy industry. These kinds of product specification tie the investors (FIEs) in processing facilities to the providers of agricultural produce and create an alliance which is of mutual benefit. Through this setup smallholder farmers can have reliable markets and foreign investors who shy away from the sector can have reliable sources of inputs to satisfy the capacity setup of their processing plants. So far in Tanzania this setup mainly exists in form of outgrower schemes, with the help of foreign investment it has been viable and beneficial to smallholders (Box 1). Given that integrated producer schemes requires a lead firm for governance, which frequently have to heavily investment in the sector in question; and given the low saving and thus investment capacity of local citizens, FIEs will remain as the major link in setting up these schemes.

## **Conclusion and recommendations**

This paper has examined impact of FDI on agriculture productivity in Tanzania, with some focus toward poverty reduction. The study suggests that there might be a positive impact of FDI on smallholder productivity and efficiency. The study found out that apart from the general determinants such as macroeconomic stability, efficient institutions, political stability and a good regulatory framework; smallholder institutional setup has positive impact on FDI flow into the sector. It has been observed that crops whose smallholders are well organized attracted more FDI. An important implication of the result is that FDI to agriculture sector is not solely driven policies and incentives to foreign investment and that institutional setup of smallholder farmers can play an important role in promoting investments to the sector. In the short and medium term, efforts to foster integration and creation of strong bonds between smallholders and investors through integrated producer schemes can increase FDI into the sector and thus increase productivity. Other determinants such as investment regulatory frameworks, policies that promote macroeconomic economic stability, and improved physical infrastructure also have a role to play both in the short and long run. In the long run, more FDI can be attained by developing good institutions in all sectors. The challenge that remains is how to setup these institutions (integrated producer scheme) in other crops which might

have different processing requirements. Further empirical studies on this area are recommended for a better understanding of the mechanism through which FDI addresses productivity of smallholders and poverty reduction.

### **Acknowledgements**

I wish to acknowledge with gratitude for invaluable guidance from my supervisor NARIU Tatshuhiko and 21COE Kyoto University for financial support. The views represented here are, all my responsibility, as are the omissions and mistakes.

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## End Notes

<sup>1</sup> Among projects approved by Tanzania Investment Centre between September 1990 and June 2004, agricultural and livestock projects accounted for only 5 percent of the total value of investment (URT, 2005).

<sup>2</sup> To generate employment of one person in agriculture sector, it requires approximate an investment of TSh.7 million, while in the construction sector would require an investment of about TSh.115 million (URT, 2005).

<sup>3</sup> Integrated producer schemes are designed to develop the capacities of smallholders through extensive provision of extension services and close monitoring of production and quality control. The model links production to investments in agro-industrial activities and markets.

<sup>4</sup> Mtibwa Sugar Estate (MSE) was handed over to Tanzania Sugar Industries (TSI) in August, 1998 (after TSI had bought the company). Prior to this, the Government of the United Republic of Tanzania owned it. Super Doll Trailer Manufacture Company (T) Limited of Dar-es-Salaam, in the United Republic of Tanzania, on behalf of TSI now manages the Company through The Agricultural Consultancy Services (Mauritius) Limited (ACSL), of c/o Multiconsult Limited, Les Jamalacs Building, Port Louis, Mauritius.

<sup>5</sup> Kilombero Sugar Company Limited (KSCL) is owned by three shareholders — South Africa's Illovo Sugar (55 per cent), Tanzania government (25 per cent) ED&F Man Holdings Limited of Britain (20 per cent). It produces an average 150000 tons per year. This is the largest sugar producer in Tanzania.

<sup>6</sup> Wakulima Tea Company (WATCO) and the Rungwe Small Tea Growers Association (RSTGA) are partners under the roof of Tanzania Tea Packers (TATEPA). Established in 1995, TATEPA is the largest domestically owned private company in Tanzania – and the third largest on the stock exchange – with 2,000 shareholders and 200 employees. Rungwe smallholders own 25 per cent of the shares of WATCO.

<sup>7</sup> Katani Ltd. was formed after sale of government share of the former Mkongwe Group Companies in 1998. it is now owned by Highland Estates Manufacturer of sisal twine, ropes, yarn, carpet

# **Economic Growth and Food Consumption in China: A Case Study from Shanghai**

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## **Abstract**

Generally, the pattern of the food consumption is diversified when the wealth gap expands with economic growth, and it differentiated into an affluent individuals and the poorest segment of the population. Therefore, food policy is requested to play an important role in the following two parts, i.e. to ensure food security and to cope with the structural changes in food consumption. This research assumes the rice consumption in Shanghai, the P. R. China where economic growth is remarkable to be a case to clarify the changing realities of food consumption when the wealth gap expands. It also proposes an appropriate food policy corresponding to the consumer's diversification under the process of economic growth.

## **Introduction**

Generally, food policy is requested to play important roles in the following two parts, i.e. to ensure food security and to cope with the structural changes in food consumption.

Food security for a nation means that its citizens have access to an affordable and stable supply of food (Carter [3] and Barrett [2]). Therefore, to supply cheap food constantly is considered to be an important strategy of food policy for developing countries with a huge number of undernourished people.

On the other hand, economic growth converts the consumption structure of food. Because there is a difference in the income elasticity of demand for each article in food, the proportion such as grain with low income elasticity in the consumption of food decreases and the proportion such as meat and poultry with high income elasticity in the food consumption increase along with income improvement, making of food consumption high-end. Moreover, consumer's preference strongly influences the consumption of food besides income and price. The factor of preference in the factors of food consumption strengthens when income reaches at the level enough to buy

necessary food, and the diversification of food consumption advances. Therefore, food policy is requested to maintain the system of food supply corresponding to the change in such a food consumption structure. This means that the rich layer's needs for food are also requested to be satisfied while food security for the poorest segment of population is taken into account by food policy for developing countries accomplish economic growth.

However, researches on food policy up to now were mainly analyzed on the relation between an average income level and food demand with the country as a unit. Researches on the influence that wealth gap gave to the food demand along with economic growth were insufficient. Although, consumption behavior according to income bracket was analyzed based on the statistical data, the analyses of the problem that the top-tier and the poorest segment of the population are facing were also insufficient because the realities of food consumption were not able to be fully understood by the statistical data (Gale & Hunag [6]). The formation of the poorest segment relates to the issue of food security, and the formation of rich layer is related to the issue of correspondence to consumer needs. Furthermore, in the analysis of which the unit is the country, it is difficult to clarify the relation between economic growth, the food consumption and the food policy where geographical inequity exists.

Therefore, in this research, the influence that economic growth gives to the food consumption will be analyzed by taking the influence of wealth gap into consideration. China and Shanghai City are targeted in this research because China is accomplishing rapidly economic growth, both the expansions of wealth gap and the difference between regions of economic growth are generated; Shanghai which is the city that develops most economically in China. In that sense, China and Shanghai are suitable as the object of the study.

## **Analysis on Consumption Behavior in China According to Income Bracket**

In general, it is thought that the product differentiation by the difference in quality is a little if there is no wealth gap. However, a qualitative change in consumption is considered to be caused by the change in wealth gap along with the improvement of income level. The production of food is requested to correspond to the change in such consumption so that economic development may progress smoothly. That means the pattern of food supply corresponding to the pattern of different economic development is needed.

In the state of low income, the purchase price of food doesn't rise though the consumption of food rises by the income improvement. At the stage where income is a little high, both the consumption and the purchase price of food rise by the income improvement. However, at the stage where income is higher, the purchase price of food rises and the consumption of food decreases by the income improvement. TABLE 1 summarizes the per capita annual living expenditure of urban residents in China, their expenditure on grain and food consumption and according to income level.

TABLE 1: PER CAPITA ANNUAL LIVING EXPENDITURE OF URBAN RESIDENTS (2003, 1987)

Unit:Yuan

Level of Income		I	II	III	IV	V	VI	VII	VII/I
Living :a Expenditure	2003	2562.36	3549.28	4557.82	5848.02	7547.31	9627.58	14515.68	5.66
	1987	548.76	658.20	761.04	872.52	1006.44	1141.92	1439.88	2.62
Grain :b	2003	170.66	178.47	188.6	190.53	202.68	213.74	220.08	1.29
	1987	59.28	61.72	64.51	66.44	69.30	73.56	79.20	1.34
Food :c	2003	1222.76	1594.67	1926.06	2293.98	2762.75	3337.82	4332.62	3.54
	1987	333.72	385.8	428.15	471.49	524.12	576.97	674.06	2.02
c/a	2003	47.72	44.93	42.26	39.23	36.61	34.67	29.85	0.63
	1987	60.81	58.61	56.26	54.04	52.08	50.53	46.81	0.77
b/c	2003	13.96	11.19	9.79	8.31	7.34	6.40	5.08	0.36
	1987	17.76	16.00	15.07	14.09	13.22	12.75	11.75	0.66

Source: Calculation based on the data of China Statistical Yearbook 2004, 1988 China Statistics Press.

First of all, the amount of per capita living expenditure has increased from 1987 to 2003, and the difference among brackets has expanded from 2.62 to 5.66 times. The difference of expenditure on food between income levels has also expanded but not as big as that of per capita living expenditure. On the other hand, the difference of the expenditure on grain among income brackets is small and it has reduced further. The proportion of the expenditure on grain in food expenditure has decreased by the rise of income improvement. The ratio decreases from 1987 to 2003 at all levels, and the ratio of the decrease is especially large in the high income group.

TABLE 2 breaks down urban residents' expenditure on grain into purchase quantity and unit purchasing price according to income bracket in China. First, if we see the relation between the income bracket and the amount of purchase, it is clear that grain was superior goods in 1987 but it has become inferior goods in 2003. Unit purchasing price of grain had only a small increase in 1987 but a large increase in 2003 along with income improvement. The unit purchasing price of the top dressing of income bracket has risen more than that of the lowest layer by as much as 56%. It is thought that the purchase ratio of high-end goods increases along with the income rise, by shifting grain consumption to rice with a high unit price.

TABLE 2: PER CAPITA ANNUAL PURCHASE AND EXPENDITURE ON GRAIN (2003, 1987)

Level of Income		I	II	III	IV	V	VI	VII	VII/I
Purchase :a (kg)	2003	84.08	82.63	82.94	78.49	78.67	77.49	69.65	0.83
	1987	128.32	130.47	131.49	130.79	134.84	141.51	149.06	1.16
Expenditure :b (yuan)	2003	170.66	178.47	188.60	190.53	202.68	213.74	220.08	1.29
	1987	59.28	61.72	64.51	66.44	69.30	73.56	79.20	1.34
b/a (yuan/kg)	2003	2.03	2.16	2.27	2.43	2.58	2.76	3.16	1.56
	1987	0.46	0.47	0.49	0.51	0.51	0.52	0.53	1.15

Source: Calculation based on the data of China Statistical Yearbook 2004, 1988 China Statistics Press.

To clarify the relation between income and the pattern of grain consumption in China, the income elasticity of grain consumption and the income elasticity of unit purchasing price of grain were measured. As a result, the income elasticity of grain consumption was 0.151 in 1987 and -0.099 in 2003, and the income elasticity of the unit purchasing price of grain was 0.084 in 1987 and 0.253 in 2003 (See TABLE 3). That is, the unit purchasing price increased oppositely though the grain consumption decreased as the income improved in the period.

TABLE 3: INCOME ELASTICITY OF DEMAND AND PURCHASING PRICE OF GRAIN

	Demand	Purchasing Price
2003	-0.099	0.253
1987	0.151	0.084

Measurement equation

$$2003 \log D = 2.271 - 0.099 \log Y$$

$$(32.50) (5.36) \quad \text{adj-R}^2=0.822$$

$$1987 \log D = 1.687 + 0.151 \log Y$$

$$(20.41) (5.36) \quad \text{adj-R}^2=0.822$$

$$2003 \log P = -0.565 + 0.253 \log Y$$

$$(12.60) (21.36) \quad \text{adj-R}^2=0.987$$

$$1987 \log P = -0.619 + 0.084 \log Y$$

$$(19.21) (9.87) \quad \text{adj-R}^2=0.941$$

D: Demand of Grain

P: Purchasing Price of Grain

Y: Living Expenditure

( ): t-value

Although the relation between wealth gap and consumption behavior was clarified by the analysis according to the income bracket of the statistical data, the existence of the poorest segment and top-tier population cannot be understood enough. In the next chapter, we will take Shanghai City as a case to analyze the issue of food consumption in Shanghai, especially by focusing on the high quality and safety intention in the rice consumption of rich households on one side, and the food assistance system for the poorest people on the other.

## **Problem of Food Policy in Shanghai**

### **Correspondence to High Quality and Safety Intention of Food Consumption in Urban Rich**

The consumption of rice is assumed to be a case to clarify the characteristic of the food consumption pattern of the top-tier population and the comparison analysis with other income brackets is undertaken.

First of all, the interviews to the scholars at Fudan University and to the person in charge of JETRO Shanghai office and the person in charge of Shanghai City Agriculture Committee, 'food tasting investigation' and 'group discussion' both to the teacher and the students at Shanghai University and to the housewives of the rich layer, and the 'retail price investigation' to the foreign-affiliated supermarket, the convenience stores, and the agricultural markets were undertaken at the end of July in 2004.

Continuously, at the end of March in 2005, the interview to the person in charge of Shanghai Municipal Grain Bureau, the 'group discussion' to the housewives of the rich layer, the 'questionnaire survey' to the civilian in Shanghai, and the 'retail price investigation' to the luxury department-store, the foreign-affiliated supermarket and agricultural market were undertaken. Furthermore, the above-mentioned investigations were undertaken once again in September of 2005. Therefore, the following analyses are the one that these investigation results were based on<sup>1)</sup>.

### **What is Top-Tier Population in Shanghai?**

A rich layer here has the following characteristics. Firstly, a fat income and a high academic background, a low concern for the domestic politics and the high interest in personal consumption and overseas lifestyle was shown. Secondly, because they had obtained the commodities such as 'private housing', 'private car', and 'traveling abroad', etc. for which the civilian in Shanghai is yearning, their consumption style had changed from the consumption as objective into the consumption as achieving lifestyle. Thirdly, they got tired of the information from the commercial advertisement of television and newspaper for everyone but took their own purchasing experience, personal communication between friends, and some foreign magazines etc. as the important source of information

for their consumption<sup>2</sup>). Finally, the image (probably influenced by their own experience at abroad) for Japan was not an ordinary stereotype like the civilian had but comparatively objective.

#### **Production, Circulation, and Consumption Situation of Rice in Shanghai City**

The annual grain consumption in Shanghai is about 5.7 million tons, and its rice consumption is about two million tons. However, due to the annual rice production in Shanghai is less than 100,000 tons, the demand for rice in Shanghai is supplied by other provinces such as three provinces in Northeast China (Jilin, Liaoning and Heilongjiang), Jiangsu, Anhui, etc. Although the staple food for Shanghai citizens was Indica rice before the 'economic reform', it has almost changed into Japonica rice now even including the fluid population.

First of all, when having questioned on the place where rice was eaten to the Shanghai citizens, 60 percent of those who answered was "Home", and 40 percent was "Restaurant and public dining room, etc". The advancement of 'Eating out' along with economic growth in urban area of China has been found<sup>2</sup>). Moreover, to the question about how frequently they eat rice for each day, those answered "Three times" and "Twice" were almost equal, and it fell below half the number a little. When the reason of "Twice" was asked, it was told that breakfast often ate not rice gruel but the Dian Xin (Yam Cha) because of there was no time<sup>3</sup>). In addition, although there was an individual difference about the amount in which rice was eaten every time, the men generally had 1-1.5 cups while the women had 0.5-1 cup in Shanghai.

Next, it was the order of the supermarket, the rice shop (food convenience store), and the agricultural market as for the places to purchase rice in Shanghai. The reason to buy rice in supermarkets was considered as the follows: the guarantee of quality and safety to some degree, the kinds and brands abundantly become complete in supermarkets. However, the popularity of the rice shop as the place to purchase rice came not only from its long history as a traditional purchasing place but also from its convenient location in residential area where poor people (who receive food assistance) can buy rice with a supplementary card as well. On the other hand, the purchase of rice in the agricultural market was considered to be supported by elderly people and repeaters for the reasons that vegetables, meats, and marine products were bought with rice from the same place and a delivery service was available when rice was purchased beyond 10kg.

However, the background that supermarket is becoming a main stream of the place to purchase rice could be explained as there have been a great change in the system of food circulation in China in recent years though the history of supermarket as the store to purchase rice was short<sup>4</sup>).

Moreover, as for the amount of each purchasing, the most popular was ten kilos in the supermarket while a small amount of selling by weight was a center in the agricultural market. However, housewives in a rich layer bought 5kg packaged rice in supermarket, and answered that 5kg or less packaged rice was good. Actually, it was found that 2.5kg packaged rice sold the best in the rice counter of a luxury department-store (Sogo).



In addition, the retail price of rice in Shanghai in recent years varied widely due to the different kinds, brands and stores. There was an opening price of 2.6-18.4 yuan for each kilogram; the cheapest one was the non-brand Japonica and sold by weight in the major supermarket (2.6 yuan per kilogram), and the most expensive one was the organic farming Koshihikari variety produced in Guangdong province (18.4 yuan per kilogram). According to the questionnaire survey, 80 percent of the people buy rice at a price of 2-6 yuan per kilogram.

For understanding the points mostly evaluated by consumers for rice purchase and knowing the kinds of rice chosen by consumers, group discussion and questionnaire survey to the consumers at different income level were undertaken by using six standards for rice purchase, such as price, taste, brand, producing area, milling date and cultivation method.

As for the order of the standard that mostly evaluated when rice was bought, TABLE 4 was a summary according to the income level. Although taste was mostly evaluated by any income level, the importance degree of the price decreased, and the brand (brand and producing place) and the quality (milling date) and the safety (cultivation method) increased along with the rise of income. In other words, the pattern of rice consumption in Shanghai has moved from a past, low-priced intention to the brand oriented, high quality and safety intention.

TABLE 4: ORDER OF CRITERIA IN PURCHASING RICE ( GROUPED BY INCOME LEVEL )

Income level	First	Second	Third	Fourth	Fifth	Sixth
Total ( N=301 )	Taste (4.41 )	Brand (4.31)	Price (4.22)	Area of Production (3.38)	Cultivation Method (3.15)	Date of Rice Milling ( 3.01 )
Less than 50,000 Yuan ( N=219)	Taste (4.38)	Price (4.30)	Brand (4.28)	Area of Production (3.32)	Cultivation Method (3.07)	Date of Rice Milling (2.87)
50,000-100,000 Yuan ( N=43 )	Taste (4.35)	Brand (4.20)	Price (3.88)	Area of Production (3.75)	Date of Rice Milling (3.55)	Cultivation Method (3.38)
Over 100,000 Yuan ( N=18)	Taste (4.65)	Brand (4.35)	Cultivation Method (4.18)	Date of Rice Milling (3.82)	Area of Production (3.78)	Price (3.71)

Notes: Respondents who answered “important”, “slightly important”, “have no preference”, “not so important”, “not important” are scored for 5, 4, 3, 2, 1 respectively.

However six indices about the taste of rice were used for searching the difference of the preference between income levels, they are sheen, fragrance, sweetness, glutinosity, dryness and firmness. TABLE 5 indicated the evaluation order to the taste about rice according to the income level. The consumers in any income layer of

China required fragrance, sheen, and firmness but not sweetness oppositely for rice. However, there was the tendency that the higher income of consumers the more glutinosity of rice they preferred.

TABLE 5: EVALUATION ORDER TO THE TASTE ABOUT RICE (GROUPED BY INCOME LEVEL)

Income level	First	Second	Third	Fourth	Fifth	Sixth
Total ( N=301 )	Fragrance (4.42)	Sheen (4.29)	Firmness (3.70)	Sweetness (3.63)	Glutinosity (3.63)	Dryness (3.20)
Less than 50,000 Yuan ( N=219)	Fragrance (4.40)	Sheen (4.27)	Sweetness (3.62)	Firmness (3.58)	Glutinosity (3.57)	Dryness (3.14)
50,000-100,000 Yuan ( N=43 )	Fragrance (4.49)	Sheen (4.40)	Firmness (3.98)	Sweetness, Glutinosity (3.64)		Dryness (3.51)
Over 100,000 Yuan ( N=18)	Fragrance, Firmness (4.65)		Sheen, Glutinosity (4.29)		Sweetness (3.82)	Dryness (3.53)

Notes: Fourth and Fifth Place of “50,000-100,000 Yuan”, First and Second Place, Third and Fourth Place of “Over 100,000 Yuan” has same the number of decimals.

By concluding the above-mentioned analyses, the change in the consumers’ preference towards rice consumption in Shanghai seemed to be composed by two elements: they were the change in the pattern of rice consumption and the change in the factors for brand selection as shown by Fig. 1. It was considered that consumers’ preference towards rice consumption changed from a low-priced intention to brand consciousness and the high quality and safety intention with a decrease in the amount when households income rise along with economic growth. The change in such a consumption side corresponded to the change in the composition of the rice variety in China which was pointed out by the existing researches on production and circulation<sup>5</sup>.

On the other hand, it seemed that the change in the consumers’ preference to the taste about rice was influenced by other factors such as the food culture (whether rice is made staple food for them or not), the information (personal communication, TV, and newspaper), and their purchasing experience (what kind of rice they usually eat), etc. rather than by income and lifestyles.

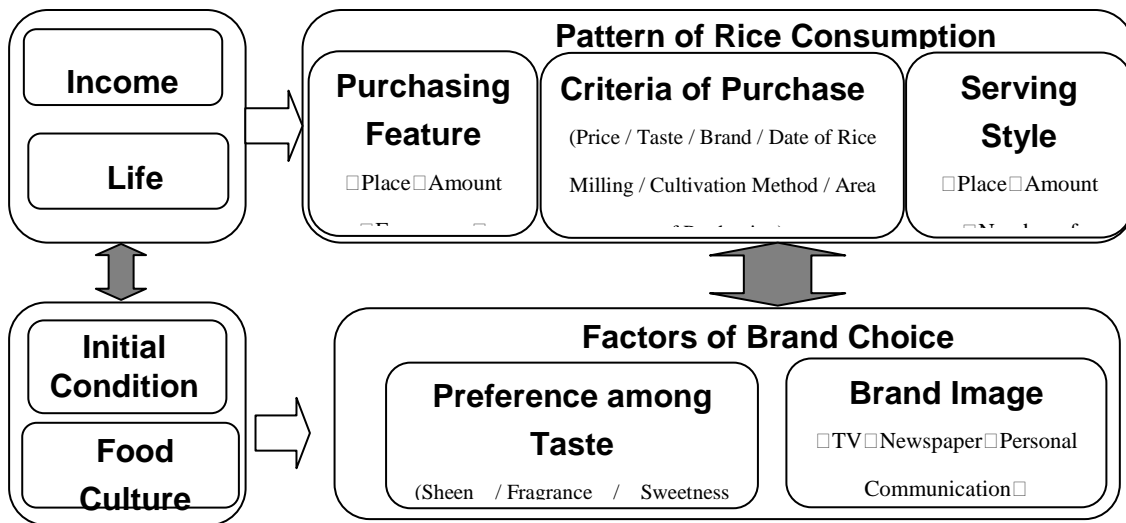


FIG. 1: CHANGE IN CONSUMERS' PREFERENCE TOWARDS RICE CONSUMPTION IN SHANGHAI

#### Rice Consumption Pattern of Top-Tier Population in Shanghai

To clarify the rice consumption pattern of top-tier population more in detail, the investigation of group discussion was undertaken. First of all, a rich layer was strong brand consciousness, and worried about current Chinese rice in respect of the reliability of the quality, safety, and the display of package. Moreover, because they valued their own purchasing experience and information from personal communication, there was a demand for the high quality and a small amount of package on rice. In addition, because they had daily access to Japanese products (including Japanese food products), the rice produced in Japan with the feeling of high quality and luxury could not only meet their needs for rice but also corresponded to their consumption as achieving lifestyle.

On the other hand, the civilian had a strong taste and price intention towards rice consumption. Their requirement for rice was to have a constant quality with appropriate price. Moreover because they were sensitive to the commercial advertisements of televisions and newspapers, it seemed that Japanese breeding rice produced in Northeast China which was considered to have a close taste only one tenth or less of the price to the imported Japanese rice corresponded to their consumption as objective.

Based on the above analyses, the attribute of rice required by different consumers was shown by Fig. 2. However, two kinds of rice (the Japanese Breed Rice produced in Northeast China and the rice produced in Japan) were included in Japanese rice here.

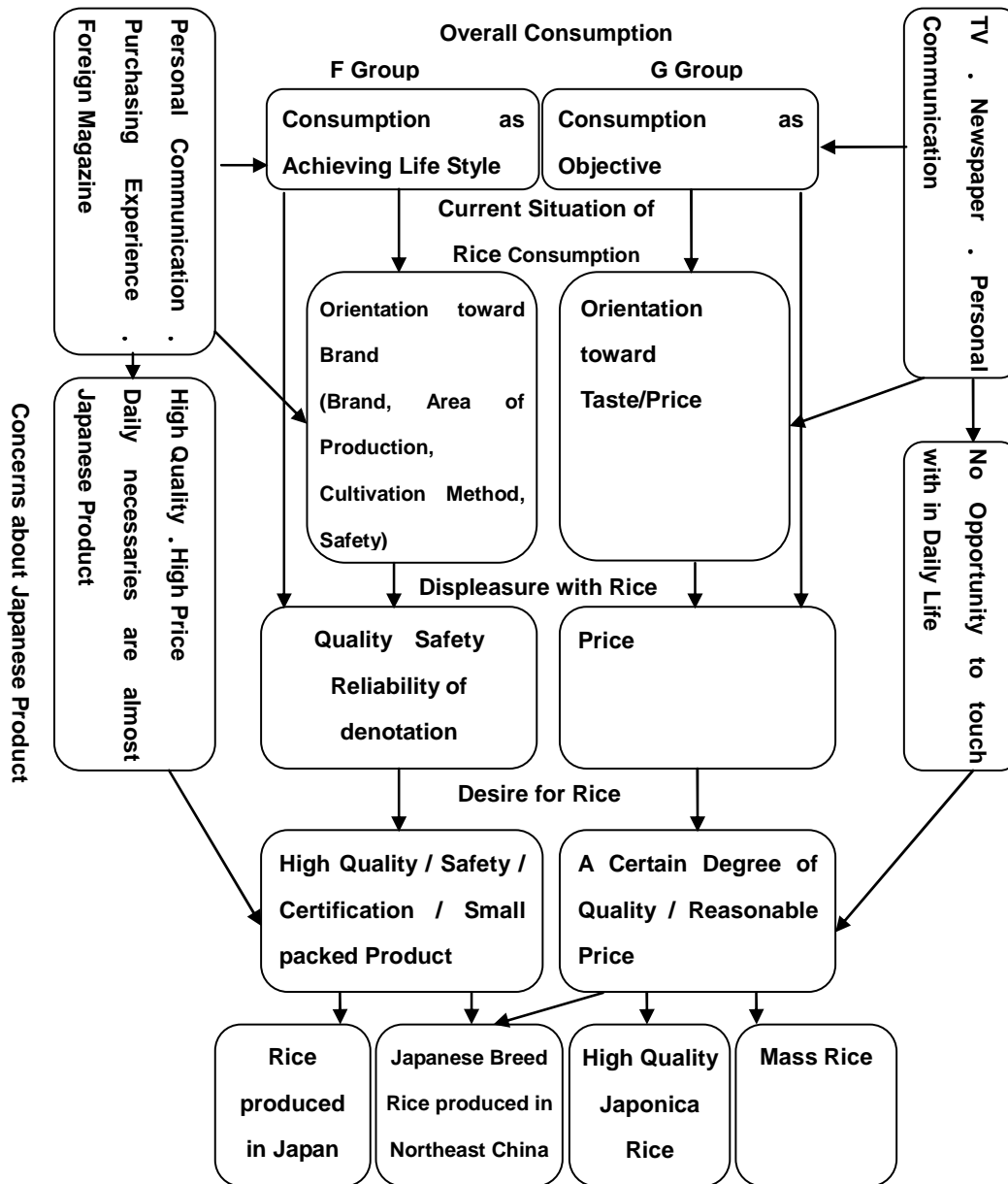


FIG. 2: ATTRIBUTE OF RICE REQUIRED BY DIFFERENT CONSUMERS

### Food Security for Urban Poor

Shanghai was the first city to establish a minimum living security system (June 1993). According to Shanghai Bureau of Statistics, the poverty line in 2005 is 300 yuan and 400,000 people are the object persons. However the

poverty line in 1993 was 120 yuan and only 6,500 people were the object persons (TABLE 6).

The causes of poverty in Shanghai can be classified into the following categories: the socially weak (those who are disabled, without legal guardian and the elderly), unemployed and temporarily released workers of SOEs and exiles (migrants from poor region) <sup>6)</sup>. The government is assisting to the urban residents who have the income below the security standard as shown in TABLE 7.

TABLE 6: SITUATION OF SECURITY SYSTEM FOR URBAN MINIMUM STANDARD OF LIVING

Year/Month	Minimum Standard of Living Security System in Urban Region		Beneficiaries
	Amount of Money ( Yuan )	Rate of Change (%)	(10,000 person)
1993.6	120		0.65
1994.7	135	12.5	0.70
1995.4	165	22.2	0.75
1996.4	185	12.1	0.77
1997.4	195	5.1	0.77
1998.4	205	5.1	1.30
1999.4	215	4.9	11.30
1999.7	280	30.2	11.30
2000	280	0.0	18.70
2001	280	0.0	33.85
2002.8	290	3.6	43.16
2003	290	0.0	44.59
2004	290	0.0	40.36
2005.8	300	3.4	-

Source "Shanghai Statistical Yearbook" 2005

TABLE 7: SECURITY SYSTEM FOR URBAN MINIMUM STANDARD OF LIVING IN SHANGHAI

Assistance	Contents
Security Amount	300 yuan/month
Food Assistance	40 yuan/month
Side Food Assistance	8 yuan/month
School Expense Subsidies ( elementary and junior high school students )	Exemption of miscellaneous and School expense Assistance of Lunch
Issue of Certification for School Expense Subsidies (High School Students and above)	Part-time Job Loan
Rent Subsidy	
Etc.	Medical Assistance

#### Food Assistance System in Shanghai

The food reform was done in the whole country in China for the main farm products such as food (grain and cooking oils) and cotton in 1991. It became a situation that caused their life extremely difficult where the distribution of the food that had been secured up to now for the low income group stops. Then, food Assistance System which targets the city registered residents of the income bracket below a constant standard for reducing a money load to the food purchase to them was executed in Shanghai<sup>7)</sup>.

Among the object persons of Security System for Urban Minimum Standard of Living, the person of 16 years old or less and 60 years old or more becomes the object person of the Food Assistance System. The object persons of Food Assistance System are able to obtain food from 'Food Assistance Store' by using 'Food Assistance Card' which is issued by local government.

To know the difference of price between Food Assistance Store and other stores, we made price survey in September, 2005. It is seen that there is a big price difference by the shop than by the brand (See TABLE 8).

TABLE 8: RETAIL PRICE OF RICE, EDIBLE OIL AND WHEAT FLOUR IN SHANGHAI

Food	Store Category	Price(Yuan/kg)
Rice	Luxury Department-store	11.1
	Foreign-affiliated Supermarket	6.0
	Convenience Store	3.8
	Agricultural Market	3.5
	Food Assistance Store	3.4
Wheat Flour	Japanese Food Store	40.0
	Luxury Department-store	27.8
	Foreign-affiliated Supermarket	5.5
Edible Oil	Japanese Food Store	22.0
	Luxury Department-store	20.8
	General Food Store	9.6
	Convenience Store	9.2
	Foreign-affiliated Supermarket	7.1

Notes: Price of Edible Oil indicates Yuan/L term.

#### Effect and Problem of Food Assistance System

To know the realities and the execution condition of the Food Assistance System, G-town office of Hongkou district was visited and the person in charge was interviewed (See TABLE 9). Moreover, we also successively interviewed one of the recipients of the Food Assistance System. Mr. A enjoyed the good quality and cheap price of food supplied by the system, however he pointed out that there existed problems of examining the recipient of the system.

TABLE 9: ASSISTANCE SITUATION IN G TOWN OF HONGKOU DISTRICT

Unit: Yuan/Year

Safety net	Coverage	Amount of Money
Rent Subsidy	71 (households)	36,120
Student Aid	200 (Issues)	-
Socially Weak	213 (person)	76,780
Security System for Urban Minimum Standard of Living	1,128 (person)	296,800
Insurance(lay off workers)	177 (person)	-
Food Assistance Card	890 (issues)	35,680

Source: Interview Survey

To know how the other recipients were evaluating the Food Assistance System, the questionnaire survey was done to nine recipients. All members answered that Food Assistance System had improved their nutrient

condition though it did not go to the stability in their livelihood as an evaluation. On the other hand, the subsidy was few, there was sense of resistance in the card presentation in the shop, and the procedure of the system was complicated were pointed out as the problem of the Food Assistance System, (See Fig. 3).

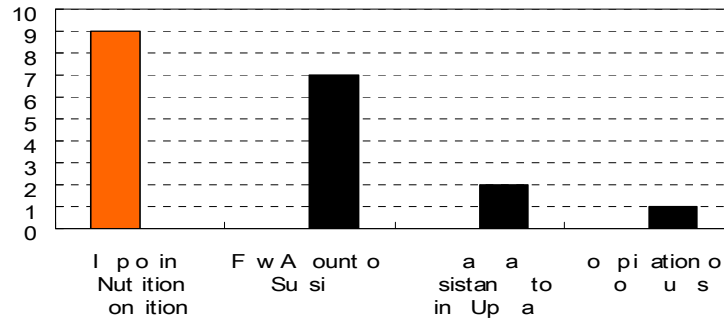


FIG. 3: EVALUATION OF FOOD ASSISTANCE SYSTEM

Moreover, we questioned the recipients and the Shanghai citizens on the most important policy for the urban poor. Health Assistance was most answered by the recipients, and Job Assistance (including Job Gaining and Job Training) was answered by the civilian ( See Fig. 4 )

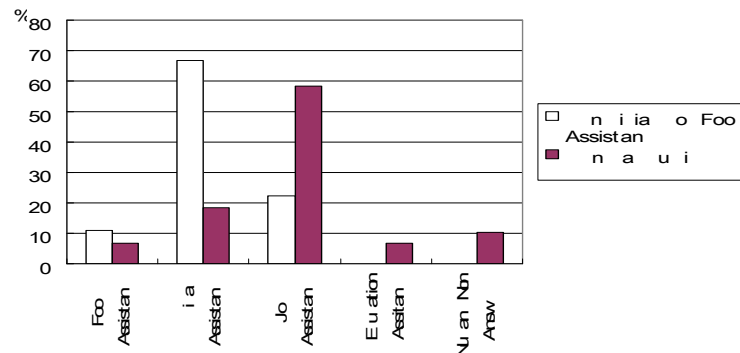


FIG. 4: MOST SIGNIFICANT POLICY FOR URBAN POOR

The following points of Food Assistance system in Shanghai were clarified based on the above-mentioned analytical result. First of all, it can be said that this system was effective in the point of the improvement of recipient's nutrient condition. Next, the system that local community takes charge of the business and finances the half of the subsidy by revenue from the township enterprises is considered an effective way to improve the consciousness towards poverty reduction at a community base.

On the other hand, a proper subsidy amount is enumerated as a problem of the Food Assistance System. The minimum wage is 690 yuan per month and Urban Minimum Standard of Living is 300 yuan per month in Shanghai. Therefore, there is a gap between the minimum wage and the minimum standard of living, and the



problem how it is necessary to deal with the citizens who' amount of income belongs to the gap remains. Moreover, the problem in the system management includes the problem how to do an accurate specification of object person and the prevention of the loophole shouldn't to be unwatched.

## **Concluding Remarks**

When the wealth gap doesn't expand under the process of economic development, the horizontal differentiation based on different preferences for food is caused and the diversification is few though the demand for high-end food advances (See Fig. 5-a). As a result, the formation of production home according to regional characteristics is caused.

On the other hand, when the wealth gap expands under the process of economic development, food demand is diversified between income hierarchies and a vertical differentiation based on different quality of food is caused at the same time with the horizontal differentiation based on the preference for food though making the demand for high-end food advances as a whole. As a result, the production home based on regional characteristics, the production home where the mass products are produced at a low-cost and the production home that produces high quality products, are formed. Moreover, when Food Assistance System is executed to urban poor caused by an enlarged income disparity under the process of economic development, it is considered that the standardization of food products as assistance goods advances (See Fig. 5-b). In addition, in the stage where the food consumption has become more mature shown in the developed countries, the emphasis of food policy for these countries should move to the correspondence to diversified consumer needs and a stable supply of food (including food importation).

Therefore, food policy for China in the current stage means to be able to provide food to the poorest segment of the population at cheap price with a constant quality and to correspond to the diversified needs of the general public for food (including high quality and safety intention of top-tier population).

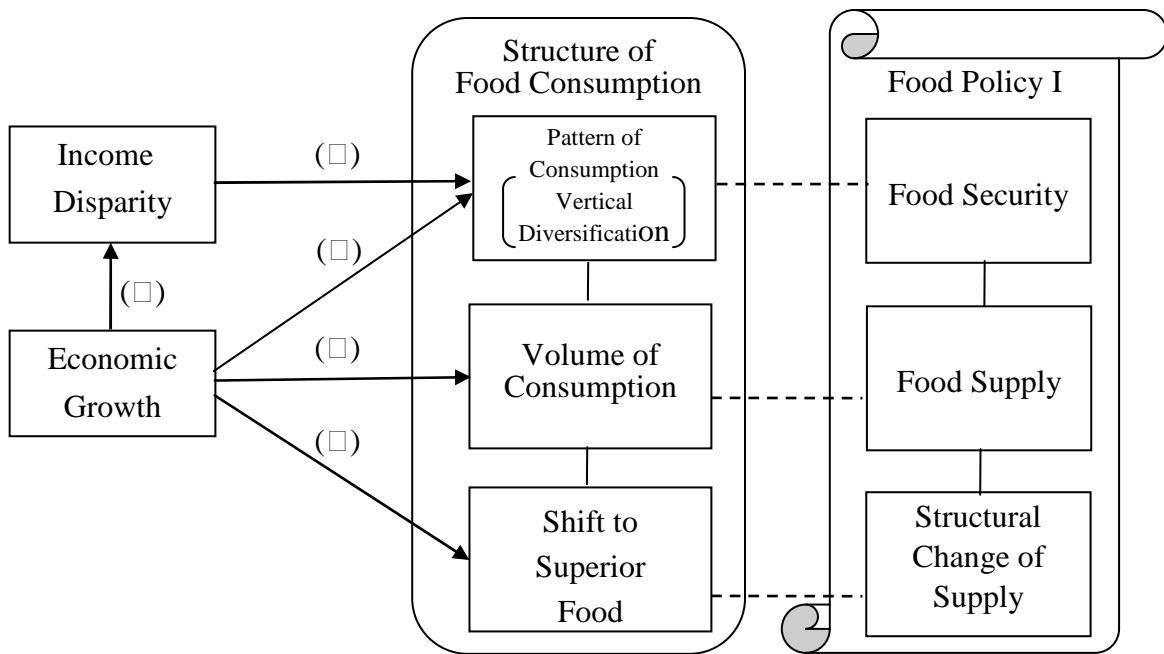


FIG. 5-a: ECONOMIC GROWTH, FOOD CONSUMPTION, AND FOOD POLICY (STAGE I)

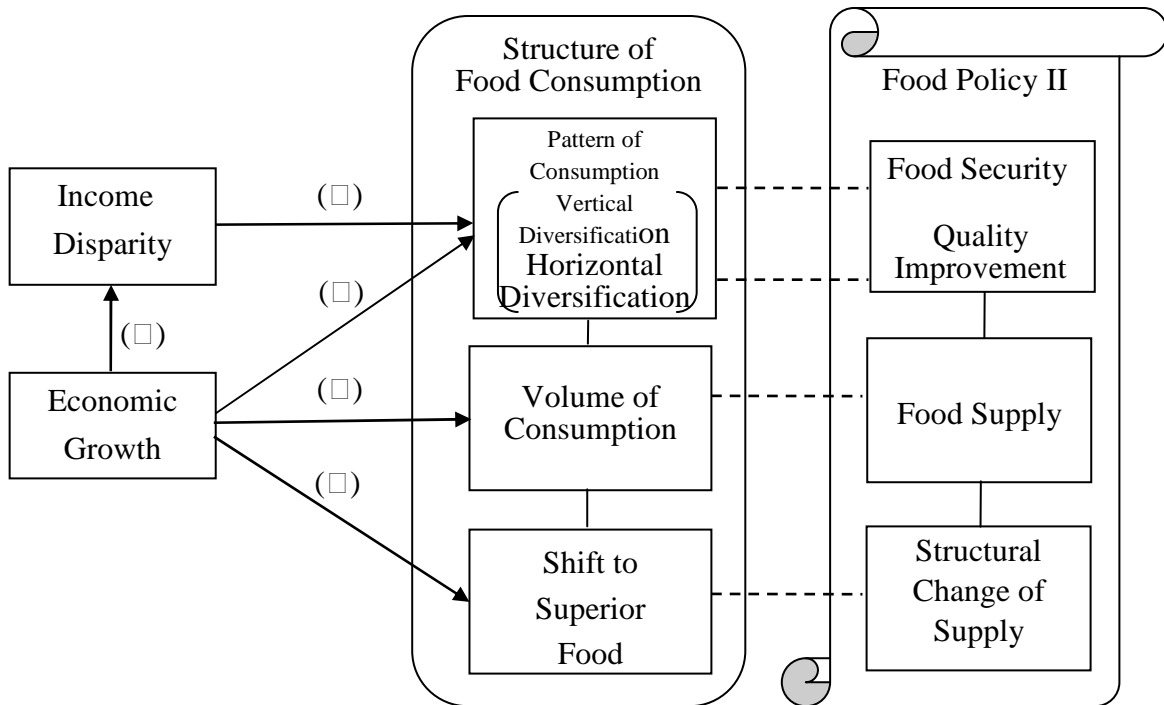


FIG. 5-b: ECONOMIC GROWTH, FOOD CONSUMPTION, AND FOOD POLICY (STAGE )

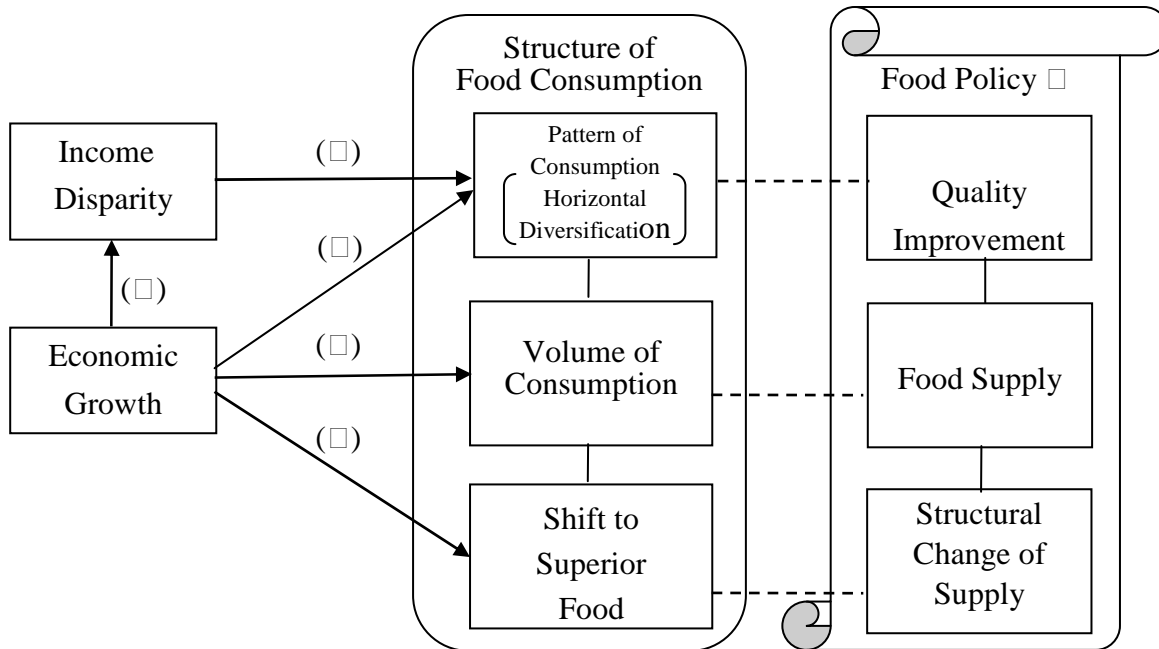


FIG. 5-c: ECONOMIC GROWTH, FOOD CONSUMPTION, AND FOOD POLICY (STAGE )

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## End Notes

- 1) See Kiminami [11] for more details.
- 2) See Curtis, Mccluskey & Wahl [4] for example.
- 3) See Veeck & Burns [13] for example.
- 4) See Hu, Reardon, Rozelle, Timmer & Wang [8] and Fujita, Ono, Toyota & Sakazume[5] for example.
- 5) See Hansen, Fuller, Gale, Crook, Wailes & Moore [7] and Aoyagi [1] for example.
- 6) See Kiminami [10] for more details.
- 7) See Watanabe & Kiminami [14] for more details.

## **Fuzzy Multiple-Criteria Decision Making for Crop Area Planning in Sistan (Iran)**

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### **Abstract**

Sistan province is one of more divest provinces in Iran. In this province more people employ to agriculture and livestock, but they are more problem with weather like famine, flood and ect. So this is necessary to crop area planning for improvement status of farmer in sistan. The present study dealt with the real-world problem of irrigation water management of evolving suitable cropping pattern. The Hirmand river basin system, which it is just water source in sistan, has been first simulated and analyzed. A multi-objective fuzzy linear programming (MOFLP) area allocation model has been formulated to cope with the diverse/conflicting interests of different decision makers such as the irrigation authority (government) and the individual farmers involved. Simulation output in the form of optimal monthly releases for irrigation is one of the main inputs to the MOFLP area allocation model. Over time variable irrigation demand has been incorporated into the formulated model which includes high variation in precipitation. Thus, varying cropping patterns in the command area, one for each year, have been analyzed which are based on the past 30 years of reservoir simulation. Besides this, a cropping pattern corresponding to 80% dependable releases and rainfall is also analyzed. Such analysis is extremely useful in deciding on an appropriate cropping pattern in any command area that minimizes the average crop failure risk in view of uncertain irrigation water availability, especially in dry years.

**Keywords:** Fuzzy multiple-criteria decision making; MOFLP; Crop area planning

### **Fuzzy Multiple-Criteria Decision-Making Model for Crop Area Planning**

Increasing demands for agricultural products with limited water resources lead to irrigation planning and management problems. In addition, the conflicting objectives of individual monetary benefits and social benefits, inevitability of uneconomical crops and providing employment to labor make the problems rather more complex.

For efficient and scientific solutions of these problems ground water is also to be optimally extracted and combined with surface water to meet the requirements. At the same time it is necessary that the water quality standards are not seriously affected. Even at a marginal reduction of net benefits, labor deployment with increased cropped area could be a better alternative for the society. On the other hand, uncertainty makes irrigation planning problems more complex in the form of unexpected droughts and floods, uncertainty in price of crops, uncertainty in yields, nonavailability of labor at right time, variation of inflows from year to year.

Fuzzy set theory is identified as an alternative approach to handle such vagueness of the planning objectives and imprecision involved in the parameter values since deterministic approaches are not sufficient to model such complex situations. Chang et al. (1997) explained the advantage of fuzzy multiobjective optimization over deterministic approach as 1) fuzzy uncertainties embedded in the model parameters can be directly reflected and communicated into the optimization process 2) the variation or vagueness of the decision maker's aspiration level in the model can be incorporated and there by generate a more confident solution set for decision maker 3) regardless of the orientation of decision maker's aspiration level (maximization or minimization), each objective or goal have its own independent membership function and different aspiration levels.

The present study considered above aspects in the multiobjective Fuzzy Linear Programming (FLP) framework by incorporating three objectives net benefits, crop production and labor employment for selection of the compromise irrigation plan. The present study deviates from previous studies by considering fuzziness in the objective functions, uncertainty in the inflows through stochastic programming and multiple objectives in the analysis.

Fuzzy Linear Programming (FLP) is developed for the evaluation of management strategies for a case study of Sri Ram Sagar Project, Andhra Pradesh, India. Three conflicting objectives net benefits, crop production and labor employment are considered in the irrigation planning scenario. The present paper demonstrates how vagueness and imprecision in the objective function values can be quantified by membership functions in a fuzzy multi-objective framework. Uncertainty in the inflows is considered by stochastic programming. Analysis of results indicated that net benefits, crop production and labor employment in FLP are deviated by 2.38%, 9.6% and 7.22% as compared to ideal values in the crisp Linear Programming (LP) model. Comparison of results indicated that the methodology can be extended to other similar situations. (Srinivasa & Kumar, D., ())

The task of reservoir operation and planning remains incomplete without ensuring the beneficial use of obtained releases for irrigation. It requires that cropping pattern must be readjusted with respect to possible releases available. Therefore, the second step, following reservoir management, is the problem of irrigation water management. Essentially, three decisions are required in irrigation water management, namely optimal crop selection, optimal land allocation under different selected crops, and optimal amount of water to be allocated to each

crop. Optimization techniques provide a powerful tool for analysis of problems that are formulated with single, quantifiable objectives. However, the real-world decision-making problems usually require consideration of multiple, conflicting and non-commensurable criteria. Numerous single as well as multiple-objective crop area allocation models were developed in the past and are well described in the literature (Maass et al., 1962; Hall and Dracup, 1970; Rogers and Smith, 1970; Lakshminarayana and Rajagopalan, 1977, etc.).

The decision problems like crop area planning or agricultural planning also involve multiple, conflicting and non-commensurable criteria and a 'satisfying' decision is desired. These are called multiple-criteria decision problems, where the decision maker generally follows a satisfying solution rather than the maximization of objectives. Such a problem leads to numerous evaluation schemes and to the formulation of a vector maximum problem in mathematical programming. Further, uncertainty due to the random character of natural processes can be dealt with quantitatively by various developed techniques and tools provided by probability, decision, control and information theories. The real-world decision problems can rarely be defined precisely in mathematical terms rather than in terms of the real world, which may often be imprecise, by nature (because of fuzziness). A fuzzy set is a class with not sharp boundaries, i.e. a class in which transition from membership to non-membership is gradual rather than abrupt. Fuzziness plays an essential role in human cognition because most of the classes encountered in the real world are fuzzy - some only slightly and some markedly so. It is truer in system modeling in which human aspects have to be included. A decision maker might not be able to express his goals or constraints precisely because his utility function is not defined or definable precisely, or phenomena of the decision problem might only be described in a fuzzy way. Much of water resources management takes place in an environment in which the basic input information, goals, constraints, and consequences of possible actions are not known precisely. Therefore, water resource managers and modelers are bound to deal with -imprecision mostly due to insufficient data and imperfect knowledge - which should not be equated with randomness and the consequent uncertainty. Hence, it is more realistic to consider imprecise model constraint and goals. Fuzzy goals and/or fuzzy constraints are regarded as fuzzy criteria (Bellman and Zadeh, 1970).

In the last two decades, multiple-criteria decision making (MCDM) techniques have experienced spectacular growth (Cohon, 1978; Goicoechea, 1982; Zeleny, 1982; Harboe, 1992, etc.), but not many water resource planning studies have utilized these methods throughout the entire course of the planning process. There are several reasons behind this. Some multi-criteria methods require information that is difficult to obtain in a real-world setting. Sometimes the complexity of mathematical formulations alienates the potential users. Generally, prevailing institutional arrangements are also not favorable for their application. Thus, there is a dilemma. The single criteria alone do not satisfy every sphere of society any more and, on the other hand, multi-criteria approaches are difficult to apply in real practice. In this paper a simple, yet potential, tool in fuzzy multi-objective analysis has

been explored and utilized. The fuzzy linear programming is used to formulate the multi-objective fuzzy linear programming (MOLFP) area allocation model considering various conflicting objectives involved in irrigation planning.

## **Multiobjective Fuzzy Linear Programming**

Fuzzy Linear Programming problem associates fuzzy input data by fuzzy membership functions. Fuzzy Linear Programming model assumes that objectives and constraints in an imprecise and uncertain situation can be represented by fuzzy sets. The fuzzy objective function can be maximized or minimized. In Fuzzy Linear Programming the fuzziness of available resources is characterized by the membership function over the tolerance range. In the present study objective functions are considered as fuzzy sets and inflows are considered in the form of chance constraints (Zimmermann, 1996).

In any irrigation system, two distinct groups of decision makers are generally involved, namely irrigation administration representing the government who usually control the operation of the system and the individual farmers (cultivators) who are the actual producers of agricultural commodities. Different groups of decision maker have different goals, perspectives and values. Issues of equity, risk, redistribution of national wealth, environmental quality and social welfare are as important as economic efficiency. It is clearly impossible to develop a single objective that satisfies all interests, all adversities and all political and social viewpoints. Hence, six conflicting objectives have been identified to illustrate the potential methodology. The objectives are classified into three groups, namely social, economic and socio-economic. The objectives like benefit maximization, investment minimization are economic objectives whereas maximization of calories, labor employment and total area under irrigation are social objectives. The objective like maximize crop area in order of crop ranking reflects both the social as well as economic aspects of planning.

## **Crop Selection**

Generally, the choices of crop types to be sown are based on social and agronomical considerations only. Selection of the appropriate type of crops to be sown should be made by incorporating all conflicting objectives of agricultural planning, instead of arbitrarily out of convenience or out of tradition. Some criteria among others like domestic need of a particular crop commodity, productivity, market value, regional balance and resource requirements and their availability can significantly influence the crop selection decision. Under such circumstances, crop selection is a case of a multi-attribute decision-making problem. Candidate crops should be identified and short-listed, eliminating



those that are obviously dominated. Crops that are inferior to at least one other crop, by all considered criteria, should not be considered further. A set of non-inferior crops should then be evaluated (Tabucanon, 1993). The Analytic Hierarchy Process, Multi-attribute Value Theory and Promethee are suitable techniques for crop selection problem. So following crop select for this paper.

- |          |           |            |            |               |
|----------|-----------|------------|------------|---------------|
| 1. Wheat | 2. Barley | 3. Pasture | 4. Alfalfa | 5. watermelon |
| 6. Melon | 7. Onion  | 8. Lentil  | 9. Cumin   |               |

## Generalized Framework of Multi-Objective Crop Area Optimization Model

### Vector maximum problem

The vector maximum problem is defined as follows:

$$\text{"max"} \{Z(x) \mid x \in X\}$$

Where  $Z(x) = (Z_1(x), \dots, Z_k(x))$  is a vector-valued function of  $x \in R^n$  into  $R^k$

The set of all 'efficient solutions' (complete solution) is defined as the set of all solutions  $\bar{x} \in X$  which, with respect to the objective functions  $Z_t(x)$ , satisfy the following conditions:

$\bar{x}$  is an efficient solution if there is no  $x' \in X$  such that  $Z_t(x') \geq Z_t(\bar{x})$ ;  $t=1; \dots; k$  and  $Z_t(x') > Z_t(\bar{x})$  for at least one  $t \in \{1, \dots, k\}$

The optimal solution, whichever way it has been determined, has to be a member of the 'complete solution' (non-dominated or pareto optimal solution).

### Multi-Objective Area Allocation Model Formulation

Once the task of crop selection is over, the subsequent question is how much resource should be allocated to each type of crop such that the available resources are efficiently utilized so as to result in a most satisfactory decision to the multi-faceted and conflicting objectives. The resource availability and their requirements necessarily govern feasibility of the alternative decisions made. The multi-criteria decision-making techniques like goal programming and linear programming are particularly suited and widely recognized to such allocation problems.

### Notations

The notations used in problem formulation are listed in the nomenclature.

### The Objectives Functions and the Considered Objectives

1. Net benefit maximization: the economic objective like benefit maximization is commonly aspired to by every decision maker involved in the planning process. However, farmers are more biased to such objectives and

always prefer a cropping pattern which can provide them with more financial returns. Hence, it can be formulated as:

$$MaxZ_1 = \sum_i N_i \times A_i, \forall i. \quad (1)$$

2. Calories (energy) maximization: in many developing countries malnutrition is widespread. Therefore, the government prefers a cropping pattern which results in maximum calorie production to prevent calorie deficiency in the country or community. Such a social objective can be formulated as:

$$MaxZ_2 = \sum_i f_i \times C_i \times A_i, \forall i. \quad (2)$$

<b>Nomenclature</b>			
Subscript and superscripts:		$i = 1, 2, \dots, n$ crop type index	$j = 1, 2, \dots, 12$ month type index
<b>Variables and parameters</b>			
<b>A<sub>i</sub>:</b>	allocation of land to ith crop	<b>LB<sub>i</sub>:</b>	lower production bound of ith crops
<b>R<sub>i</sub>:</b>	overall crop ranking factor for ith crop	<b>UB<sub>i</sub>:</b>	upper production bound of ith crops
<b>L<sub>i</sub>:</b>	labor requirement per unit area for production of ith crop	<b>TAGW:</b>	maximum permissible annual ground water withdrawal
<b>P<sub>i</sub>:</b>	production (yield) per unit area of ith crop N <sub>i</sub> net return (in excess of field level costs) per unit area from production of ith crop	<b>C<sup>e</sup>:</b>	minimum quantity of cereals (maize, paddy, wheat) requirement in the planning unit
<b>I<sub>i</sub>:</b>	total per unit area investment required for cultivation (production) of ith crop	<b>P<sup>u</sup>:</b>	minimum quantity of pulses requirement in the planning unit
<b>C<sub>i</sub>:</b>	total per unit area energy (calories) available from production of ith crop	<b>O<sup>s</sup>:</b>	minimum quantity of oil seeds requirement in the planning unit
<b>W<sub>i</sub><sup>j</sup>:</b>	volume of irrigation water requirement for ith crop in jth month A total cultivable area available in planning unit	<b>β<sub>i</sub><sup>j</sup>:</b>	fraction of the total area under crop I exists on the @led during month j (0-1; describing the composite crop period)
<b>GW<sup>j</sup>:</b>	maximum permissible groundwater availability in jth month	<b>f<sub>i</sub>:</b>	fractional amount of edible food obtained from ith crop
<b>SW<sup>j</sup>:</b>	maximum surface water availability in jth month obtained from reservoir simulation study for optimal releases	<b>μ<sub>z<sub>i</sub></sub>(x):</b>	membership function of tth objective

3. Labor employment maximization: the governments of under-developed or developing countries may advocate a labor-intensified cropping pattern to minimize unemployment as well as under-employment, especially in the agricultural sector. Hence, mathematically:

$$MaxZ_3 = \sum_i L_i \times A_i, \forall i. \quad (3)$$

4. Investment minimization: the investment required to produce a particular crop also plays a significant role in crop selection, especially in a developing country like Iran where cultivators have very limited financial capacity. Usually, farmers prefer a cropping pattern which is less investment intensive, though it may fetch some smaller benefits. Thus, mathematically:

$$MinZ_4 = \sum_i I_i \times A_i, \forall i. \quad (4)$$

5. Maximize total area under irrigation: considering the government's policy of providing irrigation to as large an area as possible rather than limiting to some specific crops that yield more returns or serves individual objectives:

$$MaxZ_5 = \sum_i A_i, \forall i. \quad (5)$$

6. Maximize crop area in the order of crop ranking: at the outset all possible candidate crops suitable for sowing should be identified and ranked based on several criteria. Therefore, among others one objective of the planning could be the maximization of the area under crops in order of crop ranking. Such an objective indirectly takes care of several other conflicting criteria. Mathematically, it can be written as:

$$MaxZ_6 = \sum_i R_i \times A_i, \forall i. \quad (6)$$

#### Model Constraints

The developed model is subjected to the following constraints:

1. Cultivable area constraint: in a planning unit, area allocated to different crops is utmost equal to the total cultivable area, i.e:

$$\sum_i A_i \leq A, \forall j. \quad (7)$$

2. Water requirement constraint: in any month irrigation water demand of all the crops should not exceed the water available in that particular month, i.e:

$$\sum_i W_i^j \times A_i \leq SW^j + GW^j, \forall j. \quad (8)$$

In sisthan province groundwater is not usable for agriculture then  $GW^j = 0$

3. Annual groundwater withdrawal constraint: the total groundwater use in the command area should not exceed the annual permissible groundwater withdrawal:

$$\sum_i GW^j \leq TAGW \quad (9)$$

In this paper  $\mathbf{GW}^j=0$  , so this constraint is not use.

4. Upper and lower bound constraints: to cater the need of social, economic and regional factors of the dynamic system, upper and lower bound constraints are required to introduce into the model for better control on production of certain crops. These constraints are frequently needed for the sake of maintaining commodity prices in the region. Lower bound constraints are usually required to fulfil social obligations such as production of minimum food requirements, which is associated with food affinity or malnutrition of the society. Thus, constraints can be expressed in general form as follows:

- upper bound constraints:

$$f_i \times P_i \times A_i \leq UB_i \text{ for selected } i \quad (10)$$

- Lower bound constraints:

$$f_i \times P_i \times A_i \geq LB_i \text{ for selected } I \quad (11)$$

Food requirement constraints are lower bound constraints of the model. They are usually required to produce a minimum quantity of desired food commodities for domestic consumption. Considering the food habits of the local population as well the recommended balanced diet by the Indian Council of Medical Research, certain minimum quantities of cereals, pulses and oil seed foods are required to be produced. The suggested cropping pattern should ascertain the supply of these minimum quantities of food commodities. These can be expressed as follows:

- cereals requirement: 
$$\sum_i f_i \times P_i \times A_i \geq C_e \text{ index } i \text{ for} \quad (11a)$$

- pulses requirement: 
$$\sum_i f_i \times P_i \times A_i \geq P_u \text{ index } i \text{ for} \quad (11b)$$

- Oil seeds requirement: 
$$\sum_i f_i \times P_i \times A_i \geq O_S \text{ index } i \text{ for} \quad (11c)$$

5. Non-negativity restriction: the basic assumption underlying the model is that all decision variables must be non-negative, i.e.:

$$\forall i \ A_i \geq 0 \quad (12)$$

### Generalized Fuzzy Decision Model in Multi-Objective Analysis

For each non-redundant objective function  $Z_i(x)$  there exists a uniquely determined functional efficient optimal solution  $x_i^*$  that means:

$$\hat{\bigwedge}_{x \in X} Z_t(x) \leq Z_t(x_t^*) = Z_t^* \quad (13)$$

For the individual optimal solutions holds:  $X_i^* = X_j^*$  for  $i \neq j$  and  $i, j=1, \dots, k$ .

Furthermore, we define for  $t=1, \dots, k$ .

$$Z_t^m = \min(Z_t(X_1^*), \dots, Z_t(X_{t-1}^*), Z_t(X_{t+1}^*), \dots, Z_t(X_k^*)) \quad (14)$$

and  $d_t^* = Z_t^* - Z_t^m > 0$  (15)

### Membership Functions

Membership function acts as surrogate characterization of preference in determining the desired outcome for each of the objectives within the multi-objective framework.

Membership function, denoted by  $\mu_{z_t}(x)$  for the  $t$ th objective, should at least satisfy the following conditions:

$$\mu_{z_t}(x) = \left\{ \begin{array}{ll} 1 & \text{if } Z_t(x) \geq Z_t^* \\ 0 < \mu_{z_t}(x) < 1 & \text{if } Z_t^m < Z_t(x) < Z_t^* \\ 0 & \text{if } Z_t(x) \leq Z_t^m \end{array} \right\} \quad (16)$$

Where  $Z_t(x)$  is the outcome of the  $t$ th objective.

Several membership functions could be employed in fuzzy linear programming which we employed hyperbolic inverse membership function in this fuzzy model.

For each objective function  $Z_t(x)$ , the corresponding hyperbolic inverse membership function  $\mu_{Z_t}^{HI}(x)$  is defined as follows:

$$\mu_{Z_t}^{HI}(x) = a_t \tanh^{-1}(y) + 1/2 \quad (17)$$

Where  $y = \alpha_t \{Z_t(x) - (Z_t^m + Z_t^*) / 2\}$ ; and  $\alpha_t$  is a parameter.

### Generalized Fuzzy Linear Programming Model

The central idea behind fuzzy linear programming is that ill-defined problems are first formulated as fuzzy decision models. Crisp models can then be designed which are equivalent to the fuzzy models and could be solved by using

existing standard algorithms. This approach is particularly suitable for decision problems which have the structure of linear programming. The fuzzy programming approach to multi-objective linear programming problems was first introduced by Zimmermann (1978) and further developed by several researchers including Leberling (1981), Hannan (1981), Sakawa and Yano (1985) and Sakawa (1987). Following fuzzy decision or minimum operator proposed by Bellman and Zadeh (1970) together with linear, hyperbolic, or piecewise-linear membership functions, authors proved the existence of an equivalent linear programming problem.

The fuzzy objective function is characterized by its membership function, and so are the constraints. To satisfy (optimize) the objective functions as well as the constraints, a decision in a fuzzy environment is a defined analogy to a non-fuzzy environment as the selection of activities which simultaneously satisfy objective function(s) and constraints. The 'decision' in a fuzzy environment is the intersection of fuzzy constraints and fuzzy objective function(s). The relationship between constraints and objective functions in a fuzzy environment is therefore fully symmetric, i.e. there is no longer a difference between the former and latter (Bellman and Zadeh, 1970).

If one defines the solution with the highest degree of membership to the fuzzy 'decision set' as the maximizing decision, then the fuzzy optimization problem can be defined as follows (Zimmermann, 1978; Leberling, 1981):

$$\text{Max } Z(x) = (Z_1(x), \dots, Z_k(x))^T$$

$$\text{Such that: } \quad AX \leq b \quad \quad X \geq 0$$

Where '~' means that all objective functions are characterized by corresponding membership functions:

Objective function	Membership function
$Z_1(x)$	$\mu_{Z_1}(x)$
•	•
•	•
•	•
$Z_k(x)$	$\mu_{Z_k}(x)$

The task is then to satisfy simultaneously all objective functions via their corresponding membership functions. For a general aggregate function:

$$\mu_D(x) = \mu_D(\mu_{Z_1}(x), \dots, \mu_{Z_k}(x))$$

The general optimization problem will be:

$$\text{Max } \mu_D(x)$$

$$\text{such that: } \quad AX \leq b \quad \quad X \geq 0 \quad \quad (18)$$

Definition:  $\bar{x} \in X$  is called optimal fuzzy decision of the fuzzy linear vector optimization problem, if  $\bar{x}$  is an optimal solution of Eq. (18) that means:

$$\hat{\mu}_D(x) \leq \mu_D(\bar{x})$$

Using Zadeh's mini-operator (Zadeh, 1965) to specify the general aggregation function  $\mu_D(x)$ :

$$\hat{\mu}_D(x) = \min(\mu_{Z_t}(x)) = \min(\mu_{Z_1}(x), \dots, \mu_{Z_k}(x))$$

Eq. (18) then can be written as:

$$\max \min(\mu_{Z_t}(x))$$

$$\text{such that:} \quad AX \leq b \quad X \geq 0 \quad (19)$$

Zimmermann (1978) showed that Eq. (19) is equivalent to the following linear programming problem:

Max  $\lambda$

Such that:

$$1) \lambda \leq \mu_{Z_t}(x), \quad 1; 2; \dots; k \quad 2) AX \leq b \quad 3) X \geq 0 \quad (20)$$

## Multi-Criteria Decision Model for Crop Area Planning Using Fuzzy Linear Programming

In formulation of a fuzzy linear programming-based multi-criteria decision model for crop area allocation, it is quite reasonable to allow the member function to be of hyperbolic nature. This is particularly true to real-world problems, as marginal satisfaction of the decision maker decreases as the level of satisfaction (grade of membership) with respect to attainment of objective increases.

Assuming the following nonlinear tangent hyperbolic membership function for representing the fuzzy goals of the decision maker:

$$\mu_t^H(Z_t(x)) = \frac{(\tanh((Z_t(x) - b_t)\alpha_t) + 1)}{2}$$

Where  $\alpha_t$  is a shape parameter and  $b_t$  represents the value of  $Z_t(x)^*$  such that  $\mu_t^H(Z_t(x)) = 0.5$ . Taking worst

value and best value of tth objective function as  $Z_t^m$  and  $Z_t^*$ , respectively,  $b_t = (Z_t^m + Z_t^*)/2$ . Using the

above-mentioned hyperbolic membership function for representing the fuzzy objectives of the decision maker together with the fuzzy decision of Bellman and Zadeh (1970), the general form of the problem can be stated as

Max  $\lambda$

Such that:

$$1) \lambda \leq \mu_{Z_t}^H(x), t = 1, 2, \dots, k \quad 2) AX \leq b \quad 3) X \geq 0 \text{ and } \lambda \geq 0 \quad (21)$$

In this formulation  $\lambda \leq \mu_{Z_t}^H(x)$ , is a nonlinear function hence it is a nonlinear programming problem.

Leberling (1981) showed that such nonlinearity by introduction of nonlinear hyperbolic membership function could be equivalently converted to a conventional linear programming problem. Eq.(21) can be written as:

Max  $\lambda$

such that:

$$1) \lambda \leq \frac{(\tanh((Z_t(x) - b_t)\alpha_t) + 1)}{2}, t = 1, 2, \dots, k$$

$$2) AX \leq b \quad 3) X \geq 0 \text{ and } \lambda \geq 0 \quad (22)$$

This is equivalent to:

Max  $\lambda$

such that:

$$1) (Z_t(x) - b_t)\alpha_t \geq \tanh^{-1}(2\lambda - 1), t = 1, 2, \dots, k$$

$$2) AX \leq b \quad 3) X \geq 0 \text{ and } \lambda \geq 0 \quad (23)$$

if we define:

$$x_{n+1} = \tanh^{-1}(2\lambda - 1) \quad \text{Then} \quad \lambda = \frac{(\tanh^{-1}(x_{n+1}) + 1)}{2}$$

Since,  $\tanh^{-1}(x)$  is a strictly monotone increasing function with respect to  $x$ , the maximization of  $\lambda$  is equivalent to the maximization of  $x_{n+1}$ . Hence, fuzzy vector-valued multi-objective optimization problem can be transformed to the following crisp model:

Max  $x_{n+1}$

Subject to:

$$1) \alpha_t Z_t(x) - x_{(n+1)} \geq \alpha_t b_t, t = 1, 2, \dots, k$$



$$2) AX \leq b \qquad 3) X \geq 0 \text{ and } x_{(n+1)} \geq 0 \qquad (24)$$

Let  $(x_{(n+1)}^*, x^*)$  be an optimal solution of Eq. (24), then optimal solution of the original problem can be obtained by:

$$(\lambda^*, x^*) = \left( \frac{\tanh(x_{n+1}^*) + 1}{2}, x^* \right) \qquad (25)$$

Therefore, the multi-objective fuzzy area allocation model with hyperbolic membership function can be formulated as follows:

Maximize  $A_{(n+1)}$

Subjected to:

1. Original constraints [Eqs. (7) - (12) of multi-objective area allocation model formulated in Section 1.4.2].
2. Hyperbolic membership constraints one for each considered objective:

- Net benefit maximization:

$$-\alpha_1 \sum_{i=1}^n N_i A_i + A_{n+1} \leq -\frac{1}{2} \alpha_1 (Z_1^m + Z_1^*)$$

- Calories maximization:

$$-\alpha_2 \sum_{i=1}^n f_i C_i A_i + A_{n+1} \leq -\frac{1}{2} \alpha_2 (Z_2^m + Z_2^*)$$

- Labor employment maximization:

$$-\alpha_3 \sum_{i=1}^n L_i A_i + A_{n+1} \leq -\frac{1}{2} \alpha_3 (Z_3^m + Z_3^*)$$

- Investment minimization:

$$-\alpha_4 \sum_{i=1}^n I_i A_i + A_{n+1} \leq -\frac{1}{2} \alpha_4 (Z_4^m + Z_4^*)$$

- Maximization of total area under irrigation:

$$-\alpha_5 \sum_{i=1}^n A_i + A_{n+1} \leq -\frac{1}{2} \alpha_5 (Z_5^m + Z_5^*)$$

- Maximization of crop area in order of crop ranking:

$$-\alpha_6 \sum_{i=1}^n R_i A_i + A_{n+1} \leq -\frac{1}{2} \alpha_6 (Z_6^m + Z_6^*)$$

where:  $\alpha_t = \frac{6}{Z_t^* - Z_t^m}$  for  $t = 1, \dots, 6$

3. Non-negativity constraints:  $A_{(n+1)} \geq 0$

## Multiple-Criteria Decision Model for Crop Area Planning: Application, Results and Discussion

In order to demonstrate the applicability as well as analytical capabilities of the model developed earlier, the model was applied to sisthan (Iran). The model addresses the issue of establishment of most appropriate cropping pattern in a command area in view of surface water availability via optimal operation of the reservoirs system in the form of available optimal releases and multiple conflicting and non-commensurable objectives frame-work which are usually involved in irrigation planning. The developed model determines the type of crops to be grown, their extent and the level of water application such that all other available resources are efficiently utilized so as to result in a most satisfactory decision to the multi-faceted, conflicting, non-commensurable and imprecise objectives.

### Description of Study Area

The irrigated command area of sisthan province has been selected to illustrate the applicability of the formulated multiple-criteria decision model for crop area planning.

In Sistan province there are 12000 ha operational lands which these lands can be using for farming. Also groundwater in this province is not usable for farming and farmers use surface water which obtain from Hirmand River. Share of Iran to use water of this river is 820 billions  $m^3$  in each year ( $26 m^3$  in each second).

---

January    February    March    April    May    June

34.67	78.16	73.13	31.11	9.03	19.73
July	August	September	October	November	December
13.72	9.37	2.32	5	12.72	23.04

### Assumptions Used in Model Application

The following assumptions are made owing to the lack of reliable and sufficient information:

1. Time scale of the model is taken as a month, which is considered to be appropriate for such planning. All resource requirements and their availability have been evaluated on the same reference.
2. Overall project efficiency is applied to consider actual water available in the field.
3. All parts of the land under consideration receive the same management practices.
4. Land and soil are uniform throughout the command area; hence, suitable for all the crops under cultivation.
5. Annual availability of groundwater is considered which can be utilized at any time in a year. Further, it is also ensured that before using any groundwater in a period, all surface water available in that period should be utilized.

### Determination of Crop Ranking Factors

Nine common crops have been identified which are considered to be suitable for cultivation in the selected Sistan command area. In order to determine the crop ranking factors, multi-attribute value theory (MAVT) has been used.

#### MAVT

The preference function  $V$  is decomposed into some simpler forms if the decision maker's preference for the various combinations of the level of criteria satisfies certain conditions. A simple and most widely used form is the weighted additive form (Zeleny, 1982) which is used in the present case:

$$V(f_1, f_2, \dots, f_k) = w_1 \times v_1(f_1) + w_2 \times v_2(f_2) + \dots + w_k \times v_k(f_k)$$

Where  $w$ 's are the weights and  $v$ 's are the value function for each criterion.

#### Assessment of $v_k(f_k)$

A simple method is to use a 100-point rating scale on which 0 indicates the worst level and 100 indicates the best level. The different levels of an attribute are rated on this scale. The value of a level of a criterion is simply the rating divided by 100.

Five criteria were employed in ranking the crop alternative, namely, maximization of labor ( $f_1$ ), maximization of net benefit ( $f_2$ ), minimization of cost of cultivation ( $f_3$ ), maximization of benefit / cost ratio ( $f_4$ ) and maximization of available calorie ( $f_5$ ).

### Criteria Weights

In the absence of subjective weights all the five criteria, i.e.  $f_1 - f_5$  are assigned equal weightage (i.e.  $w_1=w_2=w_3=w_4=w_5=0.20$ ).

The overall value ( $V$ ) for each crop alternative can be computed as:

$$V = w_1 \times v_1 (f_1) + w_2 \times v_2 (f_2) + w_3 \times v_3 (f_3) + w_4 \times v_4 (f_4) + w_5 \times v_5 (f_5)$$

## Methodology

The reservoir system of the Sistan is first simulated under different operational strategies. The output of the simulation model has been taken as the input to crop area planning model (as surface water availability). Although the simulation model determines the optimal irrigation releases from a reservoir corresponding to the imposed demand which has been computed using given cropping pattern by the project authorities and assuming whole cultivable area under irrigation. In fact this is the maximum irrigation demand which can be used and desired but the system may not be in a position to fulfill such demand. The simulation model attempts to satisfy as much as possible of this imposed demand considering temporal and spatial priorities and energy generation targets in the system. Therefore, it is most likely that full crop water demand may not be satisfied by the system in all time periods of the planning horizon. Thus, the immediate problem of concern is how best to utilize these obtained irrigation releases from the reservoir? This problem can be solved by finding 'how much area should be put under irrigation and under which crops to fulfill the aspiration of decision maker in the framework of available water and land resources?' Moreover, the desirability of incorporating multiple imprecise goals of different decision maker(s) further complicates the problem. The developed crop area-planning model provides the most preferred satisfying solution to the present problem. The crop area-planning model determines the cropping pattern for each year of the considered 30 years planning horizon (1949-78). The model also computes and employs varying irrigation water requirements of crops in each year because the precipitation varies over time. In order to establish an optimal cropping pattern corresponding to some reliable irrigation releases and rainfall, different probability distributions have been fitted into the monthly series of optimal irrigation releases at Hirmand reservoir (obtained through an external simulation model) in its irrigation command area. The fitted distributions are normal, log-normal, gamma 2-parameter, pearson 3-parameter and log pearson 3-parameter. The best-fitted distribution in each month is then identified and used to calculate 80% dependable irrigation releases and rainfall.

TABLE 1: COMPUTATION OF CROP RANKING FACTORS (OVERALL VALUE) BY MULTI-ATTRIBUTE VALUE  
TECHNIQUE

Crop alternatives	Values of crop alternatives with respect to each criteria					Overall value (V)	Crop ranking
	$v_1(f_1)$	$v_2(f_2)$	$v_3(f_3)$	$v_4(f_4)$	$v_5(f_5)$		
Wheat	0.354	0.007	0.825	0.000	0.923	0.422	6
Barley	0.160	0.049	0.796	0.152	0.070	0.245	8
Pasture	0.000	0.000	1.000	0.016	0.000	0.203	9
Alfalfa	1.000	0.206	0.074	0.148	0.000	0.286	7
watermelon	0.446	0.326	0.816	0.508	1.000	0.619	1
Melon	0.446	0.394	0.813	0.616	0.345	0.523	3
Onion	0.829	1.000	0.000	0.935	0.193	0.591	2
Lentil	0.279	0.255	0.532	0.569	0.588	0.444	5
Cumin	0.427	0.613	0.222	1.000	0.000	0.452	4

Lower bound constraints on food requirement are imposed for cereals, pulses and oil seed crops. In the case of cereal food requirement constraint, since cereals include paddy, maize, and two varieties of wheat crop, a proportionality constraint has been introduced to specify minimum proportion among them which ensures minimum desired production of each type of cereal. The developed computer program is also very flexible as it can automatically readjust the lower bound food requirement constraints, if the solution becomes infeasible due to violation of these constraints. Such flexibility is essential, since models have been used for a long planning horizons period (30 years) which also contains extreme dry periods. During dry periods enough surface water (irrigation release) is not available to satisfy lower bound food requirement constraints and thus the solution may become infeasible.

## Results and Discussion

For analyzing catered data with due attention to explained methods, six linear programming models were estimated which adapted with different goal functions which had similar constraints. Firstly, it is necessary to explain that,

choosing productions is affected by shortage of water and drought in area and we choosed plant which needs few water, more over, their humidity necessity are less during dry months.

Result of estimating these five LP model plus Fuzzy multiple-criteria decision model are presented in table 2. As shown by the result, because of having water limitation especially in May, September, October and November and having Upper and lower bound constraints for main productions such as wheat and barley haven't many different in models however this variety related to productions such as watermelon and cumin.

TABLE 2: OPTIMAL CROPPING PATTERNS UNDER DIFFERENT OBJECTIVES AND FUZZY COMPROMISED SOLUTION

Crop	Area (ha) under different crops with respect to objective of . . .						Area (ha) under fuzzy compromise solution
	Benefit max.	Calories max	Labor max.	Investment min	Area max	Ranking max.	
Wheat	15000	15001	15000	15000	15000	15000	15001
Barley	4900	4900	4900	4900	4901	4900	4900
Pasture	2000	2000	2000	2000	2000	2001	2000
Alfalfa	320	320	320	320	320	320	320
watermelon	400	420	400	400	400	400	408
Melon	365	365	365	365	365	385	365
Onion	227	200	227	200	227	200	216
Lentil	6500	6500	6500	6500	6500	6500	6500
Cumin	26921	2000	26921	2000	26920	26920	26920
Annual	56633	31705	56633	31685	56633	56626	56630

As it explained, some months had more water limitation than others, this mean that water have shadow price in these especial months. On this base, in first model which its net benefit maximization, shadow price of water is 3252.7 Rials in May and 7626 Rials in November, so adding only one cubic meter water in May and November add 3252.7 and 7626 Rials to net benefit respectively from cultivating these productions.

In the next model, which is Calories (energy) maximization, the limitation is related to May and October which adding one water unit, will add achieve calory level to 2851.32 and 13107.31. On this base, adding each more water unit as limitative factor by production cultivating expansion have direct effect equivalent 2581.32 calory in May and 13107.31 calory in October.

Labor employment maximization is the aim of third model and water limitation in May and November is: adding one m<sup>3</sup> water will arise man-hours to 0.0552 and 0.1211 in these months.

Investment minimization which is the aim of next model, deals with October and finally maximizes crop area in the order of crop ranking is the aim which achieved with the last model by usual linear programming and water limitation is related to May, October and November in this model. More aver these months have the highest level of water limitation in Fuzzy multiple-criteria decision making, so this is a powerful factor which limit production cultivating in Sistan's area.

TABLE 3: PAYOFF TABLE FOR OPTIMAL CROPPING PATTERN UNDER DIFFERENT OBJECTIVES AND FUZZY COMPROMISE SOLUTION CONSIDERING SURFACE WATER

Objective	Unit	Objective function value of optimal solution corresponding to the objective of ...						Objective function value in case of fuzzy compromise solution
		Max. benefit	Max. calories	Max. labor	Min. investment	Max. area	Max. ranking	
Max. benefit	10 <sup>6</sup> Rials	11633.49	2365.83	11633.49	2361.84	11633.15	11621.60	11628.07
Max. calories	10 <sup>6</sup> kcal	131.68	131.79	131.68	131.64	131.68	131.69	131.73
Max. labor	10 <sup>6</sup> man-hours	2.92	1.45	2.92	1.44	2.92	2.92	2.92
Min. investment	10 <sup>9</sup> Rials	13.80	5.53	13.80	5.53	13.80	13.80	13.80
Max. area	Ha	56633	31706	56633	31685	56633	56626	56630
Max. ranking	-	291573	191861	291573	191835	291577	291584	291561

## Recommendations and Concluding Remarks

Five linear programming model and Fuzzy model show that we have shortage of water in three month in year which is about May, October and November. More aver we offered the above statement to improve efficiency and expand farmer's income in this area:

1. Production cultivating with high efficiency (means, use less water and have high economical product) such as cumin and saffron.
2. Use plant which needs no water in dry month or need less water then others, such as wheat, barley, cumin, saffron and etc.
3. Rising efficiency usage and irrigate with modern irrigation methods such as dropping or raining irrigation.
4. Define and specify Hirmand River's legal system.
5. Compensate damages of drought to prevent farmer's economical ability in next plant period.

6. Use parallel jobs such as Livestock, handing arts, starting or establishing frontier passage and ... with government support to expand family economical ability and decrease heavy drought effects.

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## **Government Expenditure and Revenue Relation and Fiscal Sustainability in Iran**

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### **Abstract**

Economic and social development in developing countries are dependent on the government's ability to make enough revenue for providing necessary programs- service programs like health, training, transportation and communication. Therefore, the relationship between government revenue and expenditure in every country is a scale for measuring the level of development and growth. Data of 1970-2002 was used. At first we use unrestricted error correction model (UECM) that has been suggested by Pesaran et al for testing cointegration between government revenue and expenditure, then we use inter-temporal budget constrain (IBC) for fiscal sustainability. The results show that government revenue is changed to government expenditure quickly, but it takes long for government expenditure to change to government revenue, although there is no fiscal sustainability in Iran.

### **Introduction**

Monetary and fiscal policies have direct and indirect important roles in government actions for spreading economic activities in unemployment periods, capacity surplus and decreasing activities when there is inflation and excess demand. When there is no regular and internal supervised monetary market in developing countries, these countries have to equip internal resources with fiscal policies. Economic and social development in developing countries are dependent on the government's ability to make enough revenue for providing necessary programs- service programs like health, training, transportation and communication.

In a developing country's economy, the government ownership share and government control are so high. Therefore, the correct use of internal saving and external resources for the projects of governmental investment and mobilizing and leading rare resources to domains that help more to reach long-run economic goals, preparing the

limited resources to ways that provide the more necessary constructional changes for a sustainable and symmetrical economic growth (17) and planning and investing on cases that they have are causes increase in productivity and producing income for government in developing countries economic are very necessary.

A lot of studies have been done on fiscal policies on the government roles for expending revenue to reaching the economic growth and development. Narayan (12) investigated evidence for cointegration and causality between government revenue and expenditure for nine Asian countries. Gupta and Verhoeven (10) assessed the efficiency of government expenditure on education and health in 37 countries in Africa in 1984-1995 with free disposal hull method (FDH). Garscia and Henin (8) have used a divariated VECM representation for the joint government revenue- government expenditure dynamics for five the main OECD countries. Santos Bravo and Silvestre (16) have tested sustainability performing an empirical analysis of co integration between public expenditure and revenue as ratios of GDP in 11 European Union members. Goyal and Khudrakam and Ray (9) have assessed the Indian fiscal trends in terms of inter-temporal budget constraint (IBC) for the central and state government separately. Abu-Bader and Abu-Bader (2) investigated the causal relationship between government expenditure and economic growth in Egypt, Israel and Syria. Folster and Henrekson (7) have studied on growth effects of government expenditure and taxation in OECD. Fetres (6) investigated the effects of the government monetary and fiscal policies on agriculture's value added, investment and export Bakhtiari and Haghi (4) have focused on the effects of increase in oil revenue on agriculture sector in Iran. Bakhshodeh (3) investigated on forecasting the elimination of government's interferences from wheat market and welfare effects of wheat liberalization in Iran.

With consideration on the point that government revenue has an important role in growth and development and the way that revenue changes to expenditure is more important, this study has focused on government revenue and expenditure relationship and finance sustainability in Iran.

## **Methodology**

In this study we focus on government revenue and expenditure relationship and finance sustainability. For this aim Iran center bank data of 1970-2002 have been used. Variables were GE is the logarithmic of government expenditures to GDP ratio and GR is the logarithmic of government revenues to GDP ratio. All equations have been estimated by Microfit 4.0 Software. All variables are changed to constant of 1997.

### **Cointegration**

Our sample is relatively small (33 observations). Therefore we use the bound testing approach to cointegration as it is suitable for small sample size (13) and were explored by Pesaran et al (13) to examine the long run relationship

between government revenue and expenditure. They suggested Unrestricted Error Correction Model (UECM) for testing co-integration between variables, and they showed this method is suitable for small sample. Pesaran et al suggested their method based on Auto Regressive Distributed Lag (ARDL), and separated it to section:

1- Co-integration test 2-estimate the long run coefficients. In first stage the relation between variables is tested and in the second stage the coefficients are estimated.

So ARDL model is changed to error correction model like below:

$$\Delta Y_t = \alpha_0 + \alpha_1 t + \sum_{j=1}^p \Phi_j \Delta Y_{t-j} + \sum_{j=0}^q \beta_j \Delta X_{t-j} + \Psi_0 Y_{t-1} + \sum_{i=1}^k \Psi_i X_{i,t-1} + \varepsilon_t \quad (1)$$

K is the number of variables.  $\Delta$  Is the difference operator,  $\alpha_0$  is drift,  $\alpha_1$  is the time's coefficient,  $\Phi$  and  $\beta$  are long run multipliers. The cointegration test hypothesis is:

$$H_0 : \Psi_i = 0 \quad i=0, 1, \dots, k$$

If the null hypotheses is rejected, then there is long-run relation between variables, but is accepted there is not any long-run relationship between variables. The F-test which has a non- standard distribution depends upon: 1- the non-stationary properties of the data 2- the number of independent variables and 3- the sample size. The critical values are available in Pesaran and Pesaran (15) for 500 observations and Pesaran et al (14) for 1000 observations, but our sample is small, then we use the critical values that estimated by Narayan (12).

Two sets of critical values are generated. One set refers to I(1) series and the other for I(0) series. here, the critical values for I(1) series are referred to as the upper bound critical values while the critical values for I(0) series are referred to as the lower bound critical values. When the calculated F-statistic is greater than the upper bound critical values the null hypotheses of “no co-integration” is rejected, and when the calculated F-statistic is lower than the lower bound critical values the null hypotheses of “no cointegration” is accepted (1). The UECM method has several advantages over alternatives such as Engle-Gerenger and Johanson- Joselios methods, like below:

- 1- The variables can be I(0) or I(1).
- 2- It is really more suitable than another method for small sample size.
- 3- It can distinguish dependent and independent variables. For instance, by taking variable  $GR_t$  as a dependent variable and  $GE_t$  as an independent variable, if one finds that based on the bounds F-test there is cointegration between the variables then it implies that  $GR_t$  is the dependent variable in this relationship (12).

In this study, while the government revenue is independent variable, model is like below:

$$\Delta GR_t = \beta_0 + \Psi_{GR} GR_{t-1} + \Psi_{GE} GE_{t-1} + \sum_{i=1}^p \theta_i \Delta GR_{t-i} + \sum_{j=0}^q \phi_j \Delta GE_{t-j} + \varepsilon_t \quad (2)$$

That GE and GR are logarithmic government expenditure and revenue to GDP ratio,  $\beta_0$  is drift,  $\Psi_{GE}$  and  $\Psi_{GR}$  are long-run coefficients,  $\theta_i$  and  $\phi_j$  are short-run coefficients.

But when government expenditure is the independent variable, the model becomes like below:

$$\Delta GE_t = \beta'_0 + \Psi'_{GE} GE_{t-1} + \Psi'_{GR} GR_{t-1} + \sum_{i=0}^p \theta'_i \Delta GR_{t-i} + \sum_{j=1}^q \phi'_j \Delta GE_{t-j} + \varepsilon'_t \quad (3)$$

$\beta'_0$  Is drift,  $\Psi'_{GE}$  and  $\Psi'_{GR}$  are long-run coefficients,  $\theta'_i$  and  $\phi'_j$  are short-run coefficients.

We don't use trend in this study because variables don't have a regular trend, and lags have been chosen by AIC. That has been selected p=2.

#### **Granger Causality**

There are a lot of methods for testing the causality between variables like Granger, Hisao and error correction methods. If variables aren't cointegrated, the Granger or Hisao are suitable. Granger proved when variables are cointegrated we can't use Granger or Hisao methods because they don't use error correction terms. Thus he formulated the causality equations in error correction models way (11). In this study we use the error correction models to distinguish the causality of variables.

#### **Finance Sustainability**

The term fiscal or debt sustainability perhaps implies a set of fiscal policies that could be continued unaltered without jeopardizing the economic policy objectives such as economic growth, price stability and external balance.

Traditionally, the ability of the government to maintain its fiscal policies are measured in terms of  $\frac{debt}{GDP}$  doesn't

grow to explosive proportions over time. There are, however, alternative approaches to test the sustainability of debt. One approach is the steady-state Domar condition in which rate of growth of income must exceed the interest rate on public debt, subject to the condition that primary balance is either positive or zero. Measuring the sustainability of deficit from the Domar condition could be naive; after all, a  $\frac{debt}{GDP}$  might be stable at 200%.

However, this may be quite unsustainable. In order to get rid of such incredible outcomes, the standard approach in the literature is measuring inter-temporal budget constrain (IBC). In IBC approach, a sustainable debt would require

(4)

not only that  $\frac{debt}{GDP}$  is stable in the future, but it must be ensured that the outstanding debt is finally repaid. Thus

the gap between government revenue and expenditure is very important. If there is no cointegration between revenue and expenditure, the result is lack of sustainability (9). IBC approach:

$$\Delta B_t = G_t - R_t - r_t B_t$$

$B_t$  is the government debt at the end of t,  $G_t$  is government expenditure interest payments,  $R_t$  is government revenue and  $r_t$  is the rate of interest payable on outstanding government debt at t. government is always faced with a similar constraint for period t+1,t+2,..., so expressing (4) as a ratio of GDP

$$\Delta b_t = e_t - T_t + \lambda b_{t-1} \quad (5)$$

Where

$$\lambda_t = \frac{(r_t - g_t)}{(1 + g_t)} \quad e_t = \frac{G_t}{Y_t} \quad \text{And} \quad T_t = \frac{R_t}{Y_t}$$

With this assume that  $\lambda_t$  is stationary around a mean  $\lambda_0$ , so equation 5 is changed to:

$$\Delta b_t = e'_t - T_t + \lambda b_{t-1} \quad (6)$$

Where

$$e'_t = e_t + (\lambda_t - \lambda_0)b_{t-1}$$

Iterating equation (6) forward yields:

$$b_t = \sum_{j=0}^{\infty} \gamma^{j+1} (T_{t+j} - e'_{t+j}) + \lim_{j \rightarrow \infty} \gamma^{j+1} b_{t+j+1} \quad (7)$$

Where  $\gamma^{j+1} = (1 + \lambda)^{-(j+1)}$

Equation below from taking expectations in (7) is resulted:

$$b_t = E_t \sum_{j=0}^{\infty} \gamma^{j+1} (T_{t+j} - e'_{t+j})$$

Eq. (5) is equal with transversal condition,  $E_t \lim_{j \rightarrow \infty} \gamma^{j+1} b_{t+j+1} = 0$ . Economic interpretation of the above condition is that for debt process to be sustainable, current debt must be equal to expected present value of future primary surplus.

So from eq. (7) we have  $\Delta b_t = e_t^R - T_t = \sum_{j=0}^{\infty} \gamma^{j+1} (\Delta T_{t+j} - \Delta e'_{t+j}) + \lim_{j \rightarrow \infty} \gamma^{j+1} b_{t+j+1}$  where

$e_t^R = e_t + \lambda b_{t-1}$  that it is government expenditure plus interest payments and  $E_t \lim_{j \rightarrow \infty} \gamma^{j+1} \Delta b_{t+j+1} = 0$ . From eq.

(7) we have for debt process to be sustainable, the current debt must be equal to the expected present value of future primary surpluses. So  $e_t^R$  and  $T_t$  can't deviate from each other over time. If  $e_t^R$  and  $T_t$  are I(1) so we must test

$\Delta b_t$  stationary.

So

$$T_t = \alpha + \beta e_t^R + \varepsilon_t \quad (9)$$

If  $e_t^R$  and  $T_t$  are I(1), but they are co-integrate, the null hypothesis for sustainability is  $\beta = 1$ . If we impose eq. (9)

to (4) we have

$$\Delta b_{t+1} = (1 - \beta) e_t^R - \alpha - \varepsilon_t \quad (10)$$

If  $e_t^R$  is I(1) and  $0 < \beta < 1$ , we can conclude that  $\Delta b_t$  is I(0), and budget deficit is sustainable weakly. If  $\beta = 1$  and government revenue and expenditure are co-integrate,  $\varepsilon_t$  is I(0). Then  $\Delta b_t$  is I(0) and budget deficit is sustainable strongly. If  $\varepsilon_t$  is not I(0) and  $\beta = 1$ , then sustainability is weak. When public debt is weakly sustainable, implying that the speed at which the inter-temporal borrowing constraint is satisfied is quite slow and is likely to result in higher growth rate of debt (16).

### Measuring the Degree of Sustainability

At first the cointegration between  $e_t^R$  and  $T_t$  must be checked. If two variables are I(1) for measuring sustainability, variables must be checked like eq.15. If variable are not co-integrate, then budget deficit is not sustainable. But when variables are co-integrate, we must test null hypothesis  $H_0 : \beta = 0$  opposite to  $H_1 : \beta < 1$ . If null hypothesis is accepted, then sustainability is strong, but if it rejects sustainability is weak. Table 1 shows the stage of sustainability:

TABLE 1: CO-INTEGRATION ANALYSIS AND DEGREE OF SUSTAINABILITY

$\beta$	Co- integration	$\Delta b_t$	Sustainability
1	Yes	I(0)	Strong
$0 < \beta < 1$	Yes	I(0)	Weak
----	No	I(1)	Unsustainable

Reference: Goyal et al (10)

## Results

### Unit Root Test

Augmented Dickey – Fuller test (ADF) was used for stationary test of variables. Variables are non-stationary in level but their differences are stationary. Table (2) shows this test results.

TABLE 2: RESULTS OF ADF TEST

GR		DGR		GE		DGE	
ADF	CV	ADF	CV	ADF	CV	ADF	CV
-2.23	-2.9706	-2.24	-2.9706	-5.31*	-2.975	-5.86*	-2.975

\*at 5% significance level

### Estimate of Unrestricted Error Correction Model

The cointegration test in this study is based on UECM approach. F-statistic for our equations is compared with the critical values that have been supposed by Narayan (12) for 33 observations. When government revenue is the



independent variable, F is 5.8, while if it is independent variable, F is 53.3. They are bigger than the critical value in 5% and 1% level. Table 3 shows the critical values that have been suggested by Narayan (12).

TABLE 3: BOUND F-TEST FOR CO-INTEGRATION

N	%1		%5		%10	
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
33	5.7630	6.48	3.957	4.53	3.233	3.757

Reference: Narayan (12)

### Long Run Coefficient Estimation

Coefficients have been estimated by autoregressive distributed lag (ARDL). The results on long run coefficients are reported in table 4. We find that an increase in government expenditure has a statistically significant positive effect on government revenue and vice versa.

TABLE 4: LONG-RUN COEFFICIENT

Dependent variable	Long-run coefficient	t- statistics
GR	0.9577	5.8*
GE	1.42	5.38*

\* at 1% significance level

### Granger Causality Test Results

We use error correction model for causality, because GR and GE are co-integrate. ECM (-1) in table 5 is residual of long-run equation when GE is explanatory variable, and ECM (-1) in table 6 is residual of long-run equation when GR is explanatory variable. Table 5 shows GR is long-run and short-run causality. Speed of adjustment to equilibrium is significant in 1% level. Table 6 shows GE is long-run causality for government revenue but significant isn't high. On the other hand it is not true for short-run, because  $\Delta GE$  coefficient isn't significant. Speed of adjustment to equilibrium is slow, thus government expenditure in the long run changes to government revenue.

TABLE 5: GRANGER CAUSALITY TEST RESULTS FOR VARIABLE GE

	$\Delta$ GR [t]	ECM(-1) [t]
$\Delta$ GE	0.73      1.71**	-0.93      -5.1*

\* at 1% significance level

\*\* at 5% significance level

TABLE 6: GRANGER CAUSALITY TEST RESULTS FOR VARIABLE GR

	$\Delta$ GE [t]	ECM(-1) [t]
$\Delta$ GR	0.803      1.48 <sup>ns</sup>	-0.184      1.84*

\* at 5% significance level

<sup>ns</sup> not significant

### Sustainability of Finance

For testing if budget deficit is sustainable or not, at first, the cointegration between variable must be tested. In this study variables are I(1), but they are co-integrating, thus with the information in table 4 the null hypothesis  $H_0 : \beta = 0$  must be tested opposite of  $H_1 : \beta \neq 0$ . In the first row of table 4 when GR is dependent

variable, t-statistic is 5.8 and so is significant. So we test null hypothesis  $H_0 : \beta = 1$  opposite of  $H_1 : \beta < 1$ . So we

have:

$$t = \frac{\beta - 1}{s(\beta)}$$

T-statistic according to equation above is 0.26, that we can reject the null hypothesis; so  $\beta$  is between zero and one. Budget deficit in Iran has weak sustainability and deficit in one year causes the deficit for next years. Continual growth of debt could increase interest rate, which might eventually create problems for marketing or rolling over of public debt in future. In other words, while fiscal stance of government is sustainable at least in the short-run, for long-run sustainability government needs to other its fiscal policies to prevent any adverse repressions (9).

## Conclusions

The main aim of this study has been exploring on government revenue and expenditure relationship and the degree of fiscal sustainability for 1970-2002. To test the cointegration between variables, we use the UECM. The results of this model showed that variables are co-integrate in 5% significant level. After that the Granger causality was tested. The results showed that government revenue is changed so fast to government expenditure, while it takes a long time for government expenditure to change to government revenue. On the other hand fiscal sustainability in Iran is weak, thus persevering budget deficit becomes a cause of increase in interest rates, has negative effect on market mechanism, and becomes the budget deficit in the next periods. With these results, it is suggested that the government revenue must expend in subtraction sectors, because investing in subtractions causes increase in productivity and increase in government revenue. Government should decrease expenditure in consumption matters, because they don't have revenue for government. Decrease in government incumbency and decrease in government volume can decrease from massive government expenditure in matters. The results showed that there is no fiscal sustainability in Iran. Therefore, we suggest that the experts must consider to the effect of fiscal policy's results for various matters for a long period, not just for one year, because the budget deficit in one year becomes budget deficit in next years. To reach on the sustainable fiscal, fiscal policies must enact in that manner, which budget deficit in one year doesn't become the budget deficit in the next years and revenue must grow faster than expenditure, because continual debt for many years becomes cause for increasing interest rates and problems for market mechanism.

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## **Government Monetary and Fiscal Policies Effect on Economic and Social Duality in Iran**

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### **Abstract**

In developing countries, governments are administrators of investment in various economic sectors. In fact the share of government in economic system is very bigger than the private sector. Government policies have very deep influence on investment in the various economic sectors. With this point the study explores the role of the government monetary and fiscal policies in decrease or increase of economic duality in Iran. For this aim data of 1973-2003 was used. The study model was seemingly Unrelated Regressions (SUR). The results showed that the government monetary and fiscal policies are not the significant difference in investment between agriculture, industry and service sectors. Therefore, the government monetary and fiscal policies aren't causes of the sectoral duality, On the other hand we couldn't find the significant difference between investment in industry and service sectors with investment in agricultural sector. Thus, the government policies aren't causes of increasing in duality between rural and urban areas.

### **Introduction**

In many developing countries, there is a modern commercial industrial sector inside the traditional agriculture that produces minimum livelihood that creates the dual economic. The result of duality is asymmetry in organization of production in various sectors. In fact differences in organization and production between modern and traditional sectors are one of the most important characteristics in developing countries. If we want to find the development process relations, we should find the economic duality that there are between modern and traditional sectors, and then we should estimate the amount of fundamental changes. Duality is divided into various kinds. One of them is economic duality. Economic duality defines that there are two sectors, one of them is leader with rapid changes and technology intensive and capital intensive and this sector produces income, on the other hand the traditional sector is

labor intensive with limited changes (8). One of the important theories that were introduced about duality is Lewis theory (1954). He divided economic into two sectors, one of them is modern, and another is traditional. He said that the main wheel of development is industry, and agriculture is not important in the developing process. After Lewis, Fie-Ranis theory propounded, their theory was more perfect than Lewis theory. They emphasized that economic growth is related to agriculture sector growth. After Fie-Ranis theory, Gorgenson theory propounded. In his theory, he assumed that there might have been existence labor surplus in developing countries but marginal product of labor is positive, not zero. This is the main point of his theory. He said the most important point in the development way is technology coefficient and labor growth rate, which is related to population growth rate. He emphasized for having optimum growth, technology must be developed (5).

With this introduction we can say that the level of investment in agriculture, industry and service is a good index for recognition of the amount of duality. Nowadays a lot of study has been done about duality. Bourguignon and Morrisson (1998) suggest in many countries increase in the level of productivity in traditional agriculture may be the most effective way to reduce the inequality and poverty. Chaudhuri (2005) made an attempt to provide a possible answer to the problem of urban unemployment aggravates as the urban sector expands both in terms of output and development following an inflow of foreign capital in a two sector mobile capital HT<sup>1</sup> framework. He suggested that an inflow of foreign capital is likely to be welfare improving and may not aggravate the problem of urban unemployment in the given setup. Roy (2005) focused on the dualism that exists within the industrial sector. He developed a model of informal sector incorporating its linkage with the formal sector. The products of the two sectors are imperfect substitutes as products of informal firms are deemed to be of inferior quality compared to the formal sector product. Also the formal sector producer is the dominant producer whereas the informal producers constitute a competitive fringe. The article results showed, a policy for helping the domestic producers through a cost subsidy may not necessarily result into an increase in income for domestic producers and therefore become ineffective. The subsidies can result into positive benefits only if favorable market condition exists. Motonishi (2005) showed some limited evidence that the variable related to sectoral shifts in the economy, i.e., the agriculture - non agriculture disparity and household income, played a significant role in increasing income inequality with somewhat smaller magnitude, financial development had an effect in the opposite direction, which roughly cancels out the effect of education level disparities. Gindling and Terrell (2005) studied on wage gap between formal and informal sectors have been persistent in Costa Rica. They tested whether increases in minimum wages raise actual wages. They found they not only raise wages in large urban and rural enterprises(traditionally referred to as formal), but they also raise wages of workers covered by minimum wage legislation in what are traditionally regarded as informal sectors where the legislation is often considered not be enforced: small urban and small rural enterprises.

Eslemi (1993) determined the rural regions development degree in Iran. His study showed that conditions in all rural regions were better in 1986 than 1976. Although the rural regions have developed but regional duality increased.

## Methodology

Investment in various sectors is an important factor in society growth and development. Whatever the gap of investment between various sectors become bigger, duality increases. In this way governments have very important role for making good decision to eliminate the duality. Thus, our aim in this study is that if government monetary and fiscal policies have effects on economical and social duality. we used Iran center bank data for 1973-2003. To catch the goals of this study, investment functions in agriculture, industry and service was estimated with Seemingly Unrelated Regressions. The reason for usage of this system is that residuals in these three sectors are related with each other and (SUR) model is very suitable to estimate these related equations. In this model the coefficient for M equations are estimated. Error terms have whole classical linear regression model characters, and error terms of various equations are related with each other. These M equations create Seemingly Unrelated Regressions. Assuming there are T observations, that they are equal for each equation, although the explained variables and constant could be different. This system could show with below matrix:

$$Y_m = X_m \beta_m + u_m \quad \text{and}$$

$$E(u_m) = 0, \quad E(u_m u'_m) = \delta_m I_t$$

And error terms correlation in various equations is  $E(u_m u'_m) = \delta_{mp} I_t$ . and  $\delta_{mp}$  is error term covariance in equation m with equation p. and we can assume that it is constant for all observation Zellner (1962) offered below method for a consistence estimation of residuals in var-covar matrix. Each equation are estimated by OLS and after that residuals are calculated, then  $\delta_{mp}$  estimator is:

$$\delta_{mp} = \frac{1}{T - K_m} \sum_{t=1}^T \hat{u}_{mt} \hat{u}_{pt} \quad m, p=1,2,\dots,m$$

That  $K_m$  is numbers of parameters (11). With this short explanation our equations in this study that have been estimated with SUR model are:

$$I_A = a_{10}T + a_{11}I_A(-1) + a_{12}C_A + a_{13}Oil + a_{14}E_G + a_{15}Liq + \varepsilon_1 \quad (1)$$

(2)

$$I_I = a_{20}T + a_{21}I_I(-1) + a_{22}C_I + a_{23}Oil + a_{24}E_G + a_{25}Liq + \varepsilon_2 \quad (3)$$

$$I_S = a_{30}T + a_{31}I_S(-1) + a_{32}C_S + a_{33}Oil + a_{34}E_G + a_{35}Liq + \varepsilon_3$$

In these equations  $I_A$ ,  $I_I$  and  $I_S$  are logarithmic investment in agriculture, industry and service sectors orderly.  $I_A(-1)$ ,  $I_I(-1)$ ,  $I_S(-1)$  are logarithmic investment in agriculture, industry and service sectors with one order orderly.  $C_A$ ,  $C_I$ ,  $C_S$  are orderly logarithmic credits in agriculture, industry and service sectors,  $T$  is time trend (it is an index for technology),  $Oil$  is the logarithmic oil revenues,  $E_G$  is logarithmic government consumption expenditure (it is an index for fiscal policy),  $Liq$  is logarithmic of liquidity (it is an index of monetary policy) and  $\varepsilon_1, \varepsilon_2, \varepsilon_3$  are residuals of equations. All variables changed to constant of 76. These equations have been estimated by Microfit 4.0 Software.

## Results

### Unit Root Test

Augmented Dickey – Fuller test (ADF) was used for stationary test of variables. Variables were non-stationary in level but their differences were stationary. Table (1) shows the test results.

TABLE 1: RESULT OF ADF TEST

Variable	DF	CV	Variable	DF	CV
$I_A$	-1.48	-2.96	$DI_A$	-7.18*	-2.97
$C_A$	-1.196	-2.96	$DC_A$	-6.36*	-2.97
$I_I$	-1.57	-2.96	$DI_I$	-3.8*	-2.97
$C_I$	-0.42	-2.96	$DC_I$	-4.456*	-2.97
$I_S$	-1.37	-2.96	$DI_S$	-4.328*	-2.97
$C_S$	-1.32	-2.96	$DC_S$	-5.247*	-2.97
$Oil$	-2.438	-2.96	$DOil$	-4.328*	-2.97
$E_G$	-1.394	-2.96	$DE_G$	-5.376*	-2.97
$Liq$	-0.909	-2.96	$DLiq$	-3.56*	-2.97

\*at 1% significance level

After that co-integration between variables in equations (1), (2) and (3) were explored. If existence of co-integration between variables in each equation isn't true, there wouldn't be the long run relation between variables



in equations. So, Engle-Grenger method for co-integration was used. The residuals of each equation were stationary. Therefore there are long run relations between variables in each equation. Table (2) shows these results.

TABLE 2: RESULT OF CO-INTEGRATION TEST FOR EACH EQUATION

Residual	ADF	CV
Equation(1)	-4.98*	-2.97
Equation(2)	-3.75*	-2.97
Equation(3)	-3.84*	-2.97

\*at 1% significance level

Table (2) shows that results of each equations are state in 5% level. Therefore there is a long run relationship between variables in each equation.

#### Estimation

Table (3) shows the Seemingly Unrelated Regressions (SUR) results. For the variables are logarithmic therefore coefficient of variables are elasticity of investment in each equation.

TABLE 3: RESULT OF ESTIMATION

equation	variable	coefficient	t statistic
1	T	0.486*10 <sup>-3</sup>	0.03
	I <sub>A</sub> (-1)	0.11989	0.68
	C <sub>A</sub>	0.43353	2.24*
	E <sub>G</sub>	0.29682	0.45213
	Oil	0.28938	2.6866*
	Liq	-3.187	-0.43016
2	T	0.012829	0.9486
	I <sub>I</sub> (-1)	0.36601	2.0339*
	C <sub>I</sub>	0.77755	0.48866
	E <sub>G</sub>	0.55635	0.88132
	Oil	0.37553	2.863*
	Liq	-1.7247	-0.68414
3	T	0.0047579	0.74803
	I <sub>S</sub> (-1)	0.55060	4.4477*
	C <sub>S</sub>	0.073054	1.0292
	E <sub>G</sub>	0.20056	0.35864
	Oil	0.087215	1.1497
	Liq	0.57019	0.39466

\*at 1% significance level

$R^2$  in equations (1), (2) and (3) orderly are 0.6, 0.7 and 0.7. Table (3) shows that credits which are given to agricultural sector and oil revenues have positive affects on investment in agriculture. Previous investments in agriculture and government consumption expenditures effects are positive but not significant. On the other hand liquidity can decrease the amount of investment in agriculture. Table (3) shows one percent increase in liquidity can increase 3.187 percent, investment in agriculture. Table shows for industrial sector, that amount of previous investment and increase in oil revenues have positive and significant effects on industrial investment. Amount of credits that are given to industrial sector and government consumption expenditures have positive but not significant. Liquidity has negative effect on industrial investment, and it decreases investment on industry. In table (3) for one percent increase in liquidity, investment in industry decrease to 1.72 percent, in table (3) we can find all variables have positive effects on service sector investment and the effect of pervious investment on present investment is really significant. Result shows that increase in liquidity causes increase in service sector investment opposite of industrial and agricultural sectors. 1 percent increases in liquidity causes 0.57 percent increase in service investment. With the information of table (3) however effect of government consumption expenditure in investment in 3 sectors isn't significant, but elasticity investment of industry is bigger than elasticity investment in two another sector, with one percent increase in government consumption expenditure, investment in industry, agriculture and service sectors are orderly 0.56, 0.3 and 0.2, but this difference of effect on these 3 sectors is not significant. Monetary policies aren't causes increase in duality. One percent increase in liquidity causes 3.2, 1.7 decreases orderly in agriculture and industrial sectors investment, but it causes 0.57 percent increase in service sector investment. These differences aren't significant.

For our aim, that how much monetary and fiscal policies cause increase in regional duality, we used t-test. Since agriculture activities are being done in villages and industrial and services activities are being done in cities t – test for catching this aim was design like below, which  $H_0$  hypothesis for government fiscal policies is:

$$H_0: a_{14}=a_{24}+a_{34}$$

That  $a_{14}$ ,  $a_{24}$  and  $a_{34}$  are government consumption expenditures coefficients in equations (1), (2) and (3) orderly. If the government consumption expenditures coefficient for agricultural sector wouldn't had significant difference from the sum of this variable coefficient in 2 another sectors then this result is true that government fiscal policies are not causes of increasing in duality between rural and urban.

Also  $H_0$  hypothesis for government monetary policies is:

$$H_0: a_{15}=a_{25}+a_{35}$$

That  $a_{15}$ ,  $a_{25}$  and  $a_{35}$  are liquidity coefficients in equations (1), (2) and (3) orderly. If the liquidity coefficient for agricultural sector wouldn't had significant difference from the sum of this variable coefficient in 2 another sectors then this result is true that government monetary policies are not causes of increasing in duality between

rural and urban areas. The calculated  $t$  with  $H_0$  hypothesis for government fiscal policies becomes  $t=0.47$  and with  $H_0$  hypothesis for government monetary policies becomes  $t=0.26$ .  $t$  test with these hypotheses aren't significant, then we can understand that government monetary and fiscal policies aren't causes of increasing in duality between rural and urban areas in Iran.

## Conclusions

With these results that government monetary and fiscal policies aren't causes of increasing duality in Iran, we can conclude if government wants to eliminate the sectoral and regional duality, should continue present monetary and fiscal policies.

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## **End Notes**

<sup>1</sup> Harris – Todaro

# The Kaesong Industrial Complex: The Last Exit to North Korea's Development

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## Abstract

**This paper applies the MSV Model to test whether a higher level of equilibrium (industrialization) can be reached in North Korea. Based on this model, the Kaesong Industrial Complex (KIC), in which some South Korean firms have just started doing business using North Korean labor, will be the main focus of this paper. It will be argued that successful launch of the KIC will bring a spillover effect to the entire country, leading to industrialization and ending its dependence on nuclear weapons as a bargaining chip.**

## Introduction

The vicious circle of poverty has been one of the core issues in Development Economics. Rosenstein – Rodan (RR) (1945) and Nurkse (1953) were early pioneers in this topic. According to their ideas, although all firms will become better off by entering markets together, an individual firm may not gain profit by entering an economy alone. Nurkse added that this kind of trap is often the cause of the persistence of poverty (Basu 2000, p.17).

More than thirty years later, Murphy, Shleifer, and Vishny (MSV)(1989) elaborated their ideas by constructing a model. Using multiplicity of equilibria, MSV tried to explain the concepts of *poverty trap*, *industrialization*, and *big push*. In a less developed economy, they assumed  $k$  sectors producing different commodities, and within each sector, there is a *fringe* firm and a *modern* (or, *industrialized*) firm. In this economy, if only one individual modern firm enters a market by itself, the profit of the firm is negative. Therefore, if others do not enter, the single firm's best response is also *not entering*. Since the Nash Equilibrium is, by definition, a combination of best responses, we have an equilibrium of *everybody not entering*. In this equilibrium, no industrialization is made and the economy is trapped in poverty. Suppose now that all modern firms decide to enter. Then, they will receive positive profit. Under this situation, each firm's best response is *entering* and in this equilibrium, the economy achieves industrialization.

This paper will use the MSV model as the main tool for describing the current poverty trap of North Korea and to suggest a possible solution to get out of the trap and move toward a higher level of equilibrium. Unlike most other researches, this paper will also discuss *why and how the country fell into such a trap* because answering this question will make it easier to find a way to get out of it.

The suggested solution in this paper for North Korea's *big push* is the economic cooperation with the South. The Kaesong Industrial Complex (KIC)<sup>1</sup>, in which some South Korean firms have just started doing business using North Korean labor, will be the main focus of this paper. From the perspective of the MSV Model, South Korean firms interested in the KIC will be assumed to be monopolists deciding whether or not enter markets. It will be argued in this paper, both theoretically and empirically, that the MSV Model's prediction is such that the KIC is the key for North Korea to reach a higher level of equilibrium. Moreover, the successful launch of the KIC project will be a stepping stone for North Korea to open its door to the outer world. Finally, the successful gain from the KIC project will bring a spillover effect to the entire country, leading to industrialization and ending its dependence on nuclear weapons as a bargaining chip.

## Poverty trap and Multiple Equilibria: The MSV Model

The idea of Nurkse and Rosenstein-Rodan was formalized in the MSV Model. The MSV Model says that an economy is trapped in poverty where no sector has an incentive to industrialize but all sectors earn positive profits if all sectors become industrialized (Basu 2000, p.23). Their model covers fundamental ideas of multiple equilibria (one is the vicious circle of poverty trap and the other is industrialization) and big push from the lower equilibrium to the upper one. From the general equilibrium approach, this paper reinterprets a simplified version of their model used by Basu (Basu 2000, pp. 23-33).

### Background

First, their model starts with following assumptions:

- (A.1.) There are  $k$  sectors in a less developed country.
- (A.2.) Each sector produces a distinct commodity.
- (A.3.) There is a representative consumer (or, many consumers with an identical preference<sup>2</sup>) with a utility function  $u(x) = x_1x_2x_3\dots x_k$  and income  $y$ .
- (A.4.)  $L$  units of labor are supplied by the consumer side, and  $l_j$  is the number of laborers employed in sector  $j$  for all  $j=1, 2, \dots, k$ , where  $l_1+l_2+\dots+l_k=L$
- (A.5.) Each sector has one fringe firm and one (potential) monopolist firm.
- (A.6.) Monopolist firms are industrialized in the sense that for a given input of labor, monopolist firms produce more output than the fringe firms do.
- (A.7.) Fringe firms have the same wage  $w$  across sectors, and monopolist firms,  $\lambda$ , across sectors. Also, from (A.6.), work loads are heavier in monopolist firms, resulting higher  $\lambda$  than  $w$ . In later analysis,  $w$  and  $\lambda$  will be normalized to 1 and  $1+v$ , respectively ( $v>0$ ).
- (A.8.) Goods are homogeneous. (A.6.) does *not* mean that monopolist firms produce a higher quality of goods than fringe firms do. Therefore, consumers will choose cheaper goods regardless of brand.
- (A.9.) Production functions of both firms are all linear; in sector  $j$ ,  $x_j=f(l_j) = l_j$  (45 degree line and no sunk cost) for the fringe firm, and  $x_j=g(l_j)=\alpha(l_j-F)$  ( $\alpha>1$  and  $F$  is a sunk cost) for the monopolist firm.
- (A.10.)  $F$  in the monopolist firm is the same across sectors. In 4.3., where this model is empirically applied to North Korea, this assumption will be released. Instead,  $F_j$  (each firm's sunk cost) will be used.
- (A.11.) While fringe firms freely enter and exit the economy with zero economic profit, monopolist firms enter the market only when they gain positive profit. Out of  $k$  sectors in total, monopolist firms enter the market in  $n$  sectors.

**General Equilibrium**

Based on this background, a general equilibrium approach can be set up as following.

1) Consumers' Utility Maximization Problem (UMP)

$$\begin{aligned} \max x_1 x_2 x_3 \dots x_k & \quad (P) \\ \text{s.t. } p_1 x_1 + \dots + p_k x_k & \leq y \end{aligned}$$

By solving for (P), we get

$$\{x_j^*\}_{demand} = \frac{y}{kp_j} \text{ for } j=1, \dots, k$$

2) Producers' Profit Maximization Problem (PMP)

For  $j=1, \dots, k$ ,

$$\pi^{fringe} = \max (p_j x_j - w l_j) = p_j \{x_j^*\}_{supply} - w \{l_j^*\}_{demand} \text{ where } x_j = l_j$$

$$\pi^{monopolist} = \max (p_j(x_j) x_j - \lambda l_j) = p_j(x_j^{*s}) \{x_j^*\}_{supply} - \lambda \{l_j^*\}_{demand} \text{ where } x_j = \alpha(l_j - F)$$

3) A competitive equilibrium in this economy is a pair of  $(p_j; x_j, l_j)$  for  $j=1, \dots, k$  such that

i)  $\{x_j^*\}_{demand}$  solves UMP    ii)  $\{x_j^*\}_{supply}$  solves PMP

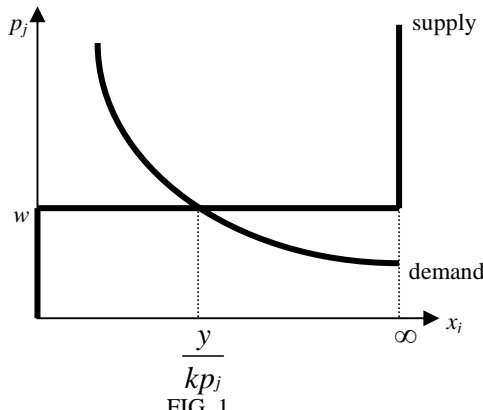
iii) There are equilibrium prices  $p_j^*$  and  $w^*$  (or  $\lambda^*$ ) in which goods markets and labor markets clear<sup>3</sup>.

**Fringe Firm**

We have  $\pi = p_j x_j - w l_j = (p_j - w) l_j$  for  $j=1, \dots, k$ . If  $p_j > w$ , when  $l_j$  goes up, profit goes up as well. Therefore, demand for labor keeps increasing, thus market does not clear. If  $p_j < w$ , the optimal demand for labor is 0, so there is no incentive to produce. The only meaningful case is when  $p_j = w$  with zero profit. Actually, the technology is assumed to be linear, which is homogeneous of degree 1. Therefore, it is natural to say that profit is zero.

Since  $x_j = l_j$ , if  $p_j > w$ ,  $x_j = \infty$ , if  $p_j < w$ ,  $x_j = 0$ , and if  $p_j = w$ ,  $x_j \in [0, \infty]$ , deriving a step function of a supply curve. Also, from the UMP, we have a demand function of  $x_j = \frac{y}{kp_j}$ . Therefore, supply and demand curve in sector

j is given in FIG 1.



### Monopolist

We have  $\pi = p_j x_j - \lambda l_j = p_j \alpha (l_j - F) - \lambda l_j = (p_j \alpha - \lambda) l_j - p_j \alpha F$  for  $j=1, \dots, k$ . If  $p_j > w$ , then according to the homogeneity assumption of (A.8.), nobody will buy a good  $x_j$  from monopolist. In other words, a demand function that a monopolist faces is  $x_j = 0$ . If  $p_j < w$ , people will only buy goods made by monopolist firms, and a demand curve<sup>4</sup> that they face is the same as the demand curve of the (representative) consumer in this country, which is  $x_j = \frac{y}{k p_j}$ . Therefore,  $p_j = \frac{y}{k x_j} < w$ , deriving  $x_j > \frac{y}{k w}$ . Since  $x_j = \alpha (l_j - F)$ , it turns out that  $l_j > F + \frac{y}{k w \alpha}$  where the profit maximization problem is not solvable. The only meaningful case is when  $p_j = w$ . In this case,

$x_j \in [0, \frac{y}{k w}]$ . In other words,  $l_j \in [F, F + \frac{y}{k w \alpha}]$ . Here, the profit maximization problem becomes

$$\text{Max } (w\alpha - \lambda)l_j - w\alpha F \quad (\text{Q})$$

$$\text{s.t. } l_j \in [F, F + \frac{y}{k w \alpha}]$$

case (i)  $w\alpha < \lambda$

$$l_j^* = F \quad \therefore \pi = -wF < 0$$

case (ii)  $w\alpha = \lambda$

$$l_j^* \text{ indeterminated} \quad \therefore \pi \text{ indeterminated}$$

case (iii)  $w\alpha > \lambda$

$$l_j^* = F + \frac{y}{k w \alpha} \quad \therefore \pi = (w\alpha - \lambda)(F + \frac{y}{k w \alpha}) - w\alpha F = \frac{y}{k} (1 - \frac{\lambda}{w\alpha}) - \lambda F$$

Therefore, case (iii) is the only one that solves (Q). If  $w = \lambda$ , then, since  $\alpha > 1$ , case (iii) is obviously true. According to (A.7.), however,  $w$  is assumed to be smaller than  $\lambda$ , and under this assumption,  $w\alpha > \lambda$  is a necessary condition for profit maximization.

Now, let us normalize  $w$  and  $\lambda$  to 1 and  $1+v$ , respectively<sup>5</sup>. Then, from the case (iii), individual firm's

profit becomes  $\pi = \frac{y}{k} (1 - \frac{1+v}{\alpha}) - (1+v)F$ . Let  $1 - \frac{1+v}{\alpha} = b$ , then

$$\pi = \frac{by}{k} - (1+v)F \quad (1)$$

where  $b$  is assumed to be positive. According to (A.10.), number of firms entering the economy is  $n$ , so the total profit of this economy is



$$\bar{\pi} = n\left[\frac{by}{k} - (1+v)F\right] \quad (2)$$

According to (A.3.),  $y$  is the income of a representative consumer in this economy. In other words,  $y$  is the sum of profit of firms and wage income of workers. More specifically,

$$\begin{aligned} y &= \text{profit of fringe firms (0) + profit of monopolist firms } (\bar{\pi}) \\ &+ \text{wage income of workers hired in fringe firms} \\ &+ \text{wage income of workers hired in monopolist firms} \end{aligned} \quad (3)$$

Consider the number of workers in fringe firms and their wage income. <Figure 1> indicates that the equilibrium output  $x_j^*$  is  $\frac{y}{kw}$ , and when wage is normalized to 1, it is  $\frac{y}{k}$ , which is the same as  $l_j^*$ . Since monopolist firms enter  $n$  sectors, fringe firms are doing their business in  $k-n$  sectors. Therefore, total number of people working for fringe firms and their wage income (when  $w$  is 1) are  $(k-n)\frac{y}{k}$ .

The rest of workers are in monopolist firms. From (A.3.), total number of workers in this economy is  $L$ . Therefore,  $L - (k-n)\frac{y}{k}$  number of people works in monopolist firms. Since each person's wage is  $1+v$ , their wage income is  $(1+v)[L - (k-n)\frac{y}{k}]$ . Plugging all of these into (3),

$$\begin{aligned} y &= n\left[\frac{by}{k} - (1+v)F\right] + (k-n)\frac{y}{k} + (1+v)\left[L - (k-n)\frac{y}{k}\right] \\ \therefore y &= \frac{(1+v)(L - nF)k}{(1+v)k - n(v+b)} \end{aligned} \quad (4)$$

Plugging (4) into (1),

$$\pi = \frac{(1+v)[b(L - nF) - F(1+v)k + Fn(v+b)]}{v(k-n) + k - bn} \quad (5)$$

Since  $k > n$  and  $b = 1 - \frac{1+v}{\alpha} < 1$ , denominator is positive. Therefore, whether profit is positive or negative depends on the sign of  $b(L - nF) - F(1+v)k + Fn(v+b)$ . Following Basu's notation, Let  $\chi(n) = b(L - nF) - F(1+v)k + Fn(v+b)$  (Basu 2000, p.29). Then there exist  $b, L, F, v$ , and  $k$  such that  $\chi(1) < 0$  and  $\chi(k) > 0$ . Corresponding diagram is provided in FIG 2.

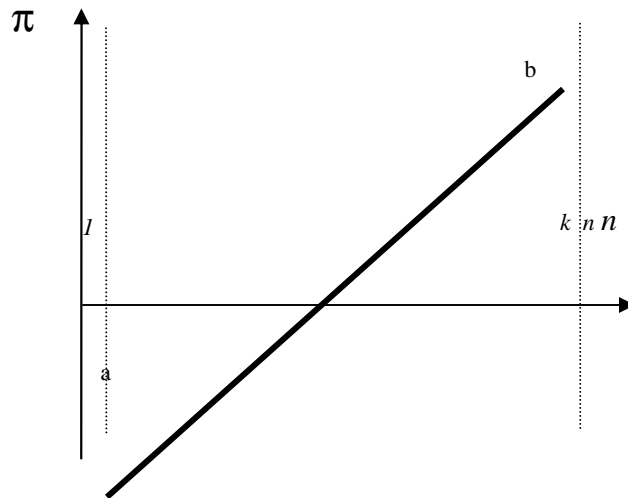


FIG. 2

Two points a and b can be viewed as Nash Equilibria. When other monopolists do not enter, the monopolist in sector j gains negative profit if it enters the market alone. This is true for every monopolist firm in the country. Therefore, when nobody enters the market, the Nash Equilibrium, or combination of best responses, is *not entering*. However, when others enter, the monopolist can have a positive profit, so it has an incentive to enter the market. Therefore, another Nash equilibrium is made when everybody enters the market. Being stuck in the former equilibrium is the so called *poverty trap*; small deviation from the equilibrium will cause the economy to go back to where it was. The latter equilibrium is synonymous with *industrialization*, and moving toward to the latter from the former is possible by *big push*.

## Poverty Trap in North Korea

### Current Situation

Before applying the MSV Model to North Korea's development, let us check the current situation of the country. Table 1 obviously reveals that this country fell into a poverty trap. But for a few recent years, the economy has grown negatively, and the per capita income of 2004 is less than it was 13 years ago.

TABLE 1 : NORTH KOREA'S POPULATION, GNI, AND GNI PER CAPITA

	1991	1993	1995	1997	1999	2001	2003
Population	20,495	21,123	21,543	21,810	22,082	22,253	22,522
GNI	22.9	20.5	22.3	17.7	15.8	15.7	18.4
GNI/capita	1,115	969	1,034	811	714	706	818

Unit: population(thousand people), GNI(billion dollars), GNI per capita(dollars)  
Source: Bank of Korea

At this situation, the country's state budget keeps decreasing. In spite of this situation, the regime continues to spend approximately 30 percent of its total budget (\$5.78 billion in 1997) on military expenses, which results in a smaller distribution of capital to its people (Ministry of Unification).

The energy problem is also serious. As is shown in Table 2, the decreasing production of coal and electrical power with the rapid curtailment of petroleum imports contributes greatly to the country's declining energy output.

TABLE 2 : THE ENERGY SUPPLY SITUATION IN NORTH KOREA

	Coal Production ( <i>million tons</i> )	Import of Crude Petroleum( <i>million tons</i> )	Electricity Production( <i>billion kWh</i> )
1990	33.15	2.52	27.7
1992	29.20	1.52	24.7
1994	25.40	0.91	23.1
1996	21.00	0.94	21.3
1998	18.60	0.37	17.0
2000	22.50	0.29	19.4
2002	21.90	0.44	19.0
2004	22.80	0.39	20.2

Source: Bank of Korea. Estimates on North Korea's economic indicators. Various issues (in Korean)

Moreover, the steel, cement, and chemical industries, which play a central role in the North Korean economy, all suffer greatly from the low stock of energy available. A South Korean who recently visited Pyongyang revealed in his essay that the most luxurious hotel in Pyongyang turned off most lights and stopped operation of elevators. (Oh 2001, pp. 2-3). FIG. 3 reflects this; unlike the bright night in South Korea, North Korea is completely dark.

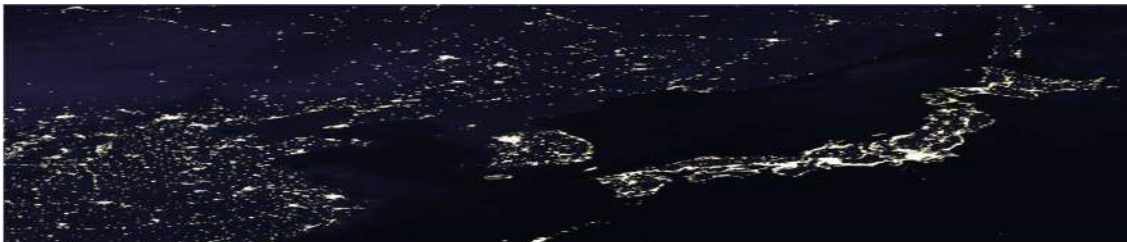


FIG. 3: IMAGE OF NORTH KOREA AT NIGHT

Source: Global Security

### Falling into the Trap: Why?

One interesting fact is that North Korean economy was not this bad until the 1980s. Like all the postwar Communist states, North Korea undertook massive state investment in heavy industry and state infrastructure when it was independent of Japan. Also, unlike the South, land reform in North Korea by Kim Il Song regime was successful, and the country became rapidly stabilized under his control. As a result, North Korea was in a superior situation to

South Korea in 1950s and 60s; the conventional wisdom is that the North's per capita income exceeded the South's until 1970s.

However, North Korea's economy started to degenerate in the 1980s, and ultimately collapsed in the 90s.

FIG. 4 reflects this.

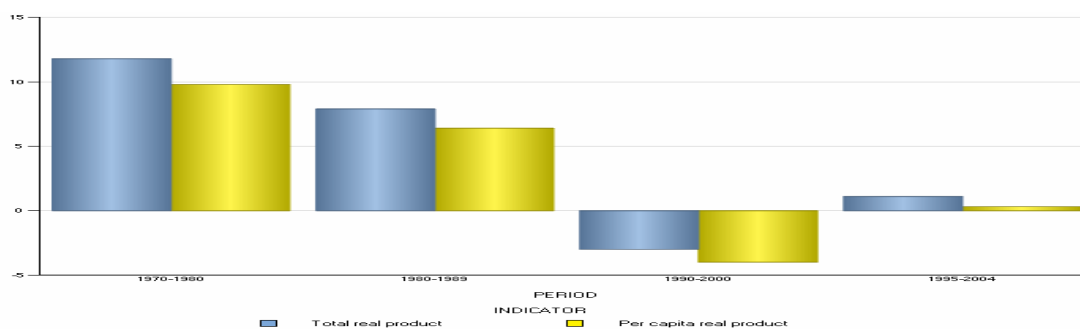


FIG. 4: GDP GROWTH RATE OF NORTH KOREA (UNIT: PERCENT)

Source: UNCTAD Handbook of Statistics On-line

One of the internal reasons for this lies in a variety of problems typical of centrally planned economies (CPEs), exacerbated by so called *Juche* ideology. This was first proclaimed by Kim Il Sung in 1957 as the fundamental principle of North Korea's state management emphasizing self-reliance. This ideology, however, resulted in an autarkic economy in North Korea, with an international trade share (exports and imports) of approximately 12 percent<sup>6</sup> of its total GDP, well below the 50 to 55 percent observed on South Korea (Noland 2000, p.66). This autarkic situation is very fragile to some internal shock in which supply of necessities is blocked. For example, there was a big flood in July and August 1995. As a result of the worst catastrophe ever, 5.4 million people were displaced, 330,000 hectares of agricultural land was destroyed, and 1.9 million tons of grains were lost (Noland 2000, p.175). The country's autarkic policies, coupled with its heavy-industry oriented policy causing fragile agriculture, turned the flood problem into a severe food problem.

However, the CPE and the *Juche* ideology were fundamental philosophies even when North Korea's economy was relatively successful in the 1950s and 1960s. Therefore, these internal reasons - CPE, *Juche*, and autarky - are not sufficient to explain the recent crisis. An examination of external reasons provides a stronger explanation for Korea's current state.

A big external shock was the crash of North Korea's principle benefactor, the Soviet Union, and the subsequent breakup of the Eastern Bloc. The trade volume between North Korea and Russia dropped sharply in 1991; the decline in imports from Russia was equal to 40 percent of North Korea's total imports. Aid from the Soviet Union, which explained a large portion of the North Korean budget, came to a stop in 1986. Since then,

strangely enough, North Korea even supported the Soviet Union for some years. The collapse of the former Soviet Union was a big shock to many third world countries. However, the shock was particularly disastrous to North Korea whose international trade pattern was extremely biased to communist countries, particularly to the Soviet Union. Being cut off from international markets, North Korea interacted very little with capitalist countries, for example, the U.S. With this bias, economic hardship of their partners transmitted directly into North Korea.

In an economic perspective, North Korea's steadiness until 1980s and collapse since then can be described as multiple equilibria. As is shown in FIG. 5, until the 1980s, North Korea's relatively stable economy was at point *a* where equilibrium is Walrasian in which the first welfare theorem is satisfied. However, the collapse of the former Soviet Union, combined with no diversification trade patterns and severe natural disasters of flood and famine, resulted in the movement of the equilibrium to *b* where resources are not efficiently utilized.<sup>7</sup>

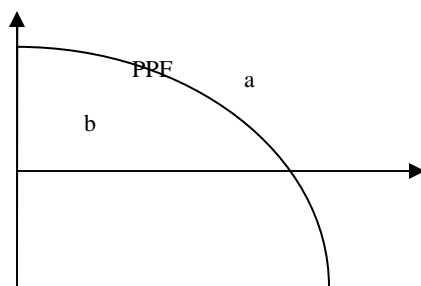


FIG. 5

Using Nelson's terminology, requoted by Basu, this is a "low level equilibrium trap" (Basu, pp.17-8); it is stable in itself, meaning that small deviation from this point does not change the equilibrium. It is by the so called *big-push* that the economy can go back to the pareto-efficient equilibrium point.

## Escaping from the Trap: the Kaesong<sup>8</sup> Industrial Complex<sup>9</sup>

### Background

Investigating how and why North Korea fell into the trap gives an idea on how it can get out of it. Falling into the trap was largely due to the collapse of the former Soviet Union that had been the North's major trading partner and supporter. Therefore, finding another partner to substitute for the former Soviet Union is very important for North Korea; a successful finding will be a stepping stone for the big push. In this regard, economic cooperation with South Korea in the Kaesong Industrial Complex (KIC) is suggested as a solution.



FIG. 6

Source: Hyundai Asan

Opened in December, 2004, the KIC is a special administrative zone in North Korea being developed as a collaborative economic cooperation with South Korea. As is shown in FIG. 6 it is located only six miles north of the Korean Demilitarized Zone (DMZ) with direct road and rail access to South Korea with an hour's drive from Seoul and Incheon International Airport.

The combination of South Korean technologies and North Korean cheap labor is definitely a pareto improvement for both countries. North Korea's labor and human resources are of its high quality; it has an eleven year compulsory education system with 98% of the literacy rate and 96% of the age cohort enrolling in the primary and secondary educational system. This rate is far above the average of countries with similar income (GNI/capita: \$914 (year 2004)). The recent famine might have deteriorated 'hardware' of education environments, but in terms of 'software', its human resources are still highly available. Moreover, the fact that the two sides speak the same language and share the same culture and history makes the North Korean market more attractive.

Before the KIC, South Korean firms used to invest mostly in China or in Southeast Asia because of the geographical proximity and relatively low wage. However, since the KIC Project was launched, a large number of South Korean firms have shown great interests in entering North Korea, which is significantly closer than China or South East Asia and has significantly lower wage (\$57.5 per month on average in the KIC, which is 1/30 of South Korea). This is obviously encouraging news to many South Korean firms, so when this plan was first publicly announced, 1806 firms from various sectors applied to enter the KIC. Due to competition of land, however, 54 of them were approved to enter. However, it is expected that approximately 300 South Korean firms with 100,000 North Korean workers will participate in the region by 2007. The entire complex is planned to be complete in 2012, covering 25 square miles with 1000 firms employing 350,000 people (Hyundai Asan).

#### **Application of the MSV Model**

The KIC is a very good source that offers a possibility of applying the MSV Model to North Korea. It seems that the MSV Model is not a good tool to describe the multiple equilibria of the last Stalinist economy where there exist

very few leading monopolist firms. However, the reclusive country now has South Korean firms within its territory. Assuming these South Korean firms are monopolists, the MSV Model will be very useful.

First, it is known that 1806 companies are interested in the KIC and applied for the project. Therefore, it can be viewed that  $k$  is the number of sectors by which these 1806 firms are sorted. The maximum capacity of the KIC area is 80 million square yards, and the predicted maximum number of firms within this area is 2000 (Hyundai Asan). This paper assumes that 1806 is very similar to the maximum capacity of 2000.<sup>10</sup> Additionally,  $n$  is the number of sectors of South Korean firms that actually entered the KIC and  $L$  is the total number of workers in the  $k$  sectors.

Recall that the wage of the fringe firm is normalized to 1 and that of the monopolist firm, to  $1+v$ . Also recall that  $b = 1 - \frac{1+v}{\alpha}$ . It is reported that wage in the KIC is two times higher than the average wage in North Korea (approximately \$50<sup>11</sup> in the KIC and \$25 at average)(Ministry of Unification.). Then, these prices can be normalized to 2 and 1, respectively, regarding  $v$  as 1. From here,  $b = 1 - \frac{2}{\alpha} = \frac{\alpha - 2}{\alpha}$ . Since  $\alpha$  is greater than 1,  $b$  is smaller than 1. Also, in chapter 2.4.,  $b$  was assumed to be positive to guarantee positive profit. Graphically, function  $b$  has the following shape.

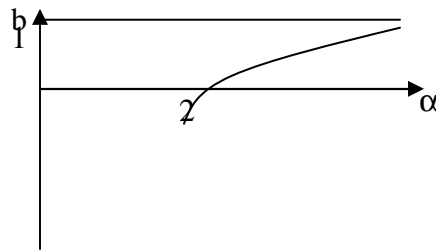


FIG. 7

$\frac{db}{d\alpha} > 0$  and  $\frac{\partial^2 b}{\partial \alpha^2} < 0$ , thus the function is diminishingly increasing. This graph suggests that  $\alpha$ , which refers to the productivity of monopolist firms, be the case that

$$\alpha > 2^{12} \quad (6)$$

The MSV model says that  $\chi(n) = b(L - nF) - F(1 + v)k + Fn(v + b)$  determines the sign of the profit of monopolist firms. Now,  $v$  is known to be 1. Rewriting  $\chi(n)$ ,

$$\chi(n) = bL - 2Fk + Fn \quad (7)$$

$\chi(n) > 0$  if  $n > \frac{2Fk - bL}{F} = 2k - \frac{bL}{F}$ . Since  $\frac{db}{d\alpha} > 0$ , an increase in  $\alpha$  results in increase in  $b$ , and resulting in decreasing in  $2k - \frac{bL}{F}$ . Therefore, the larger the  $\alpha$  is, the smaller the  $2k - \frac{bL}{F}$  becomes, requiring fewer

monopolist firms to enter the market to get positive profit. From FIG. 7, range of  $\alpha$  was such that  $\alpha > 2$ . This range can be narrowed down by considering the multiplicity of equilibrium. To get multiple equilibria and to be consistent with the MSV Model, it must be the case that  $\chi(1) = bL - 2Fk + F < 0$  and  $\chi(k) = bL - Fk > 0$ . Since  $b = \frac{\alpha - 2}{\alpha}$ ,

rewriting and solving for  $\alpha$ , we get

$$\frac{2L}{L - Fk} < \alpha < \frac{2L}{L + F - 2Fk} \quad (8)$$

Comparing (6) and (8),  $\frac{2L}{L - Fk} - 2 > 0$  if

$$L > Fk \quad (9)$$

Under condition (9), (8) is left finally as a range of  $\alpha$ . This result is achieved only knowing that  $v=1$ , not knowing other parameters including  $L$ ,  $F$ , and  $k$ . Further empirical research on these parameters, introduced in chapter 4.3, will make it possible to get an estimated value of  $\alpha$ <sup>15</sup>.

#### Empirical Approach: Idea and Limitation

Initially, 15 firms from different sectors entered the KIC in the demonstration area (*shibom danji*), followed by the entrance of another 23 firms in the main area (*bon danji*). Table 3 introduces the firms that entered the KIC, the former 15 firms come the first 15 rows, followed by the rest of the firms. Currently, all of the former 15 firms in the demonstration area and 3 firms in the main area are producing goods (Ministry of Unification). This table, however, has one big problem. The Ministry of Unification releases data on the total revenue of all the firms in the KIC, \$886.8 mil, as of Dec. 2006, but each firm's data are confidential (Ministry of Unification). Therefore, this paper provides limited empirical results, using this \$886.8 mil.

TABLE 3: COMPANIES IN THE KIC<sup>16</sup>

ID	Name	Goods & Sector	$F_j$		$l_j$	$x_j$
			$F_j^1$	$F_j^2$		
	Samduk Trading	shoes	5,393,390	117,004	1,469	n.a.
2	Shinwon	general clothing	3,068,230	117,004	563	n.a.
3	S.J.Tech	Seals, semiconductor parts	4,559,701	117,004	195	n.a.
	Jaeyoung SoluTech	automobile parts, digital components	3,042,644	117,004	193	n.a.
5	Magic Micro	Lamp assembly	2,022,388	58,560	55	n.a.
6	Munchang	aircraft clothing	3,406,183	78,048	669	n.a.
7	Yong-in Electronics	transformer, coil	4,264,392*	117,004	149	n.a.
8	Daehwa F&P	fuel pumps, polyurethane goods	1,973,348	58,560	181	n.a.
9	Taesung Group	makeup goods(lipstick, mascara)	6,328,358	117,004	562	n.a.
10	Hosan Ace	air purifier, dust collector	2,771,855*	48,000	75	n.a.
11	Living Art	kitchen supplies	1,443,497	48,000	420	n.a.



12	Romanson	Wtch	6,761,194	125,760	782	n.a.
13	TS Precision	semiconductor mold die set & trim	2,985,075*	78,048	54	n.a.
14	JC Com	optical fiber cable	4,584,222*	85,344	98	n.a.
15	Bucheon Ind	wire harness	4,708,955	117,004	499	n.a.
16	M&S	ski gloves, snow board gloves	5,010,661*	n.a.	n.a.	n.a.
17	Sunghwa Trading	Scks	6,609,808*	n.a.	n.a.	n.a.
18	Cotton Club	underwears (naeui)	2,771,855*	n.a.	223	n.a.
19	Millions	bag, toy	4,264,392*	n.a.	n.a.	n.a.
20	Rok Sec Garments	military uniform, sanitary clothes	1,279,318*	n.a.	n.a.	n.a.
21	Artrang	leather goods, mobile charger	6,396,588*	n.a.	n.a.	n.a.
22	Jason Group	DVD, PDP, phone	6,396,588*	n.a.	n.a.	n.a.
23	Ivory	sports wear	4,264,392*	n.a.	n.a.	n.a.
24	Sudo Corp	handkerchief, scarf	3,731,343*	n.a.	n.a.	n.a.
25	Bedding Land	bedding supplies	5,330,490*	n.a.	n.a.	n.a.

$F_j = F_j^1$  (cost of factory construction) +  $F_j^2$  (rent of land for 50 years, \$48/m<sup>2</sup>), measured by Korean won, converted into U.S. dollar (\$1=938 won, as of 11/17/06)

\*: predicted cost. These firms did not reveal actual cost for factory construction, so I used predicted cost that they submitted to Hyundai Asan. Since these costs are approximated ones, some firms have identical costs.

$l_j$  : number of workers  $x_j$  : output per month (for firm 1 and 17, the numbers are *pair of goods*)

This table is not directly applicable and needs to be modified because of the following reasons. First,  $F_j$  is measured by dollar and  $l_j$  is the number of people. To overcome this unit difference, this paper converts *number of people* into *wage income*. Since their wage of \$50 is normalized to 2, the modified result is achieved by simply multiplying  $l_j$  by 2. Secondly, while their wage of \$50 is what they receive each month,  $F_j$  is the one-time payment and firms do not pay this for the following 50 years. Therefore, another multiplication of  $l_j$  by 600 (12 months\*50 years) is required. Table 4 has the modified version of  $l_j$ , which is 1,200 times bigger than the original one. Thirdly,  $F_j$  is the actual amount of money, without normalization (\$25 = 1). Therefore, to be consistent with this paper,  $F_j$  needs to be scaled down. Table 4 reflects this; the  $F_j$  here is derived by dividing the original one by 25. Finally,  $x_j$  should also be measured in monetary terms. Since each firm's output is not revealed, this paper uses \$886.8 mil, the summation of total revenue of 18 firms that are currently producing goods in the KIC. With this information only, this paper assumes that  $x_j$  is the average value of \$886.8, scaled down by 25. Therefore,  $x_j$  is \$886.8 mil/18/25 = 1,970,000. Based on  $F_j$ ,  $l_j$ , and  $x_j$ ,  $\alpha$  can be estimated by the equation  $x_j = \alpha(l_j - F_j)$ .

TABLE 4: MODIFIED VERSION OF TABLE 3

ID	$F_j$	$l_j$	$l_j - F_j$	$\alpha$	ID	$F_j$	$l_j$	$l_j - F_j$	$\alpha$
1	220,416	1,762,800	1,542,384	1.277	14	188,049	117,600	*	n.a.
2	127,409	675,600	547,591	3.598	15	193,038	598,800	405,762	4.855
3	187,068	234,000	46,932	42.464	16	200,426	n.a.	n.a.	n.a.
4	126,386	231,600	105,214	18.724	17	264,392	n.a.	n.a.	n.a.
5	83,238	66,000	*	n.a.	18	110,874	267,600	156,726	12.570
6	139,369	802,800	663,431	2.969	19	170,576	n.a.	n.a.	n.a.

7	175,256	178,800	3,544	555.869	20	51,173	n.a.	n.a.	n.a.
8	81,276	217,200	135,924	14.493	21	255,864	n.a.	n.a.	n.a.
9	257,814	674,400	416,586	4.729	22	255,864	n.a.	n.a.	n.a.
10	112,794	90,000	*	n.a.	23	170,576	n.a.	n.a.	n.a.
11	59,660	504,000	444,340	4.434	24	149,254	n.a.	n.a.	n.a.
12	275,478	938,400	662,922	2.972	25	213,220	n.a.	n.a.	n.a.
13	122,525	64,800	*	n.a.					

\*: negative values of  $l_j - F_j$ , which are not meaningful from the perspective of the MSV Model.

For the firms that do not have  $F_j^2$ , only  $F_j^1$  is considered.

As long as the estimated  $\alpha$  is within the range of (8), these firms are expected to gain positive profits, and according to the MSV Model, the higher level of Nash Equilibrium will be achieved. Instead of (8), this paper uses (6) ( $\alpha > 2$ ) as a basis for checking each firm's profitability, since  $L$  and  $k$  are currently unavailable.

Table 4 says that 11 firms have  $\alpha$  that exceeds 2. According to the MSV Model, this is a positive sign for the KIC's profitability. Additionally, as is shown in FIG. 8, the total revenue in the KIC keeps increasing.

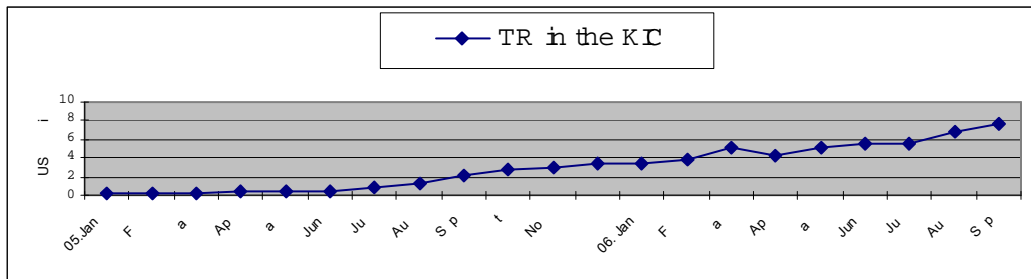


FIG. 8: TOTAL REVENUE IN THE KIC  
source: Ministry of Unification

This trend will continue given the survey for firms doing businesses in the KIC. The result of the survey, done by National Assembly Budget Office of South Korea, is summarized in Table 5.

TABLE 5: SURVEY RESULT FOR FIRMS IN THE KIC

Questions	answers	# of firms	total #
Is your business in the KIC getting more and more difficult?	Yes	1	12
	No	10	
	No change	1	
Are you gaining profits in the KIC?	Deficit	11	12
	Break-even	1	
Are you planning on expanding your business?	Yes	9	13
	No	4	

Source: National Assembly Budget Office

Most firms answered that they were having less and less difficulties in doing their businesses in the KIC, and many of them (9 out of 13) had plans to increase their investment in the near future.

Higher revenue will increase the value of  $\alpha$ . Then, with a higher value of  $\alpha$ , the prediction of the MSV Model is such that all of the entering firms will be more likely to gain positive profits, which enables achievement of the higher level of Nash Equilibrium.

#### **Spillover Effect: Another Maquiladora?**

Condition (8) in 4.2. is important because, with this condition, the corresponding Nash equilibrium predicts that every monopolist firm in  $k$  sectors will gain positive profit by entering the economy. As a result, industrialization of the Kaesong area will be made in this equilibrium.

However, under this condition, more important results can be achieved; Kaesong's industrialization may bring a spillover effect to the entire country, which is much bigger than the KIC. If the big push in the KIC is big enough to industrialize its  $k$  sectors,  $m$  sectors ( $m \gg k$ ) in the entire country may be industrialized as well. In this section, spillover effects will be viewed from three perspectives. After that, the Maquiladora Industry will be introduced as a possible blue print for the KIC.

#### **Gravity Perspective**

The Gravity Model from physics has been applied to economics, particularly to international trade, with empirically success. This model states that a country's trade and growth are positively related to the two countries' economic size, and inversely related to the distance between them. That is

$$T_{ij} = A (Y_i * Y_j / D_{ij}) \quad (10)$$

$T_{ij}$ : bilateral trade volume between country  $i$  and  $j$   $Y_i, Y_j$ : GDP of country  $i$  and  $j$ , respectively

$D_{ij}$ : Distance between country  $i$  and  $j$   $A$ : Constant of Proportionality

Let us divide North Korea into two parts - the KIC and other parts. Then, the above model can be a good source in explaining the spillover effect. GNI of North Korea is \$20.8 billion (<Table 1>, Bank of Korea), and the total value of production in the KIC is \$46 million<sup>17</sup> (Hyundai Asan). However, \$46 million is based on the current

production of 15 South Korean firms that started to produce goods in the KIC. If everything goes as planned, 2000 firms are supposed to enter there by the year 2012, and this value is expected to increase up to \$6.2 billion. Moreover, the KIC is within North Korea, making  $D_{ij}$  almost zero.

This close distance is particularly important, because the U.S. and Japan, which are the largest and the second largest economies in the world and which accounts for 30% of world's economic activities, are imposing economic sanctions against North Korea. According to the Gravity Model,  $D_{ij}$  jumps up to almost infinity, and the model is not applicable. This is a huge loss to the isolated country. However, the KIC is unaffected by these sanctions, and its industrialization is spread out to the entire country.

#### **Factor Movements**

Movement of labor as a factor of production is important. Currently, approximately 10,000 North Korean people are working in the KIC (Hyundai Asan). This number is expected to increase up to 350,000 by the year 2012. Their wage is more than twice as much as other North Koreans (\$57.5<sup>18</sup> and \$25, respectively). Assuming that the KIC workers interact with people outside, wage discrepancies will be more distinctive, a fact which may push the country toward wage equality. Moreover, the policy of North Korean authority for the KIC is becoming more and more decentralized<sup>19</sup>. By working for South Korean firms and interacting with South Korean people, they are experiencing a market economy system.

Movement of physical capital is also important. Unlike South Korea, North Korea has abundant natural resources including iron ore and coal. Also, it has a moderate oil refinery industry<sup>20</sup> whose capacity is approximately 4 million tons per year. Utilizing this capital is pareto improvement to both Koreas; South Korean firms can use the resources with lower transportation cost, and the industry in the North related to these fields will gain positive profit.

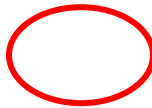
#### *Facilitation of Other Complexes (Rasin-Sonbong and Shinuiju)*

The KIC is not North Korea's first attempt of industrial complex. In 1993, North Korea undertook its first attempt in the Rajin-Sonbong area, a remote Northeastern part of the country where the borders of Korea, China and Russia meet. A subsequent project followed in Shinuiju in 2002 to absorb Chinese capital (See FIG. 9 for geographical explanation).

Unfortunately, these projects have not been successful. Low quality of infrastructure and a bad credit rating due to political insecurity drove risk-averse investors away. So far, its third attempt in Kaesong has had much better result than those previous ones. If the KIC becomes very successful, there may be incentive to invest in complexes in Rajin-Sonbong and Shinuiju as well. Ideal situation will be such that industrialization of all of three places has a spillover effect on the country from every direction.



FIG. 9: A MAP OF NORTH KOREA AND THREE INDUSTRIAL COMPLEXES



### The KIC as Another Maquiladora

Maquiladoras are the Mexican version of the KIC. A Maquiladora is a factory that imports materials and equipment and usually re-exports the assembled product to the originating country. With the end of the U.S. Bracero Program, which allowed Mexican immigrants to find temporary agricultural work in the United States (Wikipedia), the Mexican government was looking for substitute industries to absorb the unemployed Mexican laborers. As a solution, Maquiladora industries were established in 1961 in border cities of Mexico, located within 20 km of the U.S. border, Maquiladoras' achievement was initially unimpressive. Since then, however, Maquiladoras has grown rapidly. Active investment from the U.S., cheap Mexican labor, geographic proximity to the U.S., and strong support from the Mexican government are major factors of their success. Maquiladoras' achievement brought a spillover effect to Mexico, and its industrial area expanded accordingly from some border cities to the entire country

Considering Maquiladoras' success, the KIC is likely to have a bright future. North Korea's cheap labor, South Korean firms' active participation, and proximity from Seoul (1 hour drive) are very similar to the favorable conditions of Maquiladoras. Moreover, if the other two complexes in Rajin-Sonbong and Shinuiju are to be successful as well, North Korea will also attract investment from China. Then, with South Korean firms from the south and China from the north, the reclusive country may reap great benefit throughout the country.

### Conclusion & Policy Suggestion

The KIC project is expected to shift North Korea's equilibrium from the current poverty trap to an efficient Walrasian level in which industrialization is made. However, this benefit is attainable only when North Korea shows its maximum effort to preserve the KIC and when the international community is supportive of this project.

Regarding North Korea, it is suggested that the country lower its renting price of land. According to Table 3, the renting price of land for 50 years, which is \$48/m<sup>2</sup>, explains some portion of firms' fixed costs. Theoretically, lowering rent will increase the likelihood of the KIC's profitability; it is highly likely that condition (9),  $L > Fk$ , would be satisfied. It is understandable that receiving higher rent is one of North Korea's goals in opening its land to South Korean firms. However, North Korea must show its willingness to lower the rent and encourage further investment from the South, which will bring higher profit to the North in the long run. In addition, North Korea also needs to try as hard as it can to reduce the risks of nuclear weapons, including active participation in the six party talks.

On the other hand, other countries should support this project; the products that are made in the KIC must be referred to as those made in South Korea. Three countries, U.S., Canada, and Japan, which are imposing higher tariffs to North Korea, are reluctant to approve it. If they maintain their current hostile policies toward North Korea, the KIC goods will not be able to compete in these countries. Moreover, South Korea is in the process of discussing Free Trade Agreement (FTA) with the U.S., and will soon start to negotiate the FTA with Canada and Japan as well. Then, the country of origin - whether the KIC goods are made in North Korea or in South Korea - will be a very important issue.

TABLE 6: COUNTRIES TARIFF RATES TOWARD SOUTH & NORTH KOREAN GOODS

U.S.	S.Korea	Normal Trade Relations (NTR) Column 1 Tariff applied [clothing(0~32%); shoes(0~48%); bags(5.7~20%); toys(0%); accessories(0~11%); automobile parts(0~3%); computer parts(0%); electronic goods(0~15%)]
	N.Korea	Foreign Assets Control Regulations, Imposing economic sanctions since 1950 Column 2 Tariff applied [clothing(35~90%); shoes(20~84%); bags(40~90%); toys(70%); accessories(45~110%); automobile parts(25%); computer parts(35%); electronic goods(25~80%)]
Canada	S.Korea	General Preferential Tariff applied (0~7%)
	N.Korea	No economic sanctions, General Tariff applied (35%)
Japan	S.Korea	WTO member rate applied [clothing(9.1~10%); leather goods(3~15%);
	N.Korea	Export to North Korea prohibited, Uninsured North Korean ship not allowed to disembark Statutory rate applied [clothing(11~16%); shoes(two times higher than WTO member rate); leather goods(4~20%)]
Other Countries	No differential tariff rate to North & South Korean goods Countries examined (EU, Switzerland, Norway, Turkey, China, Taiwan, Singapore, India, Indonesia, Thailand, Philippines, Malaysia, Pakistan, Myanmar, Bangladesh, Australia, New Zealand, Brazil, Colombia, Peru, Chile, Mexico, Panama, Russia, Ukraine, UAE, Jordan, Egypt, Iran, Saudi Arabia, Nigeria, South Africa, Kuwait)	

Source: Ministry of Unification, Korea Trade Investment Promotion Agency (KOTRA)

The recent nuclear test done by North Korea made the international community become more hostile to Pyongyang. The Bush Administration is pressuring South Korea to stop the KIC project. Japan is trying to impose its highest sanctions against North Korea. However, the isolation policies can never be a solution for nuclear

problems; North Korea has no choice but to depend more on nuclear weapons. The successful achievement of the KIC is required to end this vicious circle and step toward world peace.

## References

Contact author for the list of references.

## End Notes

<sup>1</sup> This complex is located in North Korea, just six miles north of the border line. More detailed explanation is being provided in Chapter 4.

<sup>2</sup> Assuming homothetic preference, it can be viewed that there is one positive representative consumer in this economy.

<sup>3</sup> It is not described in detail how the labor market clears, but we have two markets and find explicitly that goods market clears ( $\{x_j^*\}_{demand} = \{x_j^*\}_{supply}$ ). Therefore, it is verified from the Walras Law that labor market also clears.

<sup>4</sup> Geometrical explanation is skipped in this paper. Graph of this demand curve, along with Marginal Revenue curve is provided by Basu (2000, p. 26). In this book, he processed his ideas by finding profit maximizing point where MR=MC. Approach in this paper is slightly different from his one, but reaches the same result.

<sup>5</sup> Unlike Basu (2000, pp.23-33), normalization was not made earlier in order to examine the relationship between  $w$  and  $\lambda$  and derive the condition of  $w\alpha > \lambda$ .

<sup>6</sup> As will be discussed soon, this 12 percent is exclusively dependent on trade with the Soviet Union and Eastern Bloc. Due to this bias, North Korea had particularly disastrous shock when its partners' economies collapsed.

<sup>7</sup> Note that PPF does not shift inward. These negative shocks are mostly external, and North Korea's resources including physical capital and human resources are not destroyed.

<sup>8</sup> The Korean characters for Kaesong are . Kaesong, Gaesong, Kaesung, Gaesung, Kaeseong, and Gaeseong all mean the same thing.

<sup>9</sup> Sometimes, it is called industrial park or industrial region.

<sup>10</sup> Note that  $k$  is not the number of sectors that already exist in the area of Kaesong City. This paper assumes that it is only South Korean firms who play a role as monopolists. Preexisting North Korean firms in the neighborhood of the KIC are assumed to be fringe.

<sup>11</sup> Strictly speaking, it is \$57.5 (Hyundai Asan). This paper uses its approximate value for convenient reason.

<sup>12</sup> This is consistent with  $w > \alpha\lambda$ , the condition of (Q), which is a profit maximization problem of a monopolist firm in 2.3.. By simply plugging in  $w=1$  and  $\lambda=2$ , exactly same result is achieved.

<sup>13</sup> Since  $k > 1$ ,  $(L+F-2Fk) - (L-Fk) = F-Fk < 0$ . Indeed, left-hand side is smaller than right-hand side.

<sup>14</sup> An empirical approach in 4.3. indicates that the current L and F do not satisfy condition (9). However, since the KIC is growing, with more employment, it is premature to say that the KIC is unprofitable.

<sup>15</sup> A rough estimation in 4.3. says that  $\alpha$  is not within this range. However, considering the current expanding pace of the KIC,  $\alpha$  will eventually be within this range.

<sup>16</sup> Among 38 firms, there are some firms that are in the same sectors. In this case, to be consistent with the MSV Model, particularly with (A.2.), only one firm per sector with bigger size or having more information is introduced.

<sup>17</sup> \$20.8 billion North Korea's GNI in the year 2004, and \$46 million is measured from August, 2005 to July 2006.

<sup>18</sup> For convenient reason, this wage is assumed to be \$50, and in this paper, it is normalized to 2.

<sup>19</sup> Currently, South Korean firms pay workers' wages in US dollars to a North Korean authority, and the workers receive ration tickets, such as food stamps, from the authority. However, it is suggested that South Korean firms directly give them wages. If it happens, a merit-based pay system will be expected to follow.

<sup>20</sup> The oil refinery industry is very important in a country's development. On top of the spillovers from the successful KIC, North Korea may gain another spillover by the development of the oil refinery industry, which has

been observed by many countries in their process of development. See Isard (2005) for relevant case studies on Puerto Rico.



# **Whistleblowing in Indian Public Sector Enterprises: The Legal Environment**

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## **Abstract**

The present study is an attempt to explore the legal environment for whistleblowing in Indian public sector enterprises (PSE) vis-à-vis the international corporate governance arena. It looks into the legal paradigms in Indian PSE in the context of a case study drawn from a very dynamic public sector enterprise in the country. The purpose is to find out the structural support provided by the Indian legal system to encourage the whistleblowers to voice their dissents in times of need to unearth the unethical activities within and thereby become a valuable instrument of corporate governance in the country. The study highlights the absence of the right kind of necessary administrative mechanisms, supportive infrastructure and requisite protection to encourage whistleblowers in India. It, however, appreciates some upcoming changes in the scenario through judicial activism and competitive media exposures combined with public outcry for justice acting as a pressure operating in a liberalized environment in the country. **Keywords:** Whistleblowing, India, public sector enterprises, legal environment.

## **Introduction**

Whistleblowing, the mechanism by which the organization members (former or current) disclose illegal, immoral or illegitimate practices under the control of their employers, to persons or organizations that may be able to effect action (Miceli and Near 1992), can act as a very effective weapon to ensure proper governance in the Indian corporate sector. The present study is an attempt to explore the legal environment for whistleblowing in Indian public sector enterprises (PSEs) vis-à-vis the international corporate governance arena. A literature survey reveals that this area still remains unexplored. Asian countries have hardly been covered in the available studies. Moreover, the concept of whistleblowing has always remained confined in the books of business ethics rather than being treated as an essential tool for ensuring governance in the corporate sector. However, as the country is gradually emerging as one of the future powers in the global arena, this study finds an exploratory journey into the

environment of whistleblowing, as a technique of corporate governance, in a thriving economy like India extremely relevant.

A review of the international literature on Whistleblowing unravels the fact that extensive studies have been done on the whistleblowers in the developed nations in the West, particularly in the US. The reason seems to be obvious. The socio-legal paradigms offer unique opportunities for whistleblowing in the country (Johnson 2003). The cases of whistleblowing in the US have been growing in number during the last few decades. These have their reflections in the literature. So far as the developing Asian nations are concerned, however, only a few studies are available. This creates further need to explore into the world of developing nations like India to find out the level of the administrative support and encouragement available to potential whistleblowers.

Among the serious attempts available, Chiu's (2003) is an inquiry on Chinese managers to ascertain how they decide to blow the whistle in terms of their locus of control and subjective judgment. Al-Khatib, Rawwas and Vitell (2004) examine employee's self-reported work-related ethics and compare them to their perceptions of co-workers and top managements on various morally challenging situations in three developing countries' organizations – Saudi Arabia, Kuwait and Oman, known as the Gulf countries. Park, Rehg and Lee (2005) have done their study on South Korean public employees to ascertain the influence of Confucian Ethics and Collectivism on whistleblowing intentions.

Only one study has so far been made on whistleblowing in relation to India – by Keenan (2002). He compares Indian managers with American on whistleblowing. He finds no significant difference between the two with respect to both organizational propensity for whistleblowing or fear of retaliation. The only difference he observes is in the American managers having stronger personal propensity for whistleblowing than their Indian counterparts.

The study appears to be grossly inadequate in terms of its sample population as well as the depth of the investigation. It lacks critical understanding of Indian socio-legal factors which ultimately moderate people's whistleblowing behaviour. The present study therefore finds a real void in this field and feels the need to explore whether there is proper enabling environment, especially legal, for whistleblowing in Indian industries.

With this end in view, it looks into the Indian industrial scenario with particular attention to the Indian Public Sector Enterprises (PSEs). This sector has played a crucial role in the planned development of the economy since Independence (Rangarajan 1996), also poses serious threats in the areas of accountability and governance. This is especially because huge amounts of public money flow through the PSEs. However, evaluation of its performance on the basis of the balance sheet was not considered important to the Indian planners, who conceived this sector as a useful tool for achieving social objectives (Sengupta 1996). This, however, ultimately led to the dilution of commercial principles causing enormous wastage and inefficiencies, neglect of cost control measures, diversion of

resources into rent-seeking activities, operational inefficiencies and massive inflation in capital cost due to corruption (Guha, 1996).

In the post-globalize era, if the PSEs are to play a truly desirable role of meeting the social commitments of the government, they have to improve in the fronts of efficiency and productivity. This calls for proper governance of the PSEs, where whistleblowing can become a really valuable weapon in the hands of the employees and managers at every level to act as a check on the unwarranted wastage of the public resources, through “self-policing” (Near and Dworkin 1998). This study therefore attempts to explore this sector as its first step of enquiry into the Indian panorama.

The study also observes that without an effective legal system ensuring protection against retaliation, the whistleblowers in the country cannot feel encouraged to voice their dissents against corruptions. Such observation is further strengthened when we look into the Satyendra Kumar Dubey’s case (2003). It appears to be the classical example of an Indian PSE whistleblower, who acted as “the tragic hero battling the system” (Grant 2002) ultimately to be rewarded with death penalty at the hands of unscrupulous contractors. The case, as has been detailed afterwards, raises serious concern regarding the protection available to an average whistleblower in the country. This study therefore ultimately concentrates on the legal environment in the country in general and PSEs in particular in order to examine the judicial support available to Indian PSE whistleblowers in terms of encouragement as well as their protection against retaliation.

Accordingly, this paper starts with a search into the theoretical background of the study by a discussion of the Satyendra Kumar Dubey case followed by a thorough review of the contemporary legal environment in relation to whistleblowers’ protection in Indian PSEs. The paper then makes a case study on Steel Authority of India Limited (SAIL) – to make a qualitative assessment of the surveillance mechanism within a Government Company, and actual implementation of whistleblowing provisions in that organization. Finally, it ends with a discussion and analysis of the actual scenario with a mention of the limitations of the study along with the future prospects of research.

## **The Theoretical Background**

### **The Satyendra Kumar Dubey Case: A Classical Example of an Indian PSE Whistleblower**

Satyendra Kumar.Dubey, An IIT Kanpur Engineer, joined the Ministry of Surface Transport as an Indian Engineering Service (IES) officer. He was sent on deputation to work at National Highway Authority of India (NHAI) in July 2002 as Assistant Project Manager for Golden Quadrilateral Corridor Project at Koderma, Jharkhand. Sincere, simple and honest by nature, he would visit the quarry to inspect the quality of stone used and

count each equipment to ensure the contractor's commitment. Riding on his bike, he used to visit sites four to five times a week unlike the usual practice of visiting once in a month. In August 2002, he was transferred to Gaya, Bihar. He was then selected as the Deputy General Manager of NHAI ([www.skdubeyfoundation.org](http://www.skdubeyfoundation.org)).

During his tenure, he exposed mishandling of funds of five engineers and insisted that the contractor of the project, Gammon India, suspend them. Later on, he wrote to the Prime Minister's Office (PMO) detailing the financial irregularities in the Project on November 11, 2002. He highlighted several instances of what he called "loot of public money" and "poor implementation". As he knew that such a grave complaint from an ordinary citizen is not going to be accepted and investigated with due importance, he disclosed his identity, at the same time, requesting the authorities to keep his name secret.

Within the next ten days, the PMO forwarded Dubey's complaint to the Ministry of Road Transport & Highways. His request for anonymity was ignored by the PMO as his personal information was also forwarded. His letter was then sent to NHAI with a copy to the NHAI Chief Vigilance Officer. Dubey wrote to NHAI about his fear of retaliation. In return he was reprimanded for sending the letter to the PMO.

S.K.Dubey was brutally murdered on November 27, 2003 when he arrived at Gaya railway station from Varanasi at around 3 a.m. only to discover that his car had developed some mechanical problems. Neither the car nor the driver was present. He took a rickshaw to reach his destination. He was later found to have been gunned down near Gaya Circuit House. His brother, in the FIR lodged in the police station, claimed that he was killed by the people whose corrupt practices he had exposed. The case was fought in the courts. Later on it was referred to the CBI. The final CBI report dismissed the murder as a simple roadside robbery case.

Conscious people throughout the world formed the S.K. Dubey Foundation to give vent to their outrage at such a cover-up. Dubey has been posthumously awarded with the prestigious Whistleblower of the Year Award instituted by the international Magazine "Index on Censorship", published from UK, devoted to protecting and promoting free expression.

## **The Contemporary Legal Environment in Relation to Whistleblowers' Protection in Indian PSEs**

### **The Initial Attempt**

It is disconcerting to note that India till date does not have any legislation to protect whistleblowers. The *Public Interest Disclosure (Protection of Informers) Bill* drafted by a former Supreme Court judge, Justice B P Jeevan Reddy in December 2001 as the Chairman of the Law Commission of India is known to be the first-ever attempt to give any protection to the whistle-blowers in the country. The former Supreme Court Judge suggested a number of

measures to encourage and protect the whistle-blowers. The salient provisions of the Bill, which is yet to get the nod of the Parliament, are ([www.skdebeyfoundation.org/files/indianwhistleblowersact\\_179rptp2.pdf](http://www.skdebeyfoundation.org/files/indianwhistleblowersact_179rptp2.pdf)):

- A “*competent authority*” is to be set up in every government organization under the law to receive and investigate complaints of corruption and misadministration.
- *Independence of such authority* is ensured through the authority being given to an outsider selected by the Central Vigilance Commissioner.
- The entire inquiry *proceedings would be confidential*.
- *The principle of natural justice demands* that all the contents of the complaint including *the identity of the complainant should be disclosed to the accused*. The authority concerned would be expected to act accordingly.
- The law, however, makes *provisions for maintaining of confidentiality* of the whistle-blowers’ identity contingent on two conditions: i. The whistle-blower would have to *ask for keeping his identity confidential*. ii. The authority will have to be satisfied to accede to such request *in the public interest or for the safety of such a person*.
- The Bill provides *safeguards against employer’s reprisal* e.g. through punishment- posting or service records being spoiled. Such protections are available only in situations where his identity is not completely confidential.
- The competent authority is to give its report after proper inquiry based on which disciplinary action must be taken. *Criminal proceedings against the public servants* concerned and the accomplices must be taken in case of serious impropriety.
- It also makes *provision for punitive action against the unscrupulous whistle-blower* for any false, reckless or malicious disclosure which may extend to a three-year term of imprisonment.

The basic premise of the Bill as suggested by Justice Reddy is: “No corruption takes place without somebody somewhere coming to know about it. Hence are the measures to encourage and protect the whistle-blowers”([www.newindiapress.com](http://www.newindiapress.com) dated 18<sup>th</sup> April 2004). This Bill, however, is now lying in cold storage.

### **The Post-Enron Attempt: The Narayana Murthy Committee Report on Corporate Governance**

Year 2001-02 saw a number of corporate governance problems in the US including Enron and WorldCom, which shook the investors’ confidence throughout the world. The Sarbanes-Oxley Act 2002 ([Sarbanes\\_Oxley\\_Act\\_of\\_2002.pdf](#)) in the US made exhaustive provisions to bring back the credibility of the corporations in society. It gave special protection to the whistleblowers in publicly traded companies (Sec 806 of the Sarbanes-Oxley Act of 2002).

The Narayana Murthy Committee on Corporate Governance 2003 formed under the aegis of the Securities

Exchange Board of India (SEBI), followed the footsteps of the Sarbanes-Oxley Act of the US by adapting and incorporating whistle-blowing rights for the employees of listed companies of India in its recommendations. This was a revolutionary attempt wherein the Indian capital market regulator, the SEBI, through its listing agreement, has been required to empower one of the important stakeholders of the listed companies - the employees. The recommendations are as follows (Recommendation 3.11: Whistleblowers Policy: Report of the SEBI Committee on Corporate Governance, India, submitted in Feb., 2003):

- Personnel who observe an *unethical or improper practice (not necessarily a violation of law)* should be able to approach the *audit committee without necessarily informing their supervisors*.
- Companies shall take measures to ensure that this right of access is *communicated to all employees* through means of internal circulars etc. The employment and other personnel policies of the company shall *contain provisions protecting “whistle blowers” from unfair termination and other unfair prejudicial employment practices*.
- Companies shall *annually affirm that they have not denied any personal access to the audit committee of the company* (in respect of matters involving alleged misconduct) and that they have *provided protection to “whistle blowers” from unfair termination and other unfair or prejudicial employment practices*.
- Such affirmation shall form *a part of the Board Report on Corporate Governance* required to be prepared and submitted together with the annual report.

The *appointment, removal and terms of remuneration of the Chief internal auditor* must be subject to review by the *Audit Committee*.

**Corporate governance Requirement under Clause 49 of the Listing Agreement as designed by the Securities Exchange Board of India (SEBI):**

On the basis of the above Report, Clause 49 of the Listing Agreement (Corporate Governance requirements) was amended in September 2003. The amendment required all listed companies to include Clause 49 (iv) Whistle Blower Policy as mandatory information in the Report on Corporate Governance in the Annual Report of the company ([www.sebi.gov.in](http://www.sebi.gov.in)).

SEBI, the apex capital market regulator in the country, however, in a master Circular issued in October 2004 (no. SEBI/CFD/DIL/CG/1/2004/12/10 dated Oct.29, 2004), withdrew the previous announcement and offered the status of a non-mandatory clause to the Whistleblower Policy. Such a revision ([www.bseindia.com/cirbrief/notices.asp](http://www.bseindia.com/cirbrief/notices.asp)) provides that, the company may establish a mechanism for employees to report to the management concerns about unethical behaviour, actual or suspected fraud or violation of the company’s code of conduct or ethics policy. This mechanism could also provide for adequate safeguards against victimization of employees who avail of the mechanism and also provide for direct access to the chairman of the

audit committee in exceptional cases. Once established, the existence of the mechanism may be appropriately communicated within the organization.

#### **Role of the Central Vigilance Commission (CVC) in Case of PSE**

The Central Vigilance Commission Act, 2003 has been enacted under the Ministry of Law & Justice to provide for the CVC to inquire into offences alleged to have been committed under the Prevention of Corruption Act, 1988 by the public servants in PSEs including corporations established under the Central Act and Government Companies established under the Companies Act, 1956. According to the Annual Report 20004 ([www.cvc.nic.in](http://www.cvc.nic.in)), on account of the murder of Satyendra Dubey and the PIL filed in the Supreme Court, the Supreme Court directed the Government to designate a suitable machinery to act on complaints from whistleblowers till a suitable legislation is enacted. The CVC has been authorized by the Government of India to act as the 'Designated Agency' to act on complaints of whistleblowers till the Parliament passes a law (GOI Resolution on "Public Interest Disclosure & Protection of Informer" 2004). It requires the CVC to bear the responsibility of keeping the identity of the complainant secret. The above Resolution clearly states the following aspects to be complied with by the whistleblower:

- The complaint should be in a closed /secured envelope.
- The envelope should be superscribed "Complaint under 'The Public Interest Disclosure'. This is to ensure protection to the complainant under the above Resolution. The complainant should give his/her name and address in the beginning or the end of the complaint or in an attached letter.
- Anonymous/pseudonymous complaints will not be entertained by the Commission.
- The text of the complaint should not give any details or clue as to his/her identity. The details of the complaint should, however, be specific and verifiable.
- In order to protect the identity of the whistleblower, the CVC will not issue any acknowledgement and the person/persons are advised not to enter into any further correspondence with the CVC in their own interest. The CVC assures that, subject to the facts of the case being verifiable, it will take necessary actions. The CVC will be in touch with the complainant if it requires any further clarification. ([www.cvc.nic.in](http://www.cvc.nic.in))

The important features of the "Whistleblowers Resolution" also include:

- In course of further report/investigation, the CVC shall not disclose the identity of the informant and shall also request the concerned head of the organization to keep the identity of the informant a secret.
- In pursuance to the complaint received, the CVC shall have the authority to call upon the CBI or the police authorities to render all assistance to complete the investigation.

- If any whistleblower is aggrieved on the ground that he is being victimized due to the disclosure, he may ask for redressal and the CVC may give support to the complainant.
- If the CVC opines that either the complainant or the witness needs protection, it shall issue appropriate directions to the concerned government authorities.
- In the event of the identity of the whistleblower being disclosed in spite of the CVC's directions to the contrary, it is authorized to initiate appropriate actions as per regulations against the person or the agency making such disclosure.
- The CVC also enjoys the right to take action against complainants making motivated /vexatious complaint under the Resolution.

**The Right To Information Act, 2005 (RTI) – to Contain Corruption and to Hold Governments and their Instrumentalities Accountable to the Governed** ([http://commerce.nic.in/rti/rti\\_first.htm](http://commerce.nic.in/rti/rti_first.htm))

This enactment is the latest of its kind which attempts to provide for setting out the practical regime of right to information under the control of public authorities. The purpose of such an enactment is to promote transparency and accountability in the working of every public authority. The Act has led to the creation of a Central Information Commission and a State Information Commission. Under the Act, the rights to information include the rights to –

- i. inspection of work, document, records
- ii. taking notes, extracts or certified copies of documents or records
- iii. taking certified samples of materials
- iv. Obtaining information in the form of diskettes, floppies, tapes, video-cassettes or in any other electronic mode or through printouts where such information is stored in a computer or in any other device.

Every public authority is bound to provide the information sought. Moreover, no suit, prosecution or other legal proceedings shall lie against any person for any thing which is done or intended to be done in good faith.

**Steel Authority of India Limited (SAIL) – A Case Study**

The study now examines one of the most respected world class corporations in the public sector to find out the implementation aspect of the above provisions. The purpose is to see whether the company has been able to create an enabling environment within the organization, so that the whistleblowers can come forward to save the company from any impending danger in future.

SAIL is a *NAVARATNA*<sup>1</sup> company and happens to be the leader in steel industry in India in terms of quality, productivity, profitability and customer satisfaction. 85% of its shares are held by the government whereas Foreign Institutional Investors (FII) own 5.08% of its shareholding. The company has won the Global Corporate



Excellence Award (2005) given by the Centre of International Business, Amity Business School, International Business Horizon – 2005 (Annual Report: SAIL 2005-06).

The case study includes a scrutiny of the Annual Reports of the company and its website followed by interviews of three top level managers in the city office in Kolkata. The observations are as follows:

1. That the company has a strong vigilance activity is evidenced by the notice by the CVC put up on the wall of the Reception Hall, SAIL Office, Industry House, Camac Street, Kolkata: “Do not pay bribes. If anybody of this office works for bribe or if you have any information on corruption in this office or if you are victim of corruption in this office, you can complain to the following officers”.
2. The company has a Corporate Vigilance Department with Quality Management System, which is accredited with ISO 9001-2000 Certification.( [www.sail.co.in/vigi\\_main.asp](http://www.sail.co.in/vigi_main.asp)). It is headed by an IPS as the Chief Vigilance Officer. The functions of SAIL vigilance are broadly preventive in nature. The focus is “towards facilitating the environment for people to work with integrity, impartiality and transparent manner, upholding highest ethical standards for the organization”(sail website)
3. The Annual Report 2005-06 states that in line with the concept of Corporate Governance, the Internal Vigilance Department is playing a proactive role for continuous simplification of systems and procedure with greater emphasis on transparency in the system.
4. Every department has an internal officer known as Assistant Central Vigilance Officer, who holds the office on a rotational basis, so that there is no abuse of power.
5. The company already had the procedure of receiving complaints from external parties as well as employees. This has further been strengthened on the basis of the CVC’s circular 2004 on whistleblowing. Complaints are received through the website in order to bring transparency in the system and expedite the process.
6. All complaints are processed after confirming the veracity of the complainant and further action is taken according to the procedure laid down under Quality Management System.
7. No action can be taken on the anonymous /pseudonymous complaints as per the CVC guidelines. However, keeping in mind the greater interest of the company, the vigilance department takes them into account to keep better vigil.
8. Guidelines for lodging complaints include the following:
  - Complaint should be specific with relevant details like subject and date.
  - Correct name and address are mandatory for processing the complaint.

- No correspondence shall be entertained on the subject after lodging the complaint.
  - In case it is found to be false and with the purpose of harassing the officials, action may be taken against the complainant.
  - The complaints having 'vigilance angle' are only examined. It consists of misuse of official position, demand and acceptance of illegal gratification, misappropriation/forgery or cheating, gross and willful negligence, blatant violation of systems and procedures, reckless exercise of discretion, and delay in processing the cases.
9. However, interviews with the top management revealed that most of the complaints received were found to be malicious in nature, governed by the self-interest of individuals rather than greater issues like saving of public money and concern for the company. Such trivial issues vary from personal leg-pulling, deliberate obstruction of the promotion of colleagues to defaming a manager, or inter-union rivalry. A small percentage of the complaints definitely involve public and social issues, which are handled with extreme care.
  10. When asked about any such incident of whistleblowing, which has saved the company from bigger problems, the officers maintained silence. While agreeing to the fact that such incidents are there, they did not agree to divulge the facts and figures in the bigger interest of the company and its market image.
  11. SAIL depends largely on preventive measures such as surprise checks in sensitive areas like procurements, contracts, supply of material through physical verifications. Procurement is one of the most crucial areas where chances of "technical corruption" are very high. The process of procurement is scrutinized through proactive vigilance on a regular basis to prevent such incidents.
  12. Vigilance Manuals are regularly updated and distributed among personnel as guidelines to be followed. Purchase/Contract Procedure 2006 is one such important document used for this purpose.
  13. Vigilance Audit is another mechanism through which peer review of the vigilance department's activity and quality are conducted..
  14. The internal vigilance departments are also subject to Customer Satisfaction Index, wherein the customers of the vigilance department output i.e. the directors, management information system (MIS), CVO etc. can express their level of satisfaction and thereby create inter-departmental competition in terms of vigilance activities.
  15. Finally, the internal vigilance departments conduct awareness programs among the employees, so that the chances of corruption can be kept at the minimum.

16. The company, however, has no mechanism known as Whistleblower Policy which is a non-mandatory requirement under the listing agreements with the Stock Exchange. This is evident from the Corporate Governance Compliance Report and the Certificate from Auditors regarding the compliance of Corporate Governance norms. None of these reports contain any mention of such a policy.
17. The company has established mechanism to receive and reply the queries under the Right to Information Act legislated recently.
18. The company maintains absolute confidentiality about the identity of the complainants or enquirers, so that they are not unnecessarily harassed. But no such mention is made in the website through it receives complaints. This may give a wrong message to the potential whistleblowers in the organization.

## **Discussion and Conclusion**

This study explores the legal environment of India to find out whether it is friendly enough to encourage the potential whistleblowers in the country to blow the whistle without the fear of retaliation. The study concentrates on the public sector enterprises of the country where a huge amount of public money has been deployed since Independence. The significance of this sector to the entire economy lies in the fact that it has largely catered to the development of the basic and infrastructure industries in the country since the 1950s. It has still a lot of promises to keep in order to placing the country in a more respectable position in the global horizon.

Moreover, at a juncture, when the global investors are eyeing the country as their investment destination, corporate governance becomes a big issue overall. However, there is no dearth of corruption, misutilisation of resources and wastage in the PSEs as is reported in the media everyday. Under such circumstances, the country needs more public servants who are as upright and honest, sincere and committed as the late S.K. Dubey was. This is, however, possible only when they are groomed well with all sorts of encouragement and protections in a perfectly value-laden ambience. Only then, one S.K. Dubey can give rise to hundreds. However, the injustice that has been meted out to a whistleblower like him bears a clearly negative signal to the future potential whistleblowers. This is voiced in the statement made by the brother of late S.K. Dubey that, unlike his elder brother, he is not going to have his career with the Government ([www.skubeyfoundation.org](http://www.skubeyfoundation.org)).

In a country where the Prime Minister has announced his zero-tolerance for corruption, the basic judicial support system to fight corruption needs to be further developed through timely enactment of some much-awaited legislation, like the Whistleblowers Protection Act in the line of B.P.Jeevan Reddy's draft bill. More than five years

have passed since the bill was first placed before the Parliament and the silent role played by the legislators on this issue raises the question regarding the genuineness or the willingness on the part of the government.

Again, a recommendation by a high-powered committee becomes meaningless, if it is not implemented properly. This is established by the fact that whereas the Narayana Murthy Committee on Corporate Governance recommended in favour of a mandatory provision of Whistle Blowers' Policy to be established in all listed companies in the country, the SEBI, the apex regulatory body of the capital market, seemed to be in a dilemma. This is evident when this study finds the SEBI following the recommendation and issuing a circular to the effect in September 2003, and then withdrawing the same by another superseding circular in 2004. The last circular, which is still in effect, has provided only a non-mandatory status to the Whistle Blowers' Policy. This gives enough opportunities to the publicly traded companies not to create such a mechanism, thereby refusing a crucial right to one of the most vital stakeholders in an industrial organisation.

This dillydallying process indicates the lackadaisical approach of the governmental agencies towards encouraging the act of whistleblowing when the same is gaining extreme popularity in all advanced countries. As a result, whereas Narayana Murthy's own company Infosys (a private sector organization) has come up with such policy in letter and spirit ([www.infosys.co.in](http://www.infosys.co.in)), it is conspicuously absent in a public sector enterprise like SAIL (Annual Report: 2005-06).

Although this study finds a thoroughly active internal vigilance department in SAIL, the officials seem to be a bit skeptical when it comes to the issue of Whistleblowers' Policy as a whole. Firstly, they are too confident about their own vigilance activities, claiming that that nothing wrong would go undetected under the existing provisions. Secondly, they have a complaint receiving mechanism in compliance with the CVC mandate. This mechanism, which is posted in the website, however, tells nothing about the maintenance of the confidentiality of the complainant or protection against future retaliation by the affected party. As a result, the potential whistleblowers get no clear message about the availability of such protection. With reference to the nature of complaints received, the top management opined that most of these are directed towards personal gains rather than to serve a greater cause. At the same time, they could not deny the fact that there are a few genuine cases, which have saved the company from huge wastages. While the officials are not ready to divulge such strictly confidential internal information, the question remains: are the authorities trying to encourage the number of such genuine reports to grow, so that the company can make real gain out of it? There is no clear-cut answer to this.

The vigilance department in Sail holds awareness programmes for their employees, so that an ethical environment prevails within. But when it comes to empowering the employees through the establishment of a whistleblowers' policy, the top brass are found to be not very interested. The basic mindset is that it is going to be misused. This is clearly indicative of the reality situation that in a country like India, where the trade unions have

always been very active, the senior management would hardly like to further strengthen the hands of individual employee by promoting concepts like whistleblowing.

In so far as the newly enacted Right to Information Act 2005 (RTI) is concerned, it can open up the floodgate of public queries creating a real democratic environment where the government and its administrative agencies become truly accountable to the governed. But the basic issue remains the same - its implementation aspect. This is because an enactment is meaningless without it being properly utilized by those for whom it is designed. The questions obviously arise - are the average countrymen, poor and illiterate as they are, prepared to raise desirable questions in time? Moreover, are the employees in an organization in a position to use this weapon to raise their voice against the questionable practices of their bosses without fear of actual retaliation? We have yet to wait to experience such implementation effects. RTI, however, can never be a substitute for a viable legislation for whistleblowers' protection in immediate future.

The study, therefore, observes the country and its legal mosaic is still far away from creating any ambience of encouragement and protection where individuals can fearlessly raise their voice to protest against corruption and thereby become a valuable instrument of corporate governance.

In the mean time, however, some optimistic developments in the Indian judiciary are becoming visible as noticed in a very recent case, where an IIM Lucknow graduate and public servant working in the Indian Oil Corporation, Manjunath Shanmugham, was murdered for exposing a racket involved in the sale of adulterated fuel in a town in the state of Uttar Pradesh. In one of the fastest convictions ever, as reported in The Times Of India dated March 27,2007, the district court has issued a death sentence to the guilty petrol pump owner and awarded life imprisonment to seven other accomplices within sixteen months after the murder of the whistleblower. This positive development may be attributed to the nationwide campaign which was triggered by the incident. It affirms the bludgeoning role of public opinion coupled with judicial activism and competitive media exposures acting as pressure groups in bringing about justice and an ethical environment in a thriving democracy like India. This gives rise to the ultimate optimism where the study expects some positive move on the part of the legislators too to bring about a full-fledged enactment on whistleblowing in near future. Without this, the act of whistleblowing can never flourish to solve governance problems in Indian PSEs.

#### **Limitations of this Study**

This being an exploratory study on the Indian legal environment with respect to whistleblowing in PSEs in India, this attempt necessarily suffers from certain limitations. Findings on the basis of a qualitative analysis, I feel, need to be supplemented by a quantitative measurement of the perceptions of the Indian PSE employees towards the very act of whistleblowing and towards the governmental support available to the potential whistleblowers through legal backings.

Another glaring limitation of this study is that it has been done on the background of the developments in advanced western block like the UK and USA. It has failed to consider the Asian neighbouring countries' scenario, e.g. Japan, China or Singapore. The reasons are two-fold. Firstly, literature studying these economies is not much available. Secondly, Indian legislative structure is based on Anglo-Saxon legacy. This is now being supplemented by the American developments at the dictate of WTO and IMF. Hence comes the bias.

Next limitation of this study is comparatively greater dependence on secondary data, rather than on primary one. This is due to the overall conservative attitude and therefore closed door policy of the management of almost all Indian organisations. They hardly like to divulge any information which is not strictly official. Availability of primary data therefore becomes difficult. One has to depend more on published documents and the secondary data like media reports, journals and websites become major source of information.

#### **Scope for Future Study**

There seems to be enough opportunity for future research as no fundamental study has yet been done on whistleblowing in India. As has been felt in the above section, this study needs to be supplemented by a quantitative analysis of the socio-cultural perspectives of the whistleblowing behaviour of the Indian people. India, as a nation, is however too broad to be characterized as having the same cultural attributes all over the country and a monolithic assessment of its cultural environment and behaviour would suffer from an inability to take into account its incredible cultural diversity. Future studies should therefore consider this aspect first by making an intra-firm comparison of whistleblowing behaviour in an organization, which is characterized by such cultural blends. Steel Authority of India can be an excellent case for this purpose, as the company is truly national with its bases in all four regions, east and west, north and south.

Future attempts can further be directed towards cross-cultural studies where Indian situations can be compared with neighbouring Asian countries' like Japan and China. This may help finding out the cross-cultural variables leading to the similarity or otherwise among whistleblowing behaviour of people of these countries which share the common oriental culture and values. Recent publications on Asian management as has been done by Chatterjee and Nankervis (2007) can provide a basic theoretical framework to such studies.

Future research can also proceed to make further comparison between whistleblowers in India with the advanced economies like the US and UK, where whistleblowing has become a regular activity in industries. As Indian companies are becoming increasingly global, more research attention is clearly needed on studying whistleblowing across cultures and across nations. This will help the Indian multinationals to develop and manage policies and standards with respect to ethical issues and whistleblowing in an organization in a more effective manner.

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## **End Notes**

<sup>1</sup> It is a Sanskrit word meaning 'nine jewels'. Historically, nine wise men in the court of Akbar, the Moghul emperor in India, were called by this name. This is a rare honour bestowed on nine high performing organizations in Indian public sector.



## Sharing a Polluted Lake

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### Abstract

A lake is polluted and needed to be cleaned. A certain cost is incurred to clean the lake. This cost should be allocated fairly to all upstream agents (firms, counties, or villages which are connected to the water system). To address this cost sharing problem, we extend a similar research "Sharing a Polluted River" (Games and Economic Behavior, 2007?). The problem is modeled by a tree structure in which agents are located on a tree and the root of the tree is the lake. We apply the theory of games with permission structure developed by van den Brink (Games and Economic Behavior, 12(1996)113-126) to our problem. We assume that upstream agents must get permissions from downstream agents in order to exude their pollutant to the system. Applying the two main advocated doctrines in international disputes: the theory of Absolute Territorial Sovereignty (ATS) and the theory of Unlimited Territorial Integrity (UTI), we accordingly propose two cost sharing methods: the Local Responsibility Sharing (LRS) method and the Upstream Equal Sharing (UES) method. For each method, we provide an axiomatic characterization. Interestingly, both the LRS method and the UES method coincide with the Shapley value solutions to the corresponding (cost) games that are naturally induced according to the ATS and the UTI doctrines respectively. Moreover, both the LRS solution and the UES solution are the core allocations of the corresponding games. Thus, both the LRS method and the UES method can be considered as fair or reasonable solutions to the pollution cost allocation problem. JEL classification: C71, D61, D62. Keywords: Externality, Fair allocation of pollution costs, Shapley value.

## Introduction

### A Model

Consider a water system in which there are  $N = \{1, 2, \dots, n\}$  agents located on a tree and the root of the tree is a lake denoted by  $L$ . Agents are connected through links and all lead to the lake. Each agent exudes certain amount of pollutant to the system which eventually flows to the lake. Assume that an agent needs the permission of her immediate downstream agents before exuding her pollutant into the system. The entire water system is polluted and needs to be cleaned. The overall cost of cleaning each and every water canal (link) as well as the lake must be shared among these agents.

Formally, let  $N = \{1, \dots, n\}$  be a finite set of agents. Let  $G = \{N \cup L, E\}$  be a tree structure for  $N$ . The cost function  $C : E \cup L \rightarrow \mathbb{R}^+$  has two components. The (links') costs  $C(E) : E \rightarrow \mathbb{R}^+$ , is denoted as  $C(E) = \{c_1, c_2, \dots, c_n\}$ , where  $c_i$  is the cost of the link in  $G$  that originates from agent  $i$ ,  $i = 1, 2, \dots, n$ . The lake cost is denoted as  $C(L)$ . For convenience, also denote  $C(E) = \sum_{i \in N} c_i$ , i.e., the total link costs. A pollution cost sharing problem is a triple  $(N \cup L, G, C)$ . Throughout the paper, we simply call the triple  $(N, G, C)$  a problem. A solution to a problem  $(N, G, C)$  is a vector  $x = (x_1, \dots, x_n) \in \mathbb{R}^n_+$  such that  $\sum_i x_i = C(L) + C(E)$ , where  $x_i$  is the cost share assigned to agent  $i \in N$ . A method is a mapping  $x$  that assigns to each problem  $(N, G, C)$  a solution  $x(N, G, C)$ .

Given a tree  $G$ , the upstream-downstream relation between agents is uniquely determined. Also for any agent, there is a unique path that connects a sequence of downstream agents successively to the lake.

Recall the literature on permission games (van den Brink, 1996). In certain situations some agents have to get permission from certain other agents before they can engage in cooperative activities. Specifically, a permission structure is represented by a mapping  $P : N \rightarrow 2^N$ . It is assumed that agents  $j \in P(i)$  must get the permission from agent  $i \in N$  to participate in the cooperative activities. The collection of all permission structures on  $N$  is denoted by  $\mathcal{P}$ .

structure in a natural way. Given  $(N, G, C)$ , the tree  $G$  induces the following permission structure:  $P : N \rightarrow 2^N$ ,

$$P(i) = \{j \mid \text{there is a path from } j \text{ to } L \\ \text{such that } i \text{ is } j \text{'s immediate follower (downstream agent)}\}$$

We assume that all agents  $j \in P(i)$  need the permission of agent  $i \in N$  to exude their pollutant.

Example 1.

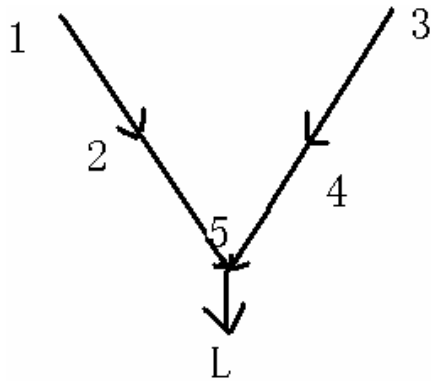


FIG. 1: POLLUTANTS

In this example, we have the following permission structure  $P$ .

$$P(1) = \emptyset, P(2) = \{1\}, P(3) = \emptyset, P(4) = \{3\}, P(5) = \{2, 4\}$$

The transitive closure of the permission structure  $P$  is a permission structure  $\hat{P}$  such that for all  $i \in S$  we have  $i \in \hat{P}(j)$  if and only if there exists  $i_1, \dots, i_{k-1}$  in  $S$  such that  $i_1 = i$ ,  $i_{k-1} \in P(i_{k-2})$  for all  $1 \leq k-1$ , and  $i_k = j$ . The agents in  $\hat{P}(i)$  are called the subordinates of  $i$  in  $S$  and the agents in  $\hat{P}^{-1}(i) := \{j \in S \mid j \in \hat{P}(i)\}$  are called the superiors of  $i$  in  $S$ .

Define for every  $i \in S$ ,  $\hat{P}^{-1}(i) = \{j \in S \mid j \in \hat{P}(i)\}$ .

Example 1 (continued): It is easy to check that

$$\hat{P}(1) = \emptyset, \hat{P}(2) = \{1\}, \hat{P}(3) = \emptyset, \hat{P}(4) = \{3\}, \hat{P}(5) = \{1, 2, 3, 4\}$$

$$\hat{P}^{-1}(1) = \{2, 5\}, \hat{P}^{-1}(2) = \{5\}, \hat{P}^{-1}(3) = \{4, 5\}, \hat{P}^{-1}(4) = \{5\}, \hat{P}^{-1}(5) = \emptyset$$

Given a permission structure  $P$ , three different kinds of coalitions can be formed. The stand-alone part of a coalition  $S$  is itself. The sovereign part of a coalition  $S$  is the coalition  $\sigma(S) = S \cup \hat{P}^{-1}(S)$  consisting of  $S$  itself and the set  $\hat{P}^{-1}(S)$  for the reason that members in  $S$  can reduce or stop emissions of pollution themselves and their responsibilities in pollution reduction should be extended to all the downstream agents they affected. On the

other hand, the authorizing set of  $\mu$  is the coalition given by  $\rightarrow(\mu) = \mu[\hat{P}(\mu)]$ , in which the responsibilities are split between all relevant upstream agents. Note that these definitions are different from that in van den Brink (1996). Also note that in our lake pollution problem the two theories of the ATS and the UTI are not in sharp contrast to each other compared to the case in Ambec and Sprumont (2002).

Accordingly, three different games can be defined based on the above definitions of coalitions. First, we define the stand-alone (s.a.) game as follows.

**Definition 1** Let  $(\mu, \mu, \mu)$  be a lake pollution problem. Let  $\mu(\mu)$  be the permission structure induced by  $\mu$ . Define the game  $\mu(\mu)^{S.A.}$  as follows:

$$\mu^{\mu}(\mu)(\mu) = \mu(\mu), \mu^{\mu}(\mu), \quad (1)$$

where  $\mu(\mu)$  is the total cost of the links associated with  $\mu$ .

Next, based on the sovereign set concept, we define the following game.

**Definition 2** Let  $(\mu, \mu, \mu)$  be a lake pollution problem. Let  $\mu(\mu)$  be the permission structure induced by  $\mu$ . Define the game  $\mu^{\mu}(\mu)$  as follows:

$$\mu^{\mu}(\mu)(\mu) = \mu(\sigma(\mu)), \mu^{\mu}(\mu), \quad (2)$$

Corresponding to the authoring set, we have the following game.

**Definition 3** Let  $(\mu, \mu, \mu)$  be a lake pollution problem. Let  $\mu(\mu)$  be the permission structure induced by  $\mu$ . Define the game  $\mu^{\mu\mu\mu}(\mu)$  as follows:

$$\mu^{\mu\mu\mu}(\mu)(\mu) = \mu(\rightarrow(\mu)), \mu^{\mu}(\mu), \quad (3)$$

**Example 2.** The sovereign game and the authoring game generated from the problem in Example 1 can be found as follows.

**The Sovereign Game  $\mu^{\mu}(\mu)$ .**

- $\mu^{\mu}(\mu)(C)(1) = C(1, 2, 5), \mu^{\mu}(\mu)(C)(2) = C(2, 5), \mu^{\mu}(\mu)(C)(3) = C(3, 4, 5),$
- $\mu^{\mu}(\mu)(C)(4) = C(4, 5), \mu^{\mu}(\mu)(C)(5) = C(5),$
- $\mu^{\mu}(\mu)(C)(1, 2) = C(1, 2, 5), \mu^{\mu}(\mu)(C)(1, 3) = C(1, 2, 3, 4, 5),$
- $\mu^{\mu}(\mu)(C)(1, 4) = C(1, 2, 4, 5), \mu^{\mu}(\mu)(C)(1, 5) = C(1, 2, 5),$
- $\mu^{\mu}(\mu)(C)(2, 3) = C(2, 3, 4, 5), \mu^{\mu}(\mu)(C)(2, 4) = C(2, 4, 5), \mu^{\mu}(\mu)(C)(2, 5) = C(2, 5),$
- $\mu^{\mu}(\mu)(C)(3, 4) = C(3, 4, 5), \mu^{\mu}(\mu)(C)(3, 5) = C(3, 4, 5), \mu^{\mu}(\mu)(C)(4, 5) = C(4, 5),$
- $\mu^{\mu}(\mu)(C)(1, 2, 3) = C(1, 2, 3, 4, 5), \mu^{\mu}(\mu)(C)(1, 2, 4) = C(1, 2, 4, 5),$
- $\mu^{\mu}(\mu)(C)(1, 2, 5) = C(1, 2, 5), \mu^{\mu}(\mu)(C)(1, 3, 4) = C(1, 2, 3, 4, 5),$
- $\mu^{\mu}(\mu)(C)(1, 3, 5) = C(1, 2, 3, 4, 5), \mu^{\mu}(\mu)(C)(2, 3, 4) = C(2, 3, 4, 5),$
- $\mu^{\mu}(\mu)(C)(2, 3, 5) = C(2, 3, 4, 5), \mu^{\mu}(\mu)(C)(3, 4, 5) = C(3, 4, 5),$

$$\begin{aligned}
\varnothing(C)(1, 4, 5) &= C(1, 2, 4, 5), \varnothing(C)(2, 4, 5) = C(2, 4, 5), \\
\varnothing(C)(1, 2, 3, 4) &= C(1, 2, 3, 4, 5), \varnothing(C)(1, 3, 4, 5) = C(1, 2, 3, 4, 5), \\
\varnothing(C)(2, 3, 4, 5) &= C(2, 3, 4, 5), \varnothing(C)(1, 2, 4, 5) = C(1, 2, 4, 5). \\
\varnothing(C)(1, 2, 3, 5) &= C(1, 2, 3, 4, 5), \varnothing(C)(1, 2, 3, 4, 5) = C(1, 2, 3, 4, 5).
\end{aligned}$$

The Authoring Game  $\varnothing(\varnothing)$ .

$$\begin{aligned}
\varnothing(\varnothing)(1) &= C(1), \varnothing(\varnothing)(2) = C(1, 2), \varnothing(\varnothing)(3) = C(3), \\
\varnothing(\varnothing)(4) &= C(3, 4), \varnothing(\varnothing)(5) = C(1, 2, 3, 4, 5), \\
\varnothing(\varnothing)(1, 2) &= C(1, 2), \varnothing(\varnothing)(1, 3) = C(1, 3), \\
\varnothing(\varnothing)(1, 4) &= C(1, 3, 4), \varnothing(\varnothing)(1, 5) = C(1, 2, 3, 4, 5), \\
\varnothing(\varnothing)(2, 3) &= C(1, 2, 3), \varnothing(\varnothing)(2, 4) = C(1, 2, 3, 4), \\
\varnothing(\varnothing)(2, 5) &= C(1, 2, 3, 4, 5), \varnothing(\varnothing)(3, 4) = C(3, 4, 5), \\
\varnothing(\varnothing)(3, 5) &= C(1, 2, 3, 4, 5), \varnothing(\varnothing)(4, 5) = C(1, 2, 3, 4, 5), \\
\varnothing(\varnothing)(1, 2, 3) &= C(1, 2, 3), \varnothing(\varnothing)(1, 2, 4) = C(1, 2, 3, 4), \\
\varnothing(\varnothing)(1, 2, 5) &= C(1, 2, 3, 4, 5), \\
\varnothing(\varnothing)(1, 3, 4) &= C(1, 3, 4), \varnothing(\varnothing)(1, 3, 5) = C(1, 2, 3, 4, 5), \\
\varnothing(\varnothing)(2, 3, 4) &= C(2, 3, 4), \varnothing(\varnothing)(2, 3, 5) = C(1, 2, 3, 4, 5), \\
\varnothing(\varnothing)(3, 4, 5) &= C(1, 2, 3, 4, 5), \varnothing(\varnothing)(1, 4, 5) = C(1, 2, 3, 4, 5), \\
\varnothing(\varnothing)(2, 4, 5) &= C(1, 2, 3, 4, 5), \varnothing(\varnothing)(1, 2, 3, 4) = C(1, 2, 3, 4), \\
\varnothing(\varnothing)(1, 3, 4, 5) &= C(1, 2, 3, 4, 5), \varnothing(\varnothing)(2, 3, 4, 5) = C(1, 2, 3, 4, 5),
\end{aligned}$$

$$\begin{aligned}
\varnothing(\varnothing)(1, 2, 3, 5) &= C(1, 2, 3, 4, 5). \\
\varnothing(\varnothing)(1, 2, 4, 5) &= C(1, 2, 3, 4, 5). \\
\varnothing(\varnothing)(1, 2, 3, 4, 5) &= C(1, 2, 3, 4, 5).
\end{aligned}$$

A (cost) game is convex if an agent's marginal cost is non-increasing as the agent joins larger coalitions.

Formally, a game  $C(\cdot)$  is convex if

$$\varnothing(\varnothing[S]) - \varnothing(\varnothing) \geq \varnothing(\varnothing[S \cup \{i\}]) - \varnothing(\varnothing), \forall \mu \subseteq S, i \notin S.$$

We claim that all the associated games generated from a lake pollution problem are convex.

The Shapley value (Shapley, 1953) is the most important solution concept for cooperative games.

Definition 4 For any game  $\varnothing: 2^N \rightarrow \mathbb{R}$ , the Shapley value is given by

$$X_i^{Sh}(C) = \sum_{S \subseteq N, i \in S} \frac{(|S|-1)!(n-|S|)!}{(n-1)!} (\varnothing(S) - \varnothing(S \setminus \{i\})) \quad i=1, 2, \dots, n \quad (4)$$

It is well-known that for convex games the Shapley value is in the core.

The following Local Responsibility Sharing (LRS) method is the Shapley value of the stand-alone game  $L^{s.a.}(C)$ .

Definition 5 For any  $\mathbf{c} \in \mathbb{R}_+^n$ , The Local Responsibility Sharing method is given by

$$X_i^{\text{LRS}}(\mathbf{C}) = c_i, \quad i=1, 2, \dots, n$$

The Shapley value (Shapley, 1953) can be similarly applied on the games  $\Gamma^{\text{LRS}}$  and  $\Gamma^{\text{Shapley}}$  respectively.

Definition 6 For any  $(N, G, C)$ , the Shapley value Sharing method is given by

$$X_i^{\text{Sh}}(\mathbf{C}) = \sum_{S \in \mathcal{S}} \left( \frac{(n-|S|)! (|S|-1)!}{(n!)} \right) (L^{\text{sov}}(\mathbf{C})(S) - L^{\text{sov}}(\mathbf{C})(S \setminus \{i\})) \quad i=1, 2, \dots, n \quad (5)$$

And

**Definition 7**

For any  $(N, G, C)$ , the Shapley value Sharing method is given by

$$X_i^{\text{Sh}}(\mathbf{C}) = \sum_{S \in \mathcal{S}} \left( \frac{(n-|S|)! (|S|-1)!}{(n!)} \right) (L^{\text{Author}}(\mathbf{C})(S) - L^{\text{Author}}(\mathbf{C})(S \setminus \{i\})) \quad i=1, 2, \dots, n \quad (6)$$

**Characterizations of the Local Responsibility**

Method and the Shapley Value Methods

**Characterization of the Local Responsibility Method**

The characterization of the LRS method is the same as the characterization in the river case (Ni and Wang, 2006).

We state the result below.

Additivity: For any  $\mathbf{c}^1 = (c_1^1, \dots, c_n^1) \in \mathbb{R}_+^n$  and  $\mathbf{c}^2 = (c_1^2, \dots, c_n^2) \in \mathbb{R}_+^n$ , we have  $\Gamma(\mathbf{c}^1 + \mathbf{c}^2) = \Gamma(\mathbf{c}^1) + \Gamma(\mathbf{c}^2)$  for all  $\Gamma \in \mathcal{G}$ .

Additivity is a classical axiom in the cooperative game theory (Shapley, 1953) as well as in the cost sharing literature (Moulin, 2002). As a (mathematical) structural invariance axiom, Additivity itself has no normative or equity meaning. However, for our pollution cost sharing problem, we can provide the following interpretation.

Imagine that each firm  $i \in N$  has two divisions with costs,  $c_i^1, c_i^2$ , respectively and located along two different rivers. Then, Additivity says that it is the same either we allocate the overall total cost vector or we allocate the two separate cost vectors and then add them together.

No Blind Cost: For any  $\Gamma \in \mathcal{G}$  and any  $\mathbf{c} \in \mathbb{R}_+^n$ , if  $c_i = 0$ , then  $X_i(\Gamma) = 0$ .

No Blind Cost says that if an agent incurs no pollution cost (e.g., the agent does not pollute at all) the agent shouldn't bear any cost.

Efficiency:  $\sum_{j=1}^n x_j = \sum_{j=1}^n c_j$

Theorem 1 The LRS method is the only method satisfying Additivity, No Blind Cost, and Efficiency.

The LRS method clearly indicates that all firms are treated fairly in the sense that no cost is imposed on a firm which bears no local responsibility at all, and that the cost distribution is anonymous: even if a firm changes its location, its cost share does not change. These two features together with Additivity and Efficiency remind us that there would be some connections between the LRS method and the Shapley value of certain game induced from the problem. Indeed, the following proposition shows that the LRS

solution exactly coincides with the Shapley value of the game  $(N, \varphi)$  for all  $\alpha \in \mathbb{R}^n_+$ .

We have the following proposition.

**Proposition 1** For all  $\alpha \in \mathbb{R}^n_+$  and  $\varphi$  defined by (3), we have  $X_i^{LRS}(C) = \varphi_i(\alpha)$ .

Discussion.

### Characterization of the Shapley Value for Sovereign

Games

In this subsection, we first provide an axiomatic characterization of the Shapley Value method using the sovereign games generated from the problem. Then we show that the Shapley value is in the core. First we introduce the following two axioms.

**Independence of Upstream Costs:** For any  $\alpha \in \mathbb{R}^n_+$ , any  $\alpha', \alpha'' \in \mathbb{R}^n_+$

Such that  $\alpha_i = \alpha'_i = \alpha''_i$  for all  $i \in \hat{P}^j(\alpha)$ , then for all  $\alpha \in \hat{P}^j(\alpha)$ , we have  $\varphi_i(\alpha) = \varphi_i(\alpha')$ .

This axiom is based on the Downstream Responsibility principle, which in turn, extends the responsibility version of the theory of the Unlimited Territorial Integrity. It says that an agent's cost share only depends on her own pollution cost as well as all downstream costs, but not on upstream costs for which she has no control or responsibility.

**Upstream Symmetry:** For any  $\alpha \in \mathbb{R}^n_+$ , for all  $i, k \in \hat{P}^j(\alpha)$ , we have  $X_j(0, \dots, 0, c_i, 0, \dots, 0) = X_k(0, \dots, 0, c_i, 0, \dots, 0)$ .

The Upstream Symmetry requires that all upstream agents have equal responsibilities for a given downstream pollution cost. As we explained in the introduction, we treat all upstream agents equally in terms of responsibility for a given downstream cost because we assume that, first, pollution cannot be washed away easily, and secondly, it is hard to tell exactly how much each upstream agent contributes to the given downstream cost. Moreover, the axiom implies that any agent, no matter how far she is from any of her downstream agents, her responsibility extends.

Now we have the following theorem.

**Theorem 2** For any Sovereign game, the Shapley value method defined by (5) is the one and only one method satisfying Additivity, Independence of Upstream Costs, Upstream Symmetry, No Blind Cost of Irrelevant Permission, and Efficiency. And further it is in the core of the corresponding Sovereign game.

### Characterization of the Shapley Value for Authoring

Games

In this section, we first provide an axiomatic characterization of the Shapley value for the Authoring Games generated from the problem. Then we show that the Shapley value is in the core. First, we introduce the following axiom.

Downstream Equal Impact: For any  $\square \in \mathcal{P}$ , for all  $\square, \square' \in \hat{\mathcal{P}}^1(\square)$ , we have  $X_j(0, \dots, 0, c_i, 0, \dots, 0) = X_k(0, \dots, 0, c_i, 0, \dots, 0)$ .

The Downstream Equal Impact requires that all downstream agents are equally affected by a upstream agent who has to get permissions from all her downstream agents according to the permission structure. As we explained in the introduction, we treat all downstream agents equally in terms of responsibility for a given upstream cost because we assume that, first, pollution cannot be washed away easily, and secondly, it is hard to tell exactly how much a given upstream agent's pollution affects each downstream agent.

Moreover, the axiom implies that any agent, no matter how far she is from any of her upstream agents, she is equally affected. This is the implication of the Unlimited Territorial Integrity (UTI).

Now we have the following theorem.

**Theorem 3** For any authorizing game, the Shapley value method defined by (6) is the one and only one method satisfying Additivity, Independence of Downstream Costs, Downstream Equal Impact, No Blind Cost of Irrelevant Permission, and Efficiency. And further it is in the core of the corresponding authorizing game.

*Proof :* We also divide the proof into three steps which are similar to those in proof of Theorem 2.

**Step 1:** We show that the DES method defined by (10) is the one and only one method satisfying Additivity, Independence of Downstream Costs, Downstream Equal Impact, No Blind Cost of Irrelevant Permission, and Efficiency. Clearly, it is easy to check that the DES method  $\Phi_i^{\text{DES}}$  satisfies these five axioms.

Now we turn to the "if" part. Suppose that a cost sharing method  $\Phi_i$  satisfies these five axioms. Fix arbitrarily a tree consisting of  $n + 1$  nodes.

To be completed.

### **An Application**

This proposed project is a real example taken from a current Asian Development Bank (ADB) loan project in P.R.China. The lake in interest is Bai Yang Dian lake catchment, which plays a key role in preserving the ecological environment in Northern China. The lake was used to be very large historically, but due to overuse of water from inflow rivers and the lake itself, the lake was almost completely dry during 1980-87. The lake then was subject to severe dry ups later on, and the Chinese Ministry of Water Resource and State Council had to intervene, ordering the local government to discharge water from upstream reservoirs for rescue.

The following diagram shows the geographical structure of the project.



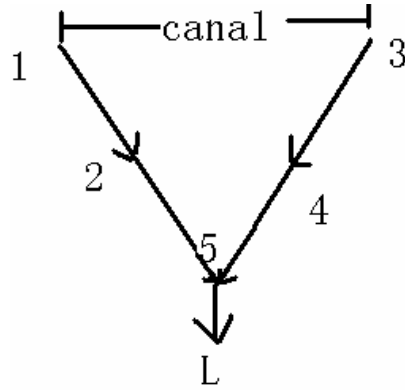


FIG. 2: PROPOSED CANAL PROJECT LINKING RESERVOIRS 1 AND 3

In this problem, we have the following permission structure  $\square$ .

$$\square(1) = ; , \square(2) = 1 , \square(3) = 1 , \square(4) = 3 , \square(5) = 2 , 4$$

The transitive closure of P is given as follows.

$$\hat{P}(1) = ; , \hat{P}(2) = \{1\} , \hat{P}(3) = \{1\} , \hat{P}(4) = \{1, 3\} , \hat{P}(5) = \{1 , 2 , 3 , 4\}$$

$$\hat{P}^1(1) = \{2 , \square , \square , 5\} , \hat{P}^1(2) = \{5\} , \hat{P}^1(3) = \{4 , 5\} , \hat{P}^1(4) = \{5\} , \hat{P}^1(5) = ;$$

The Sovereign Game  $\square^{\square\square\square}(\square)$ .

$$\square^{\square\square\square}(C)(1) = C(1, 2, 3, 4, 5), \square^{\square\square\square}(C)(2) = C(2, 5), \square^{\square\square\square}(C)(3) = C(3, 4, 5),$$

$$\square^{\square\square\square}(C)(4) = C(4, 5), \square^{\square\square\square}(C)(5) = C(5),$$

$$\square^{\square\square\square}(C)(1, 2) = C(1, 2, 3, 4, 5), \square^{\square\square\square}(C)(1, 3) = C(1, 2, 3, 4, 5),$$

$$\square^{\square\square\square}(C)(1, 4) = C(1, 2, 3, 4, 5), \square^{\square\square\square}(C)(1, 5) = C(1, 2, 3, 4, 5),$$

$$\square^{\square\square\square}(C)(2, 3) = C(2, 3, 4, 5), \square^{\square\square\square}(C)(2, 4) = C(2, 4, 5), \square^{\square\square\square}(C)(2, 5) = C(2, 5),$$

$$\square^{\square\square\square}(C)(3, 4) = C(3, 4, 5), \square^{\square\square\square}(C)(3, 5) = C(3, 4, 5), \square^{\square\square\square}(C)(4, 5) = C(4, 5),$$

$$\square^{\square\square\square}(C)(1, 2, 3) = C(1, 2, 3, 4, 5), \square^{\square\square\square}(C)(1, 2, 4) = C(1, 2, 3, 4, 5),$$

$$\square^{\square\square\square}(C)(1, 2, 5) = C(1, 2, 3, 4, 5), \square^{\square\square\square}(C)(1, 3, 4) = C(1, 2, 3, 4, 5),$$

$$\square^{\square\square\square}(C)(1, 3, 5) = C(1, 2, 3, 4, 5), \square^{\square\square\square}(C)(2, 3, 4) = C(2, 3, 4, 5),$$

$$\square^{\square\square\square}(C)(2, 3, 5) = C(2, 3, 4, 5), \square^{\square\square\square}(C)(3, 4, 5) = C(3, 4, 5),$$

$$\square^{\square\square\square}(C)(1, 4, 5) = C(1, 2, 3, 4, 5), \square^{\square\square\square}(C)(2, 4, 5) = C(2, 4, 5),$$

$$\square^{\square\square\square}(C)(1, 2, 3, 4) = C(1, 2, 3, 4, 5), \square^{\square\square\square}(C)(1, 3, 4, 5) = C(1, 2, 3, 4, 5),$$

$$\varphi^{\text{Sov}}(C)(2, 3, 4, 5) = C(2, 3, 4, 5), \varphi^{\text{Sov}}(C)(1, 2, 3, 4, 5) = C(1, 2, 3, 4, 5).$$

$$\varphi^{\text{Sov}}(C)(1, 2, 3, 5) = C(1, 2, 3, 4, 5), \varphi^{\text{Sov}}(C)(1, 2, 3, 4, 5) = C(1, 2, 3, 4, 5).$$

The Authoring Game  $\varphi^{\text{Auth}}(\varphi)$ .

$$\varphi^{\text{Auth}}(C)(1) = C(1), \varphi^{\text{Auth}}(C)(2) = C(1, 2), \varphi^{\text{Auth}}(C)(3) = C(1, 3),$$

$$\varphi^{\text{Auth}}(C)(4) = C(1, 3, 4), \varphi^{\text{Auth}}(C)(5) = C(1, 2, 3, 4, 5),$$

$$\varphi^{\text{Auth}}(C)(1, 2) = C(1, 2), \varphi^{\text{Auth}}(C)(1, 3) = C(1, 3),$$

$$\varphi^{\text{Auth}}(C)(1, 4) = C(1, 3, 4), \varphi^{\text{Auth}}(C)(1, 5) = C(1, 2, 3, 4, 5),$$

$$\varphi^{\text{Auth}}(C)(2, 3) = C(1, 2, 3), \varphi^{\text{Auth}}(C)(2, 4) = C(1, 2, 3, 4),$$

$$\varphi^{\text{Auth}}(C)(2, 5) = C(1, 2, 3, 4, 5), \varphi^{\text{Auth}}(C)(3, 4) = C(1, 3, 4),$$

$$\varphi^{\text{Auth}}(C)(3, 5) = C(1, 2, 3, 4, 5), \varphi^{\text{Auth}}(C)(4, 5) = C(1, 2, 3, 4, 5),$$

$$\varphi^{\text{Auth}}(C)(1, 2, 3) = C(1, 2, 3), \varphi^{\text{Auth}}(C)(1, 2, 4) = C(1, 2, 3, 4),$$

$$\varphi^{\text{Auth}}(C)(1, 2, 5) = C(1, 2, 3, 4, 5),$$

$$\varphi^{\text{Auth}}(C)(1, 3, 4) = C(1, 3, 4), \varphi^{\text{Auth}}(C)(1, 3, 5) = C(1, 2, 3, 4, 5),$$

$$\varphi^{\text{Auth}}(C)(2, 3, 4) = C(1, 2, 3, 4), \varphi^{\text{Auth}}(C)(2, 3, 5) = C(1, 2, 3, 4, 5),$$

$$\varphi^{\text{Auth}}(C)(3, 4, 5) = C(1, 2, 3, 4, 5), \varphi^{\text{Auth}}(C)(1, 4, 5) = C(1, 2, 3, 4, 5),$$

$$\varphi^{\text{Auth}}(C)(2, 4, 5) = C(1, 2, 3, 4, 5), \varphi^{\text{Auth}}(\varphi)(1, 2, 3, 4) = C(1, 2, 3, 4),$$

$$\varphi^{\text{Auth}}(\varphi)(1, 3, 4, 5) = C(1, 2, 3, 4, 5), \varphi^{\text{Auth}}(\varphi)(2, 3, 4, 5) = C(1, 2, 3, 4, 5),$$

$$\varphi^{\text{Auth}}(\varphi)(1, 2, 3, 5) = C(1, 2, 3, 4, 5), \varphi^{\text{Auth}}(\varphi)(1, 2, 4, 5) = C(1, 2, 3, 4, 5),$$

$$\varphi^{\text{Auth}}(\varphi)(1, 2, 3, 4, 5) = C(1, 2, 3, 4, 5).$$

The Shapley value of the Sovereign Game can be calculated as follows.

The Shapley value of the Authoring Game can be calculated as follows.

On top of the drying up, the lake is also subject to serious contamination. With rapid economic growth in surrounding areas, particularly with the rise of leather industry, increased power generation and paper mills, almost all wastewater in surrounding counties was untreated and was directly discharged into the rivers and eventually to the lake.

In 2003, the lake was highly polluted such that fishes in the lake were dying, attracting media's attention and causing criticisms from the mass. The government then released 150 million cubic meters of water from reservoirs 1 and 2, trying to dilute the pollutant. But on the contrary, more fishes died because the water current in river path 1-2-5 pushes the stagnate sewage (in County 1 denoted by node 2) into the lake, which further polluted the lake. If they did not discharge large amount of water from reservoir in node 1, the sewage in node 2 would infiltrate into the ground, resulting local groundwater pollution, but not the lake's.

However, if only use the water from reservoir in node 3, it will not be sufficient since it is relatively small in scale and it supplies living water for Baoding municipality (node 4 in the diagraph). Furthermore, part of river 1-2-5's watercourse belongs to Shijiazhuang municipal jurisdiction and the use of the water is thus out of node 4's control.

In light of these, Baoding government (node 4) proposed the linkage project which connects the two reservoirs nodes 1 and 2 so that water holdings in reservoir node 1 can be used to dilute pollution in the lake and meet the living water demand at the same time.

This proposed project costs about 24 million US dollars. However, the benefits are unclear except that less pollution would be brought into the lake from the river path 3-4-5. Also the current water demand in Baoding at node 4 can be met by reservoir at node 3, thus the extra water from node 1 is not needed at node 4. If the canal is not to be built, an alternative is to build a wastewater treatment plant at node 2 which will stop pollutants being driven to the lake if river 1-2-5 is used as effluent channel. However, the local County at node 2 does not want to bear the entire cost of building such a wastewater treatment plant.

Our recommendation to this lake pollution cost sharing problem is as follows. The Canal project should be built and its construction costs shall be treated as pollution cost and be allocated to all parties involved. The cost share assigned to lake 1 (node 1) should be taken by government. This solution combines pollution cost sharing with water sharing.

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# **Challenges & Opportunities in Green Sourcing Strategy: Oji Paper Company's Self-Supply Capacity Building through Overseas Afforestation Projects**

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## **Abstract**

Changing business environment continues to redefine strategic requirements for corporate survival and success. At the dawn of the five-year Kyoto Protocol era, many companies are fine-tuning their strategic posture for the new market regime and beyond. Some are even proactively seeking corporate social opportunities in their green business pursuit through innovative management thinking and practice beyond their corporate social responsibility. This study will explore challenges and opportunities associated with such a pursuit. More specifically, it presents a case study of strategic green sourcing pursuit of Japanese paper and pulp manufacturer, Oji Paper Co. and examines challenges and opportunities in the company's internal woodchip sourcing capacity-building effort through overseas afforestation under its Environmental Charter. Drawing on available information, the paper will evaluate alternative strategic options for the company's overseas plantation area expansion and devise an action plan.

## **Introduction**

Changing business environment continues to redefine strategic requirements for corporate survival and success. In addition to ever-intensifying global competition since early 1990s, multinational companies have been addressing challenges associated with growing public concern with global warming independently and/ more often collectively in their supply chain. After two decades since the establishment of Intergovernmental Panel on Climate Change, the United Nations in 1988, finally concerned countries will begin their collective journey to reverse the damage caused to our planet since industrial revolution under the so-called Kyoto Protocol which came in effect in February 2005. At the dawn of the five-year Kyoto Protocol era, many companies are fine-tuning their strategic posture for the new market regime and beyond to comply with a new set of regulations, market challenges, and corporate social responsibility. There are even some companies that have been proactively seeking corporate social opportunities in

their green business pursuit through innovative management thinking and practice beyond their corporate social responsibility. This study will explore challenges and opportunities associated with such a pursuit. More specifically, it presents a case study of strategic green sourcing pursuit of Japanese paper and pulp manufacturer, Oji Paper Co., and examines challenges and opportunities in the company's internal woodchip sourcing capacity-building effort through overseas afforestation. Drawing on available information, the paper will evaluate alternative strategic options for the company's overseas plantation area expansion and devise an action plan.

## Setting the Scene

### Albany, Western Australia

Albany is the centre of the Great Southern Region of Western Australia, Australia. It is the most southerly town in the state, about 409 km from the state's capital city (see Fig1: Albany, Western Australia). In the state, it is more commonly known for its historical heritage (i.e., the oldest British settlement site) and natural beauty (a typical Mediterranean climate and scenic coastal views). Historically the city had developed as the principal international port and later, the centre of whaling industry. Ironically these have long become something of the distant past. In 1900, the Port of Albany lost its iconic international status in the state and then, in 1978 the whaling industry was shut down under the growing public environmental concern. In recent decades, Albany gained popularity as a tourist destination for the historical and natural attractions. And more recently it has grown to the national capital of eco-conscious hardwood, or more specifically bluegum (*Eucalyptus globulus*), plantations and a likely Mecca of eco-tourists in the growingly environment-conscious world.

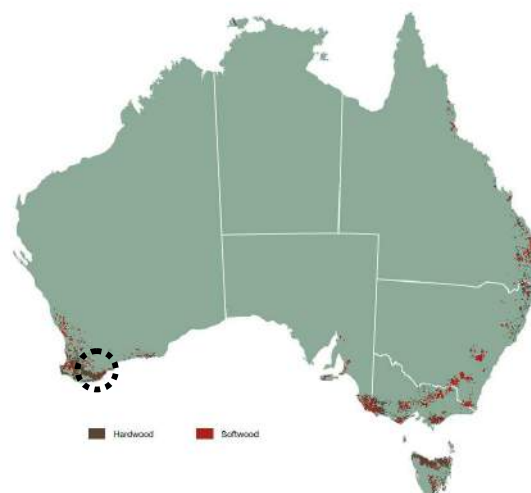


FIG1: ALBANY, WESTERN AUSTRALIA

Source: Bureau of Rural Sciences (2006) Figure 01: National Distribution of Plantations, p. 4

Between 1991 and 2001, the region experienced the rapid increase of the total plantation area from 6,150 to 127,500 hectares of which 93 per cent accounted for bluegum plantations; notably, 80 per cent of the bluegum plantations took place between 1996 and 2001 (Schirmer et al. 2005). According to Whittington (2002, p. 4), the region's bluegum plantations grew to cover 130,000 hectares and the scale is "by far the largest resource in Australia" with the expected annual export value of A\$120 million. A more recent government report estimates the bluegum plantations area to be 135,000 hectares with the estimated value of A\$500 million (Department of Local Government and Regional Development, 2006, p.10). Given the estimated peak of 150,000 hectares mark (Timber 2020, n.d.), there is room for some more expansion.

#### **Albany Woodchips Export Industry**

The extraordinary regional transformation was not something planned nor achieved by any single agent. It has been a product of collective engagements by and partnerships among different parties. However, the due recognition should be paid to the Department of Conservation and Land Management (CALM) of the Western Australian State Government that established the foundation for the region's later transformation. In 1988 it began bluegum plantations on cleared, run-down farm lands in Albany to combat the prevailing land degradation problem caused by salinity and water logging under sharefarming agreements with local landowners. (A sharefarming scheme enables landowners to receive a fair share of return from bluegum plantations on their lands under the concept of the farm forestry.) In 1993 Albany Plantation Forest Company of Australia Pty., Ltd (APFL) came to the scene with the objective of planting 26,000 hectares of bluegum trees in the region for the purpose of woodchip export with initial A\$100 million investment in the establishment phase (APFL 2005). Instrumental to this long-term project whose investment scope stretches over 30 years was the State Government's assurances for the company's commercial rights through the Albany Hardwood Plantation Agreement Act 1993 which also endorsed a partnership agreement with the local expert CALM South Coast Sharefarms. (For detailed discussions on their partnership, refer to Tamaki's (1999) "Green Business Alliances: the case of a Japanese/Australian joint forest plantation project".) The presence of APFL in the region as well as the Federal Government's nation-wide promotion of plantations (i.e., 'Plantations for Australia: the 2020 Vision') brought prominent Australian agribusiness investment firms (e.g., Great Southern Plantations Ltd., Timbercorp Securities Ltd., and Integrated Tree Cropping Ltd.) into bluegum plantations in the region. While creating intensified competition for bluegum plantation lands, these new comers accelerated a speed of the regional transformation as the country's centre of eco-conscious industrial plantations.

After a rather quiet initial plantation phase of some ten years, in late 2001 the region started preparing itself hastily for the emergence of a new industry when the region’s first bluegum harvesting began. Within the following six months, more than A\$ 50 million infrastructure development projects were completed including “the woodchip mill, rail connection, port and shiploading facilities” (Whittington 2002, p. 4). Fig2 depicts an overall picture of the emerged woodchips export industry value chain. Then in March 2002 the region’s first woodchips were shipped to the destination, Japan. According to Whittington (2002), this new industry is projected to produce an annual export trade of 1.5 million tonnes of woodchips worth A\$ 120 million. Of the export volume, it was reported that a sub-value chain consisting of APFL and Albany Plantation Export Company Pty., Ltd. alone would ship 700,000 tonnes of woodchip a year by the end of 2005 (Manning 2005). In July 2005, the region witnessed another development in the industry when Timbercorp Securities Ltd. and Integrated Tree Cropping Ltd., which employ the integrated woodchip production (i.e., harvesting and infield mobile chipping) system, began to ship their woodchips to Japan through their jointly operated pulpwood terminal, Albany Chip Terminal (Albany Port Authority 2005 & 2006).

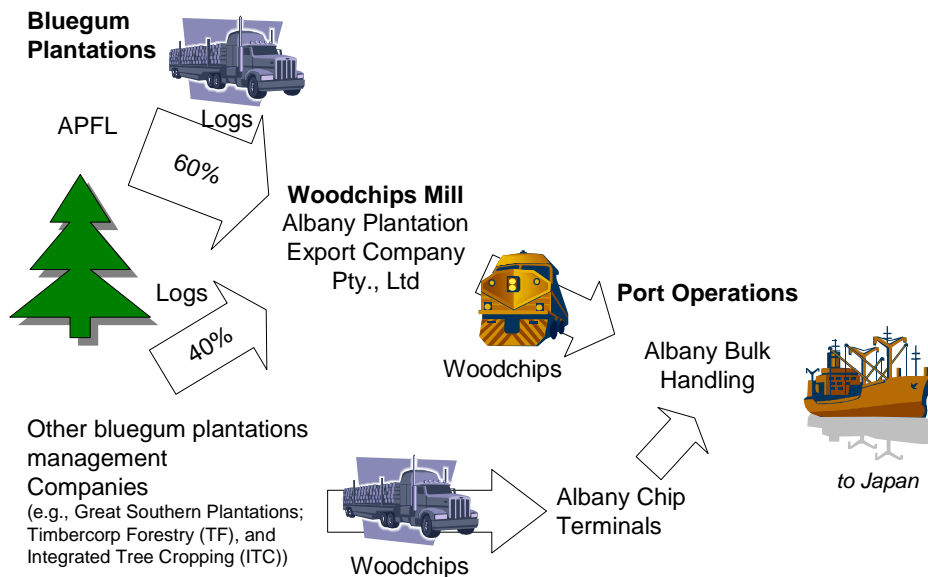


FIG 2: THE ALBANY WOODCHIPS EXPORT INDUSTRY VALUE CHAIN

Noteworthy in the value chain (Fig 2) is the involvement of Japanese business interests. In particular, three business entities deserve some detailed discussion. First the bluegum plantation company APFL is a joint venture



between leading Japanese companies. It was originally formed by Oji Paper Co., Ltd., Itochu Corp., and Senshukai Co., Ltd. The paper and pulp company held a majority share (51 per cent) of the joint venture while the trading company and the mail order company held a 30 and a 19 per cent share, respectively. This joint venture is a vertical strategic alliance formed between the paper manufacturer at the centre and its two adjacent down- and up-stream partners. The driving force of this partnership was the future strategic challenge shared: 1) ensuring a future woodchip supply through sustainable management of forests in the ever-growing demand for paper and 2) pursuing corporate excellence in greener business process, in this case, 'green sourcing' of woodchip through afforestation and forest recycling. APFL is renowned to be the first Japanese commercial plantation project in Western Australia and the second in the country to a joint venture project established in 1989 in New South Wales between Nippon Paper Industries Co., Ltd. and Itochu Corp. (Japan Overseas Plantation Centre for Pulpwood, n.d.). More recently APFL attracted two more prominent Japanese companies as a shareholder with the following share holding composition: Oji Paper Co. (48.45%), Itochu Corp. (28.37%), Senshukai Co. (13.18%), Tohoku Electric Power Co. (5%), and Nippon Yusen Kaisha Line (5%) which has been carrying the woodchips from Albany to the Oji Paper Group in Japan. Second APEC was formed in March 2000 as a joint venture between Oji Paper Co. and Itochu Corp. with the former holding 51 per cent of share of the company. As indicative from the ownership structure, the company was primarily established to process APFL's bluegum harvests for chipping and shipping to Oji Paper Co. in Japan. Lastly, Albany Bulk Handling is an international joint venture between Itochu Corp. and local company, Toll Logistics (Ports and Resources Division). Although the APFL-APEC value chain failed to meet the early plan to export 700,000 tonnes of woodchips in 2005, the export volume has been increasing progressively from 33,000 tonnes in 2001 to 642,000 tonnes in 2005, with the 2007 forecast of 840,000 tonnes (Ando 2006). Currently APFL supplies some 60 per cent of input to APEC's processing and the rest is sourced mostly from Great Southern Plantations (Ando 2006).

### **Oji Paper Co., Ltd. and the Oji Paper Group**

Oji Paper Co. is one of Japan's oldest and largest paper manufacturing companies. More recently it has transformed itself into a global and highly integrated paper and pulp manufacturer, leading the diverse corporate group consisting of 220 subsidiaries and 86 affiliates across national boundaries (Oji Paper Co., Ltd. 2006). For the 2006 fiscal year which ended March 2007, the company is reported to record a consolidated group pretax profit of 64.5 billion yen and sales of 1.27 trillion yen, leaving behind its archrival Nippon Paper Group which is said to report 46 billion yen and 1.18 trillion yen for the respective financial criteria (The Nikkei Weekly 2007a).

Since the early 1990s, the company has been challenged for its ability to better meet ever changing requirements for corporate survival in the resource- and increasingly capital-intensive business. For instance, it endured a pains-taking corporate re-engineering pursuit in the hostile environment which can be illustrated by a decade long post-bubble recession, the rising fuel and raw material costs, and ever-increasing global competition.

Earlier Tamaki (1999) described Japan's well-established place in the world as the world second largest paper and pulp producer, next to the United States of America. However, by 2001, China had grown to claim the second place (see Table 1).

TABLE 1: WORLD TOP TEN PRODUCERS OF PULP AND PAPER: 1998, 2001 & 2004

<u>1998</u>		<u>2001</u>		<u>2005</u>	
1. U.S.	85,855	1. U.S.	80,747	1. U.S.	82,628
<b>2. Japan</b>	29,888	2. China	33,400	2. China	56,000
3. China	27,800	<b>3. Japan</b>	30,731	<b>3. Japan</b>	30,951
4. Canada	18,723	4. Canada	19,686	4. Germany	21,679
5. Germany	16,310	5. Germany	17,879	5. Canada	19,449
6. Finland	12,703	6. Finland	12,503	6. Finland	12,391
7. Sweden	9,880	7. Sweden	10,534	7. Sweden	11,737
8. France	9,161	8. S. Korea	9,724	8. S. Korea	10,548
9. Italy	8,245	9. France	9,630	9. France	10,331
10. S. Korea	7,750	10. Italy	8,924	10. Italy	9,998
<b>Total</b>	<b>226,315</b>	<b>Total</b>	<b>233,758</b>	<b>Total</b>	<b>265,712</b>

(unit: 1,000 tonnes)

(Source: Pulp & Paper International Annual Review 1999, 2002 & 2006)

Statistics in Tab1 are indicative of two underlying market trends: the rapid development of China as a pulp and paper producer (i.e., a more than twofold increase over the 1998-2005 period) and a clear upward trend of pulp and paper production even by the total output of the world's nine producers excluding China (i.e., a 5.6 per cent increase over the same period).

The established logic of global-scale market competition has been accelerating market consolidation both inside and outside of Japan. Following its merger with Toyo Pulp in 1989, Oji Paper Co. has continued to pursue capacity-building for scale and integration for global competition through mergers and acquisitions. For instance, it merged with Kanzaki Paper in 1993 and with Honshu Paper in 1996 to build a further manufacturing capacity. More recently, the company shook the industry with its unprecedented hostile take-over bid against Hokuetsu Paper Mills. Though the bid was unsuccessful, blocked by its archrival, the take-over bid clearly signalled the company's great appetite for capacity-building and consolidation. This consolidation effort among pulp and paper manufacturers is not unique to the company nor the country. For instance, in 2001 Nippon Unipac Holding (holding

company of Nippon Paper Industry) and Daishowa Paper Manufacturing Co., Ltd formed to merge Nippon Paper Group, Inc. In Finland three paper and pulp companies merged to form UPM in 1995, and more recently in the U.S., Weyerhaeuser (US) took control of Willamette (US) in 2002. However, this industry-wide consolidation effort for the emerged global competition can be best illustrated by the emergence of mega company Stora Enso (Finland) through an international merger between Enso (Finland) and Stora (Sweden) in 1998. According to Pulp & Paper International Annual Review 2005 (2006), the company was ranked, by output (14.3 million tonnes), the world second largest pulp and paper manufacturer next to International Paper (USA). In the same year, Oji Paper was ranked sixth with just under 8.2 million tonnes of output whereas UPM-Kymmene (Finland) and Weyerhaeuser (US) were ranked third (10.2 million tonnes) and fifth (8.9 million tonnes), respectively.

As part of its proactive global strategy, Oji Paper Co. has been exploring market opportunities in Asia, especially in China. Since 1995, it has established six ventures in China: Shanghai Eastern Oji Packaging (1995), Qingdao Oji Packaging (1997), Oji Speciality Paper (Shanghai) (2002), Oji Paper Nepia (Suzhou) (2002), Suzho Oji Packaging (2002), and Oji Kinocloth (Shanghai) (2005), and, after three years of waiting, now the Nantong Project in Jiangsu Province, large-scale integrated pulp and paper mill, is under way (Oji Paper Co. Ltd., n.d.<sub>1</sub> & 2006b). Fig3 depicts the Oji Paper Group's overseas activities.

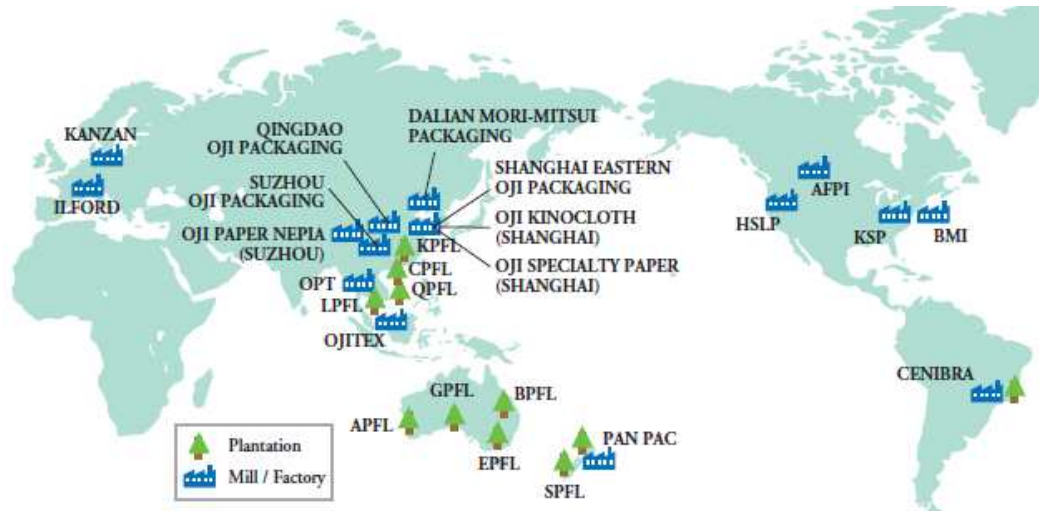


FIG3: THE OJI PAPER GROUP'S OVERSEAS ACTIVITIES

Source: Oji Paper Co., Ltd., 2006, Oji Paper in Prospective, 2006, p. 54: Overseas Activities

As seen in Fig2, Oji Paper Co. has 11 overseas plantation ventures. (Note that all the ventures are jointly funded most commonly with Japanese trading companies like the case of APFL and sometimes even involving local partners.) Of these, nine ventures are bluegum plantations. All these bluegum afforestation ventures began since the early 1990s, starting off with SPFL (1992) in New Zealand, moving into Australia (APFL in 1993, GPFL in 1997, BPFL in 1998 and EPFL in 1999) and Vietnam (QPFL in 1993), and more recently in Laos (LPFL in 1999) and China (CPFL in 2001 and KPFL in 2005) (Oji Paper Co., n.d.2). In the conventional sense, the series of aggressive overseas afforestation activities can be explained by the company's 'strategic need' to secure a stable supply of quality woodchips more from internal supply sources to better prepare the Group for a future paper market demand in global market (especially in rapidly growing Asian markets) and 'strategic intent' to pursue excellence in corporate social responsibility of protecting forests and the environment under the concept of forest recycling. Furthermore, in light of the Oji Group's vertical integration pursuit, it is logical to seek actively self-supply sources of woodchips in overseas countries that promise a superior growth rate of trees (i.e., a shorter harvest cycle). In particular, as for the 'strategic intent', the Group established 'Oji Paper Environmental Charter' and actions plan in 1997 to better address the growing public concerns with environment and climate change. The Charter's basic policy states:

*The Oji Paper Group Environmental Charter requires the Oji Paper Group to help create a truly enriched and sustainable society by developing business activities that harmonize with the environment from a global perspective. The Charter calls for the Oji Paper Group to make autonomous efforts to achieve further environmental improvement, and aggressively drive its forest recycling, paper recycling, and global warming countermeasures forward. (Oji Paper Co., 2006, p.52)*

Since its formation, the Charter has been guiding the Group's strategic posture. For instance, building on conventional Oji Paper Co.'s pursuit of recycling (i.e., paper and forest) and operational efficiency, the Group have actively sought ISO14001 accreditation. The Charter also led to the formation of the 'Oji Paper Group Partnership Procurement Policy' in 2005, and within the framework, the Group defines the 'Wood Raw Material Procurement Guidelines' which promotes, among others, sourcing of raw materials from forest plantations as opposed to natural forests, and those forest operators certified by the Forest Stewardship Council (FSC) for their sustainable forest management (Oji Paper Co., 2006). In Kolk and Pinkse's framework (2005) consisting of six green business strategic configuration types, these manifested Group policy and practice collectively define the Group's green business strategy as a combination of 'internal' and 'vertical explorer' strategic configurations. That is, a combination of "a strong internal focus, which involves a combination of targets and improvement" and "a strong focus on measures within the supply chain" (Kolk and Pinkse 2005, p. 14).

Of the numerical targets set for Year 2010 under the Charter's action plan (i.e., the Environmental Action Plan 21), noteworthy is the revised overseas afforestation area target and more specifically new strategic drivers behind it. In 2003, Oji Paper owned (to be precise 'jointly owned' as all overseas plantations are joint ventures) some 140,000 hectares of forest plantations overseas, 60,000 hectares short of the original FY 2010 target set in 1997; however, it revised the plan by more than doubling the target to 300,000 hectares (The Nikkei Weekly 2005). Given the fact that it took the aggregate of over 50 years of investments in eight afforestation projects across five countries to reach the 2003 plantation area total, the new target is an overly ambitious one. Given that, there seem new strategic agendas behind the new target.

Two of such new strategic agendas are apparent. First is the aforementioned 'Nantong Project' - a joint venture between Oji Paper Co. (90 per cent) and local paper manufacturer affiliated with the local municipal, which is the biggest project ever led by an overseas paper and pulp manufacturer in China (The Nikkei Weekly 2006a). The new plant will substantially increase the Group's appetite for raw materials, such as woodchips. Another seems to stem from the defining feature of forest lands in the environment - i.e., its ability to store carbon and sequester carbon dioxide (i.e., carbon sink). It is concerned with 'carbon credits' associated with afforestation/reforestation projects under the Kyoto Protocol Article 3.3; forest management under Article 3.4; and the Clean Development Mechanism (CMD). While the first two counter-measures for global warming are concerned with Annex I countries' domestic efforts to meet the set greenhouse gas emission targets, the third is innovative alternative to the Kyoto's 'cap-trade' mechanism which promotes joint efforts between Annex I countries and non-Annex I (i.e., developing) countries. Under the afforestation/ reforestation CMD project, an Annex I CMD project partners can receive Certified Emission Reduction credits for their greenhouse gas mitigation projects in the non-Annex I host country. As for the Group, in 2003, Oji Paper Co. undertook basic plantation research in Madagascar to explore a feasibility of a bluegum afforestation project as a carbon sink CDM (Global Environment Centre Foundation, GECF, 2003). In 2005, the Oji Paper Co. also conducted a similar feasibility study for its CDM project application concerning a future expansion of its Lao bluegum plantations led by Oji Lao Plantation Forest Co., Ltd. (Oji Paper Co. n.d.<sub>3</sub>). Building on these field feasibility studies, Oji Paper Co. has submitted a project proposal for a carbon sink CMD project through bluegum afforestation and reforestation in Madagascar to the U.N.'s CDM executive board (The Nikkei Weekly 2006b).

Table 2 summarises the Group's overseas plantations activities as of March 2006. Tab2 clearly shows the performance-aspiration gap between the 2006 plantation area total (152,344 ha) and the Y2010 target (300,000 ha). Notably, the discrepancy is still evident even with the target plantation area total (260,560 ha), and with additional some 10,000 hectares of the proposed Madagascar plantation project.

TABLE 2: THE OJI PAPER GROUP OVERSEAS PLANTATIONS ACTIVITIES

<u>Host Country</u>	<u>Company</u>	<u>Establishment</u>	<u>Target Plantation Area (ha)</u>	<u>Plantation Area (PA)</u>	<u>Oji Share (%)</u>	<u>Harvest Cycle (Year)</u>
<b><u>Chip Project</u></b>						
New Zealand	SPFL	1992	10,000	9,796	51%	12
Australia	<b>APFL</b>	<b>1993</b>	<b>26,000</b>	<b>23,746</b>	<b>48.45%</b>	<b>10</b>
	GPFL	1997	10,000	6,565	51%	10
	BPFL	1998	10,000	4,376	36%	10
	EPFL	1999	10,000	3,133	41%	10
Vietnam	QPFL	1995	9,100	9,123	51%	7
Laos	LPH	1999	50,000	1,876	73.3%	7
China	CPFL	2001	6,000	4,862*	90%	6
	KPFL	2005	60,000	11,334*	30%	5
(Madagascar)		?	(10,000)			10
<b><u>Pulp Project</u></b>						
New Zealand	PAN PAC	1991	26,010	28,350	18.6%	30
Brazil	CENBRA	1973	43,450	49,141*	32.3%	7
<b><u>Total</u></b>			260,560 (270,560)	152,344		
<b><u>Y2010 Target</u></b>			300,000			

Note: All plantation areas are those as of March 2006, except figures with asterisk which record plantation areas as of December 2005.

(Based on Oji Paper Co., n.d., Shokurin Saizensen)

Since the historical declaration of the Kyoto Protocol in December, 1997, many progresses have been made to support implementation efforts of the international joint climate change effort. In particular as for afforestation and reforestation, the 2001 Marrakesh Accords opened the avenue for afforestation/reforestation based CMD projects, or sink CMD project. And it was again emphasised that such a CMD project needs to facilitate a sustainable local development in a host country. Then in 2003, the Milan Conference refined the carbon accounting mechanism with introduction of Certified Emission Reduction credits (i.e., tCMD and lCMD) by taking into account the 'non-permanence' nature of carbon sink projects as opposed to permanent emission reduction through technology-based CMDs. Unfortunately, these unfolding of the Kyoto Protocol seem to have been a disappointment to international paper and pulp manufacturers. As explicated in the aforementioned two Oji Paper Co.'s feasibility study reports (GECF 2003 & 2005), sink CMD projects do not seem to be an attractive venture in the conventional commercial sense, even after taking into account financial benefits associated with the carbon credits. In other words, in a sink CMD project pursuit, an organisation needs to be willing to accept a break-even or even loss-making in a sink CMD project in exchange of carbon credits equivalent to the project financial loss and contribution to the host community's sustainable development.

Though highly debatable, corporate citizenship theorists urge multinational organisations to pay more attention to their ethical responsibility and volition, promoting their active involvement with such a project with a high positive social impact and low or even negative economic return. Along this line, Grayson and Hodges (2004) event challenge organisation's innovative capability to transform 'responsibility' into 'corporate social opportunity' whereby the organisation can pursue the seemingly two incompatible goals simultaneously. In the context of the Oji Paper Group and in line with its Environmental Charter, these arguments reinforce the importance of a multi-perspective decision-making framework for selection and evaluation of its overseas afforestation and forest recycling projects. At the Group, this concept is promoted and led by President and CEO Shinoda who asserts that the Group should pursue its business based on the assumption that "(p)rotecting the environment comes at a cost" (Oji Paper Group, 2006c, p.7). Such a strategic pursuit of corporate social responsibility seems to pay dividends in the heightening domestic market competition from overseas low-cost producers (especially from China), by appealing to environment conscious domestic customers.

When trees of 300,000 hectares of overseas plantations come to maturity for harvesting, Oji Paper Co. is said to increase the internal sourcing ratio of imported woodchips to 40 per cent (Oji Paper Co. 2007). With the ever-intensifying global competition in sourcing of raw materials due to depletion of natural forests in the traditional woodchip and pulp source countries as well as the growing public pressure on corporate social responsibility, it will not be a distant future when the company's pursuit of capacity-building through overseas afforestation and forest recycling becomes simply an operational necessity. In case of woodchip supply shortage, if not prepared, a paper manufacturer will simply have to forgo market opportunities. In particular given the long-term nature of bluegum plantation (i.e. a harvest cycle of 7 to 12 years), Oji Paper Co. needs to make strategic decisions on and investment in afforestation now for the Group's woodchip demand in ten years' time. However, at present the progress of the company's afforestation project seems stalled despite its strategic importance associated.

### **APFL as the Driver of Oji Paper Co.'s Internal Woodchip Sourcing Capacity-Building**

The Oji Paper Group is currently looking for a new plantation sites in China and Africa. Earlier Tamaki (1999, p.86) reported Oji Paper Co.'s key selection criteria for a new overseas plantation venture as follows:

- stable economic, political and legislative conditions;
- suitable local partner(s) with adequate technological expertise;
- the growing conditions of a selected tree(s), and productivity performance;
- land availability for the commercial size of the project;
- economic assessment of costs and infrastructure;

- any nationwide and local environment issues; and
- total feasibility of the long-term project.

These criteria remain intact (Oji Paper Group 2006). As readily imaginable for an investment with a timeline stretching over thirty years (consisting of three rounds of plantation and harvesting), a decision for a new bluegum plantation site selection involves an extended process of data and information gathering and negotiation. For instance, a testing of the growing conditions and tree growth alone can take a year. In light of the Y2010 target, this rules out the Oji Paper Group's plantation area expansion pursuit through new plantation sites alone. Such a pursuit needs to be combined with a further expansion effort at existing plantation ventures, especially by those left far behind their set targets, such as EPFL and LPH (see Tab2). More specifically, when an expansion strategy of overseas plantations is considered along the existing ventures and based on the criteria, APFL stands out as the prime candidate as the driver of the Group's overseas plantation expansion. Since its establishment in 1993, APFL has grown to be the Group's largest overseas woodchip afforestation venture, accounting for 15.6 per cent of the Group's overseas plantations area total and some 32 per cent of the bluegum plantation area total. The following sections analyse qualitatively and discuss its overall attractiveness deductively.

#### **LPH and KPFL**

All of Oji Paper Co.'s existing overseas woodchip plantations are located in Asia and Oceania, and all Asian plantations are interestingly in former or existing communist countries. In terms of size of the currently assigned plantation area target, LPH (Laos) and KPFL (China) easily exceed APFL. These Asian plantation ventures are of significant strategic importance given their respective shorter harvest cycles (i.e., 6 or 7 years vs. 10 years) and the proximity to the company's large scale paper and pulp factory in Nantong. Notably these are not a 'greenfield' bluegum afforestation projects led by Oji Paper Co.'s initiative.

As for LPH, Oji Paper Co. came to take control of a 85 per cent share of the company in February 2005 by acquiring the New Zealand company's stake in the original joint plantation venture with the Lao Government, which was formed in 1999 (GECF 2005b). On the contrary, KPFL was established through capital injection to the local plantation company. KPFL has the following three parent companies: Oji Paper Co., Marubeni Corp. (5%) and China's Guangdong Petro-trade Development Corp. Group (65%) with which the former sourced woodchips earlier (Oji Paper Co., n.d.4). Though the involvement of the local partners in these projects can be viewed advantageous in their unique business environment, it can also be a source of business risks. For instance, as evident in Tab2, LPH's plantation progress has been extraordinarily slow. (Note that LPFL in Fig3 has been renamed to Oji Lao Plantation Holdings Limited (LPH), following the new involvement of ten additional Japanese corporate shareholders who were allotted a marginal portion of Oji Paper Co.'s original 85% of the company stake (Sato Co., 2006)). However,



this reconfiguration of the company's ownership structure unfortunately was not followed by any additional capital injection to the project. Hence, it is unlikely to act as a change driver to the standstill LPH's afforestation project.

On the contrary, KPFL has been enjoying a speedy plantation establishment. However, this is not to guarantee KPFL's continuing development in the future. Given dynamic socio-cultural developments in the countries, the venture might attract public critique on and protest against its operations locally as well as internationally unless needs and wants of the local community are addressed proactively through community consultation. This point can be best illustrated by Oji Paper Co.'s experience with the former operations in Papua New Guinea and the failed bluegum afforestation attempt in Thailand. In particular with KPFL (and another plantation project in China, CPFL), inherent political tension between China and Japan should not be taken lightly. For instance, it was suspected that there were some political motives behind the extended lead time to the government approval of the aforementioned Nantong Project (i.e., three years) (The Nikkei Weekly 2006a). Furthermore, as observed in the past, when political conflict manifests itself between the two countries, it often ignites anti-Japanese sentiment in public and leads to orchestrated public protest. Especially when market competition between local Chinese paper and pulp manufacturers and their Japanese counterparts intensifies on the Chinese soil, it is likely that the business war would trigger such a public sentiment built on nationalism and this, in turn, may grow to jeopardise business interests of the Oji Paper Group and its partners in the country.

At a micro-level, these ventures are also inherited with problem with staffing. The aforementioned site selection criteria indicate that one of determinants of the successful overseas plantation operation is the availability of suitable local partners (e.g., subcontractors) with adequate skills and competence in performing field work (i.e., plantation, maintenance and risk management (e.g., fire)). As reported in Oji Paper Co.'s feasibility study in Laos, absence of skilled field workers poses a significant challenge to a progress and profitability of the venture (GECF 2005). This problem is also shared with afforestation projects in China where modern Western plantation management thinking and practice has a rather short history. By all means, these countries are important woodchip source countries to the Oji Paper Group, and need substantial support and coaching for the successful development of a sustainable forest plantation industry. Given the resource requirement and political risks, it is more logical than individual market opportunity pursuit, for the Group to initiate an international alliance with leading Western paper and pulp manufacturers in the countries to initiate the foundation of human resource development program with education and training program for the local on horticulture and sustainable forest management, and establish a bargaining power and lobbying capacity to safeguard its long-term business interest in the countries.

#### **Australia and APFL**

As opposed to the two countries, Australia and New Zealand provide more stable and established environment to afforestation businesses (e.g., a supportive legal framework and the presence of competent forest operators or local

subcontractors instrumental to Oji Paper Co.'s overseas plantation strategy) with fewer wildcards. Especially this is the case of Australia as the Federal Government in partnership with its state counterparts has been promoting forest plantations under 'Plantations for Australia: the 2020 Vision' with the goal to treble by 2020 the size of country's plantation estate through private-public partnership. The government initiative, which was launched in 1997 and relaunched in 2004, is said to have driven forestry plantations as one of fast growing sectors in agribusiness (Great Southern Plantations Ltd., 2005). Beside, over recent years Australia has emerged as the largest woodchip source country for Japan, accounting for over 30 per cent of the country's woodchip import market (Adviser Edge 2007).

One wildcard associated with Australia is its stance to a post- Kyoto Convention. For the first round of the Kyoto Protocol (i.e., 2008-2012), the Government, together with its US counterpart, decided not to partake the international effort to combat climate change. However, a likely future development of the country's stance to the issue is that it will eventually join the international joint effort under mounting public pressure for the country's social responsibility inside and outside of the country. Yet, the critical question of its timing is still unknown. With the anticipation of the future, however, New South Wales State Government has been proactively embracing the spirit of the Convention and preparing the state for more or less in line with the Kyoto Protocol and its successive COPs rulings on operational details. However, there is a noteworthy difference between the State and the Kyoto Convention in their approach in addressing the 'non-permanence of carbon storage' issue. Taking a more literal interpretation of the concept, NSW Government has developed a carbon accounting mechanism based on a so-called 100-year rule – a notion that "removing the GHG from the atmosphere for 100 years approximates the effect of not emitting the GHG in the first place" (New South Wales Department of Primary Industries, n.d.). Under this mechanism, NSW Greenhouse Abatement Certificates can be awarded only the amount of carbon stocks that will be removed from the atmosphere over 100 years. This is more likely to treat foreign afforestation projects owners unfairly unless some flexibility is introduced to the system. Nonetheless, at present nothing is certain - whether the NSW model to be adopted as a national model without due consideration into alternative international mechanisms when the country decides to rectify a post-Kyoto convention in the future.

Among the Group's four Australia's bluegum afforestation projects, APFL has been the model case of the Oji Paper Group's overseas plantation ventures. For its CSR excellence and corporate citizenship behaviour in the local community, APFL has been a frequent recipient of local, national and international awards, such as Landcare Australia Award in 1995, The Asia Pacific Marketing Federation's 1997 Environmental Marketing Award, Agricultural Innovation Award in 2000, and Western Australia Business Community Award in 2002. Along the line with the Oji Paper Group's Partnership Procurement Policy, APFL has also obtained Forest Stewardship Council Certification for its dedication to sustainable forest management. These awards and accreditation, in turn, have helped APFL earn respect and credibility in the local community and the industry. Furthermore, APFL is the only

bluegum plantation venture which resides with the Group's local research centre, Albany Forest Research Centre. At the centre, two Japanese expatriate researchers have been working busily for continuous improvement of bluegum seedlings for high yielding plantation operations.

The only criterion on which APFL does not score well with certainty is 'land availability for the commercial size of the project'. There seem to be three strategic options which are not mutually exclusive to each other. First APFL continues its pursuit of expansion opportunity through acquisition of new plantation lands on its own. However, it should be born that such an attempt will repeat its earlier experience – i.e., market competition for plantation land. Second is through a partnership with its competitors, agribusiness investment companies. Under the partnership, APFL may initiate a new investment scheme to be managed by its partner by nominating itself as an investment partner to each individual and institutional investor, sharing costs, risks and gains. This arrangement would attract a different group of investors who do not fit the typical client profile of existing bluegum plantation investors. At the same time, APFL should also explore the acquisition option of existing plantation lands or land lease entitlements from the competitors. And finally a more decisive action is acquisition of one of competitors with the financial backed-up of the world sixth largest paper and pulp manufacturers. By no means, such merger and acquisition are not new to the industry. For instance, it is still in a recent memory when Futuris Corp. acquired Integrated Tree Cropping Ltd.

There are three major competitors in the Albany region, Great Southern Plantations Ltd., (GSP), Timbercorp Securities Ltd., and Integrated Tree Cropping Ltd. As seen in Fig2, GSP's harvested bluegum trees go through a more or less same value chain with APFL via APEC while the latter two have created another path by jointly forming and managing Albany Chip Terminal. The GSP's on-going working relationship with APFL's sister company APEC and its relative independence from the other two competitors make GSP as a primary target partner for the desired afforestation area expansion. However, this is not to rule out other two alternatives. Given the national scope of the three competitors, it should be born in mind that a business deal struck here in Albany might well roll out as a nation-wide arrangement and extend to nation-wide plantation networks between the companies. And such a national network also enables Oji Paper Co. to spread risks associated with future climate change in the country. If Oji Paper Co. is dedicated to its capacity building of internal woodchip supply as much as its recent attempt for the hostile take-over bid, it need to explore these above options earnestly and promptly.

## **Conclusion**

Changing business environment continues to redefine strategic requirements for corporate survival and success. At the dawn of the five-year Kyoto Protocol era, companies are fine-tuning their strategic posture for the new market

regime and beyond. Some are even proactively seeking corporate social opportunities in their green business pursuit through innovative management thinking and practice beyond their corporate social responsibility. This study has discussed challenges and opportunities associated with such a pursuit. More specifically, it presented a case study of strategic green sourcing pursuit of Japanese paper and pulp manufacturer, Oji Paper Co. and examined challenges and opportunities associated with its internal woodchip sourcing capacity-building through overseas afforestation under its Environmental Charter. Drawing on available information, the paper explored an action plan in light of the company's overseas plantation area expansion strategy, and proposed Australia, and more specifically its bluegum plantation venture in Albany (APFL) as the driver for its capacity-building of its internal woodchip sourcing.

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# The Impact of Gender in Business Performance

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## Abstract

Regarding gender and performance there is an extensive bibliography which explicitly accepts both that gender diversity has impact on team performance and it has not. The empirical evidence shows at the same time differences and similarities between male and female performance in companies. However there has been little research regarding the effects of gender has on the perception which teams have of their own performance. This research is based on the need to analyse the relationship between gender and Perception of performance in work teams. This is a comparative study in multinational companies in Spain and Peru. Research aims to describe similarities and differences in two different cultural, political and economically diverse areas which at the same time are united by a history in common. Main results show that gender does not have a predictor value on performance when performance is measurement with teamwork variables; and at the same time the perception of the gender diversity degree, moderates the relationship between gender and performance.

## Introduction

The notable increase in levels of diversity in organisations is a reality which reveals the increase in diversity in societies. Interest in diversity in organisations has also been seen in the significant quantity of empirical research on its effects on work teams. The research findings are varied, but they can clearly recognise two ways of thinking. In accordance with the existing theory, the influence of diversity can be both positive and negative. Diversity may increase the quality of decisions, encouraging creativity and a desire to change (Cox, Lobel & McCleod, 1991; Watson, Kumar & Michelsen, 1993). At the same time in diverse groups, there may also be less social integration, commitment to the team and a feeling of belonging to it. Equally, diversity may have negative effects on one's job satisfaction and satisfaction with the group itself. (Triandis, Kurowski & Gelfand 1994; Riordan & Shore, 1997)

Some researchers agree with the fact that the benefits of diversity are only seen in certain conditions (Milliken, Bartel & Kurtzberg, 2003). Therefore, studies have shown for example, that diversity has a positive impact on creativity in collective cultures (Chatman, Polzer, Barsade and Neale, 1998). It would seem that research

results do not show agreement in the positive effects of diversity on performance, but that they do coincide in that if there is one negative effect, it is on the psychological relationship between individuals and groups. (Triandis, et al. 1994; Williams and O'Reilly, 1998).

One important limitation in research on diversity is that in many cases, work is done on data compiled in US companies and that the studies tend to include only the largest companies. This linked to the fact that the quantity of research in the area of Latin America is less than that carried out in Europe, poses an interesting opportunity for researchers, which is to carry out comparative studies on two different areas whose differences can also be seen in the levels of diversity within their organisations.

Diversity alludes to the differences between individuals in any attribute, which may lead the perception that the other person is different from oneself. (Jackson, 1992). This considered, diversity is understood to refer to almost any individual characteristic. However, in research, special emphasis has been made on gender, age, race/ethnicity, mother tongue, religion, education and seniority in a company. In this paper we will only be analysing the impact of gender in performance, basically because it is one of the variables which can be compared between two organisational realities in which the research is made: Peruvian and Spanish.

The empirical comparison between gender and performance in business has produced mixed results. Fasci and Valdez (1998), Reynolds (1993); Loscocco (1991) have found that women have less financial performance than male in business. However, another group of studies has found few financial performance differences in comparisons of women and men in business (Watson 2002; Shim and Eastlick 1998).

In a close related by different area, like small business area, a lot of academic studies have focused on the role of gender regarding financial performance. Kalleberg and Leicht (1991) compared business performance on the basis of the owner's gender in companies in Indiana. They found no differences in growth of business earnings based on the gender of the owner. In a research which considers the influence of gender directly on performance by including it as one of the explanatory variables in the performance models, Collins-Dodd, Gordon and Smart (2004) have found gender had not statistically significant effect on performance measurement in financial terms too. On the other hand, there is opposite evidence in several studies regarding performance in small business. Loscocco et al. (1991) found that female-owned businesses generated both less sales volume and earned less income compared to male-owned business. Lustgarten (1995) found that self employed women-owned business had lower earnings in comparison to self employed men.

Some authors agree with women maybe less effective than men in competitive environments, even if they are able to perform similarity in non competitive environments. Gneezy, Niederle and Rustichini (2003) found in an experiment that the harder the competitiveness of the environment, the greater the increase in performance for men, but not for women. These researchers propose that discrimination in the work place, eventually responds to the fact

that women may be less effective than men in competitive environment. With this proposal, Gneezy, Niederle and Rustichini suggest an additional explanation regarding female discrimination in work place.

## **Gender Overview. Europe and Latin America**

In 2003 the GDP per capita in Europe (15 member countries) was nearly 65% of the GDP per capita of the United States (Gnere, Gómez & Lamo, 2005). There are various explanations for this, one of which is the ratio of women in the job market. 66% of the unemployed between 15 and 64 years old in Europe are now women and although the increase of women in the workplace between the mid 1970s and 2000 has varied from between 47% and 60%, there is still a gap of 12% with regard to that of women at work in the United States (Genre *et al*, 2005). According to the report on World Employment Trends (OIT, 2004), the unemployment rate for women in industrialised economies (which includes Europe with its 15 member countries) in 2001 was 6.4% and in 2003 it was 7.0%. According to this source, the unemployment rate for women in Latin America has always been greater than that of men. In spite of the fact that by comparison with 2001, the unemployment rate for women has improved by 1.2%, “... *in 2003 it was 10.1% compared to 6.7% only in the case of men*”.

There are also differences between women’s participation in the workplace with regard to age range. In a study on diversity between men and women at the workplace in Europe, Gnere, Gómez & Lamo (2005) found that the ratios of working women between 25 and 54 years old in Spain, Ireland and Italy was under 60%, while in Finland, Sweden and Denmark it was over 80%. In the same study it can be seen that within the European countries, women between 25 and 54 are more active, except for Holland where women between 15 and 24 years old have similar ratios for work to those between 25 and 54. (Gnere *et al*, 2005).

When diversity between men and women at the workplace is analysed, apart from the existing difference between the number of employed men and women, two related phenomena need to be reviewed: the quantity of women in management positions and the salary differences between men and women. Worldwide, only Sweden and Norway have introduced regulations concerning the composition of the board of directors in private companies, in an attempt for equal opportunities. In general, the proportion of women in management positions is still low in the majority of European Union countries (Smith, N.; Smith, V; Verner, 2005). In Latin America, probably the clearest measure geared at establishing parity in this area and access to power for women, has been that of the Quota System which in the last 20 years has been implemented in the political parties in a similar way in the region, although it is clear that this measure is not related to access of women to management positions in the workplace. On the other hand, the gender wage gaps continue to be a characteristic of the labour markets, in spite of having been reduced over the last 20 years (Altonji & Blank 1999). Although some are explained by the differences in human capital,



most of the salary differences between men and women can be attributed to the gender segregation in different types of work. (Amunedo-Dorantes, de la Rica, 2005).

### **Perú. Relevant information**

According to the National Institute of Statistics and Information Systems in Perú, in 2001 the population of a working age in Perú was 67.9% of the total population. Due to the similar proportion in the amount of men and women in Perú (50.3% and 49.7%, respectively in 2005), there is also a similarity in the quantity of men and women of working age (67% of the total male population and 68.8% of the total female population, respectively). However, the composition of the economically active population with occupation is not the same in the country. 57% are men and 43% are women. In Lima, in the July-September quarter of 2006, 66% of the economically inactive population were women and 33% were men. This information shows that there are fewer women than men in the workforce in Perú. The differences can also be seen in the level of Visible Underemployment (number of people of the economically active population who work less than 35 hours a week involuntarily). In Lima, for example, in 2005 there were 380,000 underemployed women and 295,000 underemployed men.

### **Spain. Relevant information**

The notable ageing of the Spanish population, the entry of the woman in the workplace, migratory movements and the increased amount of multifunctional teams, are the main factors which explain the increased diversity within Spanish organisations. Of these factors, increased immigration and the massive entry of women in the job market are the two most relevant social phenomena which have led to the current diversity levels in Spanish organisations. (Cachón, 1999; INE, 2004; Martín and Pérez de Nanclares, 2002).

The massive entry of women in the workplace has meant an important change in the distribution of the working population. Although the rate of professionally active women is lower than that of men, (approximately 45%, compared to 68%), the number of women who have entered the workplace in recent years is higher than that of men. In 2004 alone, almost 285,000 women gained employment compared to 99,500 men (INE 2004). In spite of the fact that the male-female employment gap has decreased in recent years, partly because of the greater education level among women and the reduction in fertility ratios (Arellano & Bover, 1994), Spain has one of Europe's lowest indices with regard to women in the workplace.

### **Methodology**

There are several studies related with gender and performance measurement in financial terms. However there are no studies analyzing the relationship between gender and performance measurement by teamwork variables, specifically by the perception of these teamwork variables.

This research analyses the relationship between the *perception of performance* and *gender* in three Peruvian companies and one Spanish company. It is a field study which presents vertical data on four organisations. It has an exploratory character due to the lack of research in this area up to now in comparing Spanish and Peruvian companies.

The chosen organisations share the following characteristics: a minimum workforce of 100 people, the total proportion of the workforce between men / women or women / men is a minimum of 30% for the minority group, it has work teams already set up and each team has leaders or managers.

The company in Barcelona (which we will call B-1) is a subsidiary of a multinational in the finance sector. It is a services centre which operates in Barcelona and from there it provides services to 15 countries in Europe. The language spoken by all employees is English but each employee needs to speak at least one other of the ten languages which the company considers to be *working languages*.

In Perú, the participation of more than one company was sought in order to increase the level of gender diversity in the total of the sample for Perú. Three companies took part (which we will call P-1, P-2 and P-3). P-1 is a services company in the Customs sector, it is not a multinational and it responded to 44% of the surveys in Perú. P-2 is a state company set up for defence of the free market (free competition), it belongs to the economic regulation sector and it responded to 17% of the total of those surveyed. Finally P-3 is a subsidiary of a multinational in the financial sector and it replied to 38% of the survey.

To obtain information, one instrument is used: *Perception of Performance in work teams*. It is a Likert type scale with 5 alternative replies ranging from 1 (the least points possible) to 5 (maximum points possible). Before the application in each organisation, the instruments were revised and approved by the Human Resources managers. Then the surveys aimed to adapt them to the characteristics of the company and particularly to the way in which performance of work teams is evaluated. In this scale the team members' perception of team performance was evaluated. 14 items were chosen on general areas of team functioning, following the review of various theoretical studies of working in a team. The items evaluate: Time management, Decision making, Continuous improvement objectives, Efficiency, Conflict management, Task sharing, Quality of results, Learning, Common commitment to targets, Capacity to give and receive feedback, Effectiveness, Planning processes and Team Climate. In the reliability process of the scale, no item was eliminated for the total sample or for countries. For the entire sample, the statistics of the scale were: Alpha = .852; Scale Mean = 47.844; Standard Deviation = 8.974, for the

sample of Perú: Alpha = .897; Scale Mean = 48.528; Standard Deviation = 10.071 and for Spain: Alpha = .805; Scale Mean = 47.339; Standard Deviation = 8.078.

The factorial structure of this instrument has three components in both countries. In Perú the components explain 64.269% of variance and in Spain 52.204%.

**TABLE 1: ROTATED COMPONENT MATRIX - SPAIN**

ÍTEM	COMPONENT 1	COMPONENT 2	COMPONENT 3
Task sharing	.711		
Contin. Improvement objectives	.703		
Conflict management	.700		
Feedback	.658		
Quality of Results	.624		
Learning	.541		
Team climate	.482		
Efficiency	.461		
Effectiveness		.810	
Decision making		.666	
Planning processes			.690
Time management 1			.670
Time management 2			.597
Common Commitment to targets			.482

TABLE 2: ROTATED COMPONENT MATRIX – PERÚ

ITEM	COMPONENT 1	COMPONENT 2	COMPONENT 3
Team climate	.879		
Conflict management	.789		
Learning	.724		
Contin. improvement objectives	.629		
Feedback	.625		
Quality of results	.557		
Decision making	.543		
Common Commitment to targets	.536		
Time management 2 (**)		.768	
Efficiency		.729	
Planning processes		.707	
Task sharing		.587	
Time management 1 (*)			.854
Effectiveness			.514

In both cases:

Extraction Method: Principal Components.

Rotation Method: Varimax with Kaiser normalization.

(\*) Time Management 1. In work meetings a lot of time is invested in activities which do not add value to the task which needs to be developed.

(\*\*) Time Management 2. Work meetings begin and end at the agreed times.

The instrument also incorporated three items concerning the perception of: *the degree of gender diversity within the team, the influence of gender diversity on achieving objectives, the influence of gender diversity on the team climate*. These three items were not considered in the final marking of the scale or for the analysis of reliability, but they were considered for the analysis of regression and effect of moderation.

A total of 205 people responded to the two instruments. 87 were in Perú and 118 in Spain. Information was compiled in relation to age (Spain, mean = 30.5, deviation = 6.034. Perú, mean = 34.7, deviation = 9.360), gender (Spain, women 58.5%, men 41.5%. Perú, women 27.6%; men 72.4%), time working in the company (Spain, 38.1% = up to 4 years; 21.2% = up to 3 years. Perú, 54.8% = over 4 years; 20.7% = up to one year) and the area to which they belonged in the company structure.

The scale was replied to by team members and middle managers, not by senior management members and the level of analysis carried out in the research was individual.

## Results

All the analyses are carried out separately for the Peruvian and Spanish samples. Tables 3 and 4 show the correlations between the variables.

**TABLE 3 – CORRELATION MATRIX AMONG VARIABLES - SPAIN**

	1	2	3	4
<b>Control Variables</b>				
<b>1. Sex</b> N				
<b>2. Age</b> N	,022 117			
<b>3. Tenure</b> N	,059 114	,250** 114		
<b>Scale</b>				
<b>4. Perception of Performance</b> N	,059 118	,107 117	,058 114	

Note: \*\*p < .01

**TABLE 4 – CORRELATION MATRIX AMONG VARIABLES - PERÚ**

	1	2	3	4
<b>Control Variables</b>				
<b>1. Sex</b> N				
<b>2. Age</b> N	.125 84			
<b>3. Tenure</b> N	.073 84	.689 ** 83		
<b>Scale</b>				
<b>4. Perception of Performance</b> N	.089 87	.035 84	.056 84	

Note: \*\*p < .01

To analyse the relationship between Perception of Performance with the chosen variables, regressions were made. The results in the companies in both countries are noticeably different. Gender as a predictor of the perception of performance works differently for the companies studied in each country. (Perú: Sex: beta = .089; ns.; Spain: Sex: beta = .059; ns.). For both cases, the model explains a reduced percentage of the variance of the perception of performance, however, in the case of Peru, the percentage is less. (Peru:  $R^2 = .008$ ) (Spain:  $R^2 = .003$ ).

The same occurs with the control variables chosen as probable predicting variables of the perception of performance. There are differences in the strength of association between the variables on each side but for neither of the countries are the associations significant. (Perú: Age: beta = .035; ns. Tenure: beta = .056; ns.) (Spain: Age: beta = .107; ns. Tenure: .058; ns).

An attempt was also made to analyse a possible moderating effect of the perception of degree of gender diversity on Gender to predict the Perception of Performance. We find that for both countries there is a moderating effect of perception of degree of diversity on the teams. (Peru: beta = .226;  $p < 0.1$ ;  $R^2 = .051$ ), (Spain: beta = .153;  $p < .1$ ;  $R^2 = .092$ ). As we will analyse later, this result is along the same lines as previous findings on the effect of beliefs on diversity in the replies of diverse groups.

TABLE 5 – RESULTS OF REGRESSION ANALYSIS - PERÚ

*Dependent Variable: Perception of Performance*

	R2	Beta	Sig.
Gender	.008	.089	.675
Age	.001	.035	.100
Tenure	.003	.056	.261
Moderating effect: Perception of Gender Diversity Degree on Gender - Perception of Performance	.051	.226	.030

Note:  $N = 87$ ;  $+p < .1$ ;  $*p < .05$ ;  $**p < .01$ ;  $***p < .001$

TABLE 6 – RESULTS OF REGRESSION ANALYSIS - SPAIN

	R2	Beta	Sig.
Gender	.003	.059	.406
Age	.012	.107	1.339
Tenure	.003	.058	.380
Moderating effect: Perception of Gender Diversity Degree on Gender - Perception of Performance	.024	.153	.097

Note:  $N = 117$ ;  $+p < .1$ ;  $*p < .05$ ;  $**p < .01$ ;  $***p < .001$

In the Peruvian companies, the final average of the scale is 3.466 (sd = .719). In the Spanish company the final average is 3.377 (sd = .581) and there are no statistically significant differences ( $t = 0.938$ ; ns).

When analysing separately according to sex, the final averages of the scale perception of performance do not show any significant differences in the case of Peru. For women in the Peruvian companies the final result of the scale of performance is higher than that of men: women mean = 3.569; sd = .840 and men mean = 3.427; sd = .671 respectively. In the Spanish company, the women also have higher final averages than those of men on the scale: mean women = 3.409; sd = .588 and mean men = 3.341; sd = .563. In neither of the cases do the comparisons show statistically significant differences.

The perception of gender diversity degree in work-teams is different in both countries. However the four companies perceive itself as *gender diverse companies*. In Perú 43,7% of the sample thinks gender diversity degree in their team is *medium*, and 31,0% that it is *high*. In the Spanish company 30,5% perceive the degree of gender diversity is *medium* and 42,4% is *high*.

In the Peruvian companies, the perception of influence of gender diversity on the achievement of operational objectives in the team is greater than the perception of its influence on the team climate (mean = 3.436; sd = .623 and mean = 3.367; sd = .700; respectively), although there are no statistically significant differences. The opposite happens in company B-1, where the workers perceive that gender diversity has a greater influence on the climate than on the achievement of objectives (mean = 3.805; sd = .630 and mean = 3.364; sd = .687; respectively). In this case the results show significant differences ( $t = 5.976$ ;  $p < .001$ ). In a notably diverse environment, (B-1 company), gender diversity has a greater influence on the climate than on the achievement of team objectives, at least that is the way its influence is perceived. The reason for this finding would need to be researched more thoroughly. On the other hand, in a less diverse environment (P-1, P-2 and P-3) the influence of gender diversity is perceived as greater for the achievement of objectives than for maintaining a good team climate, an aspect which also needs to be explored in greater depth. Perhaps the reason for the differences can be found in that, in this case, diversity is reflected mainly on the variable of sex, and it probably has a relationship with cultural issues and with the role women had in Peruvian market labour.

## Discussion

The relationship of performance with gender as proposed potential predictor, takes on a different pattern in the companies studied. The fact that the perception of gender diversity and the perception of the impact that gender has on the working environment and achieving objectives for each country shows not only a different *real* degree of gender diversity in each business environment, but also varying approximations, evaluations and sensitivity towards

gender as they exist in each company. This could also lead us to believe that just how gender diverse the company really is, is less important than how much awareness, sensitivity and gender perceptions there are in it.

A significant find in this study is just how the perception of the degree of gender diversity acts as a moderator in the group responses. This conclusion is related to the conclusions of van Knippenberg, Haslam and Platow (2004) concerning the role of beliefs and perceptions about diversity. The authors propose that people find value in diversity and as a consequence of this, they respond favourably to the diverse group precisely because it is seen as a diverse group (van Knippenberg, Haslam & Platow, 2004). In this study, the degree of gender diversity perceived moderates the replies concerning team performance. Even when the intensity of the relationship between perception of performance and value of moderation referred to is not high; it is still higher than the existing relationship between performance and gender. This is one of the most important similarities to be seen in companies from both countries. It is important to underline this because it stands completely apart from the real degree of gender diversity within the teams. It is perception which indeed affects the responses of people in the companies studied in Perú and Spain.

Another significant similarity is that neither gender, age nor tenure has a greater relationship with the perception of team performance. Unlike perception of gender diversity, these are three variables *of fact* which have nothing to do with personal criteria or valuations. The fact that in none of the cases is there an association between them and performance, prompts an analysis of its real degree of importance in implementing programmes of sensitivity, awareness to diversity or diversity management. Considering that the main idea behind this concept of diversity is to get the most out of the human resources provided by heterogeneous groups, which means that they are diverse in terms of sex, age, race, ethnic background, nationality etc. (Barberá, 2003), the interpretation of what diversity (in this case gender diversity) can bring to a team is made relative in terms of what the team or the company wish to achieve.

This is an exploratory study, its main aim being to propose a line of investigation for diversity so as to: widen the existing theory which has been restricted mainly to US and European companies and samples; and to propose the reality of Latin American *business gender diversity* as an object of study in organisational behaviour. Along these lines, in this research, we have tried out instruments which have been used in Spanish companies to analyse how they work and how valid they are in some Peruvian companies. Given the objectives of the study, analysing the final results has been important as we have seen that regardless of the different contexts, there are common basic trends which we can keep researching and generating applications for, which are also useful in companies in Latin América.

The results of course are not conclusive, as the study has limitations (lack of control of variables like task difficult degree, competitive level in the working environments, population centre differences or education level)



this could be repeated in organisations of similar or dissimilar characteristics with the aim of carrying out an in-depth search of efficiency predictors in diverse organisations. Other research scenarios may be considered, being related directly to the data about gender with indicators of satisfaction, efficiency, measurements of achievement of objectives or figures of evaluation of performance and we can see just what an impact a specific gender diversity management policy would have on them. This type of research could also be useful more specifically from an operational and applicative point of view in human resources management.

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# Education and Productivity: A Fixed Effect Three Stage Least Squares Approach

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## Abstract

Using single equation estimations, Hojo (2003), finds that education increases productivity. Using simultaneous equation estimations for small open economies, Kumar (2003) shows that education fosters productivity growth, but this growth in turn has a negative effect on education. Both authors employ cross-sectional data. In this paper, we use panel data and fixed effect three stage least squares estimations for 65 countries worldwide. In contrast to Kumar, our results show that productivity has a positive effect on education. Concerning the effect of education on productivity, we find evidence supporting Hojo's and Kumar's results. However, education only has at best a weak effect on productivity in developed countries.

## Introduction

Economic development theory emphasizes the importance of education in fostering economic growth and labor productivity. Nonetheless, macroeconomic data analysis on education and growth is scarce and the results are conflicting. Estimating models that include life expectancy and base-period output per capita, Knowles and Owen (1995) find that the correlation between education and growth is insignificant statically. Using panel data, Caselli et al. (1996) find a negative and significant correlation between these two variables. These results contrast with the new theory of endogenous growth that includes human capital in the production function and empirical results using microeconomic data for a single country.<sup>1</sup>

Inspired by these, Hojo (2003) performs an empirical study using the country-specific residual from the regression by Caselli et al. (1996) as a proxy for productivity. Analyzing a cross-sectional data set for 97 countries and single equation estimations, he finds that education has a positive and significant impact on productivity. Since higher productivity is related to a higher output growth as shown in Islam (1995), Hojo's results imply that education

can indirectly affect economic growth through productivity. However, single equation estimations might be subjected to simultaneity bias if there is a two-way causality between education and productivity.

Kumar (2003) develops a model that addresses this two-way causality for small open economies. Using simultaneous equation estimations on cross sectional data, he finds that education fosters productivity growth, but this growth in turn has a negative effect on education. Since Hojo and Kumar both employ cross-sectional data, the remaining question is whether or not their results are robust using a combination of panel data and simultaneous equation estimation.<sup>2</sup>

In this paper we use two panel data sets for 65 countries worldwide over the time period 1984-2002 with education as a proxy for human capital. The data sets include many types of economies: large, small, developing, and developed countries. One data set provides secondary school enrollments from the United Nation Common Database (UN) and the other provides public expenditure on education from the World Development Indicators (WDI). Dissimilar to Hojo (2003) who uses a country-specific effect as a proxy for productivity and Kumar (2003) who uses total factor productivity (TFP), we use output per worker to measure productivity levels and follow a fixed effect three stage least squares (3SLS) approach. In contrast to Kumar, our results show that productivity has positive effect on education. The results are robust to several model specifications and sample sizes.

Concerning the positive effect of education on productivity, we find evidence supporting Hojo's and Kumar's results. These results are in line with development theory: there is a virtuous circle of influences, in which education increases productivity, which in turn increases human capital accumulation due to rising per capita income. However, education only has at best a weak effect on productivity in developed countries. This supports the hypothesis of diminishing returns to human capital fostered by economic development theory, especially when the public expenditure on education is used as a proxy for human capital.

### **The Model and Data**

We use an augmented Cobb-Douglas production function for the supply equation:

$$y_{it} = Ak_{it}^{\alpha} h_{it}^{\theta} \prod_{j=1}^n c_{jt}^{\gamma_j} e^{\sum_{l=1}^m \phi_l S_{it}^l},$$

where  $y$  is output per worker,  $i$  is country index and  $t$  is time index,  $k$  is capital per worker,  $h$  is human capital per worker,  $c$  is a vector of control variables such as foreign direct investment (FDI), export, import, etc., and  $S$  is institutional variables such as government stability, corruption, political risk, etc. Taking the logs of both sides and taking into account the possible two-way causality between education and productivity yields a system of equation:

$$\ln y_{it} = \ln A + \alpha \ln k_{it} + \theta \ln h_{it} + \sum_{j=1}^n \gamma_j \ln c_{jt} + \sum_{l=1}^m \phi_l S_{lt}$$

$$\ln h_{it} = \ln B + \eta \ln y_{it} + \sum_{p=1}^r \kappa_p \ln c_{jt} + \sum_{q=1}^s \omega_q S_{lt} \quad (1)$$

Following Hojo (2003) and Kumar (2003), we use education as a proxy for human capital in System (1). Data for employment is from the International Monetary Fund's (IMF's) International Financial Statistics (IFS) and the IMF's Country Reports, updated with information from economag.com. Data for the country-specific variables for 1984-2002 are from the International Country Risk Guide (ICRG). The rest are from the WDI.

The UN data set has three missing years, 1992, 1996, and 1997, so we have to eliminate these years from the data for the other variables as well. There are many missing observations for life expectancy, literacy rate, and government stability, so we use binary dummy variables to control for this problem. There are still some missing observations for other variables, so we have an unbalanced panel. Data on other variables are divided by employment data to obtain per-worker values.

#### The Methodology and Results

To eliminate business cycle effects, we calculate four-year average values of each variable and first perform regressions on this new data set. As Hojo (2003) omits an "openness" variable, we first exclude this variable from our estimation. We follow a testing-down approach to avoid omitted variables, starting with all variables that might affect productivity. After performing several Variance Inflation Factor tests (VIF) to eliminate variables with high multicollinearity,<sup>3</sup> we have eleven explanatory variables for the first equation.

A Granger-Causality test shows education depending on population, government consumption, productivity, and public expenditure on education. This test also shows that productivity depends on its past value in addition to the other eleven variables.<sup>4</sup> This leads to the structural form of our econometric model as follows:

$$\begin{aligned} PRO_{it} &= \beta_0 + \beta_1 EDU_{it} + \beta_2 PRO_{i,t-1} + \beta_3 CAP_{it} + \beta_4 FDI_{it} + \beta_5 GOV_{it} + \beta_6 CORR_{it} \\ &\quad + \beta_7 LIT_{it} + \beta_8 POLI_{it} + \beta_9 ECON_{it} + \beta_{10} LIFE_{it} + \beta_{11} FIN_{it} + \beta_{12} PCY + v_i + \varepsilon_{it} \\ EDU_{it} &= \psi_0 + \psi_1 PRO_{it} + \psi_2 PEX + \psi_3 GCON_{it} + \psi_4 POP_{it} + w_i + \Omega_{it} \end{aligned} \quad (2)$$

where *PRO* is productivity, *EDU* education, *CAP* capital, *FDI* accumulated stock of FDI, *GCON* government consumption, *POP* population, and *PCY* real GDP per capita, all expressed in log of labor intensive form. Variables in level include *GOV* as government stability, *CORR* corruption, *LIT* literacy rate, *POLI* political risk, *ECON* economic stability, *LIFE* life expectancy, and *FIN* financial stability; *v* and *w* are the country-specific disturbances,

whereas  $\varepsilon$  and  $\Omega$  are the idiosyncratic disturbances.  $PCY$  is highly correlated to  $PRO$  and so is removed from the second equation.

We then perform the Arellano-Bond GMM one step and two step procedures to investigate the involvement of the lagged dependent variables. The Arellano-Bond tests of average auto-covariance in residuals of order one and two in both equations, estimated with the White correction for heteroskedasticity, reveal no autocorrelation. These results imply that the fixed effect 3SLS estimator will be consistent. For the first equation, the Sargent test, which is performed without the White correction for heteroskedasticity, rejects the over-identifying restrictions. As a cautionary measure, we continue to use time dummies in our subsequent estimations.

There are several excluded variables from each equation, and the absence of autocorrelation problems implies that these excluded variables might be used as instrumental variables for the other equation. Hence, the order condition for the system identification is satisfied. Preliminary tests of the reduced form show that some of these exogenous variables are statistically significant, implying that the rank condition for the system identification is also satisfied.

Estimating System (2) using fixed effect 3SLS,<sup>5</sup> we gradually eliminate variables that have p-values over 0.30. The Ramsey RESET tests indicate no missing variable for each equation. Hence, our model specification is:

$$\begin{aligned}
 PRO_{it} &= \beta_o + \beta_1 EDU_{it} + \beta_2 PRO_{i,t-1} + \beta_3 CAP_{it} + \beta_4 CORR + \beta_5 LITER + \beta_6 GOV \\
 &\quad + \beta_7 FDI_{it} + \beta_8 PCY_{it} + v_i + \varepsilon_{it} \\
 EDU_{it} &= \psi_o + \psi_1 PRO_{it} + \psi_2 PEX + \psi_3 GCON_{it} + \psi_4 POP_{it} w_i + \Omega_{it}
 \end{aligned} \tag{3}$$

Table 1, Column 1, reports the results. In contrast to Kumar (2003), we find that productivity affects education positively. Similar to Hojo (2003) and Kumar (2003), we find that education affects productivity positively.

To account for the effect of economic openness as in Kumar (2003), we alternate data for the average openness, trade openness, and capital openness from the data in Edwards (2007). The first estimation shows that coefficients of trade openness, capital openness are insignificant, so we only add the average openness ( $OPEN$ ) to the model. Additionally,  $LITER$  and  $GOV$  are highly insignificant, so we eliminate  $LITER$  and substitute  $GOV$  with  $ECON$ . The robustness of our estimations is then checked by reducing the sample size from 65 to 60 countries. The results, which are reported in Columns 2 through 4, are similar to those in Column 1.

We also use the original data to estimate system (3) and examine the effect of each past value in both equations. Performing the Granger Causality test, we see that only the first lags of education and productivity are individually significant although they are jointly significant up to two lags for productivity and four lags for

education. After performing the Akaike (1973) Information Criterion (AIC) procedure to remove excessive lags and the fixed effect 3SLS to remove highly-insignificant variables, we have this system:

$$\begin{aligned}
 PRO_{it} &= \beta_o + \sum_{k=1}^3 \beta_k EDU_{i,t-k+1} + \beta_4 PRO_{i,t-1} + \beta_5 PRO_{i,t-2} + \beta_6 CAP_{it} + \beta_7 FDI_{it} \\
 &\quad + \beta_8 CORR_{it} + \beta_9 ECON_{it} + \beta_{10} PCY + v_i + \varepsilon_{it} \\
 EDU_{it} &= \psi_o + \psi_1 PRO_{it} + \psi_2 PRO_{i,t-1} + \psi_3 EDU_{i,t-1} + \psi_4 EDU_{i,t-2} + \psi_5 PEX \\
 &\quad + \psi_6 GCON_{it} + \psi_7 POP_{it} w_i + \Omega_{it}
 \end{aligned} \tag{4}$$

For the model with openness, *ECON* becomes highly insignificant, so we substitute it with *GOV*.

The Arellano-Bond tests of average auto-covariance in both equations again reveal no autocorrelation, and the Sargent tests fail to reject the over-identifying restrictions in both equations. Hence, we do not use year dummies in the subsequent estimations.

Table 2 reports the results of the benchmark variables.<sup>6</sup> Theoretically,  $EDU_{it} = EDU_{i,t-1} = EDU_{i,t-2}$  in the steady state, so we can write the results as  $\beta_1 EDU + \beta_2 EDU + \beta_3 EDU = (\beta_1 + \beta_2 + \beta_3) EDU$ . The same is true for the second equation, that is,  $\psi_1 PRO + \psi_2 PRO = (\psi_1 + \psi_2) PRO$ . From Table 2, the sums of *EDU* and *PRO* coefficients are both positive. The Chi-square statistics also reveal that these sums are statistically different from zero.

TABLE 1. SYSTEM (3): RESULTS FROM ANALYZING THE FOUR-YEAR AVERAGE DATA

Dependent Variable: Productivity				
Variable	Without Openness		With Openness	
	(1) (Whole sample)	(2) (60 countries)	(3) (Whole sample)	(4) (60 countries)
EDU	.3658** (.0497)	.3506** (.0479)	.3718** (.0429)	.3560** (.0435)
PRO <sub>t-1</sub>	.0681** (.0249)	.0474* (.0264)	.0296 (.0253)	.0383 (.0265)
CORR	-.0157	-.0119	-.0189	-.0160

	(.0121)	(.0126)	(.0120)	(.0124)
LITER	.0004	.0003		
	(.0003)	(.0003)		
GOV	-.0096	-.0057		
	(.0068)	(.0069)		
ECON			-.0035	-.0021
			(.0023)	(.0025)
FDI	.0279**	.0197*	.0167	.0149
	(.0110)	(.0112)	(.0108)	(.0110)
CAP	.3894**	.4014**	.3929**	.3982**
	(.0469)	(.0476)	(.0427)	(.0446)
PCY	.6670**	.6272**	.6548**	.6314**
	(.0669)	(.0670)	(.0636)	(.0644)
OPEN			.7413**	.6716**
			(.3262)	(.0832)

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Dependent variable: Education

PRO	.4443**	.4683**	.4171**	.4797*
	(.1677)	(.1721)	(.1708)	(.1756)
PEX	.0915*	.1222**	.1118**	.1217**
	(.0480)	(.0485)	(.0477)	(.0497)
GCON	.7861**	.7608**	.7762**	.7496**
	(.1227)	(.1247)	(.1281)	(.1305)
POP	2.624**	1.789**	1.573**	1.564**
	(.3729)	(.4210)	(.4217)	(.4357)

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Sample size	182	171	180	169
R <sup>2</sup>	.8999	.9050	.9066	.9038

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\* and \*\* indicate 10% and 5% significance level, respectively. Figures in parentheses are standard errors.



For a robustness check, we also reduce the sample size from sixteen to fourteen years.<sup>7</sup> The results of the benchmark variables in Table 2 are still similar to those in Table 1.

TABLE 2. SYATEM (4): RESULTS FROM ANALYZING THE ORIGINAL DATA (BENCHMARK VARIABLES)

Dependent Variable: Productivity				
Variable	Without Openness		With Openness	
	(1) (Whole sample)	(2) (14 years)	(3) (Whole sample)	(4) (14 years)
EDU	.7487** (.1158)	.7835** (.1373)	.6907** (.1103)	.5770** (.1079)
EDU <sub>t-1</sub>	-.4114** (.1028)	-.4211** (.1135)	-.4318** (.1033)	-.3383** (.0985)
EDU <sub>t-2</sub>	.0335 (.0649)	.0309 (.0679)	.0399 (.0474)	.0580 (.0452)
CAP	.2157** (.0296)	.1981** (.0280)	.2299** (.0283)	.2387** (.0268)
Chi <sup>2</sup> (1) - value for sum of EDUs	40.05	36.72	61.01	62.03
Dependent variable: Education				
PRO	.4117** (.0715)	.3660** (.0762)	.4063** (.0624)	.3676** (.0704)
PRO <sub>t-1</sub>	-.3480** (.686)	-.3168** (.0708)	-.3531** (.0591)	-.3413** (.0655)
GCON	.2754** (.0491)	.2657** (.0493)	.3352** (.0503)	.3707** (.2052)
POP	.3483** (.1487)	.2508* (.1445)	.5994** (.1668)	.6448** (.2052)

Chi <sup>2</sup> (1) - value for sum of PROs	4.44	4.78	4.48	3.62
Sample size	564	452	562	498
R <sup>2</sup>	.9451	.9460	.9483	.9479

\* and \*\* indicate 10% and 5% significance level, respectively. Figures in parentheses are standard errors.

We then estimate developed and developing countries separately. Estimated results for different sample sizes and developing countries are similar. An interesting point is that the three EDU coefficients for developed countries are much smaller than those for developing countries, and the sum of the former is only significant at 10% level. This is in line with the hypothesis of diminishing returns to human capital posited by development theory.<sup>8</sup>

Since the WDI data use public expenditure on education as a proxy for education itself, we also estimate a new system with this variable as EDU. Hence the model specification is:

$$\begin{aligned}
 PRO_{it} &= \beta_o + \sum_{k=1}^3 \beta_k EDU_{i,t-k+1} + \beta_4 PRO_{i,t-1} + \beta_5 PRO_{i,t-2} + \beta_6 CAP_{it} + \beta_7 FDI_{it} \\
 &\quad + \beta_8 CORR_{it} + \beta_9 ECON_{it} + \beta_{10} PCY + v_i + \varepsilon_{it} \\
 EDU_{it} &= \psi_o + \psi_1 PRO_{it} + \psi_2 PRO_{i,t-1} + \psi_3 EDU_{i,t-1} + \psi_4 EDU_{i,t-2} \\
 &\quad + \psi_5 GCON_{it} + \psi_6 POP_{it} w_i + \Omega_{it}
 \end{aligned} \tag{5}$$

The results of the benchmark variables are reported in Table 3. From this table, the results are similar to those in Table 1.

TABLE 3. SYSTEM (5): RESULTS FROM ANALYZING DEVELOPED AND DEVELOPING COUNTRIES SE  
(BENCHMARK VARIABLES)

Dependent Variable: Productivity				
Variable	United Nation Data		WDI Data	
	(1)	(2)	(3)	(4)
	Developed	Developing	Developed	Developing

EDU	.4574**	.8554**	.3561**	.5914**
	(.1291)	(.2887)	(.0799)	(.0846)
EDU <sub>t-1</sub>	-.4245**	-.7216**	-.3416**	-.4135**
	(.0919)	(.2345)	(.0983)	(.0461)
EDU <sub>t-2</sub>	.0326	.1771	.0351	.0367
	(.0398)	(.0967)	(.0819)	(.0345)
CAP	.3877**	.3144**	.3405**	.2669**
	(.0578)	(.0476)	(.0569)	(.0433)
Chi <sup>2</sup> (1) - value for sum of EDUs	2.96	8.74	0.54	4.61

---

Dependent variable: Education

PRO	.5473**	.5039**	.4825**	.5421**
	(.1114)	(.1102)	(.0851)	(.0889)
PRO <sub>t-1</sub>	-.3349**	-.4132**	-.3905**	-.4847**
	(.0752)	(.0935)	(.0687)	(.0727)
GCON	.1236**	.1290**	.3214**	.2334**
	(.0526)	(.0491)	(.0439)	(.0417)
POP	.4934**	.4620**	.4944**	.4489**
	(.2188)	(.1889)	(.1609)	(.1621)
Chi <sup>2</sup> (1) value for sum of PROs	4.86	4.94	7.12	8.67

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Sample size	314	328	189	327
R <sup>2</sup>	.9251	.9306	.9256	.9326

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\* and \*\* indicate 10% and 5% significance level, respectively. Figures in parentheses are standard errors.

A small difference is the result for developed countries: this time, the sum of the three EDU coefficients is insignificant. This again supports the hypothesis of diminishing returns to human capital, especially in the case of expenditure on education.<sup>9</sup> For the second equation, we also find similar results to those in Table 1.

## Conclusion

In this paper we extend Hojo's and Kumar's empirical studies using fixed effect 3SLS estimations. In contrast to Kumar (2003), we find that productivity has a positive effect on human capital accumulation. Concerning the positive effect of education on productivity, we find evidence supporting Hojo's and Kumar's results. Thus, there is a virtuous circle of productivity growth and education in a cumulative process, in which education increases productivity, which in turn increases school enrollments as per capita income rises. The results support the economic development theory of cumulative causality. However, education only has at best a weak effect on productivity in developed countries, reflecting the hypothesis of diminishing returns to human capital fostered by economic development theory, especially when the public expenditure on education is used as a proxy for human capital.

Since our focus is on a possible two-way causality between education and productivity, the questions of a possible two-way causality between education and output growth will be left for future research.

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### End Notes

<sup>1</sup> See, for example, Jung and Thorbecke (2003) or Self and Grabowski (2004)

<sup>2</sup> Hojo himself recommends a panel-data approach as an extension of his paper.

<sup>3</sup> For a detailed discussion of the VIF test, please see Kennedy (2003), pp. 212-214.

<sup>4</sup> All preliminary estimations are performed with time dummies to control for autocorrelation and the White correction for hetereskedasticity.

<sup>5</sup> We use 64 country dummies to control for the fixed effect. Note that this approach causes  $R^2$  to be unusually high and any interpretation concerning this fact must be carried out with caution. For the fixed effect 3SLS, please see Green (2003), pp. 405-414.

<sup>6</sup> Please contact Tam Vu at [tamv@hawaii.edu](mailto:tamv@hawaii.edu) for the omitted results

<sup>7</sup> There are many missing observations in 2001-2002, so we reduce the sample size from 1984-2002 to 1984-2000 (note that data for 1992, 1996, and 1997 are not available, so there are fourteen years left).

<sup>8</sup> See, for example Thirlwall (2003), pages 254-256.

<sup>9</sup> See, for example Thirlwall (2003), pages 256-257.

## **Diversity Management: An African Perspective**

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### **Abstract**

**This paper considers the nature of diversity and relates the dimensions of diversity to the African continent by assessing some of the dominant themes in the literature relating to the issues of culture and diversity management. It examines the importance of effective diversity management for organisations in general and for countries on the African continent servicing a diverse customer base and/or competing internationally. It reviews the output of literature scholars on culture, cultural diversity and the models of Human (2005); Van der Wal & Ramotsehoa (2001) on diversity management in general and the model of Rijamampianina and Carmichael (2005) on Africa in particular. The argument confirms that cultural diversity should be managed and fully integrated taking into consideration macrocultural diversities of societies and their impact on workforce diversity. This paper enhances the understanding of diversity management and addresses important aspects relating to diversity management in an African context.**

### **The Management of Cultural Diversity: An African Perspective**

Africa is the birth of mankind. Africa is the land of my ancestors... but I hardly know this place at all. *[Harris (1991)]*

### **Introduction**

The wide variations in the economic, organizational and communicative patterns by which humans live and the environment

in which international business is undertaken today, is fundamentally different to that which confronted organisations even a decade ago. While the term ‘cultural diversity’ may have become overused, the phenomenon itself is real. The consequence for almost all organisations is thus profound requiring them to be much more sensitive, flexible, innovative and collaborative. This is attested by Redding and Stening (2003:xiii) who state that “the consequences for managers of organisations are correspondingly significant in dealing with the far greater

demands of managing the increased number of cross-cultural interactions”. Managers must therefore develop new skills and awareness to handle the unique challenges of global diversity, and cross-cultural understanding

This article has the modest overall objective of reviewing some considerations pertaining to the management of cultural diversity with the view of doing business in Africa. It firstly, provides a brief discussion of definitions and the dimensions of culture as noted in the literature. It then explores the concept of cultural diversity and other diversity issues against the backdrop of an African reality. It finally reviews and compares theoretical models of diversity management as a frame of reference for managing cultural diversity in Africa.

## **Definition and Dimensions of Culture**

Scholars on culture have never been able to agree on a simple definition of culture. In an important attempt to answer the question of what culture is, the most sophisticated and most quoted reference is that of international authorities Berger and Luckman (1967). In their book *The Social Construction of Reality* the authors argue that reality itself is constructed by members of a nation or a society for their collective use, and that a society’s culture is a particular reality – a set of guides including language and behaviour - in which an individual can find accommodation in the surrounding world. Culture is furthermore learned through perceptions, which are formed by the language individuals learn and the physical and psychological stimuli that individuals encounter. Redding and Stening (2003:4) and Silove (2004:76) subscribe to this view by emphasizing culture as the total way of life of people and the social legacy of values an individual acquires from his group; a way of thinking, feeling and believing; an abstraction of learned behaviour and a mechanism for the normative regulation of behaviour; and a set of techniques for adjusting both to other individuals and the external environment. From the collective views of Hofstede (1984) and Namenwirth & Weber (1987) Redding and Stening (2003) and Silove (2004) culture can be defined as a system of values and norms that are shared among a group of people and that when taken together constitute a design for living. The set of definitions and rules for conduct of what is, what ought to be, and which become absorbed and transmitted by members of a particular society, can therefore be described as the culture fabric of society. The term society refers to a group of people who share a common set of values and norms. Values are abstract ideas about what a group believes to be good, right, and desirable and norms being the social rules, and guidelines that prescribe appropriate behaviour in particular situations.

Hofstede (1980, 1994) provided probably the best-researched values-based model for differentiating between cultures. The model comprises of four basic dimensions, namely: <sup>1)</sup>

- *Power distance*, which focuses on how society deals with the fact that people are unequal in physical and intellectual capabilities and the extent to which people in a society, community or organisation tolerate inequality;

- *Individualism versus collectivism*, which describes the relationship between the individual and his or her followers. In the former the ties between individuals are loose and individual freedom highly valued. In the latter ties are tight with people born into collectives such as extended families;
- *Uncertainty avoidance*, which measures the extent to which different cultures socializes their members. High uncertainty avoidance cultures place a premium on job security, retirement benefits and so on. They also have a strong need for rules and regulations. Lower uncertainty avoidance cultures are characterized by a greater readiness to take risks and are less emotional about change.
- *Masculinity versus femininity*, by which masculine cultures define different roles for men and woman. In masculine cultures, traditional 'masculine values', such as achievement and power determine cultural ideals. In feminine cultures, sex roles are less sharply distinguished with little differentiation between men and woman in the same job.

Hill (2007:112), however, cautions about aspects of Hofstede's research. According to the author, it firstly assumes that there is a one to one correspondence between culture and the nation state, whereas many countries have more than one culture, and secondly, that the research concentrated on European and Americans within one single industry. The author, however, admits that it does represent a starting point for managers trying to establish how cultures vary and what that might mean for management practices.

From an African perspective attempts to define the philosophy of African cultures have come from both African and non-African authors, and according to Carmichael and Rijamampianina (2006:175) there is much disagreement about what form it should or does take. Most authors, however, agree that Africa can be divided culturally and philosophically into North-Africa and sub-Saharan Africa, with their Muslim and Christian/traditional belief systems respectively (Wikipedia, 2005). Carmichael and Rijamampianina (2006:165) refers to Wortzel (undated) who mentions sub-Saharan Africa with its multiplicity of cultures and the northern countries which are

<sup>1)</sup> Human (1995: 20-21) discusses five dimensions of Hofstede's model, including the subsequent view of long-term vs short-term orientation in work ethic, predominantly Arabic. Wortzel (undated) furthermore emphasizes the important theme of regional and sub-regional Africa with some common regional characteristics that may assist potential investors in acclimatizing themselves to the local environment. Regional allocations are, however, not necessarily absolute; for example Zambia which is sometimes said to fall into Southern Africa or Central Africa. The issue of cultural diversity in Africa is therefore a controversial one.

From an organisational point of view Weisner and Millet (2000:123) perceives culture as a three-layered entity consisting of:

- basic assumptions people in an organisation hold



- which gives rise to shared feelings, beliefs and values and which manifests in symbols, processes, forms and some aspects of group behavior

Culture is therefore to the organisation what personality is to the individual. It is a hidden unifying force that provides meaning and direction (Green, 1989:72). The importance of organisational culture is summarised by Werner (2007:28) as follows:

- It creates a corporate identity that distinguishes one organization from others and thereby gives members of the organisational an identity.
- It guides employees in terms of acceptable behaviours and attitudes and creates commitment to organizational goals and objectives.
- It creates social system stability with associated emotional security and serves as a yardstick for evaluating and correcting deviant behaviours and for rewarding desired behaviors.

More recent studies indicate that organisational culture can have a significant impact on an organisation's long-term competitive advantage and financial performance and thereby the success or failure of firms.

## **Research into Cultural Diversity**

The contribution of Human (1996: 18- 53) towards the diversity debate relates to an analysis of the views of protagonists such as Blommaert (1988), Hofstede (1980; 1994), Berger (1994), Coldwell and Moerdyk (1981) and Keesing (1992). Blommaert (1988) for instance proposed a continuum ranging from a 'maximalist' (universalist) to the 'minimalist' (particularist) position. The maximalism viewpoint subscribes to the notion that a person's culture will tend to determine how a person interacts with others whilst minimalists support the view that a culture constitutes a subconscious part of a person's identity as a communicator. Human(1996:22) refers to Berger (1994:53) and Coldwell & Moerdyk (1981) as authors from pre-democratic South Africa who probably as a result of 'ideological contortionism', viewed the prospects for Africa from a maximalist position. The authors argue that 'some cultures are more open to economic development than others'; that 'some underdeveloped cultures are problematic; and that 'certain African cultural paradigms pervade the conceptualization of management processes and black managerial effectiveness'. Since the first democratic elections in South Africa, however, a shift in 'liberal thinking' by South African authors such as Lessem (1993), Koopman (1993) and Beck & Linscott (1993) reflected the trendy belief of the time that different African cultures are, in fact, 'nice'. Contemporary authors such as Luiz (2006:163) and Werner (2007: 183) adopts a more pragmatic view on the 'Rainbow Nation' of South Africa and reflects on its multitude of cultures and the implications for motivation, leadership and teamwork in organisations.

Human (1995: 24-34) critiques maximalism as ignoring cross cutting complexity of social variables such as level of modernisation, level of urbanisation, social class, level and type of education; socialization within the family; and religion and personal idiosyncrasies within national cultures or ethnic groups. The author also argues that maximalism ignores some of the similarities which may exist between individuals and cultures. According to Human (1995: 36-44) the minimalist approach of stressing commonalities and underplaying ethnicity or national culture is equally problematic. The author is of the opinion that 'in overstressing the interactive nature of intercultural relationships, minimalism can defy common-sense understanding of the world in terms of the generalisations persons hold about themselves and of others'. Horwitz (2006:138) refers to Africa in particular and warns against the making of broad generalizations about Africans and thereby ignoring the unique features in each country in Africa. These diversity features cut across many dimensions with some 2000 different ethno-cultural communities undergoing rapid socio-economic and political transformation, with many countries still struggling to establish an identity as a nation state.

The predominant religions of Africa are, as previously mentioned, Christianity and Islam with approximately 40% of the overall population following each, with the remaining 20% consisting of traditional African religions. With regard to Christianity the connection made by sociologist Weber (1958, original 1904-1905) between Protestant ethics - of hard work and wealth creation - and the emergence of modern capitalism (and entrepreneurship) is well known. Nations of Africa with Catholic or Orthodox majorities have also shown significant and sustained entrepreneurial activity and economic growth. Economic implications of Islam are evident in Africa with the Koran being very explicit on economic principles, many of which are pro-free enterprise. Islam, on the other hand, is also concerned with social justice and Muslim countries are likely to be receptive to international businesses as long as those businesses behave in a manner that is consistent with Islamic ethics. Carmichael and Rijamampianina (2006:166-168) summarize Africa's main ethnic groups, religions and predominant languages in table form. From this table it becomes evident that the main languages of Africa are non-African languages adopted through colonization, such as English, French and Arabic, with an additional estimated one thousand or more indigenous languages. A number of countries are multilingual, for example, South Africa that has no less than 11 official languages. Effective communication is, however, not always just about the language. Hall (1976:56) for instance proposes that when communicating with black Africans, it is important to know that they are highly contextual in the manner that they seek and offer knowledge, 'preferring to begin a conversation with enquiries about your health, your family and your general well-being'. Morris (1982) furthermore refers to the aspect of small interpersonal space accompanied by physical contact such as handholding that may be foreign to Westerners. Africans, furthermore, operate in male-orientated, strongly hierarchical communities. With regard to age, investors in Africa will be interacting with younger people than in other countries around the world. The life

expectancy at birth is the lowest of all world regions and can be attributed to high poverty levels and the highest prevalence of HIV/AIDS. This in turn has a major impact on primary education and skill levels in Africa.

From the above it can be concluded that cultural diversity has been characterized by the application of a large number of dimensions. Many scholars have analysed and described the notion of culture and diversity. Some scholars, as mentioned, have categorized these dimensions in terms of models. The fact is that it is today widely acknowledged that culture, organizational culture and diversity imply a complex set of factors relating to people and the interactions among them. With the mix of individuals within organizations the issues relating to diversity have become a critical component of business success or failure. With today's world of technological innovations and shifting competitive advantage the ability of an organisation to stay ahead largely depends on how the diversity, interaction and co-operation of people within the organisation are managed.

## **The Management of Cultural Diversity**

The distinction between minimalism and maximalism as mentioned before is not helpful in terms of managing diversity. In this regard Human (1995:45- 53) suggests that the two perspectives should be married according to the situation to hand. Thus the basis of managing diversity 'is the need to manage and infinite changing variety of social variables which, to varying degrees, impact on social interaction'. In a later study Human (2005:29-32) again suggests a situational adaptable approach as a solution to the management of diversity. The situational approach accepts a kaleidoscope of complicated configurations of social identities and how these identities vary according to the context at hand. A situational adaptable process can furthermore assist in gathering enough relevant information in order to avoid stereotyping, that is, to judge people too quickly. It can also avoid having too much information that can cloud irrelevant facts and the ability to act.<sup>2)</sup>

The situational adaptable approach as advocated by Human (1995; 2005) prevents prejudgments and ensures the gathering of relevant information in order to make decisions, to come to constructive solutions and to monitor the outcomes. The question is<sup>2)</sup> According to Human (2005:3) stereotypes are a form of generalizations and important tools for understanding and dealing with everyday life stating quoting for example: 'If a person walks into a bank wearing a balaclava and carrying a gun, staff members do not attempt to establish whether that person intends to conduct financial business'.

However, raised to what extent the ability to differentiate and integrate such variables by the situation at hand can be learned by managers. In this respect Human (1995:53) concludes that 'managing diversity programmes should attempt to increase cognitive complexity by providing the skills by means of which individuals can begin to understand diversity in a different way; thereby defusing maximalist stereotypes and the value judgments which

often accompany these'. Carmichael and Rijamampianina (2006:161-178) also warns against one-dimensional stereotyping as a common theme to many schools of thought around diversity in Africa. According to the author the diversity of people in Africa cannot be regarded as a single identity and that 'Africa is far more colourful and richly textured than black/white polarization versus the many possible shades of grey in between'.

Human (2005:4) claims that the management of diversity is the foundation on which all effective organizational behaviour rests. It, however, often ranks low on managers' list of priorities. As diversity relates to a wide variety of socio-economic dimensions, including the dimension of culture, the management of diversity in general and the management of cultural diversity in particular are inextricably linked. The challenge for management is therefore to manage cultural differences by embracing the concept of diversity management. In this regard Human (2005) suggests two critical axes concerning effective diversity management as illustrated in Fig. 1.

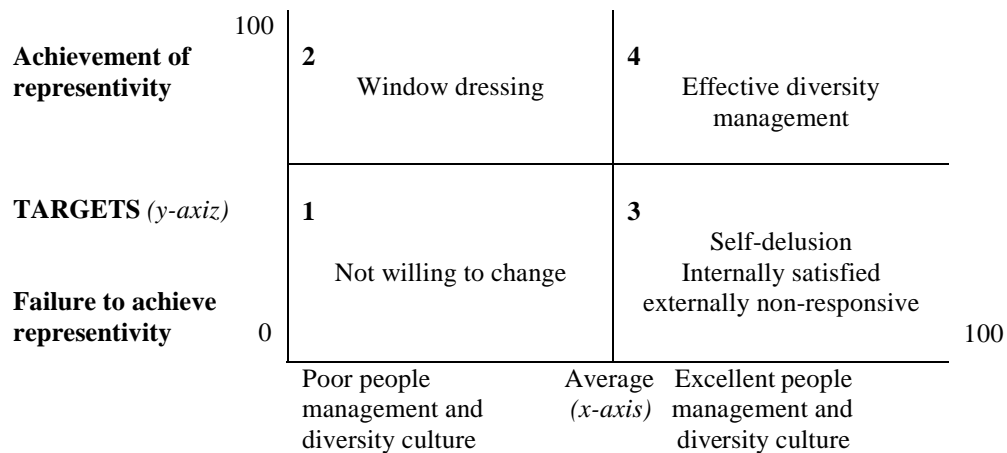


FIG. 1: AXES ILLUSTRATING ACHIEVEMENT OF REPRESENTIVITY

Source: Human, 2005

The x-axis in Fig. 1 refers to the management of people and diversity culture; while the y-axis indicates targets and the extent to which targets have been achieved. The various plots produce a continuum from low representivity, poor people management/diversity culture (*Scenario 1 – bottom left block*) to high representivity, good people management/ diversity culture (*Scenario 4 – top right block*). The latter should be the aspired vision of organisations striving to manage diversity effectively. Looking into the scenarios, illustrated in Fig. 1, from a cultural point of view the key characteristics listed by Human (2005:54-56) can be condensed to the following:

Scenario 1:

- Dominant group in power

- Dominant group feels diversity is lowering standards
- Non-dominant groups alienated and marginalised
- Stereotyping and negative expectations

Scenario 2:

- Dominant group feels reversed discrimination
- Dominant group feels diversity is lowering standards
- Non-dominant group does not feel threatened
- Some aspects of diversity ignored

Scenario 3:

- Dominant group still in power
- Culture still that of dominant group but more accommodating to diversity
- Dominant group does not feel threatened
- No genuine questioning of status quo

Scenario 4:

- No group in power/"integrated" culture
- Emphasis on job-related characteristics rather than stereotypes
- No one feels alienated or marginalized
- Respect for individuals/"culture

From a list of critical aspects for effective diversity management by Human (2005: 47-48) the following cultural aspects need mentioning: identifying diversity as a business case and communicating it throughout the organisation; diversity skills underpinning all other communication; and an integrated diversity strategy commensurate with executive management commitment and shared values. With regard to the latter, Carmichael and Rijamampianina (2006:179-180) propose that the well known McKinsey 7S model, as illustrated in Fig. 2, can provide a systems view of the principle aspects of organisational design.

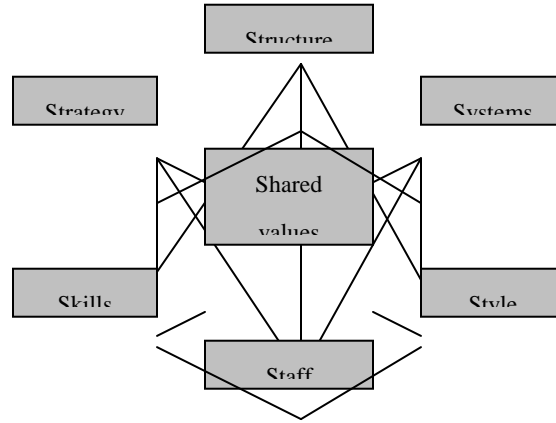


FIG. 2: THE MCKINSEY 7S MODEL

Source: Hitt, 1995

According to this model, once the organisations's vision , mission and values are in place strategy could be formulated in such a way to optimize implementation. Van der Wal and Ramotsehoa (2001:14-18) proposed a diversity model to assist South African organisations with change and development efforts. Their model with its three cornerstones is illustrated in Fig. 3.

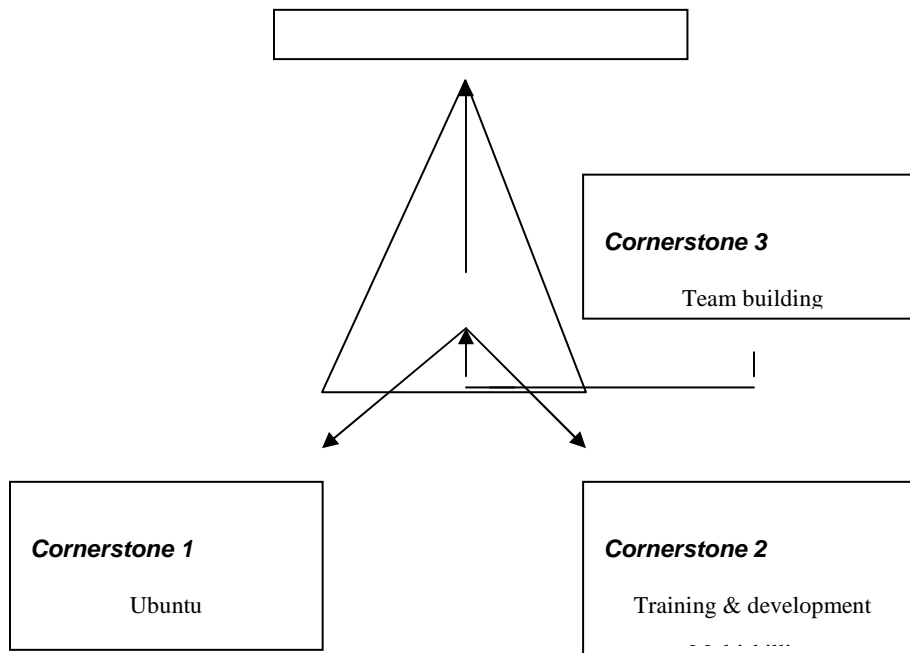


FIG. 3: A CULTURAL DIVERSITY MODEL FOR CORPORATE SOUTH AFRICA

Source: Werner, 2007

The different cornerstones are:

**Cornerstone 1** represents ubuntu - sharing, seeking consensus and interdependent helpfulness; cultural synergy – appreciation and application of diversity; and shared values – inspired by genuine appreciation of cultural diversity.

**Cornerstone 2** focuses the knowledge and skills within the organisation but also on diversity training, mentoring as a mechanism to enhance socialisation and empowerment to create an organisational culture or workforce culture where people are made responsible for the achievement of organizational goals.

**Cornerstone 3** highlights team building, networking and transformation as building blocks in the management of diversity appreciation.

From a cultural perspective the defining and managing of workforce culture (*cornerstone 1*), people development (*cornerstone 2*), and leadership value commitment (*cornerstone 3*), are important and necessary leadership competencies for managing diversities.

## Managing Cultural Diversity in Africa

This section reviews theoretical models of diversity management as cited by Human (2005:53); Van der Wal and Ramotsehoa (2001:14-18); Rijamampianina and Carmichael (2005) as cited by Carmichael and Rijamampianina (2006:182) as a frame of reference for managing cultural diversity in Africa. In Fig. 4 the model of Rijamampianina and Carmichael (2005) for managing diversity in Africa is adapted to include Helriegel's (Helriegel *et al.*, 2004:364) framework. The latter shows that an organisation's workforce diversity and cultural diversity are shaped by the higher-level macrocultures of societies and industries. *Workforce diversity* referring to demographic diversity such as age, sex, race, and national origin; *cultural diversity* pertaining to the full mix of cultures and subcultures to which members of the workforce belong; and *macrocultural diversity* pertaining to a combination of assumptions and values of both the society and the industry in which the organisation operates. This adapted model is depicted in Fig. 4:

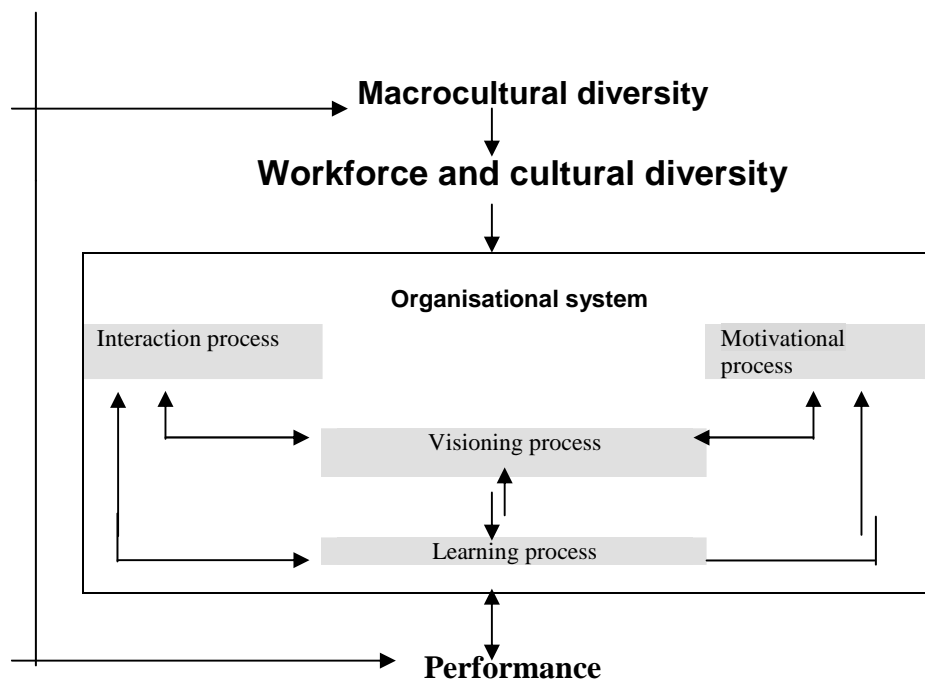


FIG. 4: A MODEL FOR MANAGING DIVERSITY IN AFRICA

Source: Adapted from Carmichael and Rijamampianina, 2006 and Helriegel *et al.*, 2004



The concepts of belonging and respect for others being of great importance to the African are integral to this model. This view is also supported by the first cornerstone of the model of Van der Wal and Ramotsehoa (2001), suggesting that it is only through the genuine appreciation of cultural diversity that shared values will be inspired.

The *interaction process* shown in the model can only take place in an environment of trust in which an individual can share his/her worldviews without being rejected or ridiculed. Cornerstone three of Van der Wal and Ramotsehoa (2001) also stresses the creation of a culture genuinely appreciative of diversity through transformation.

The *motivational process* as part of the model involves a sense of ownership into employees through the sharing of organisational outcomes. Taking the human element of *ubuntu* into account is also part of cornerstone one of the model of Van der Wal and Ramotsehoa (2001). The *ubuntu* worldview also becomes part of the visioning process and the concept of the organisation's vision, mission and shared values as depicted in the centre of McKinsey's 7S model.

The *visioning process* lying at the heart of strategic management and building a sense of ownership is important for success in a diverse environment.

The *learning process* of the model involves the sharing of competence and focuses on providing all employees with the relevant knowledge and skills. Carmichael and Rijamampianina (2006:183) are of the opinion that the learning process can positively impact on all of the other process 'leading to improved organizational performance'. Cornerstone 2 of the model of Van der Wal and Ramotsehoa (2001) supports this view through adding the concepts of mentoring and empowerment to enable employees to add value to the organisation and being valued for their contributions.

According to Van der Wal and Ramotsehoa (2001:14-18) diversity can only be appreciated if:

- everybody is given the opportunity to develop their skill and reach their full potential
- people are empowered with knowledge
- people are given opportunities to utilize their knowledge and skills

Van der Colff (2001:16) furthermore lists ten competencies required by leaders to enable them to develop an appropriate culture that embraces diversity. The competencies being compatible with the models of Rijamampianina and Carmichael (2005) and Van der Wal and Ramotsehoa (2001) are:

- modeling the way by personal value commitment of leaders
- teamwork and team development
- empowering and enabling others to act
- creating vision

- people development and empowerment
- diversity

On a global scale, taking societal or macrocultures into consideration, Hill (2007:117-118) examines the relationship between cultural diversity and national competitive advantage. The author maintains that the value systems and norms of a country could influence the costs of doing business in a country. Japan, for instance, presents an example of how a macroculture can influence competitive advantage. In this regard an emphasis on group affiliation, loyalty, reciprocal obligations, honesty and education boost the competitiveness of Japanese companies. Consequently the rise of Japan as an economic power may be in part be attributed to the economic consequences of its culture.

The philosophies and cultures of Africa may appear to make business life more complicated and less orderly than that of Japan. In Africa, workforce diversity and the macroculture of societies can be either an asset or a liability, The outcomes depend largely on how it is managed. Because diversity and culture cannot be easily separated, managing diversity must necessarily examine culture, along with all of the dimensions of diversity that make up different cultures. Hill (2007:119) contends that one danger confronting an organisation doing business with another country or continent is being ill-informed. Organisations therefore needs to employ host-country nationals, build a cadre of cosmopolitan executives, and guard against the dangers of ethnocentric behaviour. Fedderke and Luiz (2006) have shown that ethno linguistic fractionalisation is subject to marked change over time and that further fractionalization in social, political and institutional structures are often stimulated by economic change. This leads, according to the authors to social cleavages which are dependent on the movements of specific societies.

## **Discussion**

Employees do not act in a vacuum, but are subconsciously influenced by the culture and values of society which in turn impacts the organizational culture within an organisation. Management should therefore determine the cultural diversity and shared values both within organisations, as well as between organisations, society and industry. They should furthermore consciously manage the integration of these values into an organisational culture in order maintain a competitiveness in the global business environment and thereby ensure long-term business success.

The extent to which societal cultures or *macrocultures* affect the values in the workplace is important. In this regard the culture diversity of Africa that embraces a mosaic of subcultures was noted. It was also noted that the contribution of Hofstede can serve as a starting point for managers trying to establish how cultures differ and what it

might mean for management practices. However, because diversity and culture cannot be separated, managing diversity must necessarily examine culture and values along with all of the dimensions of diversity that make up different cultures. Aspects of Hofstede's values-based model are also useful for managers interested in understanding how the organisation's culture influences employees behaviour and performance and whether it enhances or hinders overall organizational excellence. The organisational culture also sometimes called the *workforce culture* was described as a system of shared assumptions held by members and which distinguishes one organisation from others.

The interaction between *workforce cultures* in organisations and *societal macrocultures* was pointed out as being meaningful. A society is regarded as a group of people that share a common set of values and norms; that is, people who are bound together by a common culture. On the other side of the coin are cultures that embrace several nations and regions. In an African context the examples of an Islamic society and culture that is shared by the citizens of mainly northern African states and Sub-Saharan states embracing mainly Christianity and traditional beliefs were mentioned. The issue of diversity characteristics and macrocultural values and norms impacting on African organisations are therefore emphasized.

From the above it is clear that there are societal cultural factors and workforce cultures and, which are important to managers operating in a global business environment. A strong organizational culture does, however, not just happen. It is cultivated by management, and learned and reinforced by employees. In a continent seeking competitive advantage, the goal of managing diversity should furthermore be to develop the capacity to accept, incorporate, and empower the diverse human talents of Africa. The solution may lie in the model of Rijamampianina and Carmichael (2005) as adapted and illustrated in Fig. 4 which assumes four major collective, organizational processes that interact with and affect one another as mentioned in the previous section. It also considers the macrocultural influence of societies on the workforce diversity in the labour force. The model also takes the factors of sharing and integration into consideration allowing for inclusion of all of the diversity factors and dimensions promoting the organizational design factors in the McKinsey model. The model furthermore provides a connection between cultural diversity and performance or competitive advantage. This model when applied in more detail could suggest which countries in Africa are likely to produce the most viable competitors. It could also have important implications for the choice of countries in Africa in which to locate production facilities and to do business with.

## **Conclusion**

With global trading on the rise, more and more organisations are striving to entrench multiculturalism into their organizational cultures. Culture is a complex whole that includes knowledge, beliefs, art, morals, law and other

capabilities acquired by people as members of society. Economic progress and globalization seem to be two important engines of cultural change. Within African societies and organisations different cultures can operate, either complementarily or contradictorily, alongside the dominant culture that has been embedded over time. While it may be argued that Africa with its cultural diversity remains one of the most misunderstood continents in the world, the fact remains that the outcomes with regard to organisations doing business in Africa depend largely on how diversity is managed within organisations with due consideration of the macrocultural societal assumptions that in turn influence organizational cultures. In this regard this article has attempted to paint a picture of culture and cultural diversity in Africa in broad strokes. It also referred to cornerstones that can assist African organisations with change and development efforts and listed some competencies needed by leaders in order to manage diversity effectively. It furthermore compared generic models for managing diversity and concluded by suggesting an adapted model for managing diversity in Africa taking into consideration the macrocultural influences of societies on workforce diversity. It is suggested that it is through this adaptation that the management of cultural diversity could be mastered in the business environment in Africa.

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## **Social Responsibility: Driver of International Competitiveness\***

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### **Abstract**

The aim of this work is to study to what extent the principles of Global Compact are diffused among those Italian organisations that are carrying out internationalisation processes. In order to satisfy this aim, this study, after having carried out a preliminary theoretical-conceptual analysis of the social responsibility of those organisations undergoing internationalisation, will then publish the results of a field study. The second part of the study will initially establish an observation group by selecting a sample of organisations that represent the context. It will subsequently investigate the diffusion and application of the Global Compact principles through the analysis of the strategic *performance* communication tools (social budget, budget reports, press releases, etc). This will be followed by trying to verify their influence in determining the competitive capacity of the organisation within an international context.

### **Aim and Structure of the Study**

The United Nations proposed a noteworthy initiative with the aim of contributing to the consolidation of those social pillars upon which all the markets, including the global ones, must be based, should they want to survive and develop healthily. Global Compact aims at promoting socially responsible behaviour, starting with the organisation through the sharing and application of a series of basic fundamental principles including human rights, labour standards as well as protecting the environment. The organisations that decide to adhere to the initiative undertake to contrast any form of corruption (e.g. extortion, bribery etc).

On the basis of the aforementioned concepts, Global Compact has not been conceived as a verification tool. It is limited to merely collecting the requests to adhere to the initiative made by the organisations, with it neither controlling nor certifying whether they respect and/or apply the relative principles. In addition, with the aim of studying in further detail the work started by the United Nations, this study aims at verifying whether the organisations adhering to this initiative have given the relative amount of importance not only to the economic

activity it carries out but also to the social and environmental too. This will be done by analysing the reports and any other public documents they publish.

In order to satisfy this aim, this paper is divided into two parts, dealing with the theoretical analysis and empirical research, respectively. In fact, the research will be carried out with a cyclic approach, starting with the theory, followed by the collection and analysis of data, subsequently returning to the theory (Bryman, 1988; Lazarsfeld and Rosenberg, 1955).

The first part is a preliminary theoretical-conceptual analysis of the various studies that deal with the theme of social responsibility, concentrating on the particularities that characterise those organisations orientated towards international markets. From a purely theoretical perspective, the theme of social responsibility of internationalised organisations has been studied through the procedures of reasoning, critical as well as detailed analysis of the studies carried out by both Italian and international researchers.

In the second part, in order to carry out the empirical analysis, a specific research problem based on the theme of the study was defined. It is worth noting that it was based on a cognitive problem in relation to a more general problematic situation (Dewey, 1938), a “section” was selected on the basis of the possibility to observe as well as further understanding. It was subsequently decided to study the diffusion and application of the Global Compact principles as well as analyse the behaviour, more or less coherent, of those organisations that have chosen to adhere to it, as well as take into consideration, positive or negative, competitiveness within an international context. This was carried out based on opportune logical-procedural criteria as well as with concrete operative tools which will be subsequently described in detail.

## **Social Responsibility of Internationalised Organisations**

The concept of the organisation as a “tool” without any form of ethics or social responsibility has been criticised due to the need to integrate the criteria of economic interests with social objectives. The strategies and values that inspire the organisation should therefore be defined, including the indication of the ethical and social responsibilities that the organisation should assume. Consequently, the behaviour of the organisation should be orientated towards improving performance, not only in economic terms but also in terms of excellence within the social context too. In other words, the organisation should be constantly trying to improve its performance through dynamic behaviour, with the results being subsequently expressed not only in economical terms but also as ones of social excellence. The drive to produce acceptable profit levels notwithstanding competitive pressure, must be combined with a respect for the “basic moral” obligations (Barry, 1998). *Business* ethics set out how to conduct any form of

economical activity, while respecting the principals, regulations and standards established by society (Trevino and Nelson, 1999).

In the United States, the study of social responsibility of the organisation has been developed up to the point of considering several relevant practical problems. During the 1950's, the theme of *Corporate Social Responsibility* was developed, with the aim of analysing the specific consequences of production on social and environmental conditions. The contribution of the studies carried out by the *Harvard Business School*, subsequently set out a new theme, *Corporate Social Responsiveness*, that not only developed the analysis of the social consequences of production but also examined the different set ups adopted by organisations in dealing with the various impact problems that they create. For further details, it worth noting Epstein (1987). While in Europe, the ethics approach received a strong input from the German economic-organisational doctrine that gives particular attention to the need to associate the actions of the organisation to the demands of equity and balance of the collectivity of which the same entity contributes expression (Zanoni, 1984). In Italy, this vision was developed through the contributions of experts in Organisational Economics<sup>1</sup>, including Fazzi (1951) and Paces (1974) who recognised within the organisation the co-existence of economic interests along with other types of responsibilities. In the Eighties, a theme known as "*Business Ethics*" was developed on an international level, which united the experiences of social responsibility of the organisation in different countries and the belief according to which "in order to govern the organisation it is not sufficient the reaching of economic objectives, necessary, but it also requires that they are reached in an appropriate manner, in other words not limited to the mere respect of constraints set by guidelines and regulations but also characterised by the adhesion to a system of shared ethical, cultural and social values" (Carrus, 2000).

Development of the ethical dimension is also considered as a far-sighted policy in obtaining a positive economic result, in that its introduction creating positive results for the organisation. In particular, the variable ethic tends to produce advantages both relative to the relationship established with interlocutors as well as the long term survival of the organisation. Even if in the short term, this would lead to a sacrifice to sustain that in economic terms would have the aim of improving, in the long term, the same economic result (Ciasullo, 2004). In this case, ethical behaviour would assume a clear instrumental value, accompanied by a calculation that the management makes in relation to the main results that could be obtained from such a vision. In an opposite extreme, respect of the main ethical principles would derive from the morality of individuals who govern the organisation and induce obtaining economic results as one of the aims to reach even if order in comparison to others (Di Toro, 1993; Donaldson and Dunfee, 1999; Drucher, 1981; Sciarelli, 1996; 2002 and Sen, 2000).

The double, economic and social, role assumed by organisations due to the process of globalisation has now become even more important within a business context that is confronted with international realities. Every trans-



national organisation should try to reconcile its own standards of ethics with those of the country in which it is present. Possibilities include the perspectives put forward by several studies, including: a business behaviour that adapts to the moral codes of a specific nation (ethical relativism) (Sinclair, 1993) as well as a moral standard that is recognised and accepted by all cultures with the aim of obtaining a global organisation ethics concept (moral universalism) (Bowie, 1987).

The considerations above, highlight a clear and evident difficulty in attributing an unambiguous and global meaning to ethics and social responsibility of the organisation. However, it is also not possible not to take into account the following considerations.

In relation to the micro aspects, it is worth considering the size of the organisation. For many years, the social responsibility of the of the organisation was considered to be a context of activity only for large organisations and in particular, multinationals. It can represent a useful concept in describing the way in which the internationalised organisation forcefully acts on the conditions of balanced development of the territory and people that are within it. In 1984 Mintzberg had already written: “There is a need to reverse the long-term trend toward impersonalism and utilitarianism in our organization. (...). Social responsibility our best hope, perhaps our real hope, for arresting and revising that trend” (Mintzberg, 1984). This highlights the attention the organisation gives towards the balance between the objective of economic and competitive development and the effects of the objectives and the needs of the environment with which it is directly connected. It is doubtful that the organisations operating over trans-national borders result characterised by evident responsibilities in their different social contexts. It is also not possible that they result being judged by various and numerous clients and it is for this reason that they are capable of managing social projects that are more structured and detailed than those modest sized organisations, operating in local and national contests. It is also true that any organisation, regardless of its size, qualitatively grows and develops when the clients as well as the collectivity recognise reliability, credibility and correct behaviour. It is also worth noting that internationalization and the free circulation of products do not constitute fields precluded to modest sized businesses. The latter, through the creation of institutional networks<sup>2</sup> as well as with the help of Institutions, have progressively overcome the economic and cultural barrier that operate beyond the national borders. In considering the size of the organisation, it is worth taking into account the differences and specifications in order to understand which facilitate both the valorisation of the possible supplies as well as the assumption of the relative criticality. In fact, organisational activity within a specific territory is not exclusively linked to either respecting legal obligations or carrying out philanthropic activity but it should be permeated by a common and shared sense of responsibility as well as respect towards all the stakeholders (Caroli, 2000).

The main characteristics of the Small-Medium Businesses (SMB) should be taken into consideration and analysed with the aim of the social responsibility of the organisation. These characteristics seem to be placed in a

particularly advantageous position within the social responsibility scale due to the collectivity constituting the *milieu* in which they are created and live. The SMB can be found all over the world and are widespread over the territory. They can be easily recognised and reached by the client. They are managed in a familiar, formal way, including the labour relations. Their products respect and reflect the local culture. They do not devour natural resources and distribute the assisted in order to improve their understanding of the social role that they have, thus introjecting more effectively and less spontaneously the means and technical-operative tools of CSR, designed over recent years. Their promising potential is not sufficient, with many of them often ignoring the compulsory obligations and imperative ethics causing human, social and environmental problems and inconveniences in the name of competition. Ad hoc training programmes based on assisted evaluation and the improvement of one or more aspects (environment, labour, human and institutional rights etc) can highlight and consolidate virtuous procedures generated by daily activity and the individual sensitivity of the businessman. Light monitoring systems, carried out by external agencies (trade unions, local authorities, environmentalists, consumers etc), codified but neither bureaucratic nor expensive can validate the efforts made by the small business, highlighting how commitments and intentions can become reality.

Further micro aspects are the macro-economic factors of a country and include history, religion, cultural diversity and politics. An interesting study (Raltson, 1997) has highlighted how the management of an organisation in a socialist country results less inclined to justifying non ethical behaviour, while on the contrary managers in capitalist countries seem to tolerate more non ethical conduct.

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In extreme synthesis, what seems to emerge from internationalised organisations is the need to find a common interpretation upon which “ethical behaviour” can be based,. There is therefore, a need to create a common base of values, or in other words a common denominator. The term International Business Ethics refers to the ethical behaviour of organisations that is expressed within the context of the relations with individuals as well as on a global context (Mintz, 2005) It is for this reason that the second part of this study, reference will be made to the main principles and universally recognised of Global Compact<sup>3</sup>.

## **Global Compact**

The international debate, which currently involves noteworthy representatives of the economical, political and academic worlds, with it being mainly based on a voluntary approach, looks for and proposes solutions and indicators capable of conferring a credible reality to the manifestations of social responsibility of the organisations. The most mentioned indications and explanations of accredited internationalisation, result being: “The tripartite declaration of principles of the multinational organisations and social policies” of the International Organisation of Labour (IOL) as well as the guidelines of the International Agency for the Economic Cooperation and Development (IACD). Both agencies are intended for multinational organisations but the principles indicated can also be adapted to small and medium sized businesses that are orientated towards international markets.

Among all the agencies of the United Nations, the IOL is naturally the most obvious for promoting the culture of social responsibility of organisations, with it being significant, even though not exhaustive, in respecting the fundamental rights and principles of work. The agencies that constitute it (governments, businessmen, trade unions) facilitate the reinforcing of social dialogue through a wider involvement of all those stakeholders interested in developing social responsibility. On the basis of the introduction, the General Secretary of the United Nations, upon proposing the famous Global Compact to the organisations considered four fundamental inherent categories, among the main reference principles. They were respecting human rights and labour standards, protecting the environment as well as anti-corruption (TABLE 1).

TABLE 1: THE TEN PRINCIPLES

<p><b>Human Rights:</b></p> <p>Principle 1, Businesses should support and respect the protection of internationally proclaimed human rights;</p> <p>Principle 2, make sure that they are not complicit in human rights abuses.</p> <p><b>Labour Standards:</b></p> <p>Principle 3, Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;</p> <p>Principle 4, The elimination of all forms of forced and compulsory labour;</p> <p>Principle 5, The effective abolition of child labour; and</p> <p>Principle 6, The elimination of discrimination in respect of employment and occupation.</p> <p><b>Environment:</b></p> <p>Principle 7, Businesses should support a precautionary approach to environmental challenges;</p> <p>Principle 8, undertake initiatives to promote greater environmental responsibility;</p> <p>Principle 9, encourage the development and diffusion of environmentally friendly technologies.</p> <p><b>Anti-Corruption:</b></p> <p>Principle 10, Businesses should work against all forms of corruption, including extortion and bribery.</p>
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The main idea of the Global Compact consists of favouring the collaboration between organisations with the aim of promoting the culture of basic fundamental rights, above all where there seem to be hardly any, in other words, the developing companies.

In order to carry out a “sustainable” globalisation (more balanced and with a greater social dimension), apart from correct policies of public governance, a greater commitment is needed by those richer countries towards the poorer ones. The main priority of the Global Compact is not only to ask organisations to respect the rights (human, labour, environmental) within those industrial countries where they seem to be widely accepted and protected by national legislation but also to demand coherence of the interventions and business behaviour in situations where organisations have production/distribution subsidiaries situated in poorer countries, where legislation is lacking in relation to social responsibility.

The organisations are trans-national as well as active in developing countries can give a significant contribution by transferring, facilitating and diffusing a climate of understanding as well as safeguarding those rights considered to be typical of an industrialised nation.

Essentially, this is the initiative promoted by the United Nations, sustained by the IOL and currently being adopted in Italy. In fact, the intent is to encourage adhesion to the Global Compact by those organisations interested. The project that has been started in Italy is similar to the one carried out by the ex-Ministry of Welfare in relation to the strategy of Corporate Social Responsibility (CSR), with it being considered an integral part of it<sup>4</sup>. In fact, those organisations that have accepted and are sharing the elements of credibility of their social commitment in Italy, through CSR, have the possibility to carry out the internationalisation process, as requested by the UN. It does not necessarily imply having to be organised in order to carry out social labels capable of bringing about advantageous opportunities. The progressive involvement of the organisations (in whatever dimension it is assumed), along with the “voluntaristic” philosophy constitute favourable conditions for carrying out a business strategy that is reinforced through integrative processes and international projections.

It, subsequently, results accredited in doctrine and empirically verifiable that the social performance of an organisation is surely destined to increase the economic performance regardless of whatever form of certified formalism. It represents the logical basis of the project of social responsibility in Italy, while at the same time being the meaning of the request of the UN. It does not promise labels but further possibilities and continues with the aim of carrying out a constant and progressive valorisation of social responsibility, as well as increasing prestige that is only a consequence thanks to a solid commitment, visible through actions and behaviour.

Global Compact is therefore a flexible, universal tool that highlights the practical processes rather than the formalism of the procedures. From a procedural point of view, the organisations that intend on adhering to it, should periodically, if not annually, make a public declaration as well as a letter to the General Secretary of the United Nations, reporting on the progress made. Without a doubt, participation leads to an increase in visibility and prestige for those organisations that are orientated towards international markets as well as facilitates a liberal and free comparison. Visibility represents a powerful tool of transparency, in whatever form, as well as for monitoring the performance, with acts and documents, projects and experiences, criticisms and solutions and reports all attracting the attention of the international community, therefore becoming a patrimony of experiences and improving knowledge. Progressive benchmarking can also increase the level of responsibility. The comparison is made possible due to telematic platforms, set up on the Internet by the UN agencies. These deal with specific problems through concrete examples that include highlighting new marketing strategy options as well as different ways of conceiving the relations with the context. They also invite organisations to share the problems that they may have in common as well as adopt original approaches developed through best practice methods. Specific and personalised measures are also identified, especially within the context of the small business, in order to deal with collective problems within a greater perspective.

As previously mentioned, the Global Compact Office in New York files all the letters of participation received and inserts the names of the organisations into a database. This does not mean that the United Nations Agency recognises or certifies the application of the Global Compact principles by the organisations participating. In fact, it was not conceived as a static verification agency, only working when receiving a declaration from the organisation wanting to follow its principles. It has a divulgence and advisory role, through the analysis and diffusion of the relations that the participating organisations present each year. In other words, through the press releases reporting on the organisations activities. The reports on the application of the Global Compact principles contribute to the constant promotion of the transformation process not only of the organisations that have chosen to follow them but also all the stakeholders as well as the public opinion.

It is worth highlighting that the voluntaristic approach of the project represents, on the one hand, a point of strength, while on the other, the risk of losing integrity and credibility should the organisation adhering to the initiative not be capable of demonstrating the progress made. For this reason, all the participants are asked to draw up and publish a COP (Communication on Progress), reporting on the commitments made by the organisation upon adhering to the initiative. The COP represents the Annual Communication through which the organisations give a detailed description of the activities carried out in relation to the 10 Global Compact principles. The aforementioned Annual Communication has been the object of new directives set out by the United Nations Agency in New York since January 2004. On the basis of these directives, the participating organisations have to annually communicate the activity carried out in relation to the Global Compact principles through annual sustainability reports as well as other communication tools. All the tools listed should be transmitted to the Global Compact Office and made public through the opportune channels of communication (websites etc). The guidelines for drawing up and publishing the Annual Communication represent a reference model not only for those organisations that already publish annual sustainability reports but also for those organisations that have never published this type of report before, even though it is from a social perspective.

Global compact asks those organisations which decide to participate that their principles become an integral part of organisational strategy in order to constantly orientate all business activity. Participation to the initiative represents for several organisations, the starting point of the aforementioned process, while for others, it contributes to increasing the efforts already made in trying to integrate the economics objectives with social ones. This, however, is a long and continual process that consists of introducing, diffusing and sharing the inspirational principles of human rights, labour as well as environmental priorities with all the interlocutors of the organisation, both internal, and in particular with the human resources that participate to the business project, as well as external, including suppliers, clients and any other collective in general.

## **Empirical Research**

### **Theoretical and Hypothetical Assumptions Subject to Falsification**

Empirical research is based on the following theoretical assumption: the Global Compact principles set out on an international level represent a fundamental reference not only for those organisations orientated towards international and European markets but also those operating within developing countries. There are currently 4000 large organisations that have adhered to Global Compact. Notwithstanding the fact that they operate within different sectors and geographic areas, they have the common ambition of wanting to increase their respective global responsibility, which takes into consideration the interests of a wide range of interlocutors including employees, investors, clients, partners, consumer associations and local communities.

Empirical research will try to verify whether Global Compact not only represents a reference for those organisations operating in foreign markets but also if it can become a tool capable of facilitating the construction and maintenance of competitive advantages on an international level. In other words, whether adherence to Global Compact facilitates competitive sustainability within an international context.

The theoretical analysis has defined the assertion that implies the relationship between two or more variables. They are collocated on an inferior level of abstraction and generality in relation to the theory due to translating it into empirically detectable and controllable terms. The empirical research was based on the initiative of Global Compact, fully aware that the principles, methodology, regulations as well as the indicators that an organisation can adopt to measure its own economic, social and environmental contribution can be different.

After having collected and analysed the quantitative data and qualitative information, the following general hypotheses emerged<sup>5</sup> subject to falsification<sup>6</sup>: given a specific time period (2004-2006), it is possible to highlight the relationship between the increase – tendency and growth, decrease and stability – of the annual income on an international level of the organisations observed and the behaviour they assume in relation to the Global Compact principles. The hypothesis intends on subjecting to falsification whether, within a specific time period, there is a correlation<sup>7</sup> between the following of a specific and economically measurable parameter (amount of income) and the implementation of determined actions and activity aimed at qualifying a more or less convinced behaviour of the organisation in relation to the Global Compact principles.

It is worth noting that the correlation terms used are not similar to those of the statistical analysis due to them referring to the analysis of the relations between cardinal variables. In this case, the study, given the nature of the data compared, proposes a correlation of casual relations, eventually recoverable, in the study of the observed phenomena<sup>8</sup>. In fact, the comparison takes into consideration numerical data as well as descriptive information,

dealing with, in the first case, the development of the quantitative data observed (amount of income) and in the second, the carrying out of activity capable of influencing the quantitative variable.

Three specific hypotheses subsequently allow for the more general hypothesis to be validated:

- a) the organisations that, during the period considered, have registered an increase in income result being the same that have dedicated particular attention to the activity of communication as well as have shared their experiences and promoted adhesion to the initiative to other organisations. In other words, the hypothesis validates whether the coherent actions of sensitization to the Global Compact principles, with activity aimed at communicating and sharing the aforementioned actions positively influence the economic performance of the organisation.
- b) the organisations with an annual income that remained more or less the same over the three year period, even though they respected and shared the Global Compact principles, can be characterised not for having communicated the progress made upon adhering to the initiative and the efforts made to continually improve.
- c) the organisations that have registered a reduction in their annual income are those organisations that adhered to the Global Compact initiative, purely for its “face-value” but result inactive and show no particular sensitization or sharing of the themes of social responsibility of the organisation. In other words, the hypothesis validates whether the amount of international income is reduced for those organisations that have not carried out any coherent activity in relation to the Global Compact principles.

In order to carry the process of falsification, any further reasons that may have influenced the trend are also taken into consideration, with these causing any possible distortions therefore creating an illogical correlation. They may not result being particularly significant as it not always to have a positive trend of the parameter considered, even though in this case, the organisations interviewed paid particular attention to the principles of social responsibility as well as having a high degree of agreement with the Global Compact principles. Another aim was to highlight any other variables that influenced the income increase as well as take them into consideration.

#### **Variables and Phases of the Process**

In Italy, the start of the Global Compact Project dates back to 2002, with 105 organisations adhering. These organisations constituted the universe of the study.

Various types of organisations adhere to Global Compact, with the United Nations Agency dividing them into the following: Associations (businesses, banking and no-profit), Banks, Consortiums, Cooperatives, Foundations, Public Agencies, Companies, Research Institutes and Trade Unions.



A non probabilistic sampling method was preferred for the field study, due to both the evident need to analyse a reduced number of organisations in relation to the universe as well as the cognitive objectives of the analysis of the data and its relative demands (Chisnall, 1994; Marbach, 1996; Agnoli, 2006).

The organisations chosen to be part of the sample, with information being collected and subsequently analysed, were selected on the basis of:

- the approach adopted towards foreign markets and were therefore, Italian companies that carry out internationalisation processes through export, collaboration and direct foreign investment strategies (Sicca, 1998). Multinationals with operative offices in Italy were not considered;
- being in relation to the referred business core, and were therefore companies operating within the secondary sector, in other words, industrial. However, excluding the service and public utilities sectors (tertiary). The reason that excludes the service sector is the not very significant number of them in relation to the industrial companies, given the minor transactional presence of the first in relation to the latter. It was also considered opportune not to take into account the tertiary companies in that the attention they give to the themes of social responsibility are often the result of an autonomous and fully aware choice, as well as the fact that the study is dealing with companies that, due to their mission, manage activities of public interest.

It is also worth noting that companies operating within the primary sector (agriculture) were also not taken into account, due to them not resulting among those organisations adhering to Global Compact.

The sample was made up of 42 organisations, chosen on the basis of selection criteria of the aforementioned units of analysis.

In order to satisfy the informative needs, collection of the information was articulated over two time periods, even though they were carried out simultaneously. The information obtained directly from the filed study was compared and integrated with other information that had been previously obtained from other sources. The use of a research methodology based on the analysis of data obtained from both primary as well as secondary sources can be considered valid in that having as much data as possible, gives a more accurate and detailed analysis of the phenomenon. It also makes the results of the empirical research more reliable as well as complete.

It is well known that secondary data includes those published and collected regardless of the aims of the study being carried out. The sources of this type of data are both internal as well as external (Marbach, 1996; Metallo and Barile, 2002). In the first case, it is data that can be easily consulted, with it either being published on the company website or made available by the company<sup>9</sup>. While, in the second, the data was published and supplied by the Italian Global Compact Organisation website. It is worth noting that the secondary data has given qualitative information. This phase was useful in identifying those organisations that besides having adhered to the principles of

Global Compact, had also demonstrated to have assumed a responsible behaviour, through constant communication with both the United Nations Organisation as well as with its interlocutors, through the publication of reports and progress press releases.

It was considered necessary to collect further data/information from the field in order to carry out the objectives of the study, considering the type and characteristics of the data available, as well as satisfy the informative needs.

The primary data was collected using a questionnaire, considered to be a indispensable support when acquiring general information, as well as necessary and useful. It was considered opportune to structure the questionnaire with both closed and semi-open questions. The first were used in order to obtain quantitative data on both the national and international revenue, as well as understand how much attention the company gave to the themes of social responsibility. They also gave information on how the manager perceived the benefits associate to adhering to Global Compact. The qualitative information was obtained through the analysis of secondary sources, allowing a comparison between the actual communication tools used by the organisations and those claimed to be used during the field study interviews.

On the whole, the questionnaire resulted being, in its definitive final version, the most essential possible with the aim of both obtaining the most number of valid answers as well as facilitating the interviewee in filling it in. It was administered electronically, being sent to the Administrative Offices as well as the Press Office, when present on the company organization chart.

The last phase of the research was dedicated to the organisation of the statistical data as well as the qualitative information in order to not only to give a detailed analysis of the phenomenon investigated but also to falsify the declared hypothesis. The first step of this activity had a well defined aim, even though descriptive, of realising a taxonomy of the organisations that have adhered to Global Compact as well as their classification based on the different types of behaviour they assume in relation to the principles of social responsibility. The notion of paradigm, as “a conceptual structure through which scientists watch the world” (Kuhn, 1969), makes reference to the recognisable vision of intepretism (Weberian Theory) according to which reality can not be simply observed, but is interpreted (Weber, 1958). The method, therefore, was that of understanding through the use of instruments and tools considered to suitable in analysing the reasons that have inspired the observed business behaviour.

The description of the different types of behaviour assumed by the organisations, the research and any eventual signs of sensitivity as well as the attention given to social responsibility have contributed in satisfying the informative needs of the second phase of the study. It was also verified, through the process of falsification, whether a more or less responsible behaviour of the organisations studied can be considered one of the determining factors in acquiring international competitiveness. This was carried out through the analysis of the historical trend<sup>10</sup> in relation to the foreign market revenue. The identification of the quantitative parameter (revenue) made it possible to make a

distinction between the organisations interviewed on the basis of its progress (increase, decrease, stable), highlighting the different particularities<sup>11</sup>, as well as verifying whether the two phenomena studied – the quantitative data and the qualitative information – result being connected by a casual relation. In other words, this part of the study also tried to clarify the capacity that determined business behaviour can have in influencing, either positively or negatively, determined results in quantitative terms. In terms of cause-effect, the case was taken into account in which a certain event was the sufficient condition, but not necessary, in order to verify a determined result. It was not the case of exclusively identifying the existence of a constant association between two phenomena but the cause and effect created (Bunge, 1959).

In order to test the general hypothesis, as well as hypothesise on a theoretical level a casual relationship, it was considered necessary to verify the events and the relative observable consequences empirically (Blalock, 1961) and subsequently create further research proposals. The falsification process of the general hypothesis resulted in taking into account any other variables that could have determined variations in revenue. A more detailed study of the questions in the questionnaire allowed for the possibility that the general correlation, progress (increase or decrease) of the observed parameter could have been influenced by other factors or elements.

Table 2 summarises the various activities carried out during the field study.

TABLE 2: THE PHASES OF THE EMPIRICAL RESEARCH

Definition of the variables	Research Aims and Hypotheses Reference universe and Sample selection
Data collection	Primary and Secondary Sources
Organisation of the data	Descriptive Analysis Falsification Process

### Results Obtained

The considerations that follow highlight the results obtained from the field study, first dealing in detail with the information relating to the qualitative aspects and then the quantitative data.

As previously highlighted, the information relating to the qualitative aspects of the field study was collected mainly from secondary sources, including documents, publications, websites relating to the organisation investigated as well as the Italian Agency of the United Nations and only in part to the questionnaire administered directly to all of the organisations that constituted the sample.

On the basis of the information obtained, followed by an accurate interpretation and analysis of the communication tools used by the organisations as well as the different types of behaviour in terms of agreement/disagreement with the principles of Global Compact, the organisations studied can be divided into the following:

- “resonant organisations”, constitute approx 13% of the sample. In respecting the principles set out by Global Compact, they periodically communicate the initiatives taken. In accordance to the commitments made upon adhesion, these organisations annually draw up and publish the Communication On Progress (COP) on the United Nations Agency website. They are also concerned with making public their annual sustainability reports as well as any other information regarding the action taken by the organisation including the implementation process used in order to integrate the 10 Global Compact principles within the daily management of the organisation. This is done not only through their own website but also through other channels of communication. Most of the organisations defined “resonant” have realised and applied an ethical code that includes amongst its principles, those universally recognised and sanctioned by the United Nations Agency;
- “immoderate organisations”, constitute approx 28,5% of the sample. These organisations, like those belonging to the first group, periodically publish the Annual Communication but on the contrary to the “resonant” organisations, the reports published and diffused on their website do not include details about the actions taken by the organisation in relation to the 10 Global Compact principles. This category of organisations, even though have adhered to the initiative of the United Nation and result apparently active and participative in upholding the relative principles, are not however particularly concerned with including within the management of their organisation, either defending human rights, labour relations or protecting the environment;
- “idle organisations”, constitute approx. 24,5% of the sample. This type of organisation, after having adhered to Global Compact with a public declaration and a letter to the General Secretary of the United Nations, have not annually communicated with a COP what they have done in relation to the Global Compact principles. Nevertheless, the signs of attention and sensitivity that tend to highlight how important it is, even for these organisations, to integrate the criteria of economic interest with social objectives can be gathered from the websites of the organisations as well as secondary sources (annual sustainability reports, social balance);
- “dissonant organisations”, constitute approx 14% of the sample. The dissonant organisations, like the “idle organisations, upon having adhered to Global Compact have not published any form of annual Communication. However, this category of organisations is different from the others in that they give no attention what so ever to the themes of social responsibility, as highlighted by the analysis carried out. This is sustained by the information published on their websites as well as through the analysis of alternative sources (data collected form bulletins published by the associations that deal with organisational ethics and sustainable development, annual statistics, in journals and magazines etc). There was also no use of

business tools (social balance, sustainability reports etc) to communicate an active and responsible involvement of this type of context within the context in which they operate.

The comparison between the primary and secondary data, or in other words between what the organisations declared through communication channels and the information obtained from the interviews carried out during the field study, has not highlighted any noteworthy differences or disagreements. In particular, on the margin of the proposed taxonomy and with the aim of giving the proposed classification greater credibility, it is worth highlighting that among the benefits of Global Compact indicated through the collection of the primary data, in most of the cases, the interviewees coherently collocated in the second and third groups indicated: the possibility to obtain greater visibility and prestige on foreign markets; the opportunity to take advantage of contacts with social organizations as well as other players involved in the Global Compact initiative; the opportunity to realise projects in collaboration with the United Nation Agencies as well as other socially active institutions, therefore benefiting from the technical assistance of multilateral organisations. On the contrary, the interviewees whose organisations were collocated in the first group, believed that Global Compact was among other things, a global platform capable of uniting universally valid and shared principles as well as being a responsible business behaviour with the aim of converging towards a sustainable globalization.

Figure 1 shows the “positioning matrix” based on the considerations discussed up until now. It classifies the organisations studied on the following parameters:

- “activism” inherent the major or minor communication and sharing capacity, through the COP, of the actions taken by the organisations, from the moment of adhesion to the initiative, of the sanctioned Global Compact principles;
- “coherence” among the universally recognised and sanctioned principles of Global Compact and how they are accounted for by the organisation through the communication channels of social responsibility.

		<b>COHERENCE</b>	
		High	Low
<b>ACTIVISM</b>	High	<b>IMMODERATE</b> (12 organisations, of which 5 replied to the questionnaire)	<b>RESONANT</b> (14 organisations, of which 8 replied to the questionnaire)
	Low	<b>DISSONANT</b> (6 organisations, of which 4 replied to the questionnaire)	<b>IDLE</b> (n. 10 organisations, of which 8 replied to the questionnaire)

FIG. 1: POSITION MATRIX OF THE ORGANISATIONS ADHERING TO GLOBAL COMPACT

The quantitative data was collected exclusively through the questionnaires administered to all the organisations constituting the sample. In reality, the main reference principle was the volume of annual revenue relative to sales that the organisations had carried out in foreign markets over the last three years. It is worth noting that the primary data, which is analysed and discussed, is limited to those organisations which returned a completed questionnaire. Approximately 61% of the 42 organisations constituting the sample answered the questionnaire. It is worth highlighting this in order to define the taxonomy of the different types of behaviour of the organisations adhering to Global Compact, with reference being made to the entire sample. The general hypothesis (para. 4.1 lett. a) should have been verified, had the development of the revenue (Y) of the organisations studied, varied in relation to the different type of business behaviour assumed (X). The falsification process of the previously declared hypothesis was carried out on a limited number of the organisations sampled, only 25, in that the questionnaires in which the organisations highlighted specific and particular reasons (e.g. end of a type of activity, contingent factors etc) for having determined either an increase or a decrease in the observed parameter were not taken into account.

Analysis of the development of the volume of international revenue for the three year period, 2004-2006, lead to the following considerations relating to the organisations studied. In particular, 56% of them had an increase in international income, 12% had no variation whereas the remaining 32% suffered a decrease in foreign market sales.

On the basis of the proposed positioning matrix (FIG.1), those organisations that highlighted a positive trend in revenue resulted belonging to the group of “resonant organisations” (with 7 having a positive variation),

while the rest, to the group of “immoderate organisations (with 4 having a positive variation). The few organisations that registered no form of significant variation of revenue for the three year period were mainly allocated in the group of “dissonant organisations” (with 2 having no variation at all) and marginally in the group of “idle organisations” (with only 1 having no variation). The latter group contains those organisations that declared a decrease in their revenue (5 organisations).

The most significant element that emerges from the considerations made, results the high number of resonant and immoderate organisations which result particularly active and annually renew their adhesion to the United Nations initiative as well as having declared an increase in revenue from foreign markets. It is also worth noting that there are only sporadic cases where dissonant and idle organisations have had an increase in the observed parameter.

The analysis has also highlighted that in order to increase revenue, it is not particularly necessary to maintain a high degree of coherence between the universally recognised and sanctioned Global Compact principles and what is declared by the organisation through communication channels in relation to social responsibility. The results obtained from the falsification process of the declared hypothesis could be illustrated (TABLE 3) using symbols that clearly represent the correlation between the quantitative data and the qualitative information.

TABLE 3: THE FALSIFICATION PROCESS

<b>H<sub>p</sub></b>	<b>Y</b>	<b>f (x)</b>	<b>Result</b>
I	Revenue	Business Behaviour	Survival of the organisation over time
a)	$\Delta +$	Adhesion, Periodic Communication and Sharing of the Global Compact Principles	“Resonant” Organisations “Immoderate” Organisations
b)	=	Ineffectiveness of social communication	“Idle” Organisations “Dissonant” Organisations
c)	$\Delta -$	Absence of social communication	“Idle” Organisations
<p><b>Y:</b> dependant variable: the variation that effects the trend in varying business behaviour.  <b>f (X):</b> logical operator, not mathematical, being the independent variable (X) qualitative observed, not expressible in quantitative terms.  <b>Result:</b> informative output (expressed in relative terms) obtained through close examination of the results deriving from empirical research.</p>			

## **Final Considerations and Further Research Proposals**

Even though it may not be exhaustive, the field analysis has verified the influence that different types of business behaviour can have on improving, as well as worsen, the international competitive capacity of an organisation.

Analysis of the effectiveness of the communication and sharing activities taken by the organisation in relation to the Global Compact principles and the degree of coherence between the two as well as what is declared by the organisation through communication channels in relation to social responsibility, were the parameters used to carry out the empirical study.

It is worth noting that the competitive capacity of the organisations studied in an international context, was measured through the variation of revenue from foreign markets. Only one parameter, in quantitative terms, was therefore considered not to constitute the only element upon which to adapt the performance on global markets. The study could therefore be carried out in greater detail by considering further reference parameters upon which to correlate performance. They could have both a quantitative value, e.g. market share, as well as a qualitative one, e.g. social image and prestige.

The results of the inductive analysis can represent, in our opinion, not a final destination but rather a starting point, giving suggestions for ulterior considerations as well as further studies. In the first case, the results obtained from the empirical research highlight how the active organisations – and in several cases, proactive – respect the all the requirements formulated by the United Nations Agency, taking fully advantage of all the benefits associated to a socially responsible behaviour. These benefits subsequently reflect on the overall performance. A business behaviour that is careful to communicate, involve and sensitize all its interlocutors to the principles relating to human rights, labour relations and protecting the environment, as well as the exclusion of corruption, being universally recognised principles, will allow the organisation to improve performance not only in terms of social prestige but also in quantifiable economic results.

In the second case, a possible consideration for subsequent studies could be to identify through the validation of a hypothesis derived from the general one, in order to study further motivations capable of determining variations in the volume of revenue from foreign markets. A example would be to study the management's capacity to identify the particulars present in different territorial contexts as well as coherently contextualise their relations with relative interlocutors. This would not only have a positive effect on the social credibility of the organisation but also on the constant interactions with the local interlocutors thus representing a form of external monitoring.



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## End Notes

\* Even if both authors share responsibility for the entire work, par. 1, 2, 4.3 may be attributed to Maria V. Ciasullo, whereas par. 3, 4.1, 4.2 to G. Monetta; while par. 5 may be attributed both authors.

[<sup>1</sup>] As observed by Velo (2003) who discusses the ethics and social responsibility of the organisation, with it having to question the contribution of those studying the organisation and whether they can give a structure to a more advanced society and economy, just as the experts already studying it have done.

[<sup>2</sup>] The organisation of the value chain on a trans-national base makes for a dynamic management of the localisation of the organisation's own activity, supplying, production and sales. These allow the organisation to rapidly react to the economic and geo-politic conditions of the different parts of the world (Varaldo, 1997).

[<sup>3</sup>] Global Compact represents a type of "code of behaviour". In general "codes of behaviour" established by international agencies indicate a series of behaviour criteria to which the international organisations, even though they are not obliged by the law, are invited to follow. On the one hand, they determine a homogenous reference for all those competitors present on the international market. While on the other, they constitute a force of moral suasion that drives the organisation to uniform its behaviour in accordance to the set standards. For further details: Caroli, M.G. (2000). *Globalizzazione e localizzazione dell'impresa internazionalizzata*. Milano: Franco Angeli.

[<sup>4</sup>] The "Multistakeholders" Forum" on social responsibility started on an initiative taken by the ex-Minister for Welfare, Maroni, leading to several considerations on further strengthening of the prospects of the social responsibility of organisations in Italy, and the demonstrate definition in considering the theme as an absolute priority for Europe. In fact, even Sweden, Holland and Germany have already tested an approach that along with the strengthening of a CSR culture within their countries, also promotes it through Global Compact in developing countries. In Italy, a similar cultural process could and should be found in the associations between the strategy of management and Global Compact orientated towards the poorer countries cooperating with Italy.

[<sup>5</sup>] The hypothesis is a provisory affirmation that still has to be proved, deriving from the theory but needs to be empirically verified in order to be confirmed (Corbetta, 2003a).

[<sup>6</sup>] It is generally agreed upon that the term verify should be banned from scientific language, substituting it with the term falsification/validation in that science can never definitively prove anything but can only give confutations of alternative theories (Popper, 1970; 1985).

[<sup>7</sup>] In merit to the study on the relations between two characteristics, see: Corbetta, P. (2003b). *La ricerca sociale: metodologia e tecniche. L'analisi dei dati*. Vol. IV. Bologna: Il Mulino; Marradi, A. (1997). *Linee guida per l'analisi bivariata dei dati nelle scienze sociali*. Milano: FrancoAngeli.

[<sup>8</sup>] For further details on the concept of the correlation see: Pisati, M. (2003). *L'analisi dei dati*. Il Mulino: Bologna.

[<sup>9</sup>] “The answers to most problems can often be found among the archives of an organisation, containing material published, internal registers, statistics etc” (Chisnall, 1994).

[<sup>10</sup>] The study carried out in this phase can be considered longitudinal in that it refers to observations repeated over time (Lazarsfeld, 1967; Cannavò, 1999).

[<sup>11</sup>] It is not by chance that, “a similar procedure is used in the quantitative study of organisational phenomena(...) in order to obtain useful knowledge that can in managing the problems of the organisation, judgements concerning their behaviour as well as very action that is to be made regarding its behaviour, in given environmental conditions” (Onida, 1951).

## **Privatization and Corruption in the Kyrgyz Republic**

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### ***Abstract***

**This paper seeks to demonstrate that privatization, if well implemented, will have a positive impact on economic development and democracy. In transition, corruption in the Kyrgyz Republic is blooming. Privatization, sometimes, was conducted in a bureaucratic, corrupted and ‘broadly-giving-away-for-nothing’ way. Bribery and corruption needs to be discouraged by universal employment with sufficient wages and salaries, adequate public services, cultural values, and prosecution by the courts. The practice and culture of bribery and family/tribal loyalty need to be replaced by rule of law and honesty as the norm for economic, political and social relations. Corruption, which affects state institutions, needs to be addressed at all levels from bribery in government to corrupt practices in businesses. Without attention to corporate governance and increased corruption, privatized enterprises could miss opportunities, expose their reputations to greater risks, and find themselves at a competitive disadvantage. Ultimately they will become less attractive to foreign partners and investors.**

### **Introduction**

After the collapse of the Soviet Union in 1991, the Kyrgyz Republic declared its independence. The collapse of the Soviet Union gave rise to different political circumstances as well as to the new economic conditions for this country. Kyrgyzstan has decided to establish a competitive market economy by accepting privatization as a key element. For most analysts (see e.g. Lipton and Sachs (1990), Hinds (1990), Fischer and Gelb (1991), establishing the market economy in transitional economies mainly depends on four interrelated policies on the micro-economic side: price liberalization, integration into the world economy, reducing barriers for SMEs, and privatization. These policies also suggested by the International Monetary Fund (IMF) and the World Bank in transitional economies: stabilization-liberalization and privatization (Canning and Hare, 1996, 13). It was hoped that these policies taken together would motivate a supply response at the industry level, which would alter the structure of national

production, the pattern of sales, both domestically and internationally, the quality and variety of output and enterprise productivity (Estrin, 1996, 6).

## **Privatization Program and its Realization**

One of the main trends of the economic and social reforms conducted in the Kyrgyz Republic (KR) is formation of effective market relations in the economy. The main source of the creation of a competitive private sector is privatization of the state property and reduction of the state control over the economy.

In Kyrgyzstan, privatization process started at the end of 1991, virtually immediately after gaining of independence. Currently the seventh privatization program is being implemented. Every privatization program was developed for the period of 2 years and later for the period of 3 years and had to include the following:

- Tasks and goals of the state policy in the sphere of privatization for the current period.
- Definition of the objects involved into the program.
- Methods and means of privatization of the state property.
- Forecast of revenues.
- Forecast of the volume of investments related to privatization.
- A list of the groups of objects exempt from privatization due to the reasons of defense, state security and social development.
- Questions related to the environmental protection and public health, as well as retaining state monopoly in some sectors.
- Procedures of evaluation of the state property being privatized.

The core of the KR privatization legislation is the Civil Code and the Act on Privatization of the State Property in the Kyrgyz Republic. The privatization act of March 2, 2002 is in force. The law defines the contents of the program of the state property privatization, participants of privatization, methods of privatization, methods of transforming state-owned enterprises into joint-stock companies, procedures of privatization of the state owned enterprises that has been transformed into joint-stock companies, procedures of calculation of starting price, managing privatization income and its redistribution.

Mechanisms that ensure implementation of norms of the legislation are defined in the following regulations:

- on general conditions and the order of the state property privatization;
- on the procedures of the state property privatization by management contracts with an option for buy-out, on auctions, tenders, by leasing buy-out, by direct sale;

- on the procedures of case-by-case privatization and in methodic recommendations;
- on the evaluation of the property and objects of privatization;
- on the evaluation of land lots owned by state.

The law envisages that in the process of evaluation of the state property not only balance methods should be used, but also the methods of market valuation. This greatly broadened the list of by-laws directly or indirectly influencing on privatization processes.

Realization of each privatization program led to improvement of the legislation, more precise definitions, overcoming of misunderstandings and contradictions. The quality of the legal regulations was very doubtful – privatization programs and legal acts were in some respects too ideological and very contradicted each other and other laws. For instance, in privatization programs there were some terms and instruments absent in the act on privatization. Provisions of the law were often limited and changed in by-law acts prepared by the executive power.

### **Privatization Process and Corruption in the Kyrgyz Republic.**

The policy of privatization is based on the idea that activities of enterprises being implemented under free market economy with equal competition and commercial approach are more effective than those within administration limitations and instructions. The market is considered to be the source of social economic progress, the level of which depends on how competition is encouraged to increase production and consumer services.

Notwithstanding the depth and scales of revolution in the area of privatization, it remains an obscure notion to the majority of population. Actually, privatization includes many different approaches, goals and results. Some authors point out a necessity of good reasoned and consistent steps on the way to privatization, which would match a carefully developed conception<sup>1</sup>. The authors emphasize that “low effectiveness of production and inevitability of privatization are obvious”<sup>2</sup>. Further, analyzing the role of privatization in implementation of economic reforms, the authors write that “denationalization and privatization are, for sure, powerful mechanisms, which can enable the country to obtain in a new image, transform into a new quality of social and economic organization”<sup>3</sup>.

The problem of privatization is presented in discussions of its advisability. While such discussions take place, it is pointed out that consequences of privatization often appear to be negative in terms of the nation’s wellbeing and social justice. In other words, privatization results in unreasonable enrichment of a narrow circle of the population and pauperization of the majority of the society. Actually, it is true, but in a short term aspect. If privatization is considered not as a quick action, but as a long term and very complex process of changes, over a long period of time, its final aim is creation of an effective economic public system.

In 1992, the Kyrgyz Republic embarked a broad program of stabilization and structural reform, including price liberalization, mass privatization and liberalization of the trade regime. Most prices were liberalized with the removal of all direct and indirect price controls, and as for trade policy, all non-tariff barriers to exports and imports were removed. A mass privatization program has placed approximately 1000 primarily medium-sized and large enterprises and several thousand small businesses under private control.

In Kyrgyzstan, the mass privatization was conducted in the following way: the whole adult population was given privatization coupons on a free and equal base, with further rights to purchase apartments or exchange them for shares of state owned enterprises. The coupons were easy to trade. But the market prices of the coupons were very low. The price of 100 coupons was 1.22-1.35 soms, one coupon being approximately 0.0008 US\$. Thus the distributed coupons equaled 0.625 US\$ per capita in the Kyrgyz Republic. As a result, the coupons were not considered seriously by their owners. The mass privatization without clear legal boundaries in the early 1990s resulted in mass corruption in which high-ranking officials and influential politicians (including the opposition) snatched up the most lucrative properties and businesses<sup>4</sup>.

This method was widely used in the Czech Republic, Romania, Poland, Russia and Byelorussia. Unlike other ways, it does not require financing, and it does not gain budget revenues. The main peculiarity of this method is that the privatization process is quick and socially acceptable by the population. But the weak point of it should be admitted: that is the fact that the real situation of enterprises after privatization remains the same with all its related problems: difficult financial situations, low profitability, out-dated technology, and insolvency.

According to our viewpoint, the difficult situation of the industrial sector is due to the following reasons:

- First, lack of joint tax, financial, capital-credit and currency policy with the NIS;
- Second, differences of law regulations which affect cooperation and direct relations of enterprises;
- Third, lack of a common price and customs policy;
- Fourth, low effectiveness of the management system resulting in slow and poor decision making, inadequate control of decision making and irresponsibility of managers;
- Fifth, permanent increase of price of energy, raw materials, materials, and spare parts, which have worsened the problem of the payment of balance;
- Sixth, underassessment of the necessity of state regulation in order to study the conditions of the effective functioning of the economy.

For the period of January 1, 1991 to 1994, in the Kyrgyz Republic, 5,168 enterprises were privatized: in the industrial sector – 324 units, in the agricultural sector – 319 units, in the construction sector – 307 units, in the transportation sector – 102 units, in the trade and public catering – 1,756 units, in the public service – 1,878 units, in the non-production sector – 218 units. But since 1994 (the second phase of privatization) the correlation of

privatized enterprises has changed in terms of the ways of privatization. Transformation into joint stock companies was most common, which reached 40 percent. As for purchase by employees, it was only 3.7 percent, and purchase by private business – 16.2 percent. This correlation of ways of privatization is due to the fact that by 1994 big plants, factories and enterprises remained non-privatized, and later on were transformed into joint stock companies. The table below provides a breakdown of the privatized enterprises in the Kyrgyz Republic:

TABLE 1: PRIVATIZED ENTERPRISES IN THE KYRGYZ REPUBLIC, 1993-1995

	1993	1994	1995
Industry	259	324	462
Consumer Services	1,811	1,878	1,899
Trade and Catering	1,616	1,756	1,801
Agriculture	235	319	342
Construction	232	307	390
Transport	82	102	136
Other branches	192	482	856
Total	4,428	5,168	5,895

SOURCE: KYRGYZ STATE STATISTICS COMMITTEE, 1996.

In 1996 the private sector in the Kyrgyz Republic was 50 percent of GDP. As for other Central Asian countries, it was 20 percent in Tajikistan, 30 percent in Uzbekistan, 30 percent in Turkmenistan and 30 percent in Kazakhstan.

The market oriented reform policies implemented by the government over the past years have promoted multiple sources for competition in the Kyrgyz Republic. The demonopolization of specific sectors ( such as transportation and agro-processing), including the dismemberment of formerly vertically and horizontally integrated state companies, has allowed for the creation of competing markets and the liquidation of non-viable firms. The lowering of tariffs to a flat 10 percent and the elimination of quotas and other non-tariff barriers have made imports an important element of priced discipline to domestic producers. Finally, the liberalization of major restrictions to internal trade and foreign investment have created incentives for private entry, and, therefore, to expand and develop new markets.



Despite these reform efforts, the private sector growth has been hampered by a number of factors. Markets are small and dispersed, the cost structure is high and the number of risk-takers is small. There are important sectors, still run by state owned monopolies, where competition could be an important source of private sector development. Little restructuring has taken place at most privatized enterprises, which remain largely under the control of the same managers that directed them as state-owned entities. Foreign investors, who could offer new technologies, modern management methods, and access to world markets, are presented in only a handful of companies, and the securities markets lack sufficient liquidity to facilitate ownership change. Many new commercial laws have been adopted, but the judicial system is weak and court decisions are often unenforceable, and licensing requirements are often excessive. The system of corporate taxation lacks many of the incentives necessary to stimulate growth. Coupled with managers' fear of outsiders and loss of control, these factors have contributed to the general lack of investment and growth in Kyrgyz firms. John Nellis emphasizes that ironically privatization's present reputation in many transition countries as a prime cause of increased corruption<sup>5</sup>. Privatization, sometimes, was conducted in a bureaucratic, corrupted and 'broadly-giving-away-for-nothing' way. According to the Institute of Statistic Researchers, share of black economy was 3.2 percent in 1993, 6.0 percent in 1994, 10.3 percent in 1997, 11.9 percent in 1998 and 12.3 percent in 1999<sup>6</sup>. An independent center for public opinion studies in Bishkek announced on 21 February 2006 the results of its survey on corruption in Kyrgyzstan. 15.5 percent of the 2,100 people surveyed said that economic reforms have had little success due to widespread corruption in the country<sup>7</sup>.

In 1997, the financial situation of industrial enterprises remained unimproved. This, in its turn, has been due to low quality of management of enterprises, lack of really market management of enterprises. Many managers have no idea how to plan activities in market economy. They had "neither the ability to modernize the enterprise nor the market experience to cope in a competitive environment, nor the drive and vision to guide the radical restructuring often required improving enterprise performance"<sup>8</sup>. Nothing has been done to renew the main production funds. No measures have been undertaken to improve financial situation of enterprises. All these result in low profits, big losses and financial problems.

## **Stages of Privatization**

The privatization process in the Kyrgyz Republic can be divided into four distinct stages, which are 1991-1993, 1994-1995, 1996-1997, and 1998-2001. For each period, the number of privatized firms can be seen in Table 2 with respect to the sectors of Kyrgyz economy.

TABLE 2: PRIVATIZATION OF STATE OWNED ENTERPRISES IN KYRGYZSTAN: 1991-2001

Sectors	1990	1991	%	1995	%	1998	%	1991	%
	*	1994		1997		2001		2001	
Industry	608	376	61.80.	155	25.49	19	3.12	550	90.46
Agriculture	855	333	38.95	21	2.46	16	1.87	370	43.27
Services	6180	4424	71.58	378	6.11	243	3.93	5045	81.63
Public Services	3192	2195	68.76	154	4.82	170	5.33	2519	78.91
Trade	1963	1769	90.11	112	5.70	41	2.08	1922	97.91
Construction	730	345	47.26	73	10.00	16	2.19	434	59.45
Transportation	295	115	38.98	39	13.22	16	5.42	170	57.63
Other branches	2346	326	13.90	347	14.79	455	19.39	1128	48.08
Total	9989	5459	54.65	901	9.01	733	7.33	7093	71.00

(\*) SHOWS THE NUMBER OF STATE ENTERPRISES STARTS BEFORE PRIVATIZATION PROCESS

SOURCE: STATE PROPERTY FUND, BISHKEK, KYRGYZSTAN, 2002

The first stage of privatization was characterized by implementation of two privatization programs for 1991-1992 and 1992-1993. On this phase the legal background for privatization and attraction of investments was created, as well as relevant organizational infrastructure. In other words, this phase focused on establishing the legal framework and institutional infrastructure required to enable ownership of private property (other than land) and private enterprise. Land reform began with 17,000 peasant farms and new agricultural cooperatives being formed from a number of state and collective farms.

This period also saw two principal approaches to the privatization of companies:

- (1) A small-scale privatization program. By the end of 1993 more than 3,400 small-scale enterprises in retail trade, catering and consumer services had been sold via cash auctions. In other words, small and medium-sized enterprises were sold to their employees. Large enterprises were commercialized after that up to 75% of their shares was sold to their employees at a reduced price. The remaining shares were intended to be sold on the coupon auctions later.

At the same time, the process of privatization was burdened by the sins of bureaucracy and subjectivism.

Plans of privatization were created by local administrations without taking into account the real situation of enterprises.

- (2) A mass privatization program (MPP). The Kyrgyz mass privatization program was designed to encourage ownership by outside investors in order to stimulate rent restructuring of enterprises. Enterprise managers have, however, not only effectively maintained control of the majority of privatized firms, but have been able to

increase their holdings since privatization. This is the result of the purchase of majority positions by enterprise managers directly from the state during the privatization process or from other investors during the several years following privatization.

Special payments were issued, the amount each citizen received depending on employment records. The vouchers could be used to buy public housing or partial payment for the privatization of medium-scale or large enterprises. The percentage of equity of such enterprises reserved for sale of vouchers was determined on an individual basis, but could not be less than 24%.

Negative aspects of this phase:

This voucher program turned out to be an inefficient and restrictive instrument of mass privatization because:

- (1) vouchers were not tradable and therefore had no market value
- (2) vouchers distributed only a small percentage of the equity of individual enterprises and offered no opportunity for change in control and management
- (3) vouchers were time-limited and most of them were not even used

Positive aspects of this phase of privatization:

- (1) destroyed state monopoly in retail and services
- (2) introduced competition
- (3) eliminated deficit

Despite these positive aspects, they did not bring any decisive changes in ownership and control structures within the economy.

The second stage of privatization began with the adaptation of a new privatization strategy, which brought about important changes. With some key exceptions, all medium and large scale enterprises (MLE) became immediately available for privatization. Private investors, Kyrgyz or foreign, were allowed to own up to 100% of the equity of the MLE.

The MPP vouchers, most of them still unused, were replaced by privatization coupons. Coupons could be used to purchase equity in state enterprises at coupon auctions where typically up to 25% of an enterprise's equity was offered. Coupons could also be used to buy the stated-owned dwelling in which the coupon holder lived. Coupons were transferable, and both Kyrgyz nationals and foreigners – including institutional investors – could trade freely in them.

In addition to the coupon auctions, individual privatization, cash auctions (which typically took place following an enterprise's coupon auction) and investment projects were the main methods of privatization used during this stage. Phase 2 also saw the creation of the Enterprise Restructuring and Resolution Agency (ERRA) in

May 1994 under the World Bank- supported Privatization and Enterprise Sector Adjustment Credit (PESAC) to deal with 29 large loss-making enterprises. This group of companies needed either radical restructuring or liquidation. Diagnostic studies were conducted on each of the enterprises, and liquidation was begun in those determined to be unsalvageable. The ERRA shut down production at these enterprises, instituted “care and maintenance programs”, and placed the bulk of their employees on paid leave. Within the group judged to be salvageable, there was restructuring to relieve the companies from the burden of old debts and non-core assets. Some received rehabilitation assistance in the form of loans from the PESAC program and have successfully resumed operations. One completely resuscitated after controlling blocks of shares were offered for sale by tender to strategic investors.

All told, phase 2 encompassed the complete or partial privatization of an additional 1,000 enterprises. Disposition of the 4.4 billion privatization coupons which were printed during this period has been as follows: 41.26% were used at auctions by individuals and companies; 9.82% were used at auctions by investment funds; 0.20% were used to purchase apartments; 0.72% were used to purchase property; 27.55% were distributed but remain uninvested; and 20.45% have yet to be distributed (as October 10, 1996).

The main objective of this stage of privatization was transformation of medium size and large enterprises in industry, transportation and construction. They were privatized in the following manner:

- 5% of the equity distributed to the employees
- 25% sold for coupons in auctions
- 70 % sold to individuals or corporate investors at cash auctions.

All these figures demonstrate there is a serious problem of “coupon overhang”, which can be attributed to the following reasons:

- (1) The MPP vouchers were time-limited and a proportion of the population lost their entitlement to convert them into coupons because they did not do so prior to their expiration date.
- (2) The general population had little confidence in the values of the privatization coupons. At a current market price of 1.22 – 1.35 soms for a bill comprising 100 coupons, each coupon is worth approximately 0.0008 US\$ making the distributed coupons equal to only 0.625 US\$ per person in the Kyrgyz Republic.
- (3) While the Government’s motives for retaining a portion of the coupon issued are not known to the author, it is known that the government has periodically sold small groups of coupons into the market. At their current market price, 20% of the coupons which remain in Government hands are worth approximately \$0.75million. However, each time a group of coupons is sold; the market price has fallen and effectively

diluted the value of the outstanding coupons held by Kyrgyz citizens. This auction effectively transferred part of the value of the Kyrgyz Republic's assets back into the hands of the State.

- (4) A significant amount of the coupons in circulation remain uninvested. Thus, portions of those companies to be sold in phase 3 of the privatization program (see below) must be offered to the general public in exchange for the outstanding coupons; otherwise the uninvested coupons will be useless.

The third stage of privatization focused on restructuring large objects of monopolized sectors of the economy, privatizing non productive spheres, and restructuring and rehabilitation work with heavily indebted enterprises by units of the State Property Fund. Phase 3 is distinguished from phase 2 by the nature of the companies involved, which are predominantly large scale enterprises in mining, construction, transport and tourism, public utilities and infrastructure. Also 100 MLE that had been partially privatized, but in which the government continues to retain significant share holdings.

In 1998, the fourth stage of privatization started. On the framework of this phase, two programs of privatization: 1998-2001 and 2002-2003 were implemented. The privatization program of 2004-2006 is being carried out. The current stage of privatization lays emphasis on restructuring monopolies in the basic and strategic sectors of the economy – telecommunications, civil aviation, printing and publishing, electricity generation and distribution, coal mining, natural gas import and distribution, engineering, antimony production, natural gas import and distribution. Because of the size and diversity of these largest properties, there will be specific arrangements in every case. Each of the entities will be subject to thorough feasibility study.

Despite a high rate of privatization in the SMEs sector, the State still retains important stakes in number sizeable industrial enterprises, often characterized by high levels of indebtedness, lack of working capital and inadequate management and marketing skills. Good corporate governance is still to be developed, and its role fully comprehended.

Privatization of the Large State monopolies (Kyrgyz Air, Kyrgyz Telecom, four distribution companies established as a result of the break-up of Kyrgyz Energo, the State –owned energy company, and Kyrgyz Gas) which has been on the agenda for the last few years, is deemed critical for the success of the medium term program of the Government. These enterprises account for a relatively large share of economic activity, and their poor performance places a significant drag on potential output growth. Moreover, the sale of these assets would make an important contribution to external debt reduction. Successful privatization of these enterprises will be essential to boost investor confidence in Kyrgyzstan.

Thus, the Center of International Private Entrepreneurship conducted the research on economic reforms in 32 countries, including all the main developing countries, as well as the former socialist countries of Central and Eastern Europe. The research has shown that those countries which successfully implemented privatization programs – Thailand, Malaysia, Singapore, Mexico, Argentina and Jamaica, have succeeded much in their reforms. But successful implementation of privatization programs does not necessarily result in successful economic reforms. The main point here is that successful privatization creates an environment for stabilization and structural reforms.

Although some degree of macroeconomic stability has been achieved by the government, the macroeconomic reality of the Kyrgyz Republic has yet to be improved to the levels necessary so that privatization and restructuring would be considered as a positive impact on the economic reforms.

## **Privatization and Economic Reforms**

Privatization can improve the economy and create favorable conditions for local and foreign investors which are obligatory conditions of economic reforms at present. In other words, privatization is profitable for state and private sectors and consumers, not only for those enterprises being privatized.

Privatization will be successful if accompanied by reforms targeted to create more open and competitive markets. Despite economic difficulties, which are temporary, privatization is a huge step toward economic growth and lasting prosperity.

To draw foreign investment, notwithstanding the fact that in the direct perspective, privatization and implementation of economic reforms have a destabilizing impact, effective privatization programs can stabilize the monetary situation and economy of a country in the long perspective.

Macroeconomic stability, better tax administration, a substantially improved financial system and much less interference of the bureaucracy in the affairs of the private sector are a key factor in drawing foreign investments, which bring many advantages to countries receiving investments, that is sharing technology, increasing employment and developing exports. These three aims are crucial for the economic growth and development.

The climate for foreign investments in the Kyrgyz Republic at the enterprise level is not ideal. Despite the adaptation of a foreign investment law that guarantees the rights of the foreign investor, enterprises have limited experience and interest in investment by foreigners. Owners frequently overestimate the value of their companies,

not understanding the relatively high level of investment risk perceived by foreigners and the investment alternatives available to them in other markets, particularly as the “global market place” continues its expansion. Local managers and owners fear a loss of control and are reluctant to disclose enterprise information essential for investor analysis. They are also unwilling to undertake the restructuring methods set by foreigners as conditions for investment. There has been an important decline in foreign direct investment inflows to Kyrgyzstan over 1993-2001 periods (see table 3).

TABLE 3: FDI INFLOWS (NET) KYRGYZSTAN

COUNTRY	1993-2001		2001		Percentage of
	Total million US Dollars	Per capita	Total million US Dollars	Per capita	
Armenia	640	168	70	18	4.0
Azerbaijan	3773	472	227	28	4.0
Kazakhstan	12104	872	2760	185	15.0
Kyrgyzstan	453	92	22	4	0.7
Tajikistan	127	20	22	4	2.0
Uzbekistan	987	40	71	3	0.9

SOURCE: UNCTAD, IMF, CENTRAL BANKS

Canadian companies are the main investors in Kyrgyzstan comprising 38.1 per cent of the total cumulative investment during 1995-2001. The second largest foreign investor is the United States, with about 14 per cent of the cumulative investment (see table 4), followed by Turkey with 12 per cent of the total cumulative investment. The United Kingdom, Germany, Republic of Korea, Switzerland, Russian Federation, Netherlands, and Italy are other large investors in the country.

TABLE 4: KYRGYZSTAN: SOURCES OF FDI, 1995-2001

Region/Country	FDI inflows
Canada	38.1
United States	14.1
Turkey	12.0
United Kingdom	9.3
Germany	6.8
Republic of Korea	6.0
Switzerland	1.9
Russian Federation	1.6
Netherlands	1.5
Italy	1.5
Others	7.2

SOURCE: KYRGYZ STATE STATISTICS COMMITTEE, 2002

The largest amount FDI has been concentrated in the mining sector which accounted for an about 55 percent of the cumulative total of US \$734 million gross FDI over the 1995-2001 period (see table 5).

TABLE 5: KYRGYZSTAN: SECTORAL DISTRIBUTION OF FDI STOCK, 1995-2001

Region/Country	FDI inflows
Mining	55.0
Industry	5.8
Construction	5.9
Retail trade, catering and services	21.1
Transport/Telecoms	1.2
Others	11.0

SOURCE: KYRGYZ STATE STATISTICS COMMITTEE, 2002

Investment in manufacturing, transport and telecommunication, and the construction sectors continues to be low with a substantial invested in the trade and services sector.

Foreign investors and local managers alike bemoan the loss of tax holidays available under the old foreign investment law. Without the inclusion of compensatory investment incentives in the Tax Code, government



officials continue to grant tax concessions and privileges in an effort to remain competitive in attracting foreign investment vis-à-vis neighboring countries. The comprehensive Tax Code enacted in 1996 was updated in 1999. Amendments provide a uniform tax system, including income, profits, excise, customs, land and vehicular tariffs. However, tax system is burdensome, sometimes involving complex and time consuming accounting. Payroll taxes such as social fund payments, which are used for the national pension system, among other things, are also complex.

The tax administration system is corrupt and abusive. On the one hand, it is observed that legitimate businesses have little incentive to offer bribes, tax inspectors have a reputation of deliberately finding and sometimes creating problems so that they can negotiate financial payments for not revealing what they have discovered. On other hand, it is believed that many businesses do not pay taxes – hiding income and exaggerating expenses – but the corruption of the tax inspectors means that it is possible for these illegitimate businesses to pay less in bribes than they should in taxes.

Although the Kyrgyz Republic has entered into international trade agreements with its neighbors, enterprises report various difficulties in transporting goods across borders. Vehicles face frequent and extensive delays at border crossings and Custom Union countries often do not recognize duty-free entry of machinery and equipment in transit to the Kyrgyz Republic through their countries, or they require payment of VAT before goods are released. Companies complain of arbitrary enforcement and interpretation of rules at borders and claims of improper documentation. Transparent complaints and appeals procedures are lacking.

Weaknesses in the legal and judicial systems also hamper investment. Foreign investors as well as domestic investors demand control of enterprises in part due to the difficulties in adjudicating claims in the Kyrgyz Republic. While most major pieces of commercial legislation are now in place, enforcement of judges' decisions is difficult and a workable system of appeals non-existent. Courts suffer from a lack of transparency, poor procedural processes and the absence of qualified judges and other legal professionals. In other words, the court system is weak and corrupt, the courts do not enforce legal rights, and inconsistent interpretation of laws is not unusual. Despite the legal provisions, there no effective means of guaranteeing property and contractual rights. This is the result of poor training and low compensation. An honest court system is essential for encouraging and supporting the restructuring of enterprises, as the legal protection of the rights of creditors and other collateral holders, the enforcement of liquidation and bankruptcy rules and the guarantee of property rights are strong incentives for managers to put their houses in order.

Despite the adaptation of a licensing law in 1997, the system of enterprise licensing, in particular the lack of appropriate procedures for exacting penalties for violations or of a transparent appeals process, remains a source of harassment for firms. Clearly, Kyrgyzstan presents a difficult business environment. Major administrative

obstacles to investment are inconsistent implementation and interpretation of laws and regulations, excessive intervention of control agencies, unnecessary licenses and permits, corruption and unofficial payments, and insufficient institutional capacity of governmental agencies. Abuses in the administration of licenses, frequent changes in government practice and criteria, and the recent proliferation of licensing requirements can provide significant power to officials to thwart the rational flow of business.

The securities markets in the Kyrgyz Republic have played a limited role in fostering ownership change. Trading on the stock exchange is strictly regulated, but almost all trading takes place “off-market”, in an unregulated environment fraught with potential risk, and the largest infrastructure companies most likely to attract investor interest have yet to be privatized. As a result, exchange liquidity is particularly low. For most people who became shareholders during the mass privatization program, opportunities to sell securities are limited.

Why has privatization implementation appeared to be difficult and contradictory?

Here four groups of reasons could be pointed out, which slow down the process of privatization:

- (1) First, the policy of the opposition, which resists the process of privatization, presents a non-homogeneous environment, not supporting the policy of the government;
- (2) Second, the private sector is not strong. Therefore, an inadequate level of financial markets, and laws, as well as on finance and poor credit and securities mechanisms badly affect privatization of large enterprises, the main way of which is share sales;
- (3) Third, technical difficulties and large material expenses of privatization are common in developing former socialist countries, including the Kyrgyz Republic, with lack of both finance and highly qualified specialists to fulfill targeted projects;
- (4) Fourth, conflicts in the aims and conditions of privatization itself.

For instance, in the Czech Republic, privatization received more support than in Poland and Hungary (where the process was considered as an encouragement of foreign investments). In other words, the Czech public was much more interested in privatization than was the public in Poland, since people had the choice of how to use their vouchers<sup>9</sup>. Privatization in the Kyrgyz Republic showed, that bureaucracy, which comprises heads of former state owned enterprises, have too much impact by adopting forms of privatization to their own interests, or, as commonly said, they turn privatization into ‘personal privatization’ – “prihvatization”.

The experience of privatization in the developing countries, for instance, in Thailand, Indonesia, Singapore, enables us to make a number of general conclusions concerning privatization:

- introduction of competition in sectors, being monopolized by state owned enterprises in the past, enables large enterprises to be more effective and provide better quality services;

- private pension funds will assist in easing privatization processes since they strengthen capital market and enable individual share holders to manage their shares and participate in programs. Elements of this experience were used in the Czech Republic and Poland;
- privatization programs are implemented faster if the state does not make attempts to reconstruct enterprises before putting them on sale. Private investors, as a rule, can take more effective measures of reconstruction. Delay of privatization causes doubts towards the government and decreases public support of privatization.
- delay of privatization is costly for the state as well, which can cause or prolong imbalance on a macroeconomic level.

## Conclusions

The result of this research enables making the following conclusions:

The world experience of privatization has shown that privatization, if well implemented, will have a positive impact on economic development and democracy.

Privatization program could have been stronger. The degree of nepotism involved in the sale of companies needs to be reduced. The pace of privatization could be quickened and the quality improved if:

- (1) Defined prices for international securities are at more realistic levels and time frames are longer.
- (2) Government sells more companies on an "as-is" basis, and the object of restructuring (state debts, financial statements of enterprises) is prepared according to international standards, and the legal status of enterprises is clarified.
- (3) Created rule of law and culture of honesty.

Weaknesses in public policy, poor legislation, lack of transparency and consistency in their implementation resulting in unfavorable business conditions are identified as significant weaknesses. The unpredictability of the business environment; wide discretionary power given to police, law enforcement agencies, and tax and customs authorities; difficulties in enforcement of legal rights and lack of confidence in the court system, and widespread corruption all result in increased costs of doing business. In particular, current contradictions in the law must be removed and the hierarchy of legal acts must be restored in the day-to-day practice.

- (4) Corruption is reduced.

Bribery and corruption needs to be discouraged by universal employment at living wages, adequate public services, cultural values, and prosecution by the courts. The practice and culture of bribery and family/tribal loyalty need to be replaced by rule of law and honesty as the norm for economic, political and social relations. Corruption,

which affects state institutions, needs to be addressed at all levels from bribery in government to corrupt practices in businesses.

Corruption is a complex issue in Kyrgyzstan. In 2003, Transparency International ranked Kyrgyzstan 118<sup>th</sup> out of 133 countries surveyed in its annual Corruption Perceptions index. Anecdotal evidence suggests that while corruption is rampant, people often tolerate it because of their high dependence on state bureaucracy for basic needs, their perception of the importance of political loyalties, and their general mistrust of the justice system<sup>10</sup>. Many individual citizens and businessmen complained that they were forced to pay bribes for basic services, and kickbacks were extorted at every level of government. Despite the public outcry, few governments were prosecuted, and Kyrgyzstan was ranked among the most corrupt nations in the former Soviet Union countries. Kyrgyzstan's rating for corruption remains unchanged at 6.00.

(5) The policy of privatization is clearly defined and procedures followed more strictly and transparently.

(6) Created an adequate institutional framework that would include strong mechanisms of corporate governance, including rules to protect minority shareholders, rules against insider deals and conflicts of interest, and adequate accounting, auditing, and disclosure standards.

The real corporate relations are still dysfunctional due to a lack of division of functions, problems with creation of effective owner, the appearance of the new, unfamiliar environment as market economy where owners and managers have no idea how to govern the privatized company using the available set of laws and regulations. Limited efficiency of the corporate governance has the following main reasons:

First, this is the mental heritage of the Soviet era – corporate governance develops mainly on basis of privatized SOEs and bears the burden ineffective formal and informal structures and habits formed in the past.

Secondly, reforms have not been finished yet: the retaining state-controlled sector is still quite large and institutional and legal environment is highly distorted. Currently a lot of companies are quickly adapting in order to survive and develop, but they are adapting to that environment that exists now and that is very different from the one in developed countries. Besides, the choice of adaptation methods is limited by the experience, mental outlook, and skills of the main corporate players.

Third, the Kyrgyz Republic lacks sufficient sources of knowledge and models of behavior in the field of corporate governance. Under the conditions of prevailing dishonestly privatized ownership and very low level of foreign investments, the external sources of market mentality and knowledge are virtually absent. The majority of owners and managers have to learn mainly by their own mistakes.

Without attention to corporate governance, privatized enterprises could miss opportunities, expose their reputations to greater risk, and find themselves at a competitive disadvantage. Ultimately they will become less attractive to foreign partners and investors.

Over the longer term, there is a clear need to assist the Kyrgyz Republic to ensure that the privatized enterprises have the opportunity to remain viable and to grow, and to respond to their shareholders. Programs to assist in restructuring newly private enterprises, developing capital markets and financial institutions, raising capital from foreign investors, and developing effective corporate governance will be the major components of that assistance.

A well organized manner should be set in order for privatization to be successful, the main of which must be improvement of economic condition of privatized enterprises. This can be achieved by giving property to more effective owners, who are not only the source of investment, but also would lead to improvements in corporate governance and would be able to provide access to new technologies, markets etc. Attraction of effective owners should be done by:

- improvement on the overall investment and business climate;
- granting equal rights to potential domestic and foreign participants of privatization;
- active looking for foreign investors – successful and trustworthy foreign and international corporations.

Privatization, if implemented effectively and in well balanced goals, evokes trust towards the government among potential capital investors inside and outside the country. This, in its turn, will foster further privatization and will impact successfully on the economic reforms as a whole.

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## End Notes

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<sup>4</sup> Nations in Transit, 2004: p.20; <http://www.unpan1.un.org/intradoc/groups/public>

<sup>5</sup> The World Bank. Privatization and Enterprise Reform in Transition Economies: A Retrospective Analysis, 2003, p.9, Washington, D.C.

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<sup>8</sup> The World Bank, Transition First Ten Years, Analysis on Lessons for Eastern European and the Former Soviet Union, Washington D.C., 2002, p.82.

<sup>9</sup> Boycko, M., 1996, p.82, *Privatizing Russia*. Cambridge Massachusetts, London, England

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# **Corruption, Socioeconomic Factors, and Economic Growth: Does Regional Heterogeneity Matters?**

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## **Abstract**

**This paper focuses on the macro-aspect of corruption. The research question is whether regional economic or political heterogeneity matters in determining the impact of corruption on economic growth in that region. The model was estimated using a balanced panel for 104 countries over three-year time periods from 2003 to 2005. The data come from Transparency International, the World Development Indicators (WDI), and the Heritage Foundation. The fixed effect panel estimation results show that corruption is detrimental to economic growth. Dividing the countries into five geographic groups and running separate panel regression for each region, the results also indicate that corruption impairs economic growth, though the impacts of corruption on economic growth are markedly different between regions.**

## **Introduction**

The term “corruption” is defined as the use or abuse of public power for private gains. Corruption is most likely to occur where public officials have a direct responsibility for the provision of a public service or application of specific regulations (Bardhan, 1997; Rose-Ackerman, 1997). Corruption is universally observable and has its root in a country’s social and cultural history, in political and economic development process, and in bureaucratic traditions. The causes and consequences of corruption had been widely discussed.<sup>1</sup> A rich body of knowledge on corruption was acquired in the 1970s through the research of Krueger (1974) and Rose-Ackerman (1978). A principle theoretical component is that corruption can occur wherever economic rents exist.<sup>2</sup> Typically, economic rents are the results of government regulation and public officials have discretion in allocating them. For empirical research on the impact corruption on the economy, Mauro (1995) is the first to use cross-country data to investigate the consequences of corruption. Since then, numerous empirical researches followed to investigate empirically the causes and consequences of corruption. Early empirical works, for example, Keefer and Knack (1996), rely on classical linear regression (CLR) model and most recently empirical works rely heavily on panel data techniques developed in the past decade.

The current research focuses on the macro-aspect of corruption. Given that corruption is universally observed phenomena, the research question is whether regional economic or political heterogeneity matters in determining the impact of corruption on recent economic growth in the world. A panel data set of 104 countries covering most recent years is used to investigate the impact of corruption on economic growth. Following World Bank's country classification, this paper divides the 104 countries into five geographic groups of Asia, Latin America and the Caribbean, Middle East and North Africa, Europe and Central Asia, and Sub-Saharan Africa.<sup>3</sup>

The paper is organized as follows. Section two reviews literature on the impact of corruption on economic growth. Section three presents the econometric model and some methodological issues in panel data estimation. Section four discusses the data that will be used to estimate our model. Section five presents the econometric results. Section six concludes.

## **Corruption and Economic Growth**

There are two opposing views regarding whether corruption is harmful to the economy: The advocating view maintains that corruption can be socially advantageous and hence can enhance the efficiency of the economy. For example, Huntington (1968) and Leff (1964) suggested that when inappropriate economic policies are in place, corruption can be welfare enhancing since it reduces the inefficiency of the policies. The opposing views maintain that corruption slows down the operation of the economy and hence is detrimental to economic growth and overall welfare. Mauro (1995, 1998) shows that corruption is positively correlated to lower levels of investment and that corruption plagued countries tend to under invest in human capital by reducing government expenditure in health and education. Ades and Tella (1997) theorizes that the availability of corrupt gains is an incentive to a country's aggressive industrial development policy and concludes that the positive effects of the industrial development are cut in half by the negative effects of corruption in discouraging investments. Tanzi and Davoodi (1997) focused on the effects of corruption on public finances and concluded that corruption benefits public expenditures at the expense of private investments. In addition, they provide evidence to show that corrupted government officials direct public investment towards large projects, possibly at the cost of basis expenditures of education and health care.

Lambsdorff (1999) provides a very comprehensive list of empirical and theoretical researches on the causes and consequences of corruption. For the consequences of corruption, it surveys researches on the impact of corruption on investment, GDP, institutional quality, government expenditure, poverty and international flows of capital, goods and aid. For the causes of corruption, it reviews researches that exploring factors contributed to corruption. Various contributing factors to corruption are the absence of competition, policy distortions, political



systems, public salaries, colonialism, gender and other cultural dimensional characteristics.

Various empirical researches investigating the impact of corruption on economic activities are conducted based on micro-level data. Kaufmann and Wei (1999) uses data from three firm-level surveys and finds that red tape is not exogenous but dependent on both the firms' ability to pay and the discretionary powers of rent-seeking bureaucrats. They conclude that corruption may well enhance red tape, not circumvent it. Another recent research using micro-level data can be found in Mocan (2004). Mocan utilizes micro-level data set from 49 countries to address three issues of corruption: the determinants of corruption at the individual level, the determinants of perceived extent of corruption in the country, and the impact of corruption on growth when the quality of the institutions is controlled for. The empirical results show that both personal and country characteristics determine the risk of exposure to bribery. After controlling for the quality of the institutions, Mocan concludes that corruption does not have a direct impact on growth.

Some empirical researches on corruption are conducted based on macro-level data. Pellegrini and Gerlagh (2004) investigate corruption's effect on growth and its direct and indirect transmission channels. They regress the dependence of investment, schooling, trade policy, and political stability on corruption, and then estimate the contribution of the various channels to the overall negative effect of corruption on growth. They conclude that the transmission channels together explain 81 per cent of the effect of corruption on growth. Gyimah-Brempong and Munoz de Camacho (2006) use panel data from 61 countries over 20-year period to investigate regional differences in the effect of corruption on economic growth and income distribution. The paper finds that there are statistically significant regional differences in the growth and distributional impacts of corruption. The largest growth impact of corruption is found in African countries while OECD and Asian countries have the lowest growth impact, while the largest distributional impact of corruption was found in Latin America. Akcay (2006) explores the relationship between corruption and human development in a sample of 63 countries. This paper investigates the impact of corruption on three human development indices of life expectancy, educational attainment, and standard of living and access to resources. The results reveal that there is a statistically significant negative relationship between corruption indexes and human development; more corrupt countries tend to have lower levels of human development.

## **The Econometric Model**

Early empirical research on corruption uses ordinary least square (OLS) regression to estimate pooled cross-country data.<sup>4</sup> OLS using pooled cross-sectional data treats all data as if there was only a single index. The model is given by

$$y_{it} = \alpha + \beta x_{it} + \varepsilon_{it} \quad (1)$$

Model prescribed by equation (1) does not capture any possible differences in individual characteristics; nor does it pickup any particular common time series effects. Since corruption has its roots on cultural and institutional grounds and we are expecting that different society has different cultural and institutional characteristics. Treating cross-country data as homogenous one results in bias caused by unobserved heterogeneity. Most recent empirical study using cross-country data employs panel data methods to avoid this kind of unobserved heterogeneity bias.<sup>5</sup>

An alternative specification to equation (1) is to assume that the model has an intercept term  $\alpha$  that is different for different countries. The model can then be written as:

$$y_{it} = \alpha_i + \beta x_{it} + \varepsilon_{it} \tag{2}$$

The “unobserved heterogeneity” is captured by the varying constant term  $\alpha_i$ ’s across countries.

Panel data model specified in equation (2) captures the differences in individual countries, and the estimation techniques focus on making use of the available information about differences in behavior. The task in empirical work is to identify the nature of heterogeneity and to specify the model based on available statistical tests. The model can then be estimated and inference can be made thereafter.

Suppose that there is a panel data set contains information regarding a time dimension  $t$  ( $t = 1, 2, \dots, T$ ) and a unit dimension  $i$ , e.g. firm, individual, group, country, etc. ( $i = 1, 2, \dots, n$ ). The model has  $K$  variables or regressors. Consider a model where the intercept changes for individuals but it is constant over time and the slope is constant for individuals and over time:

$$Y_{it} = \alpha_i + \sum_{k=1}^K \beta_k X_{kit} + \varepsilon_{it} \tag{3}$$

To estimate the model we can make assumptions about the intercept:

$$\alpha_i = \tau + v_i \tag{4}$$

This means that there is a constant portion in the intercept for all individuals (  $\tau$  ) and a portion that changes for each group ( $v_i$ ). Based on (4), two kinds of model can then be discussed: the fixed effect model and the random effect model. In a fixed effects model,  $v_i$  is a fixed parameter and that  $X_{kit}$  and  $v_i$  are correlated. Whereas in a random effects model,  $v_i$  is a random variable and that  $X_{kit}$  and  $v_i$  are uncorrelated. Fixed effect models can be estimated by least squares dummy variable (LSDV) regression, the within effect model, and the between effect model. Random effect models are estimated by the generalized least squares (GLS) and the feasible generalization least squares (FGLS). When the variance structure is known, GLS is used. If unknown, FGLS is used (Greene, 2002, pp. 287-

302).

This paper uses panel data to investigate the impact of corruption on economic growth and tries to find whether unobserved heterogeneity explain growth differential in countries and regions. For the empirical work, the regression model is specified as:

$$G_i = \alpha_i + \beta_{1i}C_i + \beta_{2i}Z_i + \varepsilon_i \quad (5)$$

where C is the corruption index, Z is a set of variables acting as proxies of unobserved heterogeneity, and  $G_i$  is the average growth rate per year defined as

$$G_i = [\ln(Y_{it}/Y_{i0})]/t \quad (6)$$

In equation (6),  $Y_{i0}$  is income in the initial period for country  $i$ ,  $Y_{it}$  is income in time  $t$  for country  $i$  and  $t$  is time interval to the initial period. This paper concerns the growth rate over the past decade and thus set 1995 as the base year for growth rate comparison. Variables to be considered in the set of Z are labor force growth, productivity growth, political stability, and economic freedom. The empirical model to be estimated would be

$$G_{it} = \alpha_{it} + \beta_{1i}C_{it} + \beta_{2i}LF_{it} + \beta_{3i}PRD_{it} + \beta_{4i}POL_{it} + \beta_{5i}ECF_{it} + \varepsilon_{it} \quad (7)$$

?        +        +        +        +

In Equation (7), LF is the growth rate of labor force, PRD is productivity growth per labor, POL is political stability index, and ECF is the index of economic freedom. The expected signs for the regressors are shown below the  $\beta$ 's in equation (7). Whether corruption deters or promotes economic growth is the issue we want to investigate in this paper, thus the sign for  $\beta_1$  is unknown. Following existing economic literatures, we assume that labor force growth and productivity growth contributes to high economic growth and therefore the signs for  $\beta_2$  and  $\beta_3$  are expected to be positive. We also expect the sign of  $\beta_5$  to be positive, since economic freedom and economic efficiency are positively correlated and economic efficiency promotes output growth. As for political stability, we assume that violent changes in government will not only create economic disturbance but also jeopardize policy continuity and hence yield adverse impact on economic growth. Therefore, we expect that higher political stability promotes higher economic growth.

## Description of the Data

The economic data and labor force statistics used in this research was adopted from the *2006 World Development Indicator (WDI)*, with some necessary transformation to turn it into growth rate. This research also uses three proxy variables to represent socioeconomic and political characteristics of the countries studied. For the three proxy variables of economic freedom, political stability, and corruption, this study relies on perceptions-based, subjective measures published by various international institutions and agencies.

The measures of corruption is adopted from the *2006 Corruption Perceptions Index (CPI)* published by Transparency International (TI).<sup>6</sup> The CPI scores range from ten to zero, with scores 0 indicate the most corrupted society. A score of 5.0 is the borderline figure that the Transparency International distinguishes countries for being having or not having a serious corruption problem. The political stability index measures the likelihood that the government in power will possibly be destabilized or overthrown by violent or unconstitutional means. Higher or positive values indicate greater political stability. The index used in this research is the index of “Political Stability and Absence of Violence” taken from *Worldwide Governance Indicators: 1996-2005*, published by World Bank.<sup>7</sup> The proxy for economic freedom is taking from the *2007 Index of Economic Freedom* published by the Heritage Foundation. The index of economic freedom is a weighted index of 10 factors signifying the economic or policy environments. The scores of this index range from 0 to 100, with score 0 representing the most oppressed and 100 the most freely economies.<sup>8</sup>

The data set in this study consists of a balanced panel of 104 countries for three years (2003-2005). Five geographical regions are considered: Asia and Pacific (ASIA, 14 countries), Latin America and Caribbean (LATINO, 20 countries), Europe and the Central Asia (EUROASIA, 39 countries), Middle East and North Africa (MDLEAST, 11 countries), and Sub-Saharan Africa (SUBSAHARA, 20 countries).<sup>9</sup> Table 1 summarizes the data.

Average output growth rate of the whole country set in this study is 3.30% per annual. Regional and overall maximum output growth is observed in the transitional economies. Azerbaijan has the highest growth rate (8.84% in 2005) of all countries in this study. The second high growth rate is found in China (7.872% in 2005). The third highest growth rate, which is the highest in the sub-Saharan African region, is observed in Mozambique in 2005 (7.356%). For the 104 countries in this study, labor force grows at a mean rate of 1.756 and MDELEAST region has the highest average labor growth (3.592%). Average productivity growth for all countries in this study is 3.19% and there is large gap in productivity growth. The highest productivity growth has been observed in Azerbaijan in 2005 (22.865%) and the lowest rate in Venezuela in 2003 (-11.49%), the gap is 33.355%. We observe that there are wide intra- and inter-region difference in the three economic variables used in this research.

There are also noticeable intra- and inter-region variations in the three perceptions-based socioeconomic indexes. To our surprise, the average corruption perception indices (CPI) for the whole 104 countries and for each region are all below the TI’s critical value for “corruption-free” society. The mean value of CPI is 4.061 for the whole country set. The regional highest average CPI is found in EUROASIA (4.951) and the lowest in the sub-Saharan Africa (2.893). The other socioeconomic measure, political stability index, also shows diversity in distribution. The mean score for the whole country set is 43.379. Of the five regional groups, EUROASIA has the highest mean political stability index (55.939), MDLEAST has the lowest (31.972) and ASIAN has the highest standard deviation in distribution (s.d.=29.274). The last perceptions-based index is economic freedom. The mean

value of this index for all countries is 58.938; EUROASIA region enjoys the highest mean economic freedom (61.536) while MDLEAST is the region with the least economic freedom. Based on the preliminary investigation of the data statistics, we are expecting the presence of inter-regional and cross-sectional heterogeneity in the data.

TABLE 1: DESCRIPTIVE STATISTICS

Variable and Regions	Mean	Std. Dev.	Min.	Max.	Observations
<b>CPI: Overall</b>	4.061	2.123	1.30	9.70	N = 312, n=104, T=3
Asia	4.219	2.487	1.30	9.600	N=42, n=14, T=3
Euroasia	4.951	2.569	1.80	9.70	N=117, n=39, T=3
Middle East	4.133	1.456	2.40	7.00	N=33, n=11, T=3
Latin America	3.450	1.360	1.50	7.40	N=60, n=20, T=3
Subsaharan Africa	2.893	0.998	1.40	6.00	N=60, n=20, T=3
<b>Average growth rate: Overall (%)</b>	3.30	1.68	-2.401	8.840	N = 312, n=104, T=3
Asia	3.81	1.693	0.833	7.872	N=42, n=14, T=3
Euroasia	3.36	1.727	0.885	8.840	N=117, n=39, T=3
Middle East	3.71	0.955	2.30	5.580	N=33, n=11, T=3
Latin America	2.456	1.442	-1.136	5.560	N=60, n=20, T=3
Subsaharan Africa	3.449	1.821	-2.401	7.356	N=60, n=20, T=3
<b>Labor Force Growth: Overall (%)</b>	1.756	1.798	-5.757	9.696	N = 312, n=104, T=3
Asia	1.987	1.003	-0.408	3.994	N=42, n=14, T=3
Euroasia	0.700	1.903	-5.756	9.569	N=117, n=39, T=3
Middle East	3.592	1.629	0.214	8.378	N=33, n=11, T=3
Latin America	2.340	1.322	-0.714	6.791	N=60, n=20, T=3
Subsaharan Africa	2.046	1.083	-0.946	4.662	N=60, n=20, T=3
<b>Productivity growth: Overall (%)</b>	3.190	3.852	-11.486	22.865	N = 312, n=104, T=3
Asia	3.557	1.935	-0.185	7.261	N=42, n=14, T=3
Euroasia	4.544	4.294	-4.373	22.864	N=117, n=39, T=3
Middle East	1.414	2.021	-2.608	7.487	N=33, n=11, T=3
Latin America	1.949	3.748	-11.486	12.174	N=60, n=20, T=3
Subsaharan Africa	2.441	3.655	-11.007	10.091	N=60, n=20, T=3
<b>Political stability: Overall</b>	43.379	26.803	0.90	100.00	N = 312, n=104, T=3

Asia	41.043	29.274	4.20	95.80	N=42, n=14, T=3
Euroasia	55.939	28.01	3.30	100.00	N=117, n=39, T=3
Middle East	31.972	22.925	6.10	80.20	N=33, n=11, T=3
Latin America	36.550	19.897	2.40	79.70	N=60, n=20, T=3
Subsaharan Africa	33.295	21.061	0.90	81.10	N=60, n=20, T=3
<b>Economic freedom: Overall</b>	<b>58.938</b>	<b>9.918</b>	<b>31.60</b>	<b>83.00</b>	<b>N = 312, n=104, T=3</b>
Asia	59.414	10.626	43.70	83.00	N=42, n=14, T=3
Euroasia	61.565	10.839	33.9	80.50	N=117, n=39, T=3
Middle East	54.366	8.734	37.3	70.60	N=33, n=11, T=3
Latin America	60.868	8.387	42.20	79.00	N=60, n=20, T=3
Subsaharan Africa	54.593	7.877	31.60	69.80	N=60, n=20, T=3

Note: N: total number of observations (N= n×T); n: number of cross-section ID (countries); T: time periods

## Estimation Results

This section discusses the estimation results. In empirical estimation of panel data, we are concerned with the possible heterogeneity arising from time-series dimension and cross-sectional dimension. If there is no significant temporal or cross-sectional heterogeneity in the data then we could pool all the data together and estimate the model with ordinary least square method. Wald test is used for this purpose (Greene, 2002, pp. 294-295). The hypothesis testing pooled against temporal heterogeneity has F-statistics  $F(3,304) = 2.00$  (p-value: 0.1134), so the null hypothesis of no time-dimension heterogeneity is not rejected at the 5% significance level. The hypothesis testing pooled model against cross-sectional heterogeneity has F-statistics  $F(5,302) = 6.95$  (p-value: 0.00), so the null hypothesis of no cross-sectional heterogeneity is rejected. A cross-sectional fixed effect model is preferred than then the pooled model. Further, Hausman test is used to test between fixed effects and random effects models and the null for this test is that the cross-sectional effects are uncorrected with other regressors in the model. The Hausman test statistics is  $\chi^2(5) = 11.31$  (p-value: 0.008). Thus, the null hypothesis is rejected and we use fixed effect for the analysis. Since unknown heterogeneity may be present in the fixed effects model, White cross-section robust standard errors correction is used (Greene, 2002, pp. 578-80). Finally, we want to test whether there is serial correlation in the fixed effect residuals. Since the data set in this research is a short panel, we only test for AR (1) serial correlation. Under the null hypothesis that the original idiosyncratic errors are uncorrelated, the coefficient of the lagged residuals should have an autocorrelation coefficient of -0.5. A formal Wald hypothesis reports Chi-square

statistics  $\chi^2(1) = 0.812$  (p-value: 0.368). The test fails to reject the null of no serial correlation of the errors. In order to get as much information as possible, we ran all possible regression specifications. Table 2 reports the estimation results.

The output of fixed effect model is reported in column 2 of Table 2. The  $R^2$  of the fixed effect model is 0.984. The results indicate that both increase in productivity (PRD) and growth in labor force (LF) contribute positively to economic growth. This confirms the assumption made in equation (7). A 1% growth in labor force contributes to 0.056% of real GDP growth. A 1% increase in productivity growth contributes to 0.06% of real GDP growth.

TABLE 2: ESTIMATION RESULTS

	Pooled	Fixed Effect	Random Effect	Asia	Mdleast	Latino	Euroasia	Subsahara
Constant	0.805 (0.474)	1.854 (0.954)	2.447 (0.532)	3.140 (1.373)	4.828 (1.062)	0.601 (1.567)	-3.503 (1.187)	0.825 (0.961)
CPI	-0.198 (0.007)	0.225 (0.12)	0.034 (0.062)	0.573 * (0.228)	0.008 (0.136)	0.161 * (0.119)	0.272 * (0.118)	0.423 * (0.116)
LF	0.389 (0.048)	0.056 (0.017)	0.066 (0.022)	0.146 * (0.069)	0.106 * (0.062)	0.097 * (0.064)	0.140 * (0.034)	0.049 (0.045)
PRD	0.271 (0.022)	0.060 (0.014)	0.071 (0.015)	0.153 * (0.039)	0.056 * (0.022)	0.076 * (0.028)	0.141 * (0.034)	0.052 * (0.018)
POL	0.017 (0.004)	-0.007 (0.004)	-0.004 (0.004)	-0.005 (0.006)	0.010 * (0.007)	0.021 * (0.007)	0.017 * (0.011)	0.030 * (0.008)
ECF	0.017 (0.009)	0.010 (0.014)	0.010 (0.010)	-0.042 * (0.016)	-0.035 * (0.016)	0.002 (0.020)	0.051 * (0.019)	0.002 (0.012)
$R^2$	0.391	0.984	0.191	0.975	0.961	0.947	0.923	0.961
Adjusted $R^2$	0.381	0.975	0.178	0.966	0.940	0.928	0.898	0.947
Cross-section random (SD)	---	---	1.749	---	---	---	---	---
Idiosyncratic random (SD)	---	---	0.460	---	---	---	---	---

Note: \* denotes the coefficient is significant at 90% confidence interval.

The coefficient of CPI is positive and significant. Since high CPI score indicates less corruption, the empirical result shows that high CPI score is correlated with high economic growth. This implies that reducing corruption promotes economic growth. The coefficient of economic freedom (ECF) has a positive sign, which implies that economic freedom elevates efficiency and hence promotes economic growth. However, the contribution of economic freedom to economic growth is inconclusive in this model since the coefficient is insignificant.

In the fixed effect model, the coefficient for political stability (POL) is negatively small but significant. Though the coefficient is small, a negative coefficient implies that political stability is negatively correlated with

economic growth. It seems that this empirical result does not support our assumption that political stability promotes economic growth. Recalling the high diversity in political stability in various geographic regions, we suspect that this might be caused by some unobserved regional heterogeneity. Thus, a further estimation is made for each geographical group. The results are also reported on Table 2, column 4 through column 9.

The regional models tell a different story than the overall model. The  $R^2$  values for all five regional models range from 0.92 to 0.98. These high  $R^2$  values indicate the models can explain more than 92% of all variability in the data. A unanimous inference that can be drawn from the models is that productivity growth contributes to economic growth, though the extent of contribution differs region by region. A 1% increase in productivity growth contributes 0.153% output growth in ASIA, while a same 1% productivity growth contributes only 0.052% output growth in SUBSAHARA.

For all these five regional models, the signs on CPI and LF are all positive. They conform to the signs of the overall model. However, CPI is not a significant explanatory variable in the MDLEAST model and LF is not significant in the SUBSAHARA model. For those models with significant coefficients on CPI and LF, the contributions of these two variables to economic growth also vary region by region. Disturbance to CPI and LF would produce most significant impact on ASIA than on other regions. The regional models also show that political stability would promote economic growth in MDLEAST, LATINO, EUROASIA, and SUBSAHARA, but not in ASIA. The coefficient of POL in ASIA is negative and not significant.

To summarize, there are statistically significant regional differences in the growth impacts of corruption. The largest growth impact of corruption is found in Asian countries and the least impact is found in Latino countries. For the other two perceptions-based measures, economic freedom is not a significant explanatory variable of economic growth in LATINO and SUBSAHARA models and political stability is not significant in ASIA model.

## **Conclusion**

Corruption lies in the delegation of power. The foundation of power has its root on custom, cultural background, socioeconomic and political environment. Thus, the causes and consequences of corruption are heterogeneous for different countries. This paper focused on the effects of corruption on economic growth amongst countries and modeled economic growth as a function of corruption, some economic variables used in growth literature, and other factors measuring socioeconomic characteristics. We used Transparency International's corruption perception index (CPI) as proxy of corruption. We included two economic variables of labor growth and productivity growth as explanatory variables. We also used two perceptions-based measures as proxies for economic freedom and political stability. The model was estimated using a balanced panel for 104 countries over three-year time periods from 2003



to 2005. The data come from different sources such as Transparency International, the World Development Indicators (WDI), and the Heritage Foundation. The empirical work finds that the coefficient on the interaction term between CPI and economic growth is positive and significant for the whole country set. This implies that corruption is detrimental to economic growth. We also ran separate regressions based on same model specification for five geographical models. The results from geographical model also show that corruption impairs economic growth, though the impacts of corruption on economic growth are markedly different between regions.

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### End Notes

<sup>1</sup> See Bardhan (1997), Mauro (1998) and Azfar, Lee, and Swamy (2001). Azfar, Lee, and Swamy (2001) has a very nice conceptual review of the causes and consequences of corruption.

<sup>2</sup> Economic rent is the extra amount paid (over what would be paid for the best alternative use) to somebody or for something useful whose supply is limited either by nature or through human ingenuity.

<sup>3</sup> World Bank's country classification list contains 208 countries and regions, including its 184 member countries and other nonmember economies with population 30,000 and above. In order to form a balanced panel, this paper uses only 104 countries that have commensurate data available for the research periods of 2003-2005.

<sup>4</sup> For example, Mauro (1995, 1998) employs ordinary least square (OLS) regression and instrument variables technique to estimate data from both developed and developing countries.

<sup>5</sup> For example, see Gyimah-Brempong and Munoz de Camacho (2006), and Egger and Winner (2006).

<sup>6</sup> The data is available at [http://www.icgg.org/corruption.cpi\\_2006.html](http://www.icgg.org/corruption.cpi_2006.html).

<sup>7</sup> The data and methodology used to construct the indicators are described in "*Governance Matters V: Governance Indicators for 1996-2005*." The data is available at [http://www.icgg.org/corruption.cpi\\_2006.html](http://www.icgg.org/corruption.cpi_2006.html).

<sup>8</sup> The ten factors, the data, and methodology used to construct the index of economic freedom are described in the Heritage Foundation's website: <http://www.heritage.org/research/features/index/about.cfm>.

<sup>9</sup> Country list is available upon request from the author.

# **Corporate Governance on Organisational Performance in Indonesian Companies**

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## **Abstracts**

Despite the growing awareness of the importance of corporate governance in many studies of organisational performance, the works which have been presented to date have predominantly been based upon archival data, and performed in one-tier board systems. The objective of this study is to develop a measure of internal corporate governance based on the fulfilment of duties by company's governance structures and then relate this to perceived organisational performance. It is hypothesised that internal corporate governance relates positively to organisational performance. Reporting the responses of a sample of 496 managers and executives of companies in Indonesia, this study shows that the impact of internal corporate governance on organisational performance is weak, implying corporate governance practices are hardly observed by companies. Future studies need to take a longitudinal approach, and cluster their sample to validate the results. This is particularly so in Indonesia, as unique governance structures exist in Indonesian companies.

## **Introduction**

Is internal corporate governance related to organisational performance? Despite internal corporate governance being a key for safeguarding the interest of shareholders (Walsh & Seward, 1990), few researchers have examined this topic in an Indonesian context (Lukviarman, 2004; Nam & Nam, 2004). Interestingly, when they have there have been mixed results, as Lukviarman claimed that controlling shareholders – one form of governance structure in Indonesia – did not improve shareholders' value, while Nam and Nam concluded that board effectiveness was significantly associated with performance. In particular, Lukviarman acknowledged his study's limitations in terms of data, methodology, and measurement. In regard to this, the Chairman of The Audit Board of The Republic of Indonesia – referring to a World Bank report – stated that the Indonesian Accounting System had contributed to the

monetary crises of this country, due to its inability to produce reliable, transparent, and accountable reports (Nasution, 2003). As reliable and valid data are essential in research measurement, and as there are limited publications on this topic, further research is called for to better cross-validate findings. In addition, to improve organisational performance effectively, companies need to understand the factors that influence their performance. In this regard, Baysinger and Butler (1985) were among the first to conclude that internal corporate governance was associated with shareholders' wealth. In a more recent work, Florackis (2005) also argued that there is a positive link between internal governance structure and performance.

In regard to the conceptualisation of internal corporate governance, past research has focused on a well-performing board and executive compensation, the latter of which brings interests of managers and shareholders into congruence (Walsh & Seward, 1990). It has also focused on ownership which has led to active monitoring. To operationalise this concept in research, researchers have utilised secondary data. For example, Coughlan and Schmidt (1985), and Demsetz and Lehn (1985), measured internal corporate governance using executive compensation and ownership concentration, respectively. Similarly, Hermalin and Weisbach (2003), utilised the composition of the board – again archival data – in their research of internal corporate governance.

It must be noted that most studies of internal corporate governance were carried out in developed countries in which the validity of archival data was not subject to debate and capital markets were functioning more efficiently than those of developing countries. Particularly in developing markets, the existence of doubtful quality of secondary data (Baird, 2000) leads to the situation of the suboptimal functioning of capital markets. That is, market mechanisms of corporate governance in the form of tender offers, going-private transactions such as LBOs and MBOs, merger, and hostile tender offers can not be fulfilled (Walsh & Seward, 1990). To make matters worse, the debate relating to the cause of poorly governed and poorly performing firms has been analysed from either the strategic choice or the environment perspective (Astley & Van de Ven, 1983; Helfat & Peteraf, 2003; Porter, 1980) in which disentangling the effect from either one is always difficult. To overcome such a dilemma, Yoshimori (2005) proposed the internal corporate governance mechanism, within which the duties of all company governance structures could be assessed.

This study proposes an alternative way of advancing research in corporate governance by incorporating primary data about the duties of companies' governance structures, and relating this to perceived organisational performance. This approach is taken since "empirical dogmatism" in the form of negligence of alternative paradigms is the greatest barrier to advancing the field of corporate governance.

## **Theoretical Perspective on Internal Corporate Governance**

To date, the publications of corporate governance mechanisms are well documented. The most frequently cited references in the study of corporate governance are Berle and Means (1932), Jensen Meckling (1976), Alchian and Demsetz (1972), Fama (1980), and Williamson (1975). They argued that there were means of aligning the incentives of management with the incentives of shareholders through compensation contracts, debt covenants, boards of directors, auditing, labour markets, and capital markets. However, the study of the internal mechanisms of corporate governance, defined as the fulfilment of the duties of a company's governance structures has lagged behind.

Bank (2004) specially defined internal corporate governance in terms of the duties that are performed by a company's governance structures or organs including its board of directors, executive management, and independent control functions. He argued that in any national system, there are standards to be followed by boards of directors and executive management in running corporations. Theoretically, if these 'rules of the game' are sustained, the shareholders' interest will securely be maintained. Obviously, having thus defined the internal mechanism of corporate governance demands primary data that should be gathered from boards of directors and executives. In this regard, companies are largely unwilling to provide such information, and this barrier further inhibits the development of research in corporate governance. Nonetheless, research on corporate governance using primary data does exist. Pearce II and Zahra (1991), Zahra (1996), Zahra, Neubaum and Huse (2000), and Gill, Flynn, and Reissing (2005) to some extent used primary data in their studies of corporate governance. Daily, Dalton and Cannella (2003) believe that such data will enhance the understanding of the effectiveness of corporate governance, and they call it 'process-oriented data'. The potential value of this data has also been recognised by Forbes and Milliken, who stated that process-oriented data 'will enable researchers to better explain inconsistencies in past research on boards, to disentangle the contributions that multiple theoretical perspectives have to offer in explaining board dynamics, and to clarify the tradeoffs inherent in board design' (1999, p. 502).

In developing an internal corporate governance construct the dimension of duties of companies' organ developed by Banks (2004) was used as a starting point. As the work of Banks was derived from the context of corporate governance systems in western countries, which are based on one-tier system, adjustments were made in order to better portray the duties of companies' organs in the Indonesian two-tier system. These adjustments were based on interviews<sup>1</sup> and literature reviews of the Indonesian corporate governance system. According to the Indonesian Company Law, Law No. 1 of 1995, Indonesian company law adopts a two-tier management structure comprising a board of directors and a board of commissioners. Boards of directors are tasked with the management of the company, and their role is similar to that of executive management in western management structures. Boards

of commissioners are tasked with supervising and advising the directors, and are similar to boards of directors in western management structures.

The internal corporate governance construct consisted of 6 dimensions – namely the *Board of Commissioners (BOC)*, *Independent Commissioners (IC)*, *Audit Committee (AC)*, *Board of Directors (BOD)*, *Internal Control Group (ICG)*, and *Codes of Conduct (COC)*. In accordance with the dimensions used in this study, extant literature lent support to utilising these dimensions in researching internal corporate governance. The dimension of the *Board of Commissioners (BOC)* was selected because it represented the interests of shareholders and stakeholders by overseeing the fulfilment of the duties of boards of directors and by implementing internal controls. This dimension was applied by Bhagat and Black (1999), Hermalin and Weisbach (2003), Mak and Li (2001), and Gill et al. (2005), among many others. Related to the second dimension, the independency of commissioners is shown by the selection of criteria which stated that the members of *Independent Commissioners (IC)* are those that have no affiliation with the company, other commissioners, the board of directors, or controlling shareholders of the company and do not have a business relationship with the company's ultimate business. Examples of previous studies which support the use of this dimension are Bhagat and Black (2002), and Rosenstein and Wyatt (1997). The duties of auditing and controlling the process of financial disclosure and reporting, and internal control, are the responsibility of the *Audit Committee (AC)* (Daniri, 2005; NCCG, 2001, 2004). This dimension has been considered as one aspect of internal corporate governance by many in the past (Kurniawan & Indriantoro, 2000; Olson, 1999). The *Board of Directors (BOD)* dimension was selected since it represented the tone of the board of directors in advancing the company, protecting interested parties, being accountable for the company's decisions, and providing full and accurate information. Among many others, the works of Rechner and Dalton (1989), Gomez-Mejia and Barkema, (1998), and Desai, Kroll and Wright (2003) have considered the importance of this dimension. Further, unless the *Internal Control Group (ICG)* is in place, it will be very difficult for the board of commissioners and board of directors to perform effectively. This group of technical experts provides review, assessment, and control of a company's operations. In this regard, the internal control group plays a significant role in bridging the daily business activities of the company and the policies launched by higher levels of the corporate structure. Derived from the conceptual work of Daniri (2005) and the guidance of the National Committee for Corporate Governance (2001), this research utilised this dimension. In regard to the last dimension, the *Codes of Conduct (COC)* can be seen as 'the standards for behaviour and action when dealing with those inside and outside of the firm' (Banks, 2004 p. 47).

## **Theoretical Perspective on Organisational Performance**

As business organisations are becoming complex webs of relationship among various interest claimants (Atkinson, Waterhouse, & Wells, 1997) and multiple and partly conflicting goals exist within them, financial performance alone is no longer suitable as a performance measurement. It is for these reasons that multidimensional performance approaches, including nonfinancial or operational and perceptual performance indicators, have emerged (Venkatraman & Ramanujam, 1986; Wilderom, Glunk, & Maslowski, 2000).

This study employed the perceived organisational performance construct to measure the performance of organisation. This construct was adopted from the study of Wilderom and Van den Berg (1998). They asked about eight performance criteria that an organisation needed to improve. These criteria were *efficiency*, *customer satisfaction*, *managerial behaviour*, *professional behaviour*, *service quality*, *contact with clients*, *position in the market*, and *firm reputation*. Since improvement is the language of most managers, utilising this method was considered appropriate. Supporting this approach, Wilderom, Glunk and Maslowski (2000) and Petty *et al.* (1995) stressed that the multidimensionality of an organisation's functioning can be better measured with a multidimensional performance approach. Additionally, having stated in the previous section that the quality of secondary data was in doubt, relying upon financial performance measures could hardly have been suitable.

## **Relationship between Internal Corporate Governance and Organisational Performance**

Since the beginning of the 1930s, experts have realized that the separation of ownership from control creates a divergence in interests between owners (principals) and managers (agents) (Berle & Means, 1932). As most companies are no longer owned by equity holders, there should be controls by which the interests of managers are brought into line with the interests of the owners. Jensen and Meckling (1976) provide one solution by asserting that losses to the principal resulting from interest divergence may be restricted by enforcing control structures upon the agent. Further, Walsh and Seward (1990) argued that internal or organisationally-based mechanisms and external or market-based mechanisms will bring the interests of agents and principals into congruence. However, external control is less preferable to shareholders since acquisitions, divestitures, and ownership amendments are more expensive for owners to bear.

Internal control, thus, was investigated comprehensively and then related to organisational performance. For example, utilising M-structure as a proxy of internal control or internal corporate governance, Hill (1985) was among the first who found a relationship between internal corporate governance and performance. In regard to the first dimension of internal corporate governance, it was observed that those who monitor the management of the

company were in fact exercising behavioural control. This duty was fulfilled by the *Board of Commissioners* – one of the company's organs. Saffold III (1988) was among the first scholars who believed that behaviour control positively affected company performance. More specifically, boards of commissioners, who are tasked to 'scrutinize the highest decision makers' (Mizruchi, 1983, p. 433) or to be 'the ultimate control' (Hill & Snell, 1988), safeguard shareholders returns. In another study, the *Independent Commissioner (IC)* dimension was investigated by Hoskisson, Johnson and Moesel (1994), who stated that the presence of non-board blockholders, the proportion of board outsiders, board outsider equity, and board insider equity had a relationship with organisational performance. In more recent studies, the positive link between the presence of an *Independent Commissioner (IC)* and organisational outcome has also been validated (Florackis, 2005; Matolcsy, Stokes, & Wright, 2004). The dimensions of *Audit Committee (AC)* and *Internal Control Groups (ICG)* were also documented as important organs of internal corporate governance. Banks (2004) and the National Code for Good Corporate Governance (NCCG, 2004) have argued that an *Audit Committee* and *Internal Control Group* safeguard companies through their fulfilment of their duties. In regard to *Boards of Directors*, these are selected and paid by companies to run organisations on a daily basis. They are obliged to provide satisfactory returns to the owners of the firms through the strategy they defined, and its implementation. The contribution of this organ to organisational performance has been examined by Coughan and Schmidt (1985) and Murphy (1985), who concluded that there was a positive relationship between a *Board of Directors* and organisational performance. In more recent studies, Florackis (2005) has revealed the positive affect of compensation of boards of directors on performance. This was also the case with the *Codes of Conduct (COC)*, as its existence guards the interests of shareholders through promotion of proper behaviour (Banks, 2004).

## **Research Model**

Based on the previous section, a research model was build and this is shown in Figure 1. The second-order internal corporate governance construct consisted of 6 first-order constructs — namely *Board of Commissioners (BOC)*, *Independent Commissioners (IC)*, *Audit Committee (AC)*, *Board of Directors (BOD)*, *Internal Control Group (ICG)*, and *Codes of Conduct (COC)*. Each of these constructs is reflected by several observed variables. The *Organisational Performance (OP)* construct is reflected by eight dimensions.



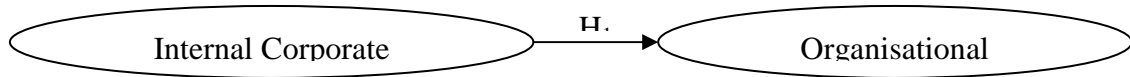


FIG. 1: RESEARCH MODEL: INTERNAL CORPORATE GOVERNANCE – ORGANISATIONAL PERFORMANCE

### Hypothesis Development

Having discussed the relationship between internal corporate governance and organisational performance, and having constructed a research model, the following hypothesis was developed:

*Hypotheses 1: Internal corporate governance, which is measured by the fulfilment of the duties of board of commissioners, independent committee, audit committee, board of directors, internal control group, and the reinforcement of codes of conduct, is related positively to organisational performance.*

### Research Method

Two stages of analysis were performed: the first was factor analysis using SPSS 14, and the second was the full Structural Equation Modelling (SEM) analysis using LISREL 8.8. Factor analysis was applied as the ‘data reduction technique used to reduce a large number of variables to a smaller set of underlying factors that summarise the essential information contained in the variables’ (Coakes & Steed, 1999, p. 147). Full SEM consists of examining the measurement part and the structural part. The one-factor congeneric measurement model of Holmes-Smith (2001) was applied. In doing so, a robust construct was sought through the tests of construct reliability ( $\rho > 0.50$ ), convergent validity (parameter  $t$ -value  $> 1.96$ ), and discriminant validity. As internal corporate governance is a second-order construct, a subsequent test of measurement was also carried out. These test procedures produced parsimonious constructs with reasonable fit indicators such as Root Mean Square Error of Approximation (RMSR), Goodness of Fit Index (GFI), Comparative Fit Index (CFI), and Satorra-Bentler (S-B) $\chi^2$ , among many others. In the structural part, the path between internal corporate governance and organisational performance was examined. With

the objective that the path being analysed is plausible, given the sample data, the structural path was subject to fit indices tests – S-B $\chi^2$ ,  $p$ -values, GFI, CFI, and RMSEA, among many others.

### **Sample and Procedure**

The subject of the study implicitly demanded that respondents should be familiar with the topic of internal corporate governance and performance. Choosing managers as respondents in research relating to organisational phenomena has been common in several previous studies (as an example see Heuer, Cummings, & Hutabarat, 1999). This technique is known as purposive sampling and ‘is characterized by the use of judgment and a deliberate effort to obtain representative samples by including presumably typical areas or groups in the sample’ (Kerlinger & Lee, 2000, p. 179). Managers who were taking educational programs and/or training session in three big cities were approached.

### **Pilot Studies**

Two pilot studies were carried out prior to the main survey. In the first pilot study questionnaires were distributed to 30 surrogate respondents of managers of one of the State Owned Company. The reliability test showed that all but one construct had a Cronbach’s alpha higher than 0.7. This was *Audit Committee (AC)*, with a score of .389. ‘A poorly worded item’ (Hulland, 1999, p. 198) may produce low loading; therefore, rather than deleting these items, refining them was the final choice for this study. Pilot Test 2 was carried out in three classes of the Magister Management Program at Gadjah Mada University. The reliability test showed that the Cronbach’s Alpha coefficient of all constructs surpassed the point of reference of .07. The conclusion of these findings was the research instrument was sufficient to be used for final survey.

### **Main Study**

One thousand questionnaires were distributed to the managers and executives of companies. These respondents were enrolled in educational degrees and/or training programs in three different cities (Jakarta, Surabaya, and Yogyakarta) run by the Magister Management Program of Gadjah Mada University. Students who were in the same course with managers/executives but had no job experience were excluded from the study. The method applied here was similar to those of Denison (1984, p. 8), who used the individual respondent in his study of organisational phenomenon (the culture of an organisation). Similarly, Denison and Mishra (1995) and Carmeli and Tishler (2004) used individual perception to measure organisational culture in their research. Supporting such an approach were Schein, and Van Aken and Strikwerda, cited in De Witte and Van Muijen (1999), who argued that as they were the enablers and the makers of organisations, asking individuals about their perception of organisational phenomena was natural. Individual responses, although applied in many organisational studies, are not immune from deficiency, as acknowledged by Calori and Sarnin (1991 p. 61). Nonetheless, they deemed this approach is appropriate, stating ‘there is bias in asking individuals to respond to questions concerning the whole company. However, it seemed to be

a better solution than aggregating specific work group practices and values, mainly because the surveys do not cover the whole population of the company'. Pointing to the aggregation technique, Hofmann (1997) claimed that the shortcoming of this approach is that potentially meaningful individual level variance in the items or constructs is neglected.

The response rate of the main study was 66.9 per cent. Among the responses, 496 useable questionnaires were tabulated for statistical analysis. A demographic profile of respondents was presented in the Table 1 below.

TABLE 1: DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

Demographic Characteristics		Frequency	Percentage
Gender:	- Female	108	21.8%
	- Male	388	78.2%
Age Group:	a) Under 30	68	13.7%
	b) 30+ to 40	234	47.2%
	c) 40+ to 50	139	28.0%
	d) 50+ to 60	53	10.7%
	e) 60+	2	0.4%
Tenure:	- Less than 1 year	10	2.0%
	- 1 to 5 years	90	18.1%
	- 5+ to 10 years	141	28.4%
	- 10+ to 15 years	120	24.2%
	- 15+ to 20 years	60	12.1%
	- More than 20 years	75	15.1%
Type of Business	- Service Business	353	71.2%
	- Manufacturing Business	61	12.3%
	- Others	82	16.5%
Department:	- Finance/Accounting	88	17.7%
	- Marketing	64	12.9%
	- Production/Operation	104	21.0%
	- Human Resource Management	36	7.3%
	- Others (corporate secretary, internal auditors, communication, and general managers)	204	41.1%

### Measures

The dimensions of internal corporate governance developed by Banks (2004) were used as a starting point. Additional dimensions derived from interviews and literature reviews of Indonesian Company Law and Indonesian corporate governance systems were included to capture the domain. In regard to the *Board of Commissioners* dimension, items summarised from Indonesian Company Law 1995 and the Code for Good Corporate Governance (NCCG, 2001) were added; the *Independent Commissioners* dimension was improved by adding items derived from the Code for Good Corporate Governance (NCCG, 2004), and the Jakarta Stock Exchange Directors' decree No.

Kep-315/Bursa Efek Jakarta/06-2000; the *Audit Committee* dimension was improved with items obtained from the Code for Good Corporate Governance (NCCG, 2004), The Stock Exchange Supervisory Body circular letter No. SE-03/PM/2000, and the Jakarta Stock Exchange Directors' decree No. Kep-315/Bursa Efek Jakarta/06-2000; the *Board of Directors* dimension was improved with items drawn from Indonesian Company Law 1995 and the Code for Good Corporate Governance (NCCG, 2001); the *Internal Control Group* dimension was improved with items summarised from the work of Daniri (2005) and material from the Code for Good Corporate Governance (NCCG, 2001); and the *Codes of Conduct* dimension was improved with items developed by the Code for Good Corporate Governance (NCCG, 2004). Synthesising these processes, the internal corporate governance second-order construct contained six dimensions and 64 observed variables. Organisational performance was measured using eight indicators developed by Wilderom and Van den Berg (2000; 1998). The questionnaire was translated into Bahasa Indonesia as the study was carried out in Indonesia.

In regard to the scale of internal corporate governance, the study asked participants to express the extent of their agreement or disagreement using a six-point Likert scale, namely: (1) Strongly Disagree, (2) Disagree, (3) Somewhat Disagree, (4) Somewhat Agree, (5) Agree, and (6) Strongly Agree. For the organisational performance construct the study asked participants to express their opinion of the degree their organisation needed to improve in the eight indicators. Here, the six-point Likert scale ranged from (1) Very Little, (2) Little, (3) Somewhat Little, (4) Somewhat Much, (5) Much, to (6) Very Much. By circling (1) Very Little, respondents confirmed that only modest improvement was needed in their company for that particular indicator, which in turn indicated that on this indicator their company had already achieved good performance.

The utilisation of a six-point scale instead of a five- or seven-point scale was based on the argument advanced by Trompenaars and Hampden-Turner (1997), who provided empirical evidence that some Asian countries, including Indonesia, rank high in the neutrality dimension. Consequently, the middle choice of response — namely 'neutral' and 'neither agree or disagree' — was excluded. It was believed that such responses would have contributed to the central tendency error (Cooper & Schindler, 2003).

#### **Data Examination**

Little's MCAR test of .035 indicated that the missing values could be considered to be missing completely at random (Little & Rubin, 2002). As such, any method of replacement was acceptable. Since series means replacement is most widely used, the study used this method. Kolmogorov-Smirnov's normality test showed there were distribution anomalies in all indicators, but skewness and kurtosis values fell within the acceptable range ( $\pm 2$ ). With 496 cases, the requirement of minimal sample size of 200 cases for SEM was fulfilled (Hair, Anderson, Tatham, & Black, 1998).

## Results

### Factor Analysis

The large number of variables could have been a disadvantage of the study, as 'increasing the number of variables also increases the possibility that the variables are not all uncorrelated and representative of distinct concepts' (Hair et al., 1998p. 91). Results of factor analysis showed that there were 20 observed variables for the internal corporate governance construct and 4 indicators of the organisational performance construct. The result of factor analysis is not shown here, but will be made available on request.

### Assessment of Measurement Properties

#### *Assessment of Unidimensionality, Convergent Validity, and Discriminant Validity*

Each construct was subject to a one-factor congeneric measurement model. Model re-specification was carried out to improve the model fit. In doing so, deletion of non-significant estimated parameters and freeing parameters that shared large error variance was applied. This process was stopped when model fit was accomplished and there were neither theoretical nor statistical justifications for further modifications. The result of the parameter estimates for final one-factor congeneric model are attached in Appendix 1.

Initially, there were 28 observed variables in the models. Following one-factor congeneric model assessment, the observed variables were reduced to 27 items. The item that was dropped belonged to *Board of Commissioners' duties*. *BOC1* was dropped since it shared significant error variance with *BOC4*, and it had lower loading than *BOC4*. *BOC1* measured the extent to which BOCs supervise the action of BODs; this theoretically overlapped with *BOC4*, which gauged the extent to which BOCs ensure that BODs comply with regulations having the force of law. Therefore, for the sake of parsimony *BOC1* was dropped.

Convergent validity measures the magnitude of the direct structural relationship between an observed variable and a latent construct. It is achieved when this relationship (factor loading) is significant from zero (Holmes-Smith, 2001). At 5 per cent significance level the *t*-value of the parameter should be higher than 1.96. The convergent validity requirement was fully satisfied as no *t*-values were less than  $\pm 1.96$ .

Another measure of validity is discriminant validity (Venkatraman, 1989). This represents the extent to which the constructs in a model are different. Constructs are supposed to not be highly correlated, as they are measuring different concepts. Therefore, a correlation between constructs that is greater than .80 or .90 represents a lack of discriminant validity (Holmes-Smith, 2001). Fornel and Larcker (1981) recommend that discriminant validity is fulfilled if the average variance extracted for two constructs is greater than the square of the correlation between the two constructs. Results shown in Appendix 2 and 3 indicated that the discriminant validity was satisfied.

### **Assessment of Reliability**

The indicator reliability was measured using squared multiple correlation. It was observed that all indicators satisfied the threshold of .500 (Holmes-Smith, 2001), and their *t*-values were significant (greater than  $\pm 1.96$  at 5 per cent significance level), therefore all were maintained (Sethi & King, 1994).

Meanwhile, in assessing the reliability of multiple measures for an individual construct, the internal consistency measure developed by Fornell and Larcker (1981) was applied. A commonly used threshold value for acceptable reliability is .50, which roughly corresponds to a standardised loading of .7 (Hair et al., 1998; Holmes-Smith, 2001). Another measure is variance extracted estimate (Fornell & Larcker, 1981). Higher variance extracted values occur when the indicators are truly representative of the latent construct. Guidelines suggest that the variance extracted value should exceed .50 for a construct (Hair et al., 1998; Holmes-Smith, 2001). The variance extracted measure is a complementary measure to the construct reliability.

Results of this study indicated that all constructs had good construct reliability ( $>.50$ ), and good variance extracted estimate ( $>.50$ ). The assessment of reliability test is shown in Appendix 4.

### **Second-order Analysis of Internal Corporate Governance Construct**

Internal corporate governance was a second-order construct; therefore, its properties needed to be assessed prior to structural analysis. Model re-specification was again carried out to improve the model fit. This process was stopped when model fit was accomplished and there were neither theoretical nor statistical justifications for further modifications. This assessment was recommended by Gerbing, Hamilton and Freeman (1994) as it has the advantage of evaluating construct validity with goodness-of-fit indices, and it also provides the conceptual advantage of providing a definite definition of the domains of content that operationalise the construct of interest.

First of all, to properly specify a second-order construct it is important to ensure that all first-order constructs are unidimensional (Kotha, Vadlamani, & Nair, 1997), as was the case with this study. To evaluate the fit of the second-order construct, researchers recommend using CFI along with other fit indices (Gerbing et al., 1994). Although the common fit indices such as chi-square, GFI, AGFI, and RMSEA/RMR are in practice applied in many studies of second-order constructs (e.g., Farmer, Maslyn, Fedor, & Goodman, 1997; Kaplan & Elliott, 1997), for the sake of completeness of good-fit indices, the CFI is called for. This index was applied in the not so recent study of Goldman, Greenbaum and Darkes (1997), and in more recent studies (Hagger & Chatzisarantis, 2005; Laroche, Kim, Tomiuk, & Bélisle, 2005). Marsh (1994) applied the RNI (Relative Non-centrality Index), which is essentially the same as the CFI, in his study of confirmatory factor analysis on a second-order construct. After five iterations, the fit indices satisfied the thresholds, as shown in the Table 2 below.

TABLE 2: MODEL RE-SPECIFICATION OF INTERNAL CORPORATE GOVERNANCE CONSTRUCTS

Fit Index	S-B $\chi^2$ (df)	<i>p</i> -value	RMSEA	RMR	GFI	AGFI	CFI
Results	155.958 (129)	0.0532	0.0205	0.160	0.909	0.880	0.999

The ratio of S-B $\chi^2$ /df was within the acceptable range of 1-2 (=155.958/129=1.209); the *p*-value was bigger than benchmark (=0.0532); RMSEA was satisfactory (=0.0205); GFI was acceptable (=0.909); and CFI's value was excellent (=0.999). The RMR score was not as good as the recommended benchmark of less than or equal to .05. However, since the RMSEA index was excellent, and RMSEA is superior to RMR in term of its characteristic of being least affected by sample size (Fan, Thompson, & Wang, 1999), the study considered that good fit indices were still satisfactory. Further, Byrne (1998) claimed that interpreting RMR is difficult since the residual values derived from the fitting of the variance-covariance matrix for the hypothesised model to those of the matrix of sample data are relative to the sizes of the observed variance and covariance. In regard to AGFI, it was acknowledged that this index was less than the restrictive threshold of .9, but exceeded the threshold of .80 (Gefen, Straub, & Boudreau, 2000). GFI and AGFI in the .80 to .89 range were also believed to represent a reasonable fit (Doll, Xia, & Torzkadeh, 1994). Moreover, Kotha, Vadlamani & Nair (1997) argued that such an AGFI index was still appropriate as long as other indices performed well, as was the case in this study. In sum, the overall fit indices were fulfilled in this study.

#### Assessment of the Structural Model

As stated by Gefen, Straub and Boudreau (Anderson & Gerbing, 1988), the objective of covariance-based SEM is:

to show that the null hypotheses – the assumed research model with all its paths – is *insignificant*, meaning that the complete set of paths as specified in the model that is being analysed is plausible, given the sample data. Moreover, its goodness of fit tests, such as  $\chi^2$  test the restrictions implied by a model. In other words, the objective of covariance-based SEM is to show that the operationalization of the theory being examined is corroborated and not disconfirmed by the data.

This objective can be met by, for example, *insignificant*  $\chi^2$  with *p*-value above .05 or GFI above .90, among many other satisfactory criteria. If needed, model re-specification can be performed to improve the structural relation between constructs or latent variables. Results showed that the full model did not need any model re-specification as all fit indices met the benchmark, as shown in Table 3 below.

TABLE 3: MODEL SPECIFICATION OF FULL MODEL

Fit Index	S-B $\chi^2$ (df)	<i>p</i> -value	RMSEA	RMR	GFI	AGFI	CFI
Results	227.748 (202)	0.103	0.0160	0.142	0.900	0.875	0.999

All but RMR and AGFI were not as good as the recommended benchmark of 0.05 and 0.90 respectively. However, considering the argument advanced by Fan, Thompson, and Wang (1999), Doll, Xia, and Torkzadeh (1994) and Kotha, Vadlamani, and Nair (1997) above, the study considered that overall fit indices were satisfactory.

The path between the organisational culture construct and organisational performance was measured by Gamma ( $\gamma$ ) coefficients. In assessing the structural paths the *t*-value was applied. The path was to be considered statistically significant if the *t*-value was greater than  $\pm 1.96$  at 5 per cent significance level (greater than  $\pm 1.645$  at 10 per cent significance level and  $\pm 2.575$  at 1 per cent significance level). With Gamma ( $\gamma$ ) coefficients of 0.076, the relationship was not significant at 5 per cent significance level (*t*-values=1.316), as shown in Table 4.

TABLE 4: ASSESSMENT OF STRUCTURAL MODEL-FINAL MODEL

Structural Path	Hypothesis	Gamma ( $\gamma$ ) coefficients	<i>t</i> -values
Internal Corporate Governance to Organisational Performance	H <sub>1</sub>	0.076	1.316 (0.057)#

# not significant at 5 per cent significant level.

## Discussion, Limitations, and Prospects for the Study

The research procedures in terms of factor analysis and two-step structural equation modelling (Anderson & Gerbing, 1988) were performed to achieve a robust and parsimonious model. One-factor congeneric model assessment was applied for each construct. Results indicated that all constructs fulfilled the benchmark set up for SEM analysis. The same results were derived from discriminant validity analysis. As internal corporate governance was a second-order construct, an assessment of its domain was again applied. After five iterations overall fit indices were achieved indicating that this construct was well conceptualised and operationalised.

The structural part of SEM showed that the hypothesis of the relationship between internal corporate governance and organisational performance, although in the right direction, was not supported by the data. The positive relationship implied that a higher presence of internal corporate governance led to higher organisational



performance. The non-significant *t*-values indicated that among the managers and executives, internal corporate governance was not considered an important determinant of organisational performance. As a consequence, relying too much on internal corporate governance to improve organisational performance can not be justified.

The reasons for the non-significant effect of internal corporate governance on organisational performance are worth discussing. The study's result may surprise scholars of corporate governance, as most previous empirical studies (e.g. Florackis, 2005; Himmelberg, Hubbard, & Palia, 1999; Hoskisson, Harrison, & Dubofsky, 1991; Thomsen & Pedersen, 2000) have claimed a positive and significant impact of internal corporate governance on organisational performance.

There is the possibility that internal corporate governance can produce stronger outcomes when it is maintained. To some extent, the behavioural systems analysis of Redmon and Mason (2001) lends support to this notion. The snapshot approach of this study was not able to figure out whether the internal corporate governance was maintained or not in the respondents' companies. This maintenance is particularly important if the environment surrounding the company is a dynamic one that demands the organisation's response – including internal corporate governance practices – to protect its survival. Accordingly, a longitudinal perspective may be applied in future research. In addition, the impact of internal corporate governance on organisational performance may materialize later in time. Here, investment in internal corporate governance requires longer time span to be expressed in better organisational performance. At the beginning, appointment of company demands costs, but then at a later stage their fulfilment of duties improves companies' positions' as no further improvements are needed in organisational performance dimensions. As such, cross-sectional data employed in this study needs to be lengthened to capture the notion of time. Additionally, the cross-sectional nature of this study could nullify all the effects, thereby, contributing to the non-significance of the model. That is, the good performance of one company's organs was counterbalanced by the poor performance of those in other companies. This effect seems right as the study did not make any attempt to deliberately choose 'good' companies, and overlook 'poor' ones. There was also possibility that the non-significant relationship was due to the tenure of respondents. That is, the new managers who attended the educational courses and/or training programs may not have had enough exposure in order to gauge their internal corporate governance practices and their organisation's performance. However, looking at the demographic characteristics of the sample only 2.0 per cent of respondent had tenure less than 1 year this possibility could hardly be justified.

In terms of regulations, in Indonesian *Company Law 1995*, there is neither limitation nor prohibition of individuals from holding multiple board positions simultaneously. This may also contribute to underperforming firms. That is, the internal corporate governance mechanisms within one company are rarely fully fulfilled if the members of the *Board of Commissioners* and *Directors* also serve the same position in other companies. This is

especially the case for directorships, as they are normally full-time employees of the company. Further, there is the other possibility that the *Independent Commissioners* are independent, but ignorant about what is happening in a company. Their ignorance may result from the fact that their appointment was not based on expertise, but rather from other considerations, such as political or government-related reasons.

Compared to other works, this research is not the only study that provides evidence of a non-significant relationship between internal corporate governance and organisational performance. For example, in their study of Australian listed companies, Lawrence and Stapledon (1999) revealed no evidence of a significant relationship. Similarly, studies carried out in Singapore (Mak & Li, 2001) and the UK (Faccio & Lasfer, 1999) have produced the same results. Two studies performed by Bhagat and Black (1999; 2002) using US data have also revealed the non-correlation between internal corporate governance and firm performance. Seeking the reason for this, Bhagat and Black (1999) pointed to the role of *Independent Commissioners*, stating that they often turn out to be lapdogs rather than watchdogs. The independency of *Independent Commissioners* in Indonesian companies was also questioned by Tabalujan (2002). The Code for Good Corporate Governance stipulates that at least 20 per cent of commissioners must be independent of the directors and controlling shareholders and must hold no interest which may impair their ability to perform duties impartially. However, as the adoption of this code is not yet mandatory, the query of Tabalujan may be justified.

This study believes that internal corporate governance is a necessary but not sufficient requirement to improve companies' performance. There are many factors that contribute to a company's performance (Bhagat & Black, 1998; Lawrence & Stapledon, 1999). Among these many factors, transactional and transformational leadership (Bass, Avolio, Jung, & Berson, 2003), industry-specific factors (Porter, 1980), and strategy (Lewis & Thomas, 1990) can contribute to performance. Bass et al. (2003), in particular, have highlighted the importance of transformational leadership given the pace of change confronting companies today. Such rapid change has taken place in Indonesia as a consequence of monetary crises, reformation, privatisation, and adjustments to so many 'new rules of the game' in the Indonesian business environment. As a result, so-called 'adaptive and flexible leadership' is called for. Admired, respected, trusted, motivated, caring, and stimulating leaders are believed to be able to provide a 'soft bumper' to make sense of the challenges employees confront and to help followers to respond appropriately to those challenges (Bass et al., 2003). It is, therefore, always possible that some additional constructs or variables, left out of the model, can provide reasons answer for the poor performance of firms. This is the important avenue for future research.

As suggested, the impact of internal corporate governance on performance may take a long time. At this point in time, this study may not tell the whole story about the relationship of both constructs. Thus, longitudinal research on these relationships would likely provide fresh evidence. The use of a cross-sectional approach, and the

equal treatment of 'good' and 'poor' companies in choosing the sample, may have contributed to the non-significant model. Clustering the sample and applying longitudinal research is suggested in future research to better examine the relationship of organisational culture and organisational performance.

## Concluding Remarks

Findings about the effect of internal corporate governance on company performance have been conflicting, and thus applying these results to the country where the system of corporate governance is significantly different is difficult. Without the courage to search for other paradigms, research on corporate governance will rarely be fruitful. This study proposed a reliable and valid measure of the domain of internal corporate governance, and related this to organisational performance. Although the relationship was in the right direction, the data did not support a significant result. As no single study can confirm the relationship between two constructs, future research is needed to provide more evidence. This is particularly so, due to the unique governance structure in Indonesian companies.

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### Appendix

APPENDIX 1: RESULTS OF PARAMETER ESTIMATES OF FINAL ONE-FACTOR CONGENERIC MODEL

Items	Standardized Loading	Squared Multiple Correlations	Standard Errors	t-values
<b>Board of Commissioners</b>				
BOC4	0.787	0.619	0.097	19.933
BOC8	0.944	0.891	0.043	36.499
BOC9	0.958	0.918	0.059	52.369
<b>Independent Commissioners</b>				
IC4	0.892	0.796	0.054	41.395
IC6	0.960	0.922	0.035	71.835
IC7	0.913	0.834	0.043	44.500
IC8	0.897	0.805	0.063	38.643
<b>Audit Committee</b>				
AC6	0.889	0.790	0.032	39.205
AC7	0.843	0.711	0.060	25.199
AC8	0.927	0.859	0.038	41.037

AC9	0.908	0.824	0.032	41.282
Board of Directors				
BOD7	0.924	0.854	0.021	57.104
BOD8	0.927	0.859	0.020	65.888
BOD9	0.875	0.766	0.032	33.690
BOD17	0.795	0.632	0.051	23.769
Internal Control Group				
ICG1	0.835	0.697	0.051	19.172
ICG2	0.919	0.845	0.034	33.880
ICG3	0.899	0.808	0.039	29.293
ICG4	0.779	0.607	0.051	22.519
Codes of Conduct				
COC4	0.846	0.716	0.041	34.470
COC5	0.907	0.823	0.032	47.447
COC6	0.890	0.792	0.053	30.169
COC7	0.904	0.817	0.056	40.454
Organisational Performance				
OP2	0.884	0.781	0.023	38.301
OP4	0.797	0.635	0.025	31.338
OP5	0.947	0.897	0.023	40.867
OP6	0.868	0.753	0.035	23.075

APPENDIX 2: CORRELATION MATRIX

	<i>BOC</i>	<i>IC</i>	<i>AC</i>	<i>BOD</i>	<i>ICG</i>	<i>COC</i>	<i>OP</i>
<i>BOC</i>	1.000						
<i>IC</i>	.0732	1.000					
<i>AC</i>	0.660	0.738	1.000				
<i>BOD</i>	0.708	0.627	0.725	1.000			
<i>ICG</i>	0.472	0.533	0.662	0.603	1.000		
<i>COC</i>	0.570	0.532	0.648	0.739	0.568	1.000	
<i>OP</i>	0.045	0.004	0.044	0.076	0.073	0.122	1.000

APPENDIX 3: ASSESSMENT OF DISCRIMINANT VALIDITY

	Constructs	Average Variance Extracted	Square of Correlation between Construct	AVE>SC?
<i>BOC</i> with	<i>IC</i>	0.828	0.536	Yes
	<i>AC</i>	0.803	0.436	Yes
	<i>BOD</i>	0.793	0.501	Yes
	<i>ICG</i>	0.770	0.217	Yes
	<i>COC</i>	0.796	0.325	Yes
	<i>OP</i>	0.785	0.004	Yes
<i>IC</i> with	<i>AC</i>	0.818	0.545	Yes

	<i>BOD</i>	0.810	0.393	Yes
	<i>ICG</i>	0.791	0.284	Yes
	<i>COC</i>	0.812	0.283	Yes
	<i>OP</i>	0.803	0.000	Yes
<i>AC</i> with	<i>BOD</i>	0.788	0.526	Yes
	<i>ICG</i>	0.768	0.438	Yes
	<i>COC</i>	0.791	0.420	Yes
	<i>OP</i>	0.781	0.002	Yes
<i>BOD</i> with	<i>ICG</i>	0.759	0.364	Yes
	<i>COC</i>	0.782	0.546	Yes
	<i>OP</i>	0.772	0.006	Yes
<i>ICG</i> with	<i>COC</i>	0.763	0.323	Yes
	<i>OP</i>	0.753	0.005	Yes
<i>COC</i> with	<i>OP</i>	0.777	0.015	Yes

#### APPENDIX 4: CONSTRUCT SCALE RELIABILITY AND VARIANCE EXTRACTED ESTIMATE

Constructs	Construct Scale Reliability	Variance Extracted Estimate
Board of Commissioners	0.973	0.924
Independent Commissioners	0.954	0.839
Audit Committee	0.940	0.796
Board of Directors	0.933	0.777
Internal Control Group	0.985	0.944
Code of Conducts	0.936	0.787
Organisational Performance	0.929	0.710

### End Notes

<sup>1</sup> In this study, interviewees' expertise was acknowledged due to the qualifications they hold. The first two persons graduated from doctoral degree of foreign universities, are researchers, and supervise research of PhD students in Indonesia. One of these two persons is independent commissioner of two companies in Indonesia. The third person is one of director of Capital Market Supervisory Agency Minister of Finance The Republic of Indonesia, and member of the National Committee on Governance. The fourth person is researcher of Non-Government Organisation focusing on the practices of corporate governance of Indonesia. The fifth person is author of book on

good corporate governance in Indonesia, a vice-director of one of biggest electronic company in Indonesia, member of the National Committee on Governance, and was former director of Jakarta Stock Exchange. The sixth person is PhD graduate of foreign university, an academic staff, and researcher in the area of organisational behaviour.

# **Corporate Governance Mechanisms: Matters of Relevance or Irrelevance?**

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## **Abstract**

**Following the economic crises in countries across the globe and the failures of major, high profile corporations in various nations around the world, corporate governance mechanisms have been targeted as a significant indicator of corporate well-beings; and a focus for remedial processes to overcome the negative effects of the past and ensure future sustainability. Thus, governments, shareholders, corporations and the public have increased their attendance to the initiation and implementation of appropriate mechanisms of governance. Academics, on the other hand, have sought to identify, develop and promote examples of the best practices in corporate governance mechanisms (CGMs). The current paper focuses on the recent CGM literature, including empirical evidence on the internal mechanisms of corporate governance: the roles of the board of directors and the ownership structure applied to corporations. Studies suggest that the findings are contradictory as to whether or not the mechanisms actually are relevant to the success of the corporations.**

## **Background and Context of the Study**

Following the economic crises in countries across the globe and the failures of major, high profile corporations in various nations around the world, corporate governance mechanisms have been targeted as a significant indicator of corporate well-being, as a focus for remedial processes to overcome the negative effects of the past and to ensure future sustainability. The corporate governance mechanisms imposed on organisations, therefore, are an accountability measure for organisational success and survival in the economy. According to the current studies on corporate governance in the academic literature, and in the practical applications adopted among real-world corporations, two relevant and critical mechanisms are those related to the board of directors and the structure of the ownership.

The board of directors can be viewed as the common apex of the decision control systems of organisations, large or small (Fama and Jensen 2004, p. 69). In addition, the board members “use past experience as a predictor of future behaviour” (Simpson 2007, p. 17) in exercising their skills to protect and to promote the interests of the



shareholders. The underpinning principle of having diversity on boards is to ensure that the interests of managers (agents) are aligned with the interests of shareholders (principals) as predicted by the agency theory: the fundamental theory of corporate governance put forward from the market-based system countries such as Australia, Canada, the United Kingdom and the United States. Although, in general, agency theory is considered to be valid, Eisenhardt (2004, p. 90) argues that “it only presents a partial view of the world; the theory ignores a good bit of the complexity of organisations. Additional perspectives can help capture the greater complexity”. Furthermore, on the global level, Davis (2005, p. 158) argues strongly that “nations vary widely in their constellations of governance institutions, even among the wealthiest economies. Both post-socialist and emerging market economies have had quite divergent experiences with public corporations and financial markets, and much work remains to be done in explaining this diversity”. Also, the argument is in line with the view of Cadbury (2004, p. ix) that “there is a diversity of governance systems and processes around the world. Forms of corporate governance are shaped nationally by their economic, political and legal backgrounds, by their sources of finance, and by the history and culture of the countries concerned”. Hence, it is not surprising that empirical evidence on the scope of the roles of boards varies accordingly to the complexity of organisational systems within, and without, a country and embedded in the context specific to each nation.

Around the world, differences also apply to the structures of ownership patterns of corporations, whereby the nature of ownership can be concentrated or dispersed depending on the market development, the evolution, and sources of finance available for corporations in each country. Moreover, the level of the owners’ involvement in the corporation also varies. Thus, so far the body of knowledge on corporate governance and mechanisms, with a focus on the roles of boards and the structures of ownership, has grown to encounter the multi-faceted aspects of domestic and worldwide corporations in the contemporary era of the global economy. Consequently, the current paper addresses two significant features of internal corporate governance mechanisms and the context of their relationship to the for-profit corporations’ performances, including the provision of empirical evidence as to their relevance or otherwise in selected countries. The paper is divided into four sections. The first section is concerned with the background and the context of the paper. The second section provides a review of corporate governance and its two mechanisms. The third focuses on empirical evidence, as to corporate governance performance, and the fourth provide a conclusion and some limitations of the paper.

## **What is Corporate Governance and Why is It so Significant?**

Despite the fact that boards are taking the issue of diversity seriously and the selection of board members has reached a new level of professionalism, previous literature defines corporate governance in specific terms related to the context of particular organisations. A generally accepted meaning of corporate governance can range from the basic definitions given by Sir Adrian Cadbury in 1992 and 2002 and the OECD (Organisation for Economic Cooperation and Development) in 1999, to a more detailed identification of a set of mechanisms that help maximise the value of the companies for their owners (Davies 2006; Denis and McConnell 2003; Luo 2007; Werder and Talaulicar 2006). Primarily, there is agreement that corporate governance is concerned with directing and controlling of large business organisations.

However, the rationale behind the wide variety of definitions that continue to exist today has depended largely upon the perspectives of the investigative researchers; i.e., it depends on whether or not corporate governance issues are viewed from a similar, or unrelated, lens. Furthermore, it depends also upon the 'theories' applied by those investigators. Turnbull (1997, p. 180 and p. 181) asserts that in order to encompass most perspectives, an inclusive definition of corporate governance should be described as all the influences affecting the institutional processes, including those for appointing the controllers and/or regulators, involved in organising the production and sale of goods and services.

Why is corporate governance so significant? The answer lies in the profit-making ability and growth of corporations. Corporate governance is perceived to be essential if a firm is to be sustainable in the longer term (Mallin 2006); in turn, the wealth of a nation impacts upon the sustainability of its corporations. The opposite is also true! The failure of domestic corporations can be followed readily by the downfall of the nation's economy, thereby triggering the domino effect on economies of other countries with strong international connections: e.g., the economic crises during 1990s and the failures of major corporations worldwide in the early 2000s. It has been noted that the corporate governance system is to be blamed for sundry scandals and collapses of corporations and economies (Phan, Lee, and Lau 2003; Clarke 2004, p. 14; Melis 2006). Not only does a collapse affect the particular corporation, but the negative impact also is felt by the citizens of the nation at the micro-level of society.

One proposed framework for determining the scope and relationships among key players in the concept of corporate governance suggests a complex set of responsibilities among shareholders, managers, the board of directors and other parties such as customers, alliances, banks, creditors, employees, government, auditors, the local community and the wider society (Fig. 1).

There are three substantial, leading theories underpinning the idea of having corporate governance mechanisms: agency theory, stewardship theory and stakeholder theory. Each theory of corporate governance and

its mechanisms can be understood by utilising the framework proposed in Figure 1. Although the components can be customised or tailored accordingly to the concept underpinning each theory, each corporate player cannot be erased completely from the whole picture.

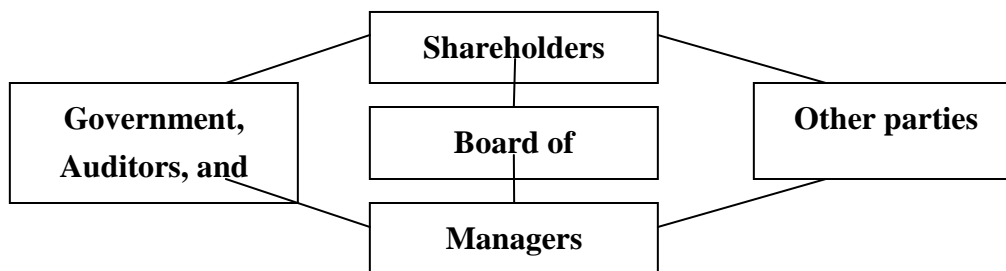


FIG 1: CORPORATE GOVERNANCE

Source: Adapted from: Intrawichai, S. (2005).

From an agency perspective, the corporate governance deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment (Shleifer and Vishny 1997, p. 737). Therefore, control mechanisms such as laws/regulations, markets, incentives/compensation, and independent directors are required by corporations to ensure that managers do not behave according to their personal interests (i.e. management opportunism), but in line with the best interests of financial suppliers (See Gillan 2006 for a review on recent developments of US corporate governance, and Denis and McConnell 2003 for an international perspective). Doubts about the efficacy of the agency theory have increased since the collapse of Enron in 2001. It is noted that not only does the theory prove to have its limitations, but so does the concept of the underpinning function of the monitoring system by the boards; therefore, it has been argued by Deakin and Konzelmann (2004) that the concept of boards representing financial suppliers should be replaced by the concept of stewardship. Nonetheless, before applying the stewardship theory, the question is to what extent the managers can be trusted to run the companies without the control mechanisms imposed by the boards or boards' roles. Control mechanisms in corporations remain precisely because the lack of mechanisms, and undue reliance on managers, were major reasons why corporations such as Enron failed.

According to the stewardship theory, the issue of trust has been placed upon the managers and their ability to run the companies. They are required to make their own interests that are assumed to be pure, collective and cooperative with those of the shareholders. In other words, the managers are expected to perform their strategic tasks in the best interests of corporations they are running and, by doing so, achieving the best result for themselves at the same time. Certain corporate mechanisms such as use of independent directors or having boards impose tight

control mechanisms are irrelevant to this theory. However, remuneration strategies of executives may be used to promote the concept of the alignment of personal and corporate interests.

As for the stakeholder theory, the corporate governance mechanisms are put in place by taking into account the involvement of all parties: i.e., of all stakeholders. Stakeholders include contractual stakeholders such as shareholders, employees, customers and suppliers as well as community stakeholders such as regulators, government, pressure groups, and local communities (Clarke, 2004).

The recent development in finding the best mechanisms for corporate governance has begun to incorporate the third theory, based on returns to stakeholders and to the society-at-large as part of helping develop the long-term sustainability of the corporations. It is argued (Lo and Sheu 2007, p. 346) that those companies that actively maintain sustainable development are more likely to be rewarded by investors, because they have a highly developed 'valuation' in the financial market.

Thus, the corporate governance theories have relevance to the corporation and its role in the wider society, but it is important also to understand the types of corporate governance mechanisms; in particular, the roles played by boards and the ownership structure.

## **Theories on Roles of the Board of Directors**

Regardless of different perspectives in the concept of corporate governance and its mechanisms, e.g., internal vs. external or market-based vs. non-market-based, the corporate leaders are still the 'board of directors'. As put by Siebens (2002, p. 110), the real highest level of leadership is the board, where the directors have to "run the show."

During an international seminar on Corporate Governance and Direction, it was insisted that "Boards should not and cannot run the company, assuming the board is not composed of all inside directors. They do not have the time, knowledge or skills (Clarke 1998, p. 64)". A realistic view of the role of the board, as mentioned by Professor Lorsch, was to perform a strategic role for the companies, to evaluate and reward the CEO, to monitor legal and ethical conduct, to act as change agents, to deal with company crises and to manage the company's development and succession.

Over the past decade, the academic community has discussed, investigated and proposed ideas about the 'best practices' of boards of directors. Up to date, there have been eight major theories supporting the above-mentioned views on the roles of boards. The fundamental ideas can be categorised as agency, stewardship, resource dependence, institution, network, stakeholder, managerial hegemony and class hegemony theories.

In line with an agency viewpoint, the assumption of the duty of directors is that directors are accountable to shareholders only, with a duty to protect shareholders' interests and to provide adequate return on their investment

(Lorsch and MacIver 2004, p. 112). Thus, according to agency theory, the role of the board is to ensure that top management teams are working in the best interests of shareholders or financial suppliers.

The stewardship theory assumes that the agents' interests are already aligned with those of owners of corporations (Davis, Schoorman, and Donaldson 2004); in other words, there are no conflicts of the interest between two parties in the first place. Managers are interested in cooperative behaviour with shareholders in order to achieve the goals of organisations. Metaphorically, stewards (managers) attempt their best with their full capacities to serve owners (principals). Therefore, the stewardship perspective views the roles of the boards as to oversee and to comply with, not to develop policies or strategies; i.e., managers are assumed to undertake those roles already (Hilmer and Donaldson 1996).

Three theories that take the external environment and its pressures into account are resource dependency, institution, and network theories. Pfeffer and Salancik (2003) argue that an organisation's survival and success depend on its co-optation strategies to tap resources critical to the organisation while dealing with environmental uncertainties. By having boards of directors, it is argued that boards serve for that particular purpose among different entities or interest groups such as creditors, customers, suppliers or competitors who are important for the organisations. Hillman et al. (2004, p. 139) assert that the increasing number and scope of environmental dependencies prompt the firms to alter their board structures to better align them with new dependencies, since the board members can bring in their expertise, connections, information and valuable resources into the firms and help reduce the transaction costs. The roles of boards are assumed to help reduce uncertainty and to provide linkages to the external environment within the organisational boundary.

The institutional perspective is a relatively deterministic theoretical framework that places great emphasis on environmental norms and the weight of a company's history as explanations of organisational norms and actions (Judge Jr and Zeithaml 2004, p. 151). Therefore, the roles of boards are to comply with formal and informal constraints such as laws, regulations, and accepted norms in the society and to build legitimacy within the organisational environment over time.

The definition of network governance proposed by Jones et al. (2004, p. 160) involves a select, persistent and structured set of autonomous companies (as well as non-profit agencies) engaged in creating products or services based on implicit and open-ended contracts to adapt to environmental contingencies and to coordinate and safeguard exchanges. The similarity between resource-based and network governance theories is that both can help reduce transaction costs. However, the role of boards in the two theories is quite dissimilar. Resource dependence theory puts emphasis on the critical resources received from connected parties, but the network governance theory highlights connections important for the corporations.

In contrast to the agency theory, the role of boards in stakeholder theory is to ensure that the management teams' interests match those of the stakeholders. In other words, even though it is said that the boards are accountable to shareholders, the boards are responsible also for stakeholders. In countries such as Germany and Japan, stakeholder theory has long been established in their corporate governance systems. Also, it has been noted that stakeholders have the ability to monitor company performance (Clarke 2004).

Managerial hegemony is a concept developed in the work of Mace (2004) who reported that, in 1971 American boards were to advise and to counsel, to discipline management teams and to serve as decision-makers during crisis situations such as the sudden death of a Chief Executive Officers or the resignation from the company of a President; actions which are in contradiction to the more modern business literature which supports the ideas that the boards should establish corporate objectives, strategies, policies, ask discerning questions and select the Chief Executive Officers. In managerial hegemony, there is no connection between the nominated roles of the board and actual board activity. The role of the board is perceived to be simply a rubber stamp for management actions and initiatives.

Similarly, in case of class hegemony, it is predicted that the roles of the board are to perpetuate elite and class power rather than to provide genuinely diverse resources and insights (Corbetta and Salvato 2004, p. 129).

In effect, the majority of previous literature<sup>1</sup> has focussed often on two theories in explaining the roles of boards. However, by relying alone upon one or two perspectives the actual roles of boards cannot be completely captured, nor is it possible to articulate clearly the meanings of having the board as the corporate leaders. In his pioneering work, Hung (1998) describes the ideal board of directors as designing, linking, coordinating and controlling roles related to strategic, maintenance and support corporate behaviours, reflecting the roles of the board of directors from the thoughts based on resource dependency theory, stakeholder theory, agency theory, stewardship theory, institutional theory and managerial hegemony.

## **Theories on Ownership Structure**

Associated with agency theory is the basic concept of the separation of ownership and control. The structures of ownership that fit this perspective are noted in those corporations with diffused ownership as exemplified by the majority of the corporations such as in Australia, the United Kingdom (U.K.) and the United States (U.S.). The theory of the corporate ownership structure arising from the agency perspective explores the prevalent diffusion of corporate ownership; early concepts were developed by Jensen and Meckling (1976). They suggested the optimal structure of ownership takes into account the debt and equity of the company to be held by different groups of people. The stocks and bonds can be issued to the CEO (inside equity), to anyone outside of the company (outside

equity), and also to anyone outside of the company (debt equity) in order to mitigate the agency problems arising from the conflict of interests between agents and principals.

It is simple for the Anglo-Saxon economies to apply the theory of ownership structure to the majority of public-held companies whereby the owners of the companies can be separated completely from the controlling part of the companies. In other words, by providing the stocks or options based on the performance of managers in order to ensure that interests of managers can be aligned with those of shareholders is effortless unless there is a need to find the optimal level of ownership in the companies. However, the same concept cannot be applied to different structures such as that of family businesses whereby the owners of the companies are the same group of people who control the corporations; for instance, in Thailand where family businesses still exist and mostly have control over public-held companies (Natenapha 2006).

In addition, while the form of dispersed or diffused ownership structures prevail in Australia, the U.K. and the U.S., other countries such as in Europe and in Asia have different forms (Faccio and Lang 2002; Claessens, Djankov and Lang 2000). In Japan, for example, the majority of shares of a listed company are owned by banks, business corporations, individual shareholders and insurance companies, respectively (Cooke and Sawa 1998). These shareholders, furthermore, are noted as not taking part in governing corporations, which is quite different from Anglo-Saxon economies.

Moreover, Guillèn (2000) argues that institutional investors are not increasingly adopted in many countries such as Japan, Turkey and South Korea while they are growing in other countries such as Australia, the U.K and the U.S. The underpinning cause is the difference in each country's legal tradition.

## **Relevant or Irrelevant Issues to Corporate Performances**

Contemporary literature reports that the roles of boards in relation to the corporate performance are to monitor the company and the performance of management; to make major decisions with regard to compensation plan, CEO succession, capital structure/expenditures and about mergers and acquisitions, including diversifications; and to offer advice and counsel to management, especially to the CEO. To achieve all those ends, it is argued that the board needs to be independent (Carter and Lorsch 2004) regardless of whichever theory or theories underpin the roles of the board, whatever the contexts of the studies and whichever types of board structure (the inside/outside directors ratio and CEO/Chairman duality). The independent board means that the decisions and the recommendations from each board member are not to be influenced by other board members unless the consensus is reached for the best of the future of the corporation embedded in the interests of shareholders and of other external stakeholders. Each board member is entitled to his/her views, leading the company to become successful in the current and future

economy. However, previous findings in the United States with regards to the board independency and firm performance do not uniformly support this view (Johnson, Daily and Ellstrand 1996, p. 420). The evidence concerning the independency of the board, such as that in Japan, reports that increasing of the ratio of outside directors to the board in order to create board independency does not also relate to firm performance (Yoshikawa and Phan 2003).

In their comprehensive literature review on ownership structure research in the U.S. and around the world, Denis and McConnell (2003) conclude that the evidence in the U.S. regarding the effects of ownership structure on firm value is mixed and as for the evidence around the world, the relation between ownership structure and firm performance appears to be varied. However, concentrated ownership has been reported to have a positive effect on firm value. Nonetheless, the conflicting evidence found in Hong Kong shows that there is no positive relationship between family ownership and firm performance (Chen, Cheung, Stouraitis and Wong 2005). Further, an additional view supporting the U.S. evidence found from the studies in Japan among firms whose financial resources are not from banks suggests higher levels of equity ownership by managers and the corporations are more profitable than for bank-affiliated firms (Kang and Shivdasani 1999).

Recent evidence combining the concept of independent boards and the theory of ownership structure shows that with more independent boards and greater insider ownership, the companies are less likely to be delisted from the Stock Exchange (Charitou, Louca, and Vafeas 2007). Nevertheless, the opposite result can be found from a study in Europe arguing that there is no relationship between the number of insider directors or the level of managerial ownership and corporate profitability among European firms (Krivogorsky 2006).

## **Conclusion and Limitations**

Regardless of divergent theories or convergent ideas underpinning the roles of boards and the dissimilar structures of ownership around the world, it is argued that maximisation of profits is the prime driving force of corporations now, as it always has been the case of business (Berle, 1965: 49). Also, equally important are shareholders of the companies because they vest their interests and capital in the firms. However, Blair (1995) argues that corporations do not exist to serve shareholders only, but they do exist to serve the society-at-large. If that is the case, the roles of boards will be changed accordingly to the views of those to whom the boards are accountable: the shareholders alone, or the stakeholders or groups such as employees, customers and suppliers. Is there an obvious link between stakeholders and corporate sustainability if this theory is going to prevail in the next century? The classic concern is about who has the absolute rights to maintain and control the corporation. If the owners cannot, the answers must lie in the roles of boards who act in between the managers and the (real) owners of the corporations. The question,



then, is one of who actually own the corporation? The definite answer is the shareholders or those who invest in the corporation. Also, it may be asked to whom the corporation shall be responsible in order to create long-term sustainability? The society-at-large provides the scope of an answer, as the single, major purpose of the corporation is to maximise the corporate profitability in the society.

However, as observed by Clarke (1998), the corporate governance field still lacks an integrated theory. This is not to mention about its mechanisms that have been developed in corresponding to various theories and put into practice by real-world corporations around the globe with respect to different cultures, norms, laws, local economy and knowledge of people. The gap between the theories and empirical evidence remains contradictory. Due to differences in the contexts of various studies mentioned, the supporting evidence for corporate governance and its mechanisms still seems too far from ideal practice. Nonetheless, the effectiveness of having boards controlling and directing corporations is linked to that the very essence of governance; that is to be able to govern, one must have the power to make decisions and to enforce their execution (Lorsch and MacIver, 1989: 112).

This paper has limited reference to the profit of publicly traded corporations; therefore, it is possible to exclude the real sample of populations of other types of corporations such as non-profit organisations (NGOs) and privately-held firms, which also adopt the corporate governance mechanisms.

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Contact author for the list of complete references.

### **End Notes**

<sup>1</sup> The exception is made by the studies of Zahra and Pearce in 1989, of Johnson, Daily, and Ellstrand (1996) and of Dallas (1996), whereby researchers combined more than two theories and explained the roles of boards.

# **Looking Afresh into the Business and Management Principles -Quran and Sunnah a Source of Research**

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## **Abstract**

There is a belief among the critics of companies that the giant companies are engaged in a “silent takeover” of the world. (Micklethwait & Wooldridge, 2003) The relationship of management with the investors has aggravated the situation. Further more to meet the challenges of doing business in the modern world, management and accounting education must undergo a transformation. (Waddock, May 2005) So there is desperate need to look afresh into the principles of business and management. The Quran and Sunah is a main source of research to explore these principles. In this paper we have made an attempt to see that what these principles are.

## **Introduction**

There is no doubt that the corporate form of business organization has brought a revolution in the business world which is un-presented in the human history. This was also the need of hour in view of industrial revolution. The limited liability and separation of management from the ownership are two (2) distinct features of corporate form of organization. The concept of limited liability was introduced two hundred years ago in order to enable the large scale investment necessary for the Industrial Revolution to take place (Crowther, March 2006). However, the limited liability concept easily bails out the management for his wrong doings which may result in billion of losses either to creditors or to the share holders (Amer, 2007). The investors are considered poor monitors of managers (Carney, 1999). This is may be the logic behind separation of management from the ownership. It is true to say that the shareholders have lost control over their own wealth and the officers have gained control of the wealth which they do not personally own.

A book by title “In Defense of the Corporation” has been written by Robert Hessen in response to Ralph Nader (a US legislature) attack on Corporations. While criticizing Nader, the writer says:

“Nader maintains that shareholders are inactive because they have been denied access to information about corporate activities. But there is another explanation for their inactivity; it is a deliberate decision for most

shareholders. They are attracted to corporate shares precisely because they will not be required to participate in managerial decision making. What they seek is a sideline investment, an opportunity to entrust some of their savings to managerial specialists in return for share of the resulting profit. Critics frequently denounce the separation of ownership and control in giant corporations; yet it merely represents avoiding specialization of function or division of labor.”

In my opinion the critics are not denouncing separation and control to avoid specialization of function or division of labor but actually they are against the exploitation being done by the professional managers of the companies (Amer, 2007).

In order to address these issues there is desperate need to look afresh to the problems created by these two (2) distinct features of corporate form of organization and possible remedies. The Islamic concept of “Mudarabha” can rightly check the exploitation being made by the management. Mufti Muhammad Taqi Usmani (May 2000) while stating Islamic rules of business of Mudarabha states:

“In musharakah all the partners share the loss to the extent of the ratio of their investment while in mudarabha the loss, if any, is suffered by the rabb-ul-mal only, because the mudarib does not invest anything. His loss is restricted to the fact that his labor has gone in vain and his work has not brought any fruit to him.”

However, this principle is subject to a condition that mudarib has worked with due diligence which is normally required for the business of that type. If he has worked with negligence or has committed dishonesty, he shall be liable for the loss caused by his negligence or misconduct.”

The Islamic concept regarding limited liability is also very different from the present concept of corporate form of organization. In Islam even the death of debtors can not write off the right of repayment of debt to the creditors. The meaning of a Hadith is that:

“In response to a Sahaabi who asked about forgiveness for the sins of a Saheed (Martyr), Rasulullah (Sallallahu alayhi wasallam) said: “Yes, (i.e. His sins are forgiven) if you are firm, sincere and facing (the enemy in the battlefield) not turning your back (in fight), except debt. Verily, Jibraeel said this to me!”  
(Tirmizi)

The accounting testifies the correctness and fairness of business transactions to the parties to whom these are related. Unfortunately even with in the framework of GAAP or International Accounting and Reporting Standards the management with the help of Accountants often manipulates accounting information to deceive other stake holders to meet its dishonest objectives. As the author suggested in his papers “Development of Islamic Accounting Theory— Principle of Amanah And Accountant As Ameen” (2007) and Development of Islamic Accounting Theory— Principle of Shahadat (Testimony) - 2nd Principle (2007) the best solution to the problems

inherited in conventional accounting is to lay down a foundation for a new accounting theory, based on Divine Guidance i.e. teachings of Qur'an and Sunnah of Prophet (Salla Allahu'alaihi wa sallam). Similarly present financial system which is based on interest has created worst example of exploitation of resources by a few nations. This is one of main causes of poorness of people of third world countries. Likewise instead of giving more attention to quality of the product the consumer is being exploited through various means. In developed countries the investors are being negated by their due share through agency problem and on the other hand the employees are being oppressed. Further more there are a number of behavioral issues being faced presently by the business world which are to be addressed. Finally we should look for a society which produce "Unbroken Men and Women" against to whom Sandra Waddock (May 2005) called "Hollow Men and Women".

She rightly says:

"To meet the challenges of doing business in the modern world, management and accounting education must undergo a transformation. Courses on analysis must also consider implications of corporate and individual actions. Corporate-centric courses must become society-centric or even nature-centric. Passive knowledge transfer must give way to active engagement in learning. Disciplinary specializations must be approached within the context of an integrated perspective on business's role in society. The values-neutral posture must shift to one that recognizes the inherent values-based nature of management itself and the numerous value judgments that go into any financial report. A narrow focus on shareholder wealth and blind faith in market forces must broaden to more nuanced and intelligent focus that encompasses many stakeholders, including the natural world. We must strive for a world in balance- for a world in which society takes precedence over economy"

The Book of Allah "The Holy Quran." is the main source of knowledge. In Quran Allah has said:

"This is the Book (the Qur'an), whereof there is no doubt, a guidance to those who are Al-Muttaqun [the pious and righteous persons who fear Allah much (abstain from all kinds of sins and evil deeds which He has forbidden) and love Allah much (perform all kinds of good deeds which He has ordained)]." (Verse 2, Surah Al-Baqarah- The Holy Qur'an)

In addition to "Holy Books" Allah has sent his messengers to guide humanity. Hazrat Mohammad (SallAllaho Alaihay wa Sallam) is the last messenger of Allah. In Quran Allah has informed the mankind that:

"Similarly (to complete My Blessings on you) We have sent among you a Messenger (Muhammad SAW) of your own, reciting to you Our Verses (the Qur'an) and sanctifying you, and teaching you the Book (the Qur'an) and the Hikmah(i.e. Sunnah, Islamic laws and Fiqh - jurisprudence), and teaching you that which you used not to know." (Verse 151, Surah Al-Baqarah- The Holy Qur'an)

Now there is a desperate need to search Quran and Sunah to look at the principles and theories of management to overcome to the problems which the business and management is facing today. In Surah Luqman, Verse 2 (The Holy Qur'an) it is said "These are Verses of the Wise Book (the Qur'an)"

## **Literature Review**

Basic management techniques have been traced to the city of Ur (Iraq) in 3000 BC where Sumerian priests were the first to keep written records as a means of recording business transactions (Pindur, Rogers & Kim, 1995). The management theories can be divided into Classical Management Movement, Behavioral, Management Movement, Quantitative Management Movement and the Modern management movement.

The present management approach is to integrate these theories. Pindur, Rogers & Kim in their article "The history of management: a global perspective" states:

"The "modern management movement" continues to evolve by integrating theories. The approaches to modern management include the process approach, the systems approach, the contingency approach, the strategic management approach, the Japanese style management approach, and the excellence approach. It is a synergistic product. The classical, behavioral and quantitative movements, along with systems and contingency management theory, become integrated to form the framework of the modern management movement."

Now what is missing even in this approach is the governance aspect. Despite of historical journey of management theories we have not stopped the cases like Enron. The Enron disgrace is not alone of its kind. Giroux (2004) in his book "Detecting Earnings Management" has taken an impressive historical review of such corporate troubles. Unfortunately the accountability concept in the management definition is still missing. So for these definitions failed to protect the interests of stake holders like creditors and shareholders.

The worst part of this scenario is failure of management theories to prevent corporations in its bid to rule the world. Korten (2001) in his book "When Corporations Rule the World" rightly states:

"Corporations have emerged as the dominant governance institutions on the planet, with the largest among them reaching into virtually every country of the world and exceeding most government in size and power. Increasingly, it is the corporate interest rather than the human interest that defines the policy agendas of states and international bodies."

Similarly it has become physically impossible, and economically impractical, for central government to monitor the dynamic complexity of modern business to ensure the protection of its citizens from financial loss (Turnbull, 2002). "Net work governance" (Turnbull, 2002) is a good idea to overcome the problem. The idea is not

bad but however, it is itself very complex and hence can not comprehensively change the present scenario of rule of corporations over world. Although the un-presented technology development since industrial revolution has increase the role of machine in business and management but can't undermine the central position of human. The inspiration of humanity comes from the religion. Unfortunately our process of technological advancement had ignored this reality. Korten (2001) has written a marvelous book titled by "When Corporations Rule the World" In the book he rightly states:

"The Copernican Revolution divorced science from religion and focused our attention on mastering the secrets of the physical world. This opened the way to extraordinary technical accomplishments. We, humanity, have paid a heavy price, however, for our collective alienation from the deeper spiritual reality from which all life and consciousness flow."

Unfortunately this was the main negligence on our part. Fear of Allah ta ala is an essential step towards all spiritual advancements. The meaning of a saying of Hazrat Muhammad (SallAllaho Alaihay wa Sallam) is that "Fear of Allah taala is the root of all wisdom" (Kandhalwi). Regrettably the present body of knowledge of business and management is without this wisdom.

The Holy Quran is The Book that tells the humanity how to spend life to get success in this world and hereafter. The Quran does not promote simply a religion but it is a complete code of life. Therefore, Islam is a "deen" and not simply a religion. Regarding Quran Allah has said:

"This is the Book (the Qur'an), whereof there is no doubt, a guidance to those who are Al-Muttaqun [the pious and righteous persons who fear Allah much (abstain from all kinds of sins and evil deeds which He has forbidden) and love Allah much (perform all kinds of good deeds which He has ordained)]." (Verse 2, Surah Al-Baqarah- The Holy Qur'an)

Similarly in order to guide mankind in addition to "Holy Books" Allah has sent His messengers. Hazrat Mohammad (SallAllaho Alaihay wa Sallam) is the last messenger of Allah. In Quran Allah has informed the mankind that:

"Similarly (to complete My Blessings on you) We have sent among you a Messenger (Muhammad SAW) of your own, reciting to you Our Verses (the Qur'an) and sanctifying you, and teaching you the Book (the Qur'an) and the Hikmah (i.e. Sunnah, Islamic laws and Fiqh - jurisprudence), and teaching you that which you used not to know." (Verse 151, Surah Al-Baqarah- The Holy Qur'an)

Our future now depends on graduating to a co-evolutionary perspective that recognize the integral relationship between the spiritual and material aspects of our being and thereby allows us to recreate ourselves as whole persons, communities, and societies Korten(2000).We must strive for a world in balance- for a world in which society takes precedence over economy (Waddock, May 2005).In the era of Shaba-Radi Allaho Anhuma

(companions of Hazrat Muhammad -SallAllaho Alaihay wa Sallam) we have such type of societies. The foundation of these societies was built on The Quran and Sunah.

Such societies can not be built without revolutionary changes. This inter-alia includes radical transformation in the business and management disciplines too. The Quran and Sunah is a main source of research to look into this to put back the humanity on right track.

## **Findings**

### **Fear of Allah- The Foundation of Management**

Allah has created the whole universe. He is the creator of this world and human. So He is the only Authority Who knows the human rightly and its requirements. Dr.Naik in his article “Concept of God in Major Religions” states:

“A common feature of all major religions is the belief in a Universal God or Supreme Divine Authority that is Omnipotent and Omniscient. Followers of all major religions believe that the God they worship is the same God for them as well as for others.”

We the Muslims believe in One God. In Quran Allah advise:

“Say (O Muhammad (Peace be upon him)): "He is Allah, (the) One. Allah-us-Samad (The Self-Sufficient Master, Whom all creatures need, He neither eats nor drinks). He begets not, nor was He begotten; And there is none co-equal or comparable unto Him." (Verse 112, Surah Al-Ikhlâs: Absoluteness- The Holy Qur'an)

In nut shell we can say that the majority of humanity believe in Allah as Supreme Divine Authority. The present world of men and women desperately need an authority to guide them in their social, economic, business and political pursuits. Dr.Saleh as Saleh in his book “The Search for the Truth” describe:

“Today many people realize that all of the materialistic and secular progress which has taken place in society has produced a spiritual vacuum, which in turn has led to social, economic, political and psychological problems.”

In the Holy Quran Allah has informed the mankind:

“O mankind! Be dutiful to your Lord, Who created you from a single person (Adam), and from him (Adam) He created his wife [Hawwa (Eve)], and from them both He created many men and women and FEAR Allah through Whom you demand your mutual (rights), and (do not cut the relations of) the wombs (kinship). Surely, Allah is Ever an All Watcher over you.” (Verse 1, Surah An-Nisâ- The Holy Qur'an)

The underlying principle of success of humanity is fear of Allah. The teaching of Allah and Hazrat Mohammad (Salla Allahu'alaihi wa sallam) is that we should adopt the Deen in totality. By adopting and practicing



Islam completely, a strong spiritual will and power is created (Amer, 2007) This spiritual will and power can be turned into a bidding force. The force so created can influence positively our social, economic, business and political decisions. And thus this can help the humanity to transform management and accounting education to meet the challenges of present business world.

The fear of Allah is not only is a mechanism which will regulate this bidding force but a starting point for laying a solid foundation for business and management education. For example the present corporate practices comprehensively lack the concept of accountability. If corporate insiders are unaccountable, or accountable only to some powerful stakeholders (e.g. a large creditor or a blockholder), they will have the incentive to disclose only the information that is functional to those specific interests (Melis, 2004). Secondly, an aspect of corporate governance which has given rise to great concern is the dominant personality phenomenon (Forker, 1992).

The power of the most powerful corporate stakeholder can only be balanced if the other strategic stakeholders have the information they need to exercise their influence and hold the former accountable. Therefore, it seems correct to argue that the effectiveness of the systems of financial reporting and corporate governance is highly correlated, with any improvement in either system having a positive influence on the other, and vice versa. (Melis, 2004).

The Islamic concept of accountability which is based on fear of Allah can be effective for both the system of financial reporting and corporate governance. There are a number of Qur'anic versions and Hadith which peruse the concept of accountability in business. The meaning of a Hadith of Hazrat Muhammad (SallAllaho Alaihay wa Sallam) is that:

“The man who has these three habits is a hypocrite even if he observes fast, offers prayers, performs umra (pilgrimage), and calls himself a Muslim: when he talks he speaks untruth, when he makes a promise he does not keep it, and when he is given something in trust, he commits dishonesty.” (Muslim)

The meaning of another Hadith is that:

"There are four habits, in whosoever they are found, he will be a complete hypocrite. If any one of these habits is found in a man, he will have one habit of disruption till he gives it up, when something is given to him in trust he commits dishonesty, when he talks he tells lies, when he makes a contract he deceives, and when he quarrels he starts abusing.” (Bukhari -Muslims)

The Shaba (Radi Allaho Anhuma) were true believers and followers of Hazrat Muhammad (SallAllaho Alaihay wa Sallam): Now I present an example that how they have practiced the concept of accountability.

Once musk (fragrance) was presented to Hazrat Omer (Radi Allaho Anhu) from Bahrain. He (Radi Allaho Anhu) searched some one to measure it so that he could distribute it among the Muslims. His (Radi Allaho Anhu) wife Hazrat Aaika (Radi Allaho Anha) thrice presented her name to measure it but she was not authorized to do so. On

this occasion the words (when Hazrat Aaika -Radi Allaho Anha requested the third (3) time to Hazrat Omer -Radi Allaho Anhu) to her wife are worthwhile to be noted:

“I don’t like that you put it with your own hands in the scale and then you contact your hands with your body and so I get this much excess.”

Similarly once during measurement of mushk (fragrance) Hazrat Omer bin Abdul Aziz (Rahmat tuLah) held his breath and said:

“The benefit of mushk (fragrance) is to smell fragrance.”

In this direction the following business model is presented for further deliberation and discussion among the scholars:

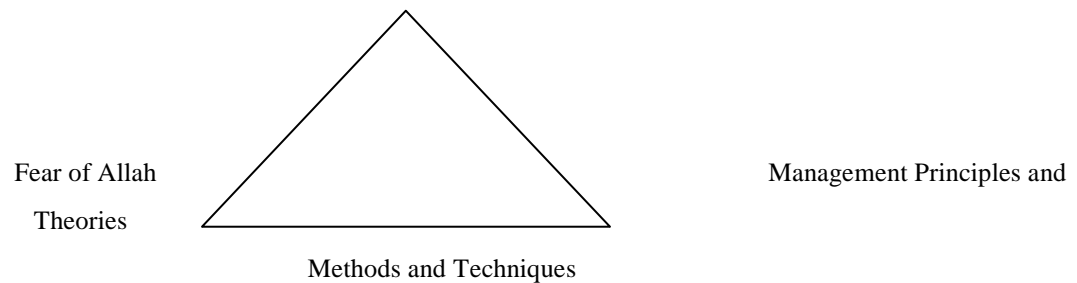


FIG. 1: DECISION MAKING

One of the keys to successful management is the ability to understand and apply modern management principles and techniques effectively (Pindur, Rogers& Kim, 1995).Unfortunately one thing which is missing in these methods and techniques is the persuasion to look after the interest of all the stakeholders. Fear of Allah at the top of this decision making can fill this gap. Further as we have discussed it is root of all wisdom and therefore, should be the top most principle of business and management. Now there is a need of proper education and training of modern managers to embrace and practice this principle on the analogy of Shaba (Radi Allaho Anhuma) companions of Prophet Muhammad (SallAllaho Alaihay wa Sallam).

In the Holy Quran Allah has informed the mankind:

“O people of the Scripture (Jews and Christians)! Now has come to you Our Messenger (Muhammad SAW) explaining to you much of that which you used to hide from the Scripture and passing over (i.e. leaving out without explaining) much. Indeed, there has come to you from Allah a light (Prophet Muhammad SAW) and a plain Book (this Qur'an).Wherewith Allah guides all those who seek His Good Pleasure to ways of peace, and He brings them out of darkness by His Will unto light and guides them to a Straight Way (Islamic Monotheism.” (Verse 15 & 16, Surah Al-Mâ'idah: The Feast - The Holy Qur'an)

If you think of the human being as a machine, it is indeed a complex creation of Allah (SWT). Our Lord and Creator Allah (SWT) need not come in the form of a human being to know what is good or bad for the human being. He only has to reveal the instruction manual to mankind. The Holy Quran is the instruction manual for human being. Moreover, Allah will call this creation to account on the Day of Judgment. It therefore stands to reason, that the Creator informs us about the dos and don'ts of life (Naik).

Allah has informed the mankind in the Holy Quran:

“This is the Book (the Qur'an), whereof there is no doubt, a guidance to those who are Al-Muttaqun [the pious and righteous persons who fear Allah much (abstain from all kinds of sins and evil deeds which He has forbidden) and love Allah much (perform all kinds of good deeds which He has ordained)].” (Verse 2, Surah Al-Baqarah.- The Holy Qur'an)

Allah is the sole authority. So all the authority and power in the universe rest with Allah. In the Holy Quran Allah has informed the mankind:

“He it is Who created for you all that is on earth. Then He Istawa (rose over) towards the heaven and made them seven heavens and He is the All-Knower of everything.” (Verse 29, Surah Al-Baqarah. - The Holy Qur'an)

Allah has further informed in the Holy Quran:

“And to Allah belongs the dominion of the heavens and the earth, and Allah has power over all things” (Verse 189 - Al-Imrân. - The Holy Qur'an)

Allah is the real Owner of this universe including the earth and the Only Source Authority. The mankind can only use the resources on the earth as a trustee as ordered by Allah. These orders dictate following principles.

- Trusteeship of Resources- not ownership, which rest with Allah.
- Care for Other- use of resources not for satisfaction of the individual alone.
- Moderation in Consumption- Not wastage of resources.
- Productive Economic Activity- Ultimate aim to please Allah.
- Mutual consultation in Economic Activity- Key for success ( brings blessing of Allah)
- Wealth as a Mean-Not an aim.

On the basis discussion so far we may define management as:

“To manage the resources of the organization efficiently and effectively to meet the set objectives with having override objective of pleasing Allah the Sole Authority”

This definition dictates the following two (2) basic principles of management:

- Pleasing Allah.
- Allah is the Sole Authority.

I think this is a start in the right direction and may become the turning point in the history of the business and management. Now it is the duty of scholars to deliberate the definition further to improve it in the light of Quran and Sunnah. We can derive a number of concepts out of these two (2) principles. These may be:

- Halal Business.
- Interest Free Financial System
- Humanity a Stakeholder
- Accountability of all Stakeholders
- Maximization of Resources for Mankind instead of Maximization of Wealth of Owners

#### **Looking for a New Form of Business Organization**

Besides laying foundation of body of knowledge of business and management on fear of Allah some drastic changes are required in the present principles and theories of Management. The immediate task in front of scholars is to either look for a new form or revamp present corporate form of organization. Sacconi (2004) in his article “Corporate Social Responsibility (Csr) As a Model of “Extended” Corporate Governance. An Explanation Based on the Economic Theories of Social Contract, Reputation and Reciprocal Conformism” states:

“For a long time corporate ethical and social responsibility has been a subject of analysis and concern for highly active and committed but not exactly majority groups of business ethics scholars, NGO’s activists, and firms with forward-looking managers. More recently, on the contrary, it seems that there is no trade or business association, local or national public authority, firm or university throughout Europe giving up the opportunity of organizing a conference or a meeting on the theme. Since the end of the last century, a variety of initiatives throughout Europe and the US have sought to formulate standards for management systems devoted to implementing corporate social responsibility (henceforth CSR) within corporations. These are initiatives which have sprung from joint projects amongst research centers and universities, business firms and the professions; and they involve cooperatives, non-governmental and non-profit organizations, representatives of interest organizations, stakeholders associations and sometimes local and government authorities as well.”

However, we have to look beyond the above context. The present features of limited liability and separation of management from the ownership of corporate form of organization lead to denial of huqooq (rights) which lead to Zulm (oppression) of stake holders. If we see the situation in the context of Islamic concept of Mudarabha the limited liability principle can not bail out the management for his wrong doings. Further in Islam the debts can not be written off unless it is paid or forgiven willingly. So we have to revamp this concept completely.

The management of a corporate form of organization should remember the following saying of Allah’s Messenger (SallAllaho Alaihay wa Sallam)

“Abdullah (Radi Allahu ‘Anhu) reported that Allah’s Messenger (SallAllaho Alaihay wa Sallam) said: Every one of you is a guardian and he is accountable for his charge. Thus, the Amir is a guardian of the people and he is accountable for them. And a man is a guardian of his household and he is accountable for them; and a woman is an in charge of the house of her husband and his children and she is accountable for them; and a slave is a guardian of his master’s property and he is accountable for it. Beware, every one of you is a guardian and every one of you is accountable for his subjects." (Sahih Bukhari)

Further there is a need to strengthen the rights and role of shareholders in the management of the company. But the monitoring environment for shareholders can be improved through their active and effective participation in policy making and material decision making. This should be much beyond the limit of simply selection of board members, appointment of auditors, approval of accounts and amendments in the charter etc. Now even there is a cry that the investors should have say in setting accounting standards (Amer, 2007). In the context of corporate governance even in the Europe there is a cry that the shareholders should have say in fixing remuneration of chief executive of the company. However, there is no legal bidding upon the management to do this.

The “Rizq-e- Halal” concept of Islam can comprehensively check the present practice of earning management. This will naturally help to lay down a sound foundation for corporate governance. Allah has warned the mankind in the Holy Quran:

“And eat up not one another's property unjustly (in any illegal way e.g. stealing, robbing, deceiving, etc.), nor give bribery to the rulers (judges before presenting your cases) that you may knowingly eat up a part of the property of others sinfully.” (Verse 188, Surah- Al-Baqarah- The Holy Qur'an)

The tafseer (commentary) of this Aya is that one should not try to grab the properties of others through illegal means or by bribing the judges. It may also be possible that the judge may decide in favor of the transgressor because of someone being more persuasive in presenting the argument, but it does not change the fact that the property unjustly earned by the transgressor remains unlawful for him. It is reported in the Two Sahihs (Bukhari and Muslim) that Umm Salamah narrated that Allah’s Messenger (SAW) said:” I am only human! You people present your cases to me, and as some of you may be more eloquent and persuasive in presenting his argument, I might issue a judgment in his benefit. So, if I give a Muslim’s right to another, I am really giving him a piece of fire; so he should not take it.” A judge is only a human and he may make a mistake but the unjust person will still be accountable on the Day of Judgment for acquiring others properties unlawfully and the judgment of the authorities in any case does not change the reality of the true position. (Bayan-ul-Quran)

However, unfortunately the agenda of companies are beyond its frame of work of business. It is true to say that it is in struggle in silent takeover of the world. The companies are trying to be superior to the human. Its rule is beyond the rule of governments which is even true in the case of United States of America.

Now there is a dire need to cut it into size. And if we are unable to do this we should strive to introduce a new form of business organization in the light of Islamic principles of business and trade. In this respect we should remember that both the features of limited liability and separation of management of ownership has created this monster. And if the humanity can not make it faithful, there is no need of its existence. In nutshell the circumstances are compelling the humanity the look for another form of business organization.

#### **Need of a New Accounting Theory Based of Islamic Principles.**

The present accounting profession is under criticism since long. However, there is a tremendous increase in it in recent years. In my opinion the accounting profession has failed to maintain its main role in presenting fair and true view of business. Reliability is an essential characteristic for accounting information to be useful for decision making (Maines & Wahlen, 2006). Unfortunately this role too has been weakened. Actually the accounting profession lacks its main attribute of accountability. Evidence is found that the enforcement of the “true and fair view” principle is intrinsically flawed when the accountability and the overall corporate governance systems do not work properly (Melis, 2005). Our current problem is that accountability has been neglected for 25 years or more, and those that prefer its neglect dismiss it as irrelevant to valuation. They’re wrong (Colson, 2005)

Accounting should be more fundamentally about accountability than valuation (Colson, 2005). Again Colson in his article “Accountability and Valuation” (2005) states:

“While during the 1970s there were many reasons (many still valid) why accounting was not adequately oriented to asset and liability valuation changes, today there are growing indications that Americans are becoming more interested in accountability issues, especially as they relate to the managements of powerful social institutions, whether in the government, business, or nonprofit sector.”

In Quran in Surah Al-Mu'minûn Allah declared that “Successful indeed are the believers”

“Those who are faithfully true to their Amanat (all the duties which Allah has ordained, honesty, moral responsibility and trusts etc.) and to their covenants;” (Verse 8 Surah Al-Mu'minûn - The Holy Qur'an)

Testifying the correctness and fairness of business transactions is the actual and true spirit at the backdrop of financial reporting. At the heart of this series of certification requirements is CEO/CFO personal oversight and responsibility for the content and quality of financial information, and increased involvement with internal control (Geiger & Taylor,2003).

Presently the accounting profession is for behind of its duties of accountability and correct Testimony. In Islam the accountability has a very special meaning. Here “Amanah” is the essence of accountability. Hazrat Abdul Qadir Gilani (Rasheed, 1994) defined Amanah as:

“What is Amanah? To keep in custody other’s belongings by sacrificing own wants. No wants in the universe or if have than staying firm on the same. The human wants are in conflict with Ahkams on the

subject. Keeping custody of other belongings in lines with hukamh against owns want require a lot of energy. This result that those denied should be taken to task and those who embraced may be forgiven. Now it is still valid that if some one deliberately destroys belongings in his custody, he should repair the loss and if not deliberately, he should be spared.”

The following definition of Amanah (Aslam) is very comprehensive:

“Amanah is not only what we perceive rather every thing is Amanah which is subject to someone’s right and its safe custody and repayment is mandatory.”

Testifying the correctness and fairness of business transactions is the actual and true spirit at the backdrop of financial reporting. This concept too has a very unique meaning in Islam. This is called “Shahadat” (Testimony).The meaning of Shahadat is testifying, absolute information, on the face of it and open (Rasheed, 1994). The person who acts on Shahadat is called shaheed. The shaheed may be a testifier, an observer, guardian and verifier (Rasheed, 1994). The criterion that you must adhere to is that of truth, even if you must stand alone (Aziz).

The inclusion of ethics in the accounting education curriculum or code of ethics of professional bodies is not the exact answer as its lack a binding force (Amer, 2007).There is a need to develop a new accounting theory based on Devine guidance. The Islamic principles of “Amanah” (2007) and “Shahadat” (Amer, 2007) can lay a sound foundation for development of a new accounting theory. This is will not only take care of technical issues arising out of these principles but automatically address the ethical issues.

International Accounting Standards are more principles based rather than rules based. Principles –based standards focus on establishing general principles derived from an underlying conceptual framework, reflecting the recognition, measurement and reporting requirements for the transactions covered by the standards (Alfredson, Leo, Picker, Pacter, Radford and Wise, 2007). Similarly on the basis of principles like “Amanah” and “Shahadat” accounting and reporting standards can be formulated.

#### **Need of a New Financial System Based on Islamic Principles.**

In the present global emerging situation the multinationals are being merged, the privatization process is being enhanced and revolutionary changes are being taken place in computer technologies & institutional regulations. All these have been resulted in globalization of business and the world has become a “Global Financial Village”.

The present trend of the economy in the world has made the future of mankind very dark. Now what is emerging in the world would be equally harmful for other communities and not for Muslims only. The world is heading toward a situation where a few hands will hold the whole world economy through effective, efficient and advanced scientific and financial mechanisms of control.

From Asia, Latin America, Western and Eastern Europe, Africa, and North America reports are all much the same. Civilization is being dismantled as a trade barrier and commons is for sale to the highest bidders (Korten,

2001). Every thing seems to be on the auction block- from water, air, information indigenous knowledge, prisons, seeds and genetic codes, to social security, health care, and schools- turning public services available to every one into private services available to those who can pay and common heritages resources in private property (Korten, 2001).

Unfortunately in addition to corporations, the present world financial system which is based on interest has the major role in the above scenario. So there is a need to look simultaneously for a new form of business organization and a new financial system.

Islam strongly prohibits interest. On the other hand encourage business or economic activity based on profit and loss. In the Holy Quran it is stated:

“Those who eat Riba (usury) will not stand (on the Day of Resurrection) except like the standing of a person beaten by Shaitan (Satan) leading him to insanity. That is because they say: "Trading is only like Riba (usury)," whereas Allah has permitted trading and forbidden Riba (usury). So whosoever receives an admonition from his Lord and stops eating Riba (usury) shall not be punished for the past; his case is for Allah (to judge); but whoever returns [to Riba (usury)], such are the dwellers of the Fire - they will abide therein.” (Verse 275, Al-Baqarah- The Holy Qur'an.)

It is further stated in the Holy Quran:

“And their taking of Riba (usury) though they were forbidden from taking it and their devouring of men's substance wrongfully (bribery, etc.). And We have prepared for the disbelievers among them a painful torment.” (Verse 161, Surah An-Nisâ. - The Holy Qur'an)

We have discussed that the sole authority and owner of the universe and so of business and management is Allah. He has declared war against those who take interest. In the Quran Allah has warned the humanity:

“O you who believe! Be afraid of Allah and give up what remains (due to you) from Riba (usury) (from now onward), if you are (really) believers. And if you do not do it, then take a notice of war from Allah and His Messenger but if you repent, you shall have your capital sums. Deal not unjustly (by asking more than your capital sums), and you shall not be dealt with unjustly (by receiving less than your capital sums).” (Verse 278 & 279, Surah-Al-Baqarah. - The Holy Qur'an)

The following Hadith (Saying of Messenger of Allah- SallAllaho Alaihay wa Sallam) institutionalize the prohibition of interest:

“Abdullah (b. Mas'ud) (Allah be pleased with him) said that Allah's Messenger (may peace be upon him) cursed the one who accepted interest and the one who paid it I asked about the one who recorded it, and two witnesses to it. He (the narrator) said: We narrate what we have heard.” (Muslim)



“Jabir said that Allah's Messenger (may peace be upon him) cursed the acceptor of interest and its payer, and one who records it, and the two witnesses, and he said: They are all equal.” (Muslim)

As we have seen Islam encourages business or economic activity based on profit and loss. It persuades to do and finance the business. The real and ideal instruments of financing in Shariah are musharakah and Mudarabha (Usmani, 2000). The origin of concept of mudarabah can be traced back to beginning of Islam in Makkah when Messenger of Allah (SallAllaho Alaihay wa Sallam) himself get into the trade as Mudarib for Hazrat Khadijah (Radi Allaho Anha). The great Muslim scholar of present age Taqi Usmani (2000) has defined these two concepts in the following words:

“Mudarabah is a special kind of partnership where one partner gives money to another for investing it in a commercial enterprise. The investment comes from the first partner who is called “rabb-ul-mal, while the management and work is an exclusive responsibility of the other, who is called mudarib.”

“Musharakah” is a word of Arabic origin which literally means sharing. In the context of business and trade it means a joint enterprise in which all the partners share the profit or loss of the joint venture. It is an ideal alternative for the interest-based financing with far reaching effects on both production and distribution.”

The importance of Islamic finance in the modern world can be judged from the fact that concept of venture capital is based on Its concept of Mudarabah. We are well aware that one of the main causes of USA industrial development is venture capital. However, unfortunately so far the Muslim world has almost ignored it. The Mudarabah and Musharakah are two (2) main mode of Islamic finance which can replace the present financial system. Now there is a dire need that we should develop new financial institutions on these concepts which can replace present financial institution based on interest which creates money instead of value.

“The modern banking system manufactures money out of nothing. The process is perhaps the most astounding piece of sleight of hand that was ever invented. If you want to be slaves of the bankers, and pay the costs of your own slavery, then let the banks create money (Stamp, 1937).

The present financial system is indulged in creation of money instead of value. Korten (2001) rightly says:

“There are two common ways to create money without creating value. One is by creating debt. Another is by bidding up assets values. The global financial system is adept at using both of these devices to create money delinked from the creation of value.”

From \$1.5 to \$ 2 trillion dollars now change hands daily in the world's foreign exchange markets. Only some 2 percent is related to trade in real goods and services (Korten, 2001). I think this is cause that the majority of the world population still unable to get their basic needs like food, shelter, education and health. One of the most importance characteristics of Islamic financing is that it is an asset-based financing (Usmani, 2000). If we want financial institutions to create value we should shift to Islamic financial system.

## Conclusion

We should not let the companies to overrule the humanity. There is a need to either we comprehensively overhaul the concepts of limited liability and separation of ownership from the management or look for a new form of business organization. More over we have to move to a financial system which create real goods and services instead of money creating bubbles. As presently the accounting profession has failed to play its true role of accountability and certification there is a need to look for new principles of accounting which may lay a solid foundation for development of a new theory. The author in his earlier papers “Development of Islamic Accounting Theory— Principle of Amanah and Accountant as Ameen” and Development of Islamic Accounting Theory: Principle of Shahadat (Testimony) - 2nd Principle (2007) has discussed these principles in detail.

Most importantly we should also revamp the present business and management theories and principles. The best way is that we rejoin our served relationship with Allah. We should remember that as Creator the real owner of the universe is Allah and so he is the Sole Authority. There is a dire need that we submit our selves to Allah. The fear of Allah, foundation of wisdom, should be the base for all these theories and principles. This will not only address the governance issues but new and new ideas for achieving organization goals in the “Sirat-ul-Mustaqeem) right direction would be emerged. Quran and Sunnah will certainly help us to explore these opportunities.

We should remember that our ultimate objective is:

“(It will be said to the pious): "O (you) the one in (complete) rest and satisfaction!" Come back to your Lord, Well-pleased (yourself) and well-pleasing unto Him! (Verse- 27 & 28, Surah Al-Fajr - The Holy Qur'an)

In tafseer (commentary) to these verses it is given:

But ah! thou soul at peace) which is safe from Allah's chastisement, true in its profession of Allah's divine Oneness, grateful for the blessings Allah bestowed upon it, patient with the trials of Allah, pleased with things decreed by Allah, and content with that which Allah gives! Return unto thy Lord) return to that which Allah has prepared for you in the Garden; and it is also said this means: return to your master: the body, (content) with Allah's reward (in His good pleasure) because of its belief in Allah's divine Oneness! (Tafsir)

## References

Contact author for the list of references.





**Section 12: Abstract**

## Aspects a Single Currency System in Asia Region: An Overview

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### Abstract

Awareness of the importance of monetary stability in the region of Asia has become realistic in a political and economic dimension with the aim of ensuring the economic prosperity as well as world peace not only in the region of Asia but also in the world. There has been a common understanding among people that the combination of the single market and the single currency would improve the political and economic stability in the Asian region, especially in the East Asian community of which basic idea has come from the introduction of Euro in Europe. In a single market, there would be the free movement of goods and services, capital, and labor crossing the borders. In the single market, it is supposed that a single currency should be prevailed for promoting the greater stability in terms of monetary transaction. For establishing this purpose the idea of optimum currency area should be also considered to introduce into the East Asian Region.

## An Investigation of the Pattern of Foreign Investment by Japanese Electronics Firms

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### Abstract

Japan has been traditionally a major player in the global electronics industry. With the rapid process of globalization and as a response to increasing market competition, many Japanese electronics firms have expanded their manufacturing operation to different countries and regions. This paper examines the pattern of foreign direct investment by Japanese electronics multinational firms. Particularly, this research focused on the evolution of international entry strategies made by nine large Japanese electronics firms around sixty five countries. This study intends to investigate the pattern of entry mode selection, such as wholly-owned subsidiaries, international joint-ventures, and alliances among home-country partners (e.g. *sogo shosha*, *keiretsu* firms, and non-affiliated firms). It also explores the evolution of subsidiary ownership structure and examines whether or not the accumulated experience of the parent firm in a host country/region contributes to the entry mode selection of subsequent investments. Further, this paper analyzes whether or not these firms tend to imitate the market entry decision of other Japanese firms entering the same market. This study is based on collected data from *Toyo Keizai Inc. Databank – Japanese Overseas Investment: Listed by Firms*, resulting in a sample of over 1,500 subsidiaries established by these Japanese multinational firms.

## **Role of Foreign Portfolio Investment in Developing Securities Markets: Blessing or Curse for a Pre-emerging Economy?**

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### **Abstract**

In the aftermath of the dramatic fall of socialist economies in the 1980s, the market economy has emerged as almost a single philosophy in which the securities market is regarded as being the most useful vehicle for achieving national economic growth. Establishing a vibrant capital market has thus become a major concern in many countries around the world. Arguably, foreign portfolio investment (FPI) significantly contributes to developing a securities market. However, foreign investors are not always seen to be friends of their host countries, sometimes they turn out to be foes as well. They are therefore often branded as 'opportunists' as they like to invest a large amount of money when an opportunity to make quick profits exists. They often run away by withdrawing their investment 'at the first sight of gathering strong clouds' as happened in Mexico, Asia and Russia in 1994, 1997 and 1998 respectively. Foreign investment was withdrawn from Czechoslovakia in 1995 when the short-lived 'bubble began to burst' in the securities market. This withdrawal caused erosion of investor confidence, and the market collapse is argued to have occurred due to inadequacies in the legal regime required for the efficient regulation of securities markets. Likewise, Bangladesh in 1996 witnessed the role of those opportunists who are largely blamed for 'the slaughter of innocents', as termed by international commentators. An optimal use of FPI therefore entails a comprehensive legal and regulatory framework preventing foreigners from being overly opportunistic, and at the same time, protecting them from systemic risks. This article concerns the present dismal state of FPI and the existing mechanisms for investor protection in Bangladesh. It aims to critically examine the legal and regulatory measures governing FPI, and to provide suggestions for reforms fostering such investment in Bangladesh.



## **Rude Awakenings: The Behavior of Volatility at the Open and Across the Trading Day**

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### **Abstract**

Using three different measures of market quality, we investigate the level of trading frictions for individual stocks that trade on the New York Stock Exchange, Nasdaq Stock Market, and the London Stock Exchange. We pay particular attention to the most stressful period of the day, the opening, and compare how individual stocks perform during the opening as contrasted to the other periods during the trading day. Our contributions are threefold: 1) we find consistent evidence at all three market centers that the market quality of trading at the open for large cap stocks is worse than the opening price behavior of small and medium cap stocks, 2) large cap stock prices at the open are more likely to exhibit short-term “momentum” trading patterns where prices move up or down sharply in a persistent manner, and 3) we apply the time-series market model  $R^2$  statistic in a novel way as a measure of market quality by computing this measure using intraday returns.

## **Investor Protection by Securities Regulators in the Primary Share Markets in Bangladesh and Australia**

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### **Abstract**

Investor protection is central to vibrant securities markets. Hence, one of the prime objectives of securities regulation worldwide is to provide legal protection to investors from the culpability of other players in the market. Investors in emerging markets require greater protection compared to those in developed economies simply because the former are predominantly unsophisticated. Therefore, regulators in emerging markets should be well equipped with investor protection mechanism. But this is not always the case. The Securities and Exchange Commission (SEC) in Bangladesh is ill-equipped with outdated laws and less experienced people in comparison with its Australian counterpart, Australian Securities and Investment Commission (ASIC). The practice of corporate governance, on the other hand, is poorer in Bangladesh than that of Australia. As a result, the investors in Bangladesh remain market-shy rendering the market moribund even after its operation of more than half a century. This study aims to critically examine laws regarding primary share markets with an objective of providing suggestions for further development of Bangladeshi securities laws and regulatory regime by reference to those in Australia.

## Measurement & Reporting of Financial Derivatives under the American GAAP versus the International Accounting Standards

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### Abstract

Despite considerable work towards measurement and reporting convergence, there is still a huge divide between the current and the desired harmonized standards between the U.S. and the international accounting standards. One area that has presented a severe challenge and stands in the way of harmonization is the measurement and reporting of derivatives and other financial instruments. To address this issue, FASB has taken various steps aimed at converging U.S. Generally Accepted Accounting Principles (GAAP) and International Financial Reporting Standards (IFRS) for financial instruments. This has resulted in joint FASB-IASB deliberations on business-combination accounting and other initiatives aimed at eliminating the complexities resulting from the measurement and reporting as well as the use of derivatives and other financial instruments by companies. The paper examines the current developments in the convergence between U.S. GAAP and International GAAP as well as the implications associated with these initiatives

The paper provides update to date information on the progress that has been made towards convergence and outlines the various accounting standards that have been enacted along with other measures aimed at achieving convergence. Additionally, the paper provides a discussion on the challenges and opportunities as well as the implications of the various measures. The paper is extremely useful in that it presents information that provides valuable information to preparers, auditors and others involved in the financial reporting process as they attempt to keep abreast of the complex changes in domestic and international accounting standard setting. Furthermore, the paper enables financial statement preparers and reporters to be aware of the implications of the relevant regulatory decisions on financial measurement and reporting and enhances their understanding of fair value measurements. In addition, the paper enables users of financial statements to be more informed of the relevant issues associated with the preparation and use of international financial accounting and reporting of derivatives as well as other financial instruments. The paper finds that despite the considerable efforts to achieve the harmonization objective, there are still significant troublesome differences between the U.S. GAAP and the IASB GAAP. Furthermore, it is apparent that the challenges posed by the enactment of convergent standards for the measurement and reporting of derivatives as well as other financial transactions will continue to exist and will undoubtedly present considerable challenges as well as opportunities for regulators, managers, preparers as well as users of financial statements of both domestic and multinational enterprises.

## Vietnam's Economic Development in the Post-WTO Environment

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### Abstract

Vietnam has enjoyed remarkable economic successes since its emergence as a 'market' economy in 1989, although the process of economic renovation was supposed to commence with the official launch of *Doi Moi* by the Vietnamese Communist party in its 1986 Sixth Congress. After an economic slow down due to the Asian financial crisis in the late 1990s, Vietnam has again made good progress in achieving the average target of 7.5% annual growth rate in real GDP for the 2001–10 period. Vietnam recently became the 150<sup>th</sup> member of the WTO on 11 January 2007. Its integration to the global economy via the WTO presents both tremendous opportunities and challenges. This paper argues that Vietnam's WTO membership acts as a *Doi Moi* mark II, but this new stimulation will be, unlike the *Doi Moi* mark I in 1986, externally driven by global economic forces. The paper also examines Vietnam's preparation for the WTO and its economic growth prospects in the post-WTO environment. Since Vietnam's growth has been primarily derived from domestic market building and international trade, this paper will focus on two specific areas of greatest significance to Vietnam's economic development, namely, the privatization (called equitization in Vietnam) of state owned enterprises in Vietnam and the inflow of FDI to Vietnam, especially those originating from Northeast Asian countries. Finally, the paper critically discusses a long-term issue which has been attracting much public attention in Vietnam, namely, education reform and the policy of "socialization" of education recently adopted by the Vietnamese Government.

# Research and Development Performed by Foreign MNEs: Central and Eastern Europe Countries

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## Abstract

In this paper we examine the extent and nature of MNE's research and development (R&D) activities in Eastern Europe. As it is widely recognized, MNEs are the main vehicle for the development and dissemination of technology across borders and thus it is important for CEE host-country's technological progress to be able integrate with the internationalising R&D networks of MNEs by attracting investment in research and development and technology-related activities. The key conceptual argument in this paper is that the former communist countries of Eastern Europe possess an unbalanced and incomplete system of innovation which is strong at the production of scientific knowledge (due to substantial investments in science and education during the period of central planning) but weak at the commercial application of this new knowledge in production (due to the nature of economic organisation in communist systems). To understand this paradox, the first section of the paper provides an analysis of the special configuration of competences of CEECs which are seen to be both a resource and a constraint for the transformation and development of these economies. Explanations of this 'unique' configuration of resources and the deficiencies of the national systems of innovation in the communist societies is then discussed, suggesting that these problems have also been inherited by the transition economies which in turn affected the ability to transform their S&T capital in a basis for rapid economic recovery and growth. The next part of the paper asks and provide tentative answers to a number of important questions such as 'What do CEECs need in order to benefit from their scientific and technological assets and in general high local human capital in the medium-term?' and 'Can foreign MNEs assist with these problems in the medium-term by activating local S&T resources in their CEE activities and therefore help to save, develop and integrate these strategic resources within the CEE countries systems of production and thus closing this damaging gap in their national system of innovation?' In order to examine the possibility of attracting the R&D activities of MNEs in transition economies, the following section of this paper provides a overview of the strategic developments in the multinational enterprise that have influenced the internationalisation of R&D in MNEs' operations. The final parts of the chapter focus on the empirical investigation of MNEs' research and development in CEECs using a questionnaire survey. The data is analysed against the two key conceptual arguments: 1) the specific S&T setting in transition economies and 2) the model of internationalisation of R&D in the global dynamics of MNEs' activities. The conclusions explain the differences in the factors that determine the location and nature of R&D activities in transition economies with the rest of the world and discusses possible consequences of these differences for the CEE economies.

## Oligopolies with Capacity Constraints and Thresholds

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### Abstract

Extended oligopoly models will be introduced and examined in which the firms might face capacity limits, thresholds for minimal and maximal moves, and antitrust thresholds in the case of partial cooperation. Similar situation occurs when there is an additional cost of output adjustment, which is discontinuous at zero due to set-up costs. In these cases the payoff functions of the firms are nondifferentiable and in some cases even discontinuous. Under the usual concavity assumptions Cournot oligopolies have monotonic response functions and a unique Cournot-Nash equilibrium. However the introduction of these more realistic additions into the oligopoly models creates a fundamentally new situation: the existence of no equilibrium or the presence of multiple, in some cases even infinitely many, equilibria. It also results in a very different asymptotic behavior of the dynamic extensions. The lecture gives a brief survey of the relevant models, derives the response functions of the firms, and examines the existence and the number of equilibria. In the case of infinitely many equilibrium the equilibrium-set will be also determined and characterized. The lecture will finally show some initial results on the asymptotics of the associated dynamic systems.

## External Factors Affecting the Decline of the American Automotive Industry

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### Abstract

In this study we examine the effect of gasoline prices and the yen-for-dollar exchange rate on Japanese automotive imports into the United States in the period between 1970 and 2004. Over this time-frame Japanese vehicle imports have fluctuated considerably. One of the most important features of the market for Japanese vehicle imports during this period were the Voluntary Restraint Agreements (VRA) placed on Japanese vehicles between 1981 and 1988. Therefore, we study these relationships before, during and after the VRA. Many argue that demand for Japanese vehicles is driven by their fuel-efficiency. Our first hypothesis is to test this claim by testing for a positive relationship between real annual gasoline prices and Japanese imports. The second hypothesis is to examine the effect of the exchange rate on Japanese automotive imports into the United States. A weakening of the currency is widely cited as a reason for an increase in imports. However, the effect of exchange rate on imported products is complex due to simultaneous price and quantity mechanism. To incorporate this price and quantity mechanism, we propose that the relationship between the exchange rates and Japanese imports should vary across our study horizon. Because of well-known market share focus of Japanese firms, in the period before the VRA (1970-1980) the push for American market share by Japanese automotive manufactures would help to strengthen the yen, thus resulting in a negative relationship between the yen-for-dollar exchange rate and Japanese vehicle imports. But, the VRA restrictions would curtail the strategy of market share expansion. Therefore, after 1980 we hypothesize a positive relationship between the yen-for-dollar exchange rate and Japanese imports. We control the simultaneous relationship between imports and the strength of the currency by employing a two-stage instrumental variables approach in our analysis. We also control for the general demand for motor vehicles in the United States and the number of vehicles sold under Japanese nameplates manufactured domestically. We confirm our first hypothesis. There is considerable evidence that Japanese vehicle imports are positively correlated with gasoline prices. Not surprisingly, we observe this effect before the VRA period (1970-1980). However, it also holds after the VRA period (1989-2004), when Japanese models were larger and had more powerful engines, though they were still more efficient than most competing models. We do not observe any significant relationship during the VRA period (1981-1988). As expected, in the period before the VRA we find a strong negative relationship between the yen-for-dollar exchange rate and vehicle imports from Japan. We argue that the push for market share by Japanese firms increased demand for their cars. Strong demand for Japanese goods, eventually led to a markedly stronger yen. Contrary to our expectations, this negative relationship seems to have persisted throughout the period of the VRA (1981-1988). In the period after the VRA (1989-2004) we find the hypothesized positive relationship. So, after the VRA, demand for Japanese vehicles is not driving the exchange so strongly. Perhaps this is because most of the imports from Japan are now luxury models, while the less expensive, more popular vehicles selling under Japanese nameplates are mostly manufactured domestically.

## **Economic Reforms, Foreign Direct Investment and its Economic Effects in India**

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### **Abstract**

Foreign direct investment (FDI) has boomed in post-reform India. Moreover, the composition and type of FDI has changed considerably since India has opened up to world markets. This has fuelled high expectations that FDI may serve as a catalyst to higher economic growth. We assess the growth implications of FDI in India by subjecting industry-specific FDI and output data to Granger causality tests within a panel cointegration framework. It turns out that the growth effects of FDI vary widely across sectors. FDI stocks and output are mutually reinforcing in the manufacturing sector. In sharp contrast, any causal relationship is absent in the primary sector. Most strikingly, we find only transitory effects of FDI on output in the services sector, which attracted the bulk of FDI in the post-reform era. These differences in the FDI-growth relationship suggest that FDI is unlikely to work wonders in India if only remaining regulations were relaxed and still more industries opened up to FDI.



## Delayed Dynamics in Heterogenous Competition with Product Differentiation

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### Abstract

Heterogeneous duopolies with product differentiation and isoelastic price functions are examined in which one firm is quantity setter and the other is price setter. The reaction functions and the Cournot-Bertrand (CB) equilibrium are first determined. It is shown that the best response dynamics with continuous time scales and without time delays is always locally asymptotically stable. This stability can be however lost in the presence of time delays. Both fixed and continuously distributed time delays are examined, stability conditions derived and the stability regions determined and illustrated. The results are compared to Cournot-Cournot (CC) and Bertrand-Bertrand (BB) dynamics. It turns out that continuously distributed lags have smaller instabilizing effect on the equilibria than fixed lags, and both homogeneous (CC&BB) competitions are more stable than the heterogeneous competitions.

# The Relationship among Knowledge Sharing, Value Network, and Competitive Advantage

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## Abstract

“How to create value?” is the key for enterprises to survive. The key business question in the knowledge economy is; however, “How is value created?” The traditional answer to that question is – “through the value chain.” But value chain thinking is rooted in an industrial age production line model that has gradually been superseded by the new business model of the value network or value web. The major strategic challenge today is reconfiguring a business from value chain organization to the more fluid structure of the value network. Allee (2000) suggested that a value network is a web of relationships that generates economic value and other benefits through complex dynamic exchanges between two or more individuals, groups or organizations. Brandenburger and Nalebuff (1996) highlighted that firm interaction may be positive as well as negative. They introduced the concept of the “value net”, which consists of supplier, customers, competitors, and complementors. Dyer and Singh (1998) also suggested that a firm’s critical resources may span firm boundaries and may be embedded in inter-firm routines and processes. Because of ruthless competition in the environment, enterprises have to identify and explore new source of critical capabilities. As evidenced, knowledge sharing between firms has become an important source of competitive advantages. This study examines how firms utilize network as a channel to sharing their knowledge resources and its affects on firms’ competitive advantage. Specifically, we discuss at length the following research questions through a comparative case study. We chose Ho-Tai Motors, Tong-Tai Machine & Tool Co., Ltd., Tatung Company, ECS, and Chi-Mei Electronics as case companies in Taiwan. Those companies all hold a leading position in their industry, with a complete value network and maintain long-lasting good relationship with their partners. That is, the five focal firms can provide a complete overview of firms leveraging their value network and sharing knowledge with their partners. We adopt multiple-case studies, using widely collected secondary data and in-depth interviews, focusing on the knowledge sharing between focal firms and its partners. First, we focus on the knowledge sharing among organizations affecting focal firms’ competitive advantage in manufacturing industries through a multi-case study. Therefore, future research would conduct a similar one reflecting the unique features (i.e., tangibility, inseparability, heterogeneity, perishability) of service industries and their impacts upon a focal firm’s value creation and competitive advantage within a value network on a large-scale basis. Second, like other social science models, ours excludes some potentially important factors. We only consider the characteristics of knowledge sharing in the value network as the factor affecting firms’ competitive advantages. To prevent the analysis from being overwhelmingly complex, we did not include other factors affecting competitive advantages. Thus, we suggest that future researchers should consider other factors affecting competitive advantages, such as innovation capability, marketing skills, or an introduction of new management skills. Third, from the comparative case study, we also find many examples of failure in constructing value networks. Because of limitation of research scope, we did not deliberately discuss the causes of those failures. Hence, we suggest that future researchers could explore the reasons behind in-depth. Fourth, the members of value networks studied in this research are all local in Taiwan. While pursuing internationalization, firms would not only collaborate with local partners but probably foreign ones in overseas market, and this is also an interesting topic to study. We suggest that the future researchers can make conduct an in-depth survey about the international value network.

## **Errors and Misinterpretations In Cross Cultural Management Publications**

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### **Abstract**

An increasing number of studies have emerged recently describing cross cultural diversity and adjustment in global economy and business. Along with this, an avalanche of errors and misinterpretations of cultural differences persists in many publications. The weaknesses of these papers seem to be so consistent that they lead a reader to believe that their causes are very common. They may vary from politics to patriotism. The objective of this paper is to identify errors and false interpretations of cultural differences, made intentionally or unintentionally, and to alert businesses and academia to be critical and cautious while using such readings for practical purposes. Samples for conducting comparative and cross-cultural management research are the students from the classes that the author of this paper runs. The fact is that it was the foreign graduate students studying in the U.S. who are very often upset about the way their cultures are being incorrectly represented in the textbooks and publications. Three classes with 91 students from 20 countries are involved in the first round of research participation. The average students' age is 30 years. The geography of countries embraces Europe, Asia, the Middle East, Central America, Central Asia, North Africa, and the U.S. The majority of inaccuracies and misinterpretations about their countries are traced by the students from India, Saudi Arabia, China, Turkey, and Morocco. It is interesting that some U.S. students do not agree with American studies that inaccurately describe current cross cultural trends in business and management. Having students from more than ten countries in one class every trimester the author assumes that the results of the research would truly reflect a real world situation and cross cultural management would significantly benefit from this research in practical managerial terms. The author intends to significantly enlarge the sample and continue the research.

## **Perceived Human Resource Management Practices and Intention to Leave of Employee: The Mediating Role of Organizational Citizenship Behavior**

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### **Abstract**

Previous studies have shown that the use of “high-performance human resource management (HRM) practices” decreases employees’ intention to leave the organization. However, we argue that the effects of HRM practices on intention to leave (the universalistic proposition) might not be so simple, which means that there might be some behavioral interventions mediating the relationship. Based on the universalistic proposition, this study investigates how employees’ organizational citizenship behavior (OCB) mediates the relationships of perceived HRM practices on employees’ intention to leave. In particular, this study has three main purposes: (1) to explore how HRM practices affect the OCB of employees; (2) to examine how OCB negatively relates to intention to leave; and (3) to further investigate whether or not OCB acts as a mediator of the relationship between HRM practices and intention to leave, and if it is indeed a mediator, how such mediation takes place. Using a sample of 152 respondents from a Japan-Sino automotive joint venture located in Guangzhou, the province of Guangdong in mainland China, we find that retention-oriented compensation and formalized training are positively related to the engagement of OCB. However, these two HRM practices are also negatively associated with intention to leave the organization. In addition, we also find that OCB mediates the effects of retention-oriented compensation and formalized training on intention to leave. Implications and future research direction are also discussed.

## **Public vs. Private Land Ownership and Urban Economy**

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### **Abstract**

**In Japan, some existing inefficiency in urban land use is related with the land ownership issue, while in China, the succeeded economic reforms have not yet reached the field of the public land ownership. With regard to these problems of land ownership in the real world, most urban economic theories seem still at an early stage, which consider land ownership only in a very simple way. In this paper, I attempt to investigate the land ownership problem in more detail using a few of microeconomic principles, and to compare the public and private land ownerships from the viewpoint of urban residents' welfare.**

## Digital Branding 2.0

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### Abstract

Internet brands are unlike product, service, and corporate brands which are often critically dependent upon promotional spending to become widely known. The web, as a promotional vehicle, is much less controllable than other media. As the internet has grown and as web promotional tools have changed, managers need to reconsider many traditional brand management practices.

Internet brands are different since user browsing destinations are much more actively determined. This is partially a consequence of the web's basic "linking" architecture that call for much higher levels of engagement than other media. Branding functions differently on the internet; effective brands are much more dependent on user choices and activity levels.

This is especially important as the use of the internet is rapidly becoming embedded into every occupation, economic class, company, and region. User initiated and user-influenced branding is especially significant as the web grows. The internet has spawned a new and rapidly evolving culture of digital participation. Brands in the digital world are fueled by consumer creativity.

High levels of creativity are apparent in the rapid development of user initiated content that now populates much of the web. User creativity fuels blogs and energizes popular websites such as MySpace. This creativity is especially apparent among younger age groups. Creative, user-generated activity is related to the rapid rise of some of most powerful internet brands, namely Google, Wikipedia, and YouTube.

The growing ease of content creation has brought about a plethora of new digital activities. These have altered communication, affected social relationships, and have influenced storytelling and other artistic media. Digital brands themselves are now being reconsidered in light of the growing significance what has become known as the "web 2.0" perspective.

The Web 2.0 perspective has been promoted by O'Reilly Media, which has been of the business of publishing books, developing online services, and sponsoring conferences since 1978. While skeptics may see Web 2.0 as little more than a buzzword, this paper argues that the debate in the web programming community is particularly salient. The "behavioral" or "user" bases to the web 2.0 perspective, and its implications for branding, are examined in this paper.

As software development moves away from "stand alone" desktop computer products, it is clear that new enterprises are providing many new tools to assist content creation and empower users. A variety of new formats have emerged on the web –these include podcasts, video-blogs, and RSS feeds. These formats have increased the reach (or distribution) of content, and furthers the reach of users. These developments have important implications for branding.

Digital brands relate more to "users" than they do to companies. Digital brands tend to supplant traditional notions of brands as company "property" –instead they are common property. Being the result of participation, digital brands are increasingly viewed in an "open source" or collective context. Strong digital brands such as Google pay attention to the fact that the web "enables" users, and their power draws from their collective utility. Sites like digg.com, as a means to collect and rate new stories, are motivated by a spirit of a shared understanding and collective enterprise.

In examining the development of the digital branding 2.0 concept, it is clear that marketers need to better respond to web user participation processes. Branding is still a key marketing concern, but new approaches are necessary to keep users engaged. Marketers need to be able to better strategize and change practices in fast response to users' efforts and changing activities.

## Is Detailing Effective for Mature Prescription Drugs? A Dynamic Model of Physician Learning

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### Abstract

Our aim in this paper is to investigate the impact of detailing on physician learning and prescription behavior for mature drugs. To this end, we develop a dynamic model of physician learning behavior in which a physician's perception of the efficacy of a drug is assumed to evolve over time based on the knowledge gathered from clinical experience, presentations by drug company sales representatives (detailing), and sampling. We use the Kalman filter framework coupled with a hierarchical Bayesian approach to track the changes in a physician's drug efficacy perception, and to separate the effects of detailing and sampling from clinical experience on physician learning. We also incorporate unobserved heterogeneity in physicians' patient profiles and access to different information sources. We estimate the model using individual physician-level data of new prescriptions for two mature drugs in two different categories. Our empirical results reveal that detailing as well as sampling contributes to physician learning for both drugs even though they have been on the market for several years. Further, we observe that clinical experience is an important source of physician learning for both drugs. We also find that physicians differ considerably in their reliance on clinical experience versus detailing and sampling in updating their knowledge of a drug's efficacy. We show that drug firms can exploit information on the differences in physicians' learning behavior to design optimal customized marketing programs. For example, our simulation results indicate that detailing productivity can be substantially improved by redirecting sales effort on the basis of physicians' long-term responsiveness to detailing effort.

## **Study on the Effects of Permeable Pavements on the Improvement of Living Environment**

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### **Abstracts**

The impervious surface structures of normal asphalt pavements do not deplete ground water, but also cause flood flow by an increase of rainfall outflow into of rivers and sewers. The properties of permeable pavements are expected to control flood run-off and improve the environment in urban cities as cool pavements. We tested the functions of pavements that are built on a roadway. The results of temperature measurements at surface layers and the rainfall storage and infiltration functions of the pavements proved the effects on prevention of heat island phenomenon and flood run-off control. But the work cost of permeable pavement is much higher than that of normal pavement instead. This paper makes clear the durability, availability of a permeable pavement with much traffic volume of a heavy vehicle from the results of follow-up survey for 11 years and six month, and still more benefit/cost (B/C) analysis of it.



## Outsourcing and Adaptive Strategies of OEM/ODM Vendors in an Emerging Market

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### Abstract

Taiwanese OEM/ODM vendors have helped to connect the vast marketplaces and renowned multinationals with the enormous manufacturing centers of China and Southeast Asia. Estimates of 40% to 80% of China's exports in information and communications products were made in Taiwanese-owned factories (BW, 2005). Competent OEM/ODM (Original Equipment/Design Manufacturing) vendors can help develop distinct value delivery systems for renowned multinationals. In a highly collaborative design process, the ODM vendors translate OEM specifications into reality, lending specialized expertise to refine the designs, cut overall costs, and meet special market requirements. Such strategic partnership can reduce manufacturing costs, stimulate innovation, increase flexibility, and expedite product development for the improvement of overall customer value (Park and Krishnan, 2001; Simchi-Levi, Kaminsky and Simchi-Levi, 2000). In order to secure long-term business relationships with renowned multinationals, Taiwanese OEM/ODM vendors must strengthen their core capabilities in manufacturing, engineering design and R&D. Offshore sourcing that helps create substantial leverage resulting from economies of scale and process expertise has become an imperative strategic move for such Taiwanese firms in the global configuration of their business operations (Bendor-Samual, 1998; Gottfredson, Puryear and Phillips, 2005; Karmarkar, 2004). By using case study, this paper investigates Taiwanese OEM/ODM vendors that own outsourced businesses in China. The findings reveal that sample firms effectively manage their outsourced relationships and have conducted backward and forward vertical integrations to secure source of supplies and market access in China. They share with their upstream strategic partners in China the details concerning materials, design, product development, delivery and marketing information to reduce costs and improve product quality, while develop lock-in relationships with downstream name brand multinationals, such as Apple, Motorola and Nike, to expand sales into North America and European market. These firms have also cultivated their technology and marketing strengths to penetrate the China market via their own brands.

# On the Stability Conditions of the Harris and Todaro Model with Natural Environment

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## Abstract

In the well-known Harris and Todaro mode, we incorporate the natural environmental factors and discuss stability conditions under various adjustment processes. Our main findings are as follows: (1) In the short-run aspect where capital is fixed to each sector and environmental quality is unchanged, equilibrium is stable under the labor adjustment process. (2) In the medium-run aspect where the environmental quality is unchanged but capital and labor are adjusted slowly, the equilibrium is stable under the condition that the urban area is capital-intensive. (3) In the long-run aspect where factors and the environment adjust sluggishly, the condition that the urban area is capital-intensive is necessary for the stability. (4) In the long-run aspect where factors instantaneously adjust but the environment adjust gradually over time, the equilibrium is stable under the condition that the rural area is capital-intensive.

## **Is Emission Standard Superior than Emission Tax?**

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### **Abstract**

**We examine the effects of an emission standard and an emission tax, and consider the comparison between two environmental policy tools. This paper examines those analyses under international country duopoly model. In this setting, we introduce unilateral and bilateral environment policies. In the case of unilateral policy, home country prefer to introducing emission standard rather than the emission tax. In the case of bilateral policy, however, the emission tax is welfare superior to the emission standard for foreign country.**

**We also consider those policy comparisons in three country model. In the case of unilateral policy in an export country, the emission standard may be welfare superior to the emission tax for all countries. In the case of bilateral policy, however, the emission tax becomes more preferable to the emission standard for both export countries.**

## Management Fraud and Audit Failure –Cases of China Listed Companies

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### Abstract

A management fraud has been a major concern in the business community and the accounting profession across the world. Like many other countries, China is presently facing the challenge of fighting frauds and financial irregularities. This paper provides an empirical investigation of management frauds in China through an analysis of the types and methods of management frauds by Chinese listed companies based on the sample of 74 cases over the five-year period from 2002 – 2006. This paper finds that a majority of the management frauds in the sample companies involved the manipulation, alteration and falsification of reported financial information. Fraud schemes often involve more than one technique to misstate financial statements, typically through overstating revenues and assets and understating liabilities and expenses. Most of the sample companies committed several frauds, *inter alia*, false profits and insufficient or false disclosure at the same time. Also, fraud Chinese listed companies engaged in a variety of ways to deceive profits and revenues, such as recording fictitious revenue, under-recording expense, lowering the allowance for asset impairment and recording fictitious investment profit. In addition, this study finds that most of management frauds in Chinese listed companies lasted more than two years with the longest one being nine years, and intervals between an initial fraud and punishment were usually more than three years with the longest one being 11 years.



### **Section 13: Late Submissions**

# **The Globalisation of Medicine: The Emerging Market of Medical Tourists – Estimates, Challenges and Prospects**

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## **Abstract**

Travelling overseas for medical treatment is a practice generally known as (international) medical tourism. This paper seeks to analyse estimates of its current size and future growth prospects, the economic and business ‘drivers’ of this market, the major participants (in generating and host countries, with examples of specific businesses, including hospitals in selected host countries), its constraints, risks and challenges, and its overall future prospects. Estimates of the economic magnitude of medical tourism are extremely limited, and reliable data is difficult to obtain, although information from suppliers is abundant. Leading host regions worldwide comprise South America, Eastern Europe and Asia. Within Asia, in terms of market share, Thailand, Malaysia, Singapore, India and China are the leading countries, particularly for invasive surgeries. This paper analyses the newly emerging (mass) market of international medical tourism from an economic and business (customers, agents/third parties, medical service providers) perspective.

## **Introduction**

Medical tourism or medical travel is essentially the act of travelling to another country for some form of medical treatment, including cosmetic procedures and dentistry. It can be traced back thousands of years, at least to the Greek Empire when pilgrims from throughout the Mediterranean travelled to Epidaurus in search of the healing powers of their god Asklepios (Hancock, 2006, pvii). The Roman City of Bath attracted, and still does, many tourists seeking its ‘restorative waters’. Medical tourism has developed over the centuries throughout the world, although probably until fairly recently it was predominantly the prerogative of members of the richest, ruling classes and possibly religious orders and traders. One author considers the current growth in medical tourism to be the ‘second wave’, the first being in the 18<sup>th</sup> and 19<sup>th</sup> Centuries, particularly from Britain (Abdullah, 2006, p1). Within some Asian countries, the so-called Asian economic crisis of 1997-98 also played a significant role in its development as hospitals sought overseas patients to maintain revenue arising from the shortfall in local patients.

Currently the international trade in health services is estimated to be worth around US\$30 billion globally (WHO estimate, cited in TIAC, 2004, p4). It has four main components: services such as telemedicine; foreign-owned hospitals and services; individuals supplying services abroad eg short term employment of nurses; and

individuals travelling abroad for treatment (irrespective of whether the individual, insurer, employer or government pays). The latter is known as medical tourism and the focus of this paper.

Whilst medical tourism is a rapidly developing industry and currently thriving in many parts of the world, academic research on it is very limited. This may be because in a sense it 'falls between two stools', namely the medical profession on the one hand and the international tourism industry on the other. Moreover, whilst there is a great deal of information on suppliers, whether individual hospitals or third party businesses that organise visits, there is very little overall economic data on the sector. National governments, especially health authorities, and international agencies are struggling with health accounting data, part of the much wider issue of gathering statistics on the international trade in services. This is not to say that medical tourism data does not exist; rather, that estimates are made or published almost in passing and are generally part of much wider analysis, marketing or publicity. This paper should probably therefore be seen as work-in-progress and a pioneering attempt to investigate this hitherto neglected sector within global business. The data and estimates cited here should be seen as illustrative rather than comprehensive; the latter would require a very large study beyond the author's current resources and/or improved statistical collection and analysis by international agencies.

The paper is organised as follows. Following this brief introduction, the definition of medical tourism, various associated terms and the main medical procedures involved are discussed. The third section discusses the theoretical benefits and costs of medical tourism from both macro-economic and micro-economic perspectives. The fourth and fifth sections then discuss types of treatment, prices and main locations, and supply, and their related factors, respectively. Supply factors include both the hospitals or treatment centres and third party businesses that organise visits, as well as, in some countries, government or related agencies that oversee and/or promote medical tourism within their country. The sixth section analyses selected estimates of economic magnitude, in terms of visitor numbers, revenue, and other criteria, whether by country or supplier (eg hospital). The final section makes some concluding remarks, including comments on the likely future challenges and prospects for the sector, and suggestions for further research.

## **Definitions, Terms and Medical Procedures**

A tourist may be defined as '... a person who visits another place other than his/her normal place of residence for a period of more than 24 hours and less than one year.' (Pope, 2006, p2). An international tourist is someone who visits another country within the same time period as stated in the definition. The word 'medical' is defined as 'of or relating to the science of medicine in general' (Concise Oxford Dictionary, 1990). Sometimes medical is taken to exclude surgical treatment but in the context here it should be used in its wider sense.

Thus a medical tourist may be defined as 'a person who visits another place other than his/her normal place of residence for a period of more than 24 hours and less than one year for the primary purpose of medical treatment'. 'Medical tourism' is thus 'the sector or industry providing medical services to people who visit another place other

than their normal place of residence for a period of more than 24 hours and less than one year'. Strictly speaking medical tourism may be domestic ie within one country, or international ie involve an overseas visit. Current accepted use of the term medical tourism is understood to mean 'international medical tourism'.

Some commentators, generally affiliated with the tourism medical profession or elsewhere within the sector, dispute or dislike the term 'medical tourism' and prefer to use the term 'medical travel' (eg Yap, 2007). The reason for their objection seems to be that by implication a medical tourist is undertaking medical treatment as an incidental reason during a 'tour' of a country and medical treatment is not the primary purpose. From an academic perspective, the definition of tourism makes no mention of purpose, and indeed many or possibly nearly all international tourists undertake multi-purpose trips. Critics draw an analogy with business tourists, arguing that the term 'business travel' is used in preference to 'business tourism'. For those within the travel and tourism industry both terms are generally used interchangeably. From a semantic viewpoint, business travel may include business trips of only one day duration whereas business tourism must involve at least one overnight stay.

For the purpose of this paper suffice it to say that the terms medical tourism and medical tourist are used. For most medical treatments by people overseas it is likely that the vast majority of visits would be where the primary purpose is health care. However, three other situations should be recognised:

- incidental, where there is an unexpected illness or injury when the primary purpose is an overseas business or leisure trip;
- emergency, whether a pre-existing condition eg coronary, man-made eg road accident or arising from a natural disaster eg tsunami;
- expatriate workers who are treated in their country of residence rather than returning to their home country. Strictly speaking they are generally not tourists as they are resident for more than one year. Such expatriates should properly be excluded from medical tourism statistics although they are probably included in hospital supplier treatment data. Where their stay is for less than one year, then they may be properly categorised as medical tourists when treated.

From a statistical point of view, '[s]urprisingly little is known about the value and magnitude of global trade in health services' and '[w]ith no reliable, internationally comparable data to go on, there is no way of verifying the true significance of this trade.' (TIAC, 2004, p3). The main reason for this given by the World Health Organisation (WHO) is that this trade is still relatively small by global standards. Leading international agencies (UN, EC, IMF, OECD and UNCTAD) have published a Manual on Statistics of International Trade in Services that includes sector disaggregation. This includes a new Extended Balance of Payments Services (EBOPS) classification that identifies 'health-related travel expenditure', and 'health services' within the larger 'personal, cultural and recreational services' component of other private services. Various models and rules affecting the global trade in health services come under the auspices of the General Agreement on Trade in Services (GATS) (TIAC, 2004, p4). The World Health Organisation has also recognised the difficulty of medical tourism accounting (WHO, 2007). These technical aspects are recognised but not considered further.



In terms of procedures and care, medical tourism comprises medical, surgical or dental treatments. A 'grey area' is that of preventative care, for example, consultations over the use of Chinese medicine. Moreover, many would cite treatments such as massage, reflexology and acupuncture as healthcare, whether as treatment or preventative care. The so-called 'spa' industry, mainly massage and beauty treatment, is rapidly growing in various countries throughout the world and could arguably be included under some definitions.

For the purposes of this paper the narrower use of the term medical tourism, namely comprising medical, surgical or dental treatments, is used. Nonetheless, the different terms and possibly different definitions by various authors or researchers should be noted. When interpreting estimates care must be exercised, especially where comparisons are made.

Some of the main medical procedures in the field of medical tourism include (in alphabetical order): cardiac surgery; cosmetic surgery; dental surgery; eye surgery; fertility treatment; gender realignment; general surgery; orthopaedic surgery; scans and health checks; transplant surgery (Hancock, 2006, pxiii).

## **Theoretical Analysis of the Benefits and Costs of Medical Tourism**

The benefits and costs of medical tourism may be considered from a macro-economic and micro-economic perspective in traditional economic terms, with the latter further sub-divided into demand and supply characteristics. Externality effects, namely the effects on third parties outside of buyers and sellers, also need to be taken into account. This aspect is not considered further in this paper.

The main macro-economic benefits within the host country include higher expenditure on medical and related goods and services eg pharmaceutical products, and (longer-term) investment, higher expenditure on travel, accommodation and tourism services and investment and ensuing economic multiplier effects on the economy, and higher export earnings (all assuming all medical tourists are international tourists). The generating country (where medical tourists come from) benefit in terms of a higher standard of health care for parts of their population than would otherwise be the case, and ensuing longer life longevity and labour productivity, although both are probably very difficult to quantify.

The main micro-economic benefits within the host country include better quality hospital and medical services, better and often internationally, qualified doctors, practitioners, nurses and health care workers, and so on, than otherwise would be the case, as many suppliers seek to emphasise quality and parity with medical services in the richest countries in the world, particularly the USA. Arguably, these doctors and health care workers would be higher paid than otherwise would be the case. Co-ordinated services between the medical suppliers and travel and particularly accommodation services would also be introduced or enhanced, and may include government tourism organisations and bodies, to cater for this niche market.

The main micro-economic benefits for the generating country include persons obtaining required medical services at a much lower price, even after all non-medical expenses are taken account of, and/or much faster than

would be available in the generating country (in either the private or public sector). Some may achieve better 'value for money', and possibly even more highly qualified surgeons than otherwise. Other benefits include tourism benefits for any accompanying persons, probably family members, and, depending upon the medical treatment, tourism benefits for the medical tourist him/herself. There would also be less pressure on waiting lists in public hospitals and thus benefits within the generating country to the health authorities and ultimately government.

The costs of medical tourism are largely risk-related, as in any medical treatment in any country worldwide. The problem and ensuing costs become particularly important and complex where difficulties emerge after the medical tourist has returned to his/her home country. They have the choice of either returning to the hospital as a medical tourist once again or using the medical services within their home country, generally at higher expense or longer waiting times if under their public health system. Indeed, the treatment of delayed problems and failed procedures of medical tourists is likely to be of some interest to government health authority management and possibly the legal profession. Anecdotal evidence and media reports by Australian medical tourists have already cited failed treatments in some lesser known hospitals and treatment centres in Thailand, particularly in the field of cosmetic surgery eg breast enlargement. The issue of insurance for medical tourists is an important one but beyond the scope of this paper.

Other costs to medical tourists include the usual business risks of poor value for money for services incurred, misleading advertising and difficulties with third parties eg medical tour operators (rather than the hospitals themselves). The overall lack of regulations to protect medical tourists should be noted, so the maxim *caveat emptor* (let the buyer beware) becomes that much more important in this area. Needless to say, the larger the savings in the host country compared with the generating country, then generally the higher the overall risks and ensuing costs, where treatment fails.

Some argue that there is a cost incurred by the local, host population, particularly its poorer members, because their best surgeons and doctors, and the top hospitals generally, serve overseas patients exclusively or near exclusively because the rewards are far higher. Against that, members of the medical profession and hospital management argue that a high percentage of overseas medical patients improves standards and allows best worldwide health practice and equipment to be made available to the local population that would otherwise be beyond their means, either in monetary terms, as in India (apart from the rich elite), or because of a relatively small population and insufficient demand for some medical procedures, as in Singapore.

To sum up this section, the theoretical benefits to all parties generally far outweigh the direct monetary costs and longer-term risks, although for a small minority of medical tourists the cost could be great, and possibly include their loss of life in a 'worst-case' scenario. Hence the rapid growth in medical tourism worldwide, as later sections of this paper show.

## **Types of Treatment, Prices and Main Locations**

As noted earlier, medical tourism comprises medical, surgical or dental treatments. The 'grey area' of preventative care is generally disregarded in the following analysis. The main medical procedures in the field of medical tourism include (in alphabetical order): cardiac surgery; cosmetic surgery; dental surgery; eye surgery; fertility treatment; gender reassignment; general surgery; orthopaedic surgery; scans and health checks; transplant surgery (Hancock, 2006, pxiii). The main ones are now discussed, with a focus on prices and main host countries specialising in such treatments (*ibid.*).

The focus in this section is on medical tourism from the UK to a wide range of countries throughout the world, simply because more comprehensive research is available in that country. The UK provides a good insight into medical tourism, but the principles apply to many other richer countries throughout the world, particularly the USA, as well as countries in parts of western Europe, the Middle East, Asia, and Australia and New Zealand. The most popular procedures for medical tourists from the UK are orthopaedic operations, cosmetic surgery and dental treatment, with much of the latter to eastern European countries.

#### **Cardiac Surgery**

In the UK alone coronary heart disease accounted for around 230,000 deaths in 2003 (British Heart Foundation figures; *ibid.*), and the largest killer in the country. Heart bypass treatment costs around 12,000 pounds to 15,000 pounds in the UK yet only 6,400 pounds in Bangalore, India operated by the Taj Medical Group, a British company. The latter price includes all theatre, surgeon and anaesthetist's costs, nursing and medical care, drugs and dressings, and private accommodation (applies to other host country costs below unless otherwise stated). The economy class airfare from the UK to India would be around 500 pounds. Thus overall savings of at least 40 per cent are possible for UK medical tourists seeking heart bypass treatment. Other countries offering specialist cardiac services include Belgium, Germany, Malaysia and South Africa.

#### **Cosmetic Surgery**

Cosmetic surgery includes ear particularly for 18 years old and younger, breast enlargement for women aged 19-35, and eyelid surgery or facelifts for the over-50's. Males as well as females seek treatment within this category, both with the main aim of looking younger than their real age or becoming more attractive to the opposite sex. Breast enlargement costs between around 4,000 pounds and 4,700 pounds in the UK. In Koh Samui, Thailand it costs only around 1,300 pounds (including prosthesis). With economy class flight costs of between 500 and 800 pounds depending on the carriers from UK to Koh Samui, savings of at least half are possible. For UK medical tourists wishing to purchase an 'all-in' treatment and package holiday to Krakow, Poland, prices would typically be around 2,500 pounds for 6 days and 2,900 pounds for 11 days. The price includes an escort from Gatwick Airport to Krakow thus avoiding higher costs for accompanying family or friends for those who prefer.

#### **Dental Surgery**

Dental surgery includes root canal treatment, porcelain tooth crowns, veneers and implants. Although dental surgery is generally cheaper than other types of surgery, a tooth implant in the UK costs between 1,500 pounds and 2,000 pounds per tooth. In Rovinj, Croatia, a coastal town, one tooth implant costs around 734 pounds (1,100 euros), a

saving of around 50 per cent before travel and accommodation costs. The former are around 200 pounds from the UK to Croatia, and cheaper by budget airline. Package tour operators in the UK such as Thomson offer half-board visits including airfare, using some four-star hotels, starting at 300 pounds in low season for seven nights.

#### **Eye Surgery**

Treatment for cataracts costs between 1,800 pounds and 2,900 pounds (per eye); in South Africa similar treatment costs around 1,600 pounds per eye. Although savings are possibly not so high, a visit to South Africa would often include an 'add-on' safari holiday. A wide range of other countries specialise in offering eye treatment for medical tourists, including Argentina, Cyprus, Tunisia and India, and European countries such as Belgium, France and Germany.

#### **Gender Realignment**

Popularly known as a sex change, this involves a number of complicated psychological and physical treatments over a period of time that are not considered here. Suffice it to say that the treatment in the UK costs from 30,000 pounds. The main country specialising in gender realignment is Thailand. At the Aesthetic Surgery Center in Bangkok the surgical treatment costs around 16,000 pounds. Accommodation can be arranged for as little as 14 pounds a night, with flights from the UK to Bangkok starting at around 400 pounds.

#### **General Surgery**

General surgery covers a wide range of treatments by medical tourists, including gallbladder and gallstone operations, hernia, male prostrate treatment and tonsillectomy. Treatment in countries such as Belgium, Hungary, India and South Africa offer savings on UK prices.

#### **Orthopaedic Surgery**

Orthopaedic surgery includes hip replacement (UK cost around 8,000 pounds), knee replacement (around 9,500 pounds) and shoulder replacement (around 12,500 pounds). In India the UK-based Medical Tourist Company offers hip replacement for 4,500 pounds and knee replacement for 5,000 pounds, whilst another UK-based company Med De Tour (to Bangalore) is even cheaper at 3,700 pounds and from 3,200 pounds respectively. Prices exclude travel and insurance but are otherwise inclusive for the UK medical tourist. For a US-based company the cost to a medical tourist of a hip replacement in the Punjab in India is around US\$13,000, including airfare and 20-day hotel accommodation, compared with a cost in the USA of around US\$40,000 (Business 2.0, p26).

#### **Transplant Surgery**

Of all the medical procedures available to the medical tourist, transplant surgery is probably the most controversial as it raises the question of who is the donor and under what circumstances was the organ obtained. Transplant surgery is also by far the most expensive. For example, in the UK a kidney transplant costs at least 25,000 pounds plus annual drugs of 5,000 pounds, a heart transplant is at least 70,000 pounds, a liver transplant costs from 75,000 pounds and a heart and lung transplant from 100,000 pounds. The main countries listed by Hancock (2006, pp 93-100) are India, Israel and South Africa, and Costa Rica for certain procedures, although he is unable to provide cost data in these countries for these complex, costly operations.

The Republic of China (not listed by Hancock) is known to specialise in transplant operations in military hospitals using organs from condemned prisoners who are said to sign for their organs to be used voluntarily (*The West Australian*, 2006). The practice has been dubbed 'transplant tourism' by the media. Very occasionally there are media reports of poor people in developing countries being killed or kidnapped for their organs, or poor people having no choice but to sell their bodily parts. Whether there is any truth in such rumours and reports cannot be assessed in this paper. Nonetheless, the possibility of this 'darker aspect' to medical tourism, however remote, needs to be borne in mind.

To sum up this section, based on the cost of UK medical treatment, the UK medical tourist can generally obtain prices of between half and one-third lower than in the UK before travel and insurance costs are included. With low economy class fares, particularly on budget airlines, available to many destinations in the world, significant cost savings of at least a quarter are typically achievable from the UK. Similar savings are available to medical tourists in many other richer countries in the world, particularly those from Canada and the USA. In the USA savings of between 30 per cent and 80 per cent on overseas medical treatment have been cited (Business 2.0, 2006, p25). For some, there is also the benefit of visiting another country and extending the visit to include a holiday.

### **Selected Main Hospitals and Other Suppliers**

From a business supply perspective, there are hundreds and possibly thousands of hospitals and associated businesses that cater for international medical tourists. Hancock (2006, pp 109-110) lists 23 host or destination countries in his analysis, and within each country at least several are named. For India eighteen specialist medical tour firms or business groups are identified (*ibid*, pp189-202) and nearly 50 hospital enterprises with world-class facilities alone are named (*ibid*, pp202-206), including Apollo Hospital Enterprises, now with 37 hospitals and around 7,000 beds (*ibid*, px). The Indian medical tourism industry has been classed as an export industry by the Indian government, with ensuing tax breaks and incentives that should help the industry develop still further.

In Thailand, Bumrungrad Hospital, Bangkok, is the country's leading hospital for international medical tourists. It is a publicly listed company trading on the Stock Exchange of Thailand, with the Bangkok Bank and the Sophonpanich family the majority shareholders. It started in 1980, opened its main hospital facility in 1997, around the time of the so-called Asian recession, and now claims to be the largest private hospital in South-East Asia with one million square feet of floorspace and 554 in-patient beds. It has an American-led management team, over 2,600 employees, over 900 physicians and dentists, most with international training and certification, and over 700 nurses. Bumrungrad Hospital was the first hospital in Asia, and still is Thailand's only hospital, to be accredited by the US-based Joint Commission on International Accreditation (JCIA). It also has other international accreditations and certifications (Bumrungrad International, 2006).

Bumrungrad Hospital treated over one million patients (out-patient and in-patient) in 2005, with a turnover of US\$170 million. Medical tourists accounted for just under 40 per cent of its patients, with nearly 400,000 from over 190 different countries. It has a social responsibility programme that helps the underprivileged in Thailand, and claims to have treated over 100,000 Thais with free medical treatment. It has international representative offices in Australia, Bangladesh, Cambodia, Ethiopia, Hong Kong, Macau, Maldives, Myanmar, Nepal, Oman, Sri Lanka, Taiwan and Vietnam (*ibid.*). This gives some indication of the sources of Bumrungrad Hospital's client base. Interestingly, some of these are relatively poor countries that must have rich elites who use medical tourism services.

In Singapore, a city/island state with a population of around 4 million, the government and its industry partners created SingaporeMedicine in 2003. Its objectives are to develop and maintain Singapore as an international medical hub for medical tourists (the term medical traveller is preferred in Singapore) and for clinical research and development, medical conventions and exhibitions, training and education, and regional and international headquarters and operations (Yap, 2006). This is yet another 'string to Singapore's bow' in the field of tourism (for its size, Singapore is one of the world's leading countries for business events, conventions and meetings) and Singapore's overall economic development, with many international companies making it their regional headquarters.

SingaporeMedicine is an inter-agency initiative established by the Singapore Economic Development Board (promoting inbound investment), the International Enterprise Singapore (promoting the internationalisation of Singaporean companies) and the Singapore Tourism Board (here especially responsible for international marketing and branding and people-orientated services). Industry partners include hospitals, health care providers and medical travel and tourism agencies. Singapore Medicine is supervised by the Ministry of Trade & Industry and Ministry of Health (*ibid.*). One of Singapore's leading integrated suppliers is Pacific Healthcare, with over 90 medical specialists and an extensive network of facilities. Its operations include regional operations in India and Hong Kong (Economic Development Board, Singapore, 2007). Singapore's commitment to this industry is shown by overall investment in its healthcare industry fixed assets of S\$22 million in 2006 and S\$31 million in 2005 (*ibid.*).

As well as being a growing export industry, medical tourism in Singapore also helps maintain 'robust health care services with sufficient volume to support more than just one or two doctors in the rarer but critical services eg liver transplants.' (Yap, 2006, p026). In Singapore medical tourism is thus seen as a 'win-win' situation for both international visitors and the local population in terms of quality health care.

In Malaysia medical tourism has been developed by hospital groups such as PenangHealth. The highly regarded Adventist Hospital in Penang has an annual turnover of US\$32 million, with medical tourists accounting for 30 per cent of its patients, up from less than 5 per cent ten years ago (Business 2.0, p26). The Sunway Medical Centre (240 beds), Petaling Jaya, Selangor and Mahkota Medical Centre (238 beds), Melaka, are also well established hospitals in Malaysia catering for international visitors (Hancock, 2006, pp226-229). By contrast, countries such as South Korea and Taiwan have national policies in the field of medical tourism led by their

respective tourism authorities (Yap, 2006). In these countries the travel and tour aspects of medical tourism may be relatively more important, as well as the medical treatment itself.

In the Philippines, with its medical tourism industry arguably lagging behind some its better-off neighbouring countries such as Singapore and Malaysia, there is greater debate on inadequate health services for the majority of the population and whether Filipino hospitals should be encouraged by the government to cater for overseas patients (Olarde, 2006).

Europe is arguably one of the leading world regions in developing medical tourism overall, taking into account the need for co-ordination between agents, airlines, hotels and medical providers, although particular hospitals in Asia, especially the Bumrungrad Hospital in Thailand, have certainly pioneered the treatment of overseas patients. An example of the former is that Polish dentists advertise in in-flight magazines and budget airlines such as Ryanair promote trips to countries that specialise in medical tourism such as Poland and Hungary. Advertisements for eastern European dental treatment are now starting to appear in local and national English newspapers.

Perhaps surprisingly, the USA appears to have lagged behind western Europe in its generation of medical tourists and especially the setting up and development of specialist third party providers or medical tour agencies. Now it is in the process of catching up (Business 2.0, p26). For example, MedRetreat, based in Odenton, Md. is two years old and sent 320 patients overseas in 2006, mostly for cosmetic surgery to partner hospitals in Brazil, Thailand and Turkey. They receive a commission for hotel bookings and a 20 per cent discount on treatment fees from their partner hospitals. Annual turnover is approaching US\$1 million. One US entrepreneur considers medical tourism as ‘...the perfect arbitrage situation. Buy below market and sell below market.’ (*ibid.*).

Other recent US medical tourism start-up companies include GlobalChoice Healthcare (Albuquerque, New Mexico, with hospital providers in Costa Rica, India, Panama and Singapore) and PlanetHospital (Los Angeles, specialising in dealing with US employers and health insurers). Indeed, in the USA the corporate health market is ‘the big fish’, and a possible US\$500 million gold mine according to another entrepreneur (*ibid.*). However, it is too early days yet for the corporate sector overall. The vast majority of businesses and their insurers would like to see a well established, mature market first before committing. Indeed, in the USA more than anywhere else, they are critically aware that just a few surgical mishaps and ensuing costly law suits could damage the medical tourism industry severely, as well as probably bankrupting the medical tour provider. In short, in the USA at least, the generation of its citizens for medical treatment overseas is likely to be a ‘high risk, high reward’ business.

Thus, from a national leadership and organisational perspective, there are contrasting approaches to medical tourism, based on the selected Asian countries discussed above.

## **Estimates of Economic Importance**

This section attempts to synthesise some of the main estimates of the economic importance of medical tourism throughout the world. It must be emphasised that data of any kind let alone the usually quoted ‘reliable data’ is very difficult to obtain, essentially because medical tourism is a rapidly emerging industry and little data collection and research has been undertaken. Usually comparative and/or international studies follow a reasonable number of national studies within a particular sector eg business events tourism. Even within one country gathering data from disparate sources within medical tourism is no easy task!

A useful starting point is the global estimate by WHO of US\$30 billion for total health services trade in 2003 (TIAC, 2004, p4). From this and other information, TIAC estimate that this estimate of US\$30 billion is roughly composed of US\$15 billion in health-related exports and US\$15 billion in health-related travel expenditure and insurance. Unfortunately no estimates by world region let alone by leading countries have been made by WHO or TIAC.

The main economic measures used here are (medical tourist) visitor numbers and their expenditure. Other data such as their contribution to host country exports would be very valuable but is generally not available. The available data (to this author’s knowledge) giving an illustration of the economic importance of medical tourism to host countries ie inbound is shown in Table 1, and for generating countries ie outbound in Table 2. It should be emphasised that some countries eg South Korea, and also various OECD countries such as the UK and USA, can feature as both host and generating countries. This reflects both inflows and outflows, similar to international tourism flows generally.

TABLE 1: ESTIMATES OF THE ECONOMIC IMPORTANCE OF INTERNATIONAL MEDICAL TOURISM TO HOST COUNTRIES

Country/Year	Number of Patients (Inbound)	Expenditure (Inbound)
India, 2004	150,000	-
Malaysia, 2004	179,000	US\$8 million <sup>a</sup>
Singapore, 2005	374,000	-
Thailand, 2002 <sup>b</sup>	600,000	US\$550 million
Thailand, 2004 <sup>c</sup>	1.1 million	-
Thailand, 2005	520,000	-
<i>S. Korea, 2010 forecast<sup>d</sup></i>	<i>100,000</i>	-
<i>India, 2012 forecast</i>	-	<i>US\$2 billion</i>
<i>Singapore, 2012 forecast<sup>e</sup></i>	<i>1 million</i>	<i>US\$3 billion</i>
<i>Asia, 2012 forecast</i>	-	<i>US\$4.4 billion<sup>e</sup></i>

Sources: Yap (2006), unless otherwise stated: <sup>a</sup> M\$28 million cited by Hancock (2007, p225) and converted at an exchange rate of M\$3.4 = 1US\$. This figure seems extremely low and requires verification. <sup>b</sup> A\$680 million cited by TIAC (2004, p2) and converted at an exchange rate of A\$0.8 = 1US\$; <sup>c</sup> Dogra (2005); <sup>d</sup> Tour Korea (2007).

Note: <sup>e</sup> Likely to be an underestimate based on overall evidence (this author).

TABLE 2: ECONOMIC IMPORTANCE OF INTERNATIONAL MEDICAL TOURISM FROM GENERATING COUNTRIES



Country/Year	Number of Patients (Outbound)	Expenditure (Outbound)
South Korea, 2006	-	US\$20 million
USA, 2006	500,000 plus	-
USA, 2010 forecast	-	US\$40 billion

Sources: Business 2.0 (2006); *The Straits Times* (2007).

There is hardly any data on average spending per medical tourist. The Thai 2002 data from Table 1 suggests around US\$916 per overseas patient, and the Malaysian data for 2004 (US\$45), from separate sources, seems very unreliable, especially the aggregate expenditure figure. One forecast figure from Singapore is around S\$15,000 per overseas patient for a typical stay of two weeks (*The Straits Times*, 2006). Even if the current average figure for any Asian country is much lower at, say, US\$2,500 per overseas patient, any country with around 400,000 medical tourists pa would currently generate some US\$1 billion in expenditure. Both rough estimates are feasible, and arguably conservative, given available data on treatment prices from the earlier section and a rounded average of current medical tourist numbers to Thailand, Singapore and Malaysia (from Table 1).

For South Koreans, international medical tourism grew rapidly from US\$8 million in 2005 to US\$20 million in 2006, with the highest amount, around 40 per cent, being spent in the Republic of China. The leading treatments were organ transplants and Oriental medicine (*The Straits Times*, 2007).

The United Arab Emirates (UAE) sends many of its citizen abroad for medical treatment funded by its government. The leading host (destination) countries in 2004 were: Germany (46%), India (23%, up from 9% in 2001), UK (21%), USA (3%, and interestingly down from 17% in 2001), with China, Malaysia and Thailand all noted as growing in importance for UAE nationals (Al Muhairi, 2007, p6; visitor number and expenditure data unfortunately not available). The USA has thus lost market share from not only the UAE but reportedly from other rich Arab countries because of its very stringent immigration requirements following the September 2001 terrorist attacks in the USA.

The potentially huge growth in the industry may be seen from some fundamental US medical data: Americans spend around US\$570 billion at US hospitals annually; 61 million adult Americans are currently either uninsured or underinsured for medical treatment (Business 2.0, 2006, p25). In Thailand it is worth noting that just one early entrant and leading hospital, Bumrungrad, accounts for around 77 per cent of that country's international medical patients. In India international medical tourism is forecast to grow at around 30 per cent pa, and should be worth around US\$2 billion by 2012 (Hancock, 2006, px).

It is unfortunate that the available data is so scant. Nonetheless, the picture is emerging of what has hitherto been rather a 'hidden' global business that seems set for rapid expansion and growth in many host countries throughout the world including those in Asia from where much of the current data is being derived.

It is worth noting that, whilst these figures for medical tourism are impressive for a newly emerging global industry, worldwide tourism was worth around US\$6,200 billion in 2005, or 10.6 per cent of world GDP (WTTC, 2005). Moreover, expenditure on health services in many OECD countries is typically around 7 per cent to 10 per

cent of GDP (TIAC, 2004, pp 2-3) and is a multi-billion dollar industry worldwide even excluding all patients from overseas countries. In other words, in the context of both tourism and domestic medical industries worldwide, medical tourism is, at present, minimal. Medical tourism does not yet feature in the World Tourism Organisation's 'top ten' of sub-groups. For some rough comparison, in Australia alone in 1996-97 international business delegates spent just under US\$1 billion (BTR, 1999). In Thailand in 2002 medical tourism may have been conservatively worth around half of this figure. The forecast for medical tourism in India in 2012 is US\$2 billion, and for the Asian region US\$4.4 billion, probably a conservative estimate (see Table 1). Indeed, arguably the implications for domestic health systems and government health policy are more important and profound than for the tourism industry.

## **Concluding Remarks and Future Research**

This paper is an initial attempt at exploring some of the many economic and business issues in the rapidly emerging field of (international) medical tourism. Even the term itself is open to some debate, with one eminent Singaporean commentator preferring the term medical travellers. One of the disappointing constraints of this paper is the great dearth of literature and especially data on the topic.

Overall, it has been suggested that medical tourism is likely to be a rapidly growing industry that, in years to come, will be economically noteworthy (but probably not significant, at least in terms of overall international tourism numbers and expenditure). As with any study of international tourism flows, the analysis here has identified the richer generating (outbound patient flow) countries, particularly the UK and USA, and also South Korea in Asia, and the much wider range of host (inbound patient flow) countries that specialise in medical treatment for overseas visitors. The latter are generally but not exclusively poorer, developing countries. It is worth noting that many poorer countries often generate a small number of very wealthy medical tourists from their rich elites, as shown by patients to the Bumrungrad Hospital in Thailand.

Whilst recognising the data limitations and possible selection bias of the research here, leading host countries in Asia include China (although little data was found to support this proposition), Thailand, Singapore, Malaysia and India. In Europe leading host countries are mainly former eastern bloc countries such as the Czech Republic, Poland, Hungary and Latvia. In the Americas there is a fairly wide range, including Brazil, Argentina, Mexico and Costa Rica. Other parts of the world are also represented, including Tunisia, South Africa and Israel. Middle-Eastern countries, such as the United Arab Emirates, may also enter the market in a significant way in the years ahead, although hitherto they are mainly generating countries.

Currently medical tourist numbers to (selected) host countries in Asia are roughly between 150,000 and 600,000 each annually, and possibly around 1 million pa in the case of Thailand. The Thailand market alone is probably worth at least US\$0.6 billion pa, although all the data cited should be treated very cautiously. The Asian medical tourism market may be growing annually at up to 30 per cent. From an outbound perspective, the USA

generates over a half a million medical tourists every year, and the South Koreans spent US\$20 billion on medical tourism in 2006, mostly in the Republic of China. The main risks to forecast growth include widespread bad publicity in generating countries arising from deaths or serious problems; curbs to travel from world regional health outbreaks such as SARS; and terrorism or war. Currently these seem to be of low or extremely low probability.

The driver of this growth in medical tourism is primarily price, with estimated typical net savings of 25 per cent to 50 per cent for UK medical tourists and between 30 per cent and 80 per cent for those from the US. The latter probably reflects the higher costs of medical treatment in the USA, much of it deriving from higher litigation and insurance costs and the organisation and ownership of the domestic medical industry. Another driver for some medical tourist patients is the higher quality of treatment and care overseas, particularly those who may have to use an over-loaded public health care system, as in the UK, or for the rich elite patients whose home country does not have the appropriate medical facilities and physicians.

For countries with over-loaded public health care systems, such as the UK, the development of medical tourism, including offers from overseas groups eg from India, to treat public sector (National Health System) patients on a contract basis, raises significant health policy issues.

From a research perspective, many avenues are possible. Primarily there is the need for more comprehensive and reliable data and ensuing analysis from as many countries worldwide as possible, both generating and host countries. Further research could focus either more heavily on the medical issues or the tourism issues. For the former, for example, the effects upon a country's domestic health care system, irrespective of whether it is more publicly orientated (as in the UK, for example) or a more private enterprise system (as in the USA) is likely to emerge as a critical government policy issue. This applies to both generating and host countries. A critical, mainly longer-term, issue may be remedial care and treatment, and related liability and enforcement issues, where overseas treatment fails or leads to further health problems.

Research opportunities from a tourism perspective include the varying organisational approaches to medical tourism in different countries, and the economic benefits and costs to the various components of medical tourism eg tour operators, airlines, hotels, hospitals. The role of marketing is also a potentially rewarding research area.

Overall, the prognosis for the rapidly emerging area of medical tourism as a global business is currently excellent. In many ways it is a 'high reward and high risk' international business, although comparatively resilient to recession. As with any new market, there are likely to be both winners and losers, with intense international competition and discounting in some sub-sectors, until the market matures. The balance between private and public health care provision, now in an international trade context, will become increasingly prominent in the years ahead.

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# Determinants of National and Corporate Culture Differences: Evidence from Chinese International Strategic Alliances

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## Abstract

This paper examines the determinants of managers' perceptions of national and corporate culture differences, using data obtained from Chinese international strategic alliances. These determinants we identify as culture-related management impediments, cultural management policies, and cultural sensitivity. We find that the extent to which the Chinese managers have experienced culture-related management impediments is positively related with their perceptions of national and corporate culture differences. We find that the adoption of cultural management policies is negatively related to the perceived national culture difference, and that it moderates the expected positive relationship between the experience of culture-related problems and the perception of corporate culture difference. We find that the expected positive relationship between the experience of culture-related problems and the perceptions of national and corporate differences is moderated by the degree of cultural sensitivity of Chinese firms. We also report the effects of alliance age, alliance form, prior business relationships and cultural distance on the perceived cultural differences.

## Introduction

International strategic alliances (ISAs) are capable of creating an array of competitive advantages for the firms involved, if national and corporate differences between partners are effectively managed (Glaister and Buckley, 1996). The extant literature has advanced our understanding of the importance of culture on alliances. This literature has examined the impact of national culture distance on alliance partners across a wide range of issues, including control, trust, conflict resolution, learning and alliance performance (Kogut and Singh, 1988; Child and Markoczy, 1993; Hennart and Zeng, 2002). Given the problematic nature of national cultural distance at the conceptualisation and measurement levels (Shenkar, 2001), however, studies that have examined national cultural distance between alliance partners may have failed to capture the impact of managers' perceptions of national culture differences on the issues of concern. Furthermore, many studies in ISA research have not examined the effect of corporate culture differences, consequently the effect attributed to national culture distance may be exaggerated (Sirmon and Lane, 2004). We report data obtained from Chinese ISA parent firms in order to elaborate Chinese managers' perception of national and

corporate culture differences. We also examine the antecedents of national and corporate culture differences from the perspective of the Chinese managers. In so doing, we contribute to the understanding of how firms and managers in transition economies such as China tend to perceive national and corporate culture differences in their ISAs with foreign counterparts, something which has been given scant attention in the prior literature (Peng, 2000; Luo, 2002). We thereby redress the emphasis to date on European and US firms in cross-culture management research in China, by adding the perspective of local Chinese firms.

## **Literature Review and Hypothesis Development**

Differences in culture between ISA partners may pose cooperation barriers or management impediments (Hennart and Zeng, 2002). While the effect of culture differences is well explored in the prior literature, this is less so with respect to the influence of culture-related management impediments encountered by managers on their perception of culture differences between alliance partners. The prior literature has given scant attention to this question. In fact, reviewing a large body of literature treating cross-cultural differences as given by Hofstede's (1980) cultural indices and/or measured aggregately by Kogut and Singh's (1988) computational formula, Kirkman, Lowe and Gibson (2006) urge future studies to collect primary data in order to measure cross-cultural differences as perceived by managers. We seek to examine whether managers' perceptions of culture differences are influenced by their experience of culture-related management impediments.

In Sino-foreign ISAs, the prior literature suggests that culture-related management impediments arise from differences in four of the five dimensions of national culture (Hofstede, 2001). For instance, difficulties in the management of ISA may also arise where foreign firms manage according to individualistic values whereas their Chinese partners emphasize collectivistic principles (Reading, 1990; Fang, 1999). Moreover, differences in the orientation towards time, partly reflected in the importance and timescale attached to the development of commitment and mutual trust for the alliance to achieve its performance goals, can result in confusion and conflicts in Sino-foreign ISAs (Yan and Gray, 1994).

In Sino-foreign ISAs, culture-related management impediments may also arise due to differences in alliance partners' corporate cultures. It has been argued that as Chinese ISA firms are predominantly state-owned, the character of the state-owned enterprises and the system under which they operate have a bearing on the management of the Sino-foreign ISAs (Peng, 2000; Luo, 2002). Moreover, attitudinal differences with respect to assuming responsibilities, sharing information and communication, and making decisions may impede the management of these Sino-foreign ISAs (Boisot and Child, 1988). Additionally, issues of human resource management, such as selection, training, compensation, appraisal, retention, may also be problematic due to corporate culture differences between Chinese and foreign partners (Child, 1994).

When cross-cultural interaction between the alliance partners is marked by friction and frustration, stereotypes may indeed be reinforced, and conflicts can become entrenched, thus impeding adjustment (Schneider and

Barsoux, 2003). In turn it may exacerbate what the transaction costs economics is concerned with. If culture-related management impediments are widespread, they may raise the question as regards to whether the focal firm's national and corporate cultures are compatible with the partner's. The learning intentions and efforts of the firm to access or acquire the knowledge embodied in the partner's distinctive cultures may also be impeded. In a nutshell, different theoretical lenses reinforce the view that greater culture-related management impediments increase a sense of difference between alliance partners in the perception of managers.

*H1a: The greater the extent to which the Chinese managers have experienced culture-related management impediments the greater the Chinese managers' perception of national culture differences.*

*H1b: The greater the extent to which the Chinese managers have experienced culture-related management impediments the greater the Chinese managers' perception of corporate culture differences.*

Culture differences can create problems of mutual comprehension, indicating the need for considerable adaptation for the partners in ISAs. We propose a framework of seven cultural management policies, which consists of management initiatives conducted ex-ante, ex-post, and during the operation of the alliance. We argue that adoption of these cultural management policies represents one proactive use of coping mechanisms that the firm can use to mitigate the negative impact of, and simultaneously increase the benefit of, cultural diversity on alliance outcomes.

Specifically, the depth of cultural analysis undertaken prior to the formation of the alliance informs would-be partners of the differences in their strategic motives, capabilities, national and corporate cultures, which in turn prepares managers for cross-cultural interactions and enhances cultural understanding in the alliance. Cross-cultural training, as a means of facilitating interaction, enhances managers' psychological well-being and self-confidence, develops their interaction skills, and promotes a correct perception of other cultures (Black and Mendenhall, 1990). As culturally sensitive managers are likely to exhibit more cultural awareness of the norms and values held by other nationals, and to show more flexibility in cross-cultural interactions (Child and Faulkner, 1998), the selection of culturally sensitive (alternatively, the removal of culturally insensitive) managers to work in the alliance is likely to bring a sense of cultural affinity between alliance partners. By reviewing the cultural barriers experienced by alliance managers, as well as their coping strategies, managerial effort can then be better devoted to reconcile or build upon culture differences between alliance partners (Jun, Gentry and Hyun, 2001). This in turn leads to informed adjustment of procedures or practices that are culturally incompatible between alliance partners, for example the adaptation of Western-based training programmes to the context of China as reported in Bjorkman and Lu (1999). All these cultural management policies require investment of resources and commitment of top management time and effort. It is anticipated that the adoption of these cultural management policies is likely to reduce the perception of national and corporate culture differences between alliance partners.

*H2a: The greater the extent to which the Chinese firms have adopted cultural management policies the less the Chinese managers' perception of national culture differences.*

*H2b: The greater the extent to which the Chinese firms have adopted cultural management policies the less the Chinese managers' perception of corporate culture differences.*

It has been argued that managers with little cultural sensitivity are more likely to experience culture shock, denigrate other cultures, and impose their own national and/or corporate culture (Johnson, Cullen, Sakano and Takenouchi, 1996). By contrast, culturally sensitive managers tend to have greater cross-cultural experience and communication skills. Additionally, culturally sensitive managers are more likely to pay attention to cultivating relations and building trust with their counterparts. Where conflicts arise in an alliance culturally sensitive managers can use their cross-cultural knowledge to effectively resolve partner disagreements. Conversely, due to their inability to facilitate communication and understanding among parties to an alliance and to deal effectively with different expectations of parent firms, culturally insensitive managers are likely to experience more role conflicts (Shenkar and Zeira, 1992), and are more likely to malfunction in a multicultural context. The level of cultural sensitivity by Chinese managers suggests the extent to which they appreciate the foreign partner's culture and adjust accordingly, which in turn facilitates effective interaction and conflict resolution.

*H3a: The greater the extent to which the Chinese managers' parent firms are culturally sensitive towards the foreign partner firms the less the Chinese managers' perception of national culture difference.*

*H3b: The greater the extent to which the Chinese managers' parent firms are culturally sensitive towards the foreign partner firms the less the Chinese managers' perception of corporate culture difference.*

The extent to which managers encounter culture-related management impediments necessitates the adoption of culture management policies by one or both alliance partners. However, the prior literature has barely considered the extent to which the adoption of culture management policies impact on the relationship between culture-related management impediments and the perception of culture differences.

Although national cultures are deeply embedded and resistant of change, many people working in ISAs may be able and willing to adapt their national cultural dispositions under conditions which motivate them to do so (Child and Faulkner, 1998). Artefacts of corporate culture converge to a certain extent between ISA partner firms in China, particularly in the practice of human resource management. For example, performance appraisal management systems similar to Western practices were introduced in half of Bjorkman and Lu's (1999) sample. They also found that in recruitment and selection, foreign managers take formal responsibility for the selection decision based on the applicants' professional qualifications and competences, which is effective in curbing nepotism or relationship-based selection. We argue the positive relationship between culture-related management impediments and the perception of culture differences will be weaker when there is a greater level of adoption of cultural management policies.

*H4a: Adoption of culture management policies will weaken the relationship between the extent to which the Chinese managers have experienced culture-related management impediments and the Chinese managers' perception of national culture difference.*

*H4b: Adoption of culture management policies will weaken the relationship between the extent to which the Chinese managers have experienced culture-related management impediments and the Chinese managers' perception of corporate culture difference.*

Chinese firms see their foreign partners as reservoirs of both technical know-how and managerial



knowledge, and probably as a source of both explicit and tacit knowledge (Child and Markoczy, 1993). The tacit nature of organisation-based knowledge implies a bargaining power imbalance in favour of the foreign partners. This is in line with the evidence that the growth rate of wholly-owned subsidiaries has surpassed that of equity joint ventures in China since 1997 (Child and Tse, 2001). It also suggests that being responsive to the nitty-gritty of complex Chinese cultures may prove to be something of a tall order for foreign investors in China (Vanhonacker, 1997). Consequently, cultural integration may loom large in the culture management strategies of foreign firms investing in China. By contrast, we argue that Chinese firms may be constrained by the nature of their resources (which may be both imitable and substitutable), so that they may have little choice but to be more culturally responsive to their foreign partners. Moreover, the importance accorded to maintaining harmonious business relationships may tilt the Chinese firms' favoured culture management practices towards being more responsive rather than imposing culture.

The imbalance of culture management strategies argued above, with Chinese firms being more responsive and foreigner firms more imposing creates a game theoretical scenario where competitive moves harm the non-zero sum gains the cooperation aims to achieve. Where the ISA is imbued with culture-related management impediments, the cultural sensitivity on the part of the Chinese firms may signal a lack of cultural sensitivity on the part of the foreign partners, as evidenced by the ineffectiveness of adopting Western-centric training and language-teaching programmes (Bjorkman and Lu, 1999). The lack of responsiveness on the part of foreign firms may be interpreted as the lack of reciprocity, which has a deleterious effect on the cooperation (Fang, 2001). In proposing Hypothesis 1, we argued there is a positive relationship between the degree of culture-related management impediments and the Chinese managers' perception of national and corporate culture differences. Here we further argue that the magnitude of this positive relationship is likely to depend on the degree of cultural sensitivity by the Chinese managers. In other words, cultural sensitivity is a moderator of this relationship.

*H5a: The more culturally sensitive are Chinese firms the stronger the relationship between the extent to which the Chinese managers have experienced culture-related management impediments and the Chinese managers' perception of national culture difference.*

*H5b: The more culturally sensitive are Chinese firms the stronger the relationship between the extent to which the Chinese managers have experienced culture-related management impediments and the Chinese managers' perception of corporate culture difference.*

## **Research Methods**

Using a structured questionnaire and the key informant approach, we obtained 238 responses from Chinese parent firms of the ISAs. The initial English language version of the questionnaire was subjected to a back-translation process, being first translated into Chinese and then three Chinese bi-lingual researchers in the field blind-translated it back into English. The translation and back-translation process continued until the Chinese and English language

versions substantially agreed with each other. The Chinese language questionnaire draft was pre-tested for instrument validity with 12 Chinese ISA parent firms located in Zhejiang province.

In order to assess the perceived national culture difference, Chinese respondents were asked the extent to which the national cultures differed between the foreign parent's home country and China, measured on a five-point scale (1= very small difference; 5 = very great difference). In a similar vein, we also measured the perceived corporate culture difference between the Chinese respondent's parent firm and the foreign partner's parent firm. We measured the extent to which the respondents have experienced culture-related management impediments using seven items, each rated on a five-point scale (1 = no problem; 5 = major problem). Exploratory factor analysis (EFA) showed a strong single-factor solution for this measure, with a total of 54 percent variance explained by this factor and all factor loadings were at or above .64. This index has an alpha coefficient of .85. We developed seven items to measure whether or not the Chinese partner firms have adopted cultural management policies, each measured as a dummy (1= adopted; 0 = not adopted). The alpha coefficient for this index is .69. Based on Johnson, Cullen, Sakano and Takenouchi (1996), we measured cultural sensitivity of Chinese partner firms towards foreign partner firms, on a five-point scale (1 = strongly disagree; 5 = strongly agree).

We controlled alliance age, alliance form, prior business relationship, and national cultural distance between alliance partners. The alliance age was operationalised as the number of years since the reported formation of the ISA by the time of data collection in 2004. To control for the alliance form, this variable was entered as a dummy, coded 0 for non-equity-based ISAs and 1 for equity-based ISAs. Respondents were asked whether or not the Chinese parent firm and the foreign partner had had any prior business relationship, in a list of eight potential business relationship forms ranging from technology transfer agreements to joint ventures. We measured prior relationship as a dummy variable, coded 1 if both firms had previously worked with each other and 0 otherwise. The alpha coefficient for this index is .66. We also included cultural distance as a control variable. Indices of individual cultural dimensions were taken from Hofstede (2001: 500-502). Following the computational formula of cultural distance specified in Morosini, Shane and Singh (1998), we calculate aggregate cultural distance as the square root of the sum of the square of the distance of each of Hofstede's five cultural dimensions given the home country of the foreign partner.

## Results

Table 1 reports the means, standard deviations, and zero-order correlations between variables. We used hierarchical multiple regression to examine the hypotheses. Table 2 reports the regression results. The main effects variables were mean-centred to alleviate multicollinearity concerns before the creation of the interaction terms. Examination of the variance inflation factors (VIFs) associated with each regression coefficient showed a range from 1.00 to 1.40, suggesting no serious problems of multicollinearity.

[Insert Table 1 Here]

[Insert Table 2 Here]

It was expected that the extent to which the Chinese managers have experienced culture-related management impediments is positively related with their perception of national culture difference (H1a) and of corporate culture difference (H1b). Table 2 shows that H1a (model 3,  $p < .01$ ) and H1b (model 6,  $p < .01$ ) are both supported.

It was hypothesised that the extent to which the Chinese partner firms have adopted cultural management policies is negatively related with the perception of national culture difference (H2a) and of corporate culture difference (H2b). Table 2 shows that H2a (model 3,  $p < .01$ ) is supported, but H2b (model 6,  $p > .1$ ) is not supported. It was posited there will be a negative relationship between the Chinese firms' cultural sensitivity towards the foreign partners and the Chinese managers' perception of national culture difference (H3a) and of corporate culture difference (H3b). The results show that H3a (model 3,  $p > .1$ ) and H3b (model 6,  $p > .1$ ) are not supported.

It was posited that the positive relationship between the extent to which the Chinese managers have experienced the culture-related management impediments and their perception of national culture difference (H4a) and of corporate culture differences (H4b) will be negatively moderated by the extent to which the Chinese firms have adopted culture management policies. Table 2 shows H4a (model 3,  $p > .1$ ) is rejected, but H4b (model 6,  $p < .01$ ) is strongly supported.

It was predicted that the positive relationship between the extent to which the Chinese managers have experienced culture-related management impediments and their perception of national culture difference (H5a) and of corporate culture difference (H5b) will be moderated by the degree of cultural sensitivity of Chinese firms. Table 2 shows that H5a (model 3,  $p < .01$ ) and H5b (model 6,  $p < .01$ ) are supported.

## **Discussion**

After reviewing a large body of empirical work that has employed Hofstede's (1980) cultural value framework and Kogut and Singh's (1988) cultural indices, Kirkman, Lowe and Gibson (2006) urge future studies to examine managers' perception of culture differences in an attempt to reconcile conflicting findings noted in the prior studies. Whilst this is likely to be a fruitful research direction, the present study goes a step further by examining the antecedents of managers' perceived culture differences. In response to the call to differentiate national culture differences from corporate culture differences in ISAs (Sirmon and Lane, 2004), this study incorporates both cultural constructs and examines the perception of national and corporate culture differences respectively.

This study elaborates on the experience of Chinese ISA partner managers. We find that the more the Chinese managers encounter culture-related management impediments the greater their perception of national and corporate culture differences between partners.

We propose a framework of culture management policies and argue that these policies may be adopted to proactively manage culture differences. The finding that the adoption of culture management policies is conducive to reducing the perception of national culture differences lends support to Child and Faulkner (1998), who argue that

managers are able to change national cultural dispositions under conditions which motivate them to do so.

There is a wealth of literature reporting the importance of selecting culturally sensitive managers to work in alliances, but the implication of managers' cultural sensitivity for their perception of culture differences is largely neglected. Cultural sensitivity necessitates a process of accommodation, adjustment, substantive internalisation and application of the values and mores in the other party's cultures, in order to achieve efficiency and effectiveness in cross-cultural interactions. However, if the formation of culture is path-dependent, and the knowledge embodied in culture is tacit, it raises the question as to the efficacy of actually learning a culture. Hence, there may be a pair of contrasting outcomes associated with cultural sensitivity: on one hand, cultural sensitivity reduces managers' perception of culture differences and cultural effects, as extensively reported in the international human resource management literature; on the other hand, cultural sensitivity may increase perceptual differences.

Kirkman, Lowe and Gibson (2006) note that only a fraction of previous cross-cultural studies have used culture-related constructs as moderators. In the present study, we investigate two (cultural management policies and cultural sensitivity) such constructs, both as predictors and as moderators.

As a predictor, the adoption of culture management policies reduces the Chinese managers' perception of national culture differences, rather than that of corporate culture differences. By contrast, as a moderator on the positive relationship between culture-related management impediments and the perception of culture differences, the adoption of culture management policies reduces the perception of corporate culture differences, rather than that of national culture differences.

Cultural sensitivity is not a predictor of the perception of culture differences (no support for hypothesis 3), but it is a moderator on the relationship between culture-related management impediments and the perception of culture differences (support for hypothesis 5). The support for hypothesis 5 suggests the need to consider culture-related constructs, such as cultural sensitivity, as moderators in future studies.

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## Appendix

TABLE 1: MEANS, STANDARD DEVIATIONS, AND CORRELATIONS OF THE VARIABLES (N=238)

Variable	Mean	SD	1	2	3	4	5	6	7	8
1. National culture difference	3.18	.84								
2. Corporate culture difference	3.17	.89	.53***							
3. Alliance age	5.12	3.64	-.10	-.07						
4. Alliance form	.86	.35	-.12*	-.20***	.06					
5. Prior business relationship (N=203)	.71	.24	-.10	-.17**	-.03	.04				
6. Culture distance (N=230)	110.86	16.63	.03	-.01	-.12*	-.03	.02			
7. Culture-related management impediments	2.64	.75	.50***	.51***	-.08	-.22***	-.23***	.00		
8. Chinese partners' cultural management	.73	.24	-.15**	-.10	-.06	-.08	-.01	-.03	-.08	
9. Chinese partners' cultural sensitivity	3.43	.52	.06	.07	-.18***	.08	-.09	-.06	.14**	.26***

Note: \*\*\* p<0.01; \*\* p<0.05; \* p<0.1

TABLE 2: MULTIPLE REGRESSION RESULTS ON PERCEIVED NATIONAL AND CORPORATE CULTURE DIFFERENCES (N=238)

Variable	National Culture Difference			Corporate Culture Difference		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	3.81*** (.48)	2.29*** (.63)	2.17*** (.62)	4.38*** (.47)	2.36*** (.59)	2.52*** (.58)
Control variables						
Alliance age	-.04** (.02)	-.02 (.02)	-.03** (.02)	-.03** (.02)	-.02 (.01)	-.02 (.01)
Alliance form	.22 (.20)	-.07 (.19)	-.01 (.18)	-.70*** (.20)	-.41** (.18)	-.43** (.17)
Prior business relationship (N=203)	-.37 (.25)	-.01 (.23)	.04 (.22)	-.55** (.24)	-.14 (.21)	-.15 (.21)
Cultural distance (N=230)	.00 (.00)	.00 (.00)	-.00 (.00)	.00 (.00)	.00 (.00)	-.00 (.00)
Main effects						
Culture-related management impediments (MI)		.51*** (.07)	.48*** (.07)		.56*** (.07)	.51*** (.07)
Chinese partners' cultural management (CM)		-.50** (.24)	-.50** (.23)		-.36 (.23)	-.34 (.22)
Chinese partners' cultural sensitivity (CS)		-.02 (.11)	-.07 (.11)		.04 (.10)	.10 (.10)
Interaction effects						
MI × CM			-.30 (.33)			-1.08*** (.31)
MI × CS			.45*** (.13)			.35*** (.12)
□ R <sup>2</sup>		.23	.05		.25	.05
□ F		19.22***	6.36***		24.20***	7.11**
Adjusted R <sup>2</sup>	.02	.24	.28	.08	.33	.37
F value	2.06*	9.75***	9.43***	5.44***	14.62***	13.70***

Note: unstandardised coefficients are reported; standard errors are reported in parenthesis.

\*\*\* p<0.01; \*\* p<0.05; \* p<0.1